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EFFECTS OF RHYTHMIC EXERCISE PROGRAMME ON HEALTH RELATED PHYSICAL FITNESS COMPONENTS AMONG MALE STUDENTS

By

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ABSTRACT

Introduction: Modern sport is more depends on the fitness than the skill paradoxical as this may sound the fact that success today is invariably associates with fitness and endurance rather than proficiency. Fitness is the ability of an individual to live a full and balanced life. It involves physical, mental, emotional, social, and spiritual factors and the capacity for their whole some expression (Charles, 1998). The purpose of this study was to investigate the effect of rhythmic exercise program on the health related physical fitness components among male students.

Method: A group of 60 sportspersons were selected for this study from the various colleges of Osmania University, India. The subjects were segregated in two group’s namely rhythmic exercise program group and control group. Group-A (REP, subjects =30) and Group-B (CG, subjects: N=30), age of the subjects between 18-22 years. The selected physical fitness test considered for this study was body composition (body mass index), muscular strength (parallel bench press 1RM), muscular endurance (sit-up test for 30 sec), and cardio-vascular endurance (12 min run & walk test) and flexibility (sit and reach test). The
A training program was employed for 12 weeks, 45 minutes of training per session, four days in a week. To compare the mean differences between the two groups, mean, S.D and t-tests were computed by means of Statistica Software.

Results and Discussion: The results of the present study indicate that the rhythmic training group had improved performance in the muscular endurance, cardio-respiratory endurance, and flexibility. Rhythmic training group had also loses weight and reduces body mass index (BMI) from pre to post test, which is very encouraging. Rhythmic training group had not shown any improvement with regard to muscular strength, which is not significant. The data had revealed that the control group had not shown any improvement in the selected fitness variables from pre to post test.

Conclusions: It is concluded that the rhythmic group had shows significant performance in all the selected fitness variables except muscular strength. Control group had not shown any significant improvement pertaining to all the selected fitness variables

Key words: Rhythmic, Fitness, Training, Endurance.
INTRODUCTION

Modern sport is more depends on the fitness than the skill paradoxical as this may sound the fact that success today is invariably associates with fitness and endurance rather than proficiency. Fitness is the ability of an individual to live a full and balanced life. It involves physical, mental, emotional, social, and spiritual factors and the capacity for their whole some expression (Charles, 1958).

Physical fitness is one of the most important factors that determine level of an individual. Sports performance depends largely on physical fitness factors such as strength, speed, endurance, flexibility, and various abilities requiring coordination. Sports activity is a physical activity which is not possible with out these greater abilities. Fitness factors are the most important elements for predicting athletic performance. Natural ability is the promise of potential but fundamentals are the foundation of excellence (Clarke and Clarke, 1987).

Health related fitness is important to one and all. Health related fitness is defined as a ability to perform strenuously with out excessive fatigue showing evidence of traits that limit the risks of developing diseases. The components of health related physical fitness are identified as muscular strength, muscular endurance, body composition, cardio-respiratory endurance, and flexibility, (Beverly Nicholis, 1986).

Rhythmic exercises are an excellent form of physical activity for one and all. Rhythmic exercises program aims to enhance the physical fitness of an individual. Rhythmic exercises program serves as a combination of dance and gymnastics, or dance with music. Ancient Greek society advocated rhythmic exercise and music “Exercise for the body and music for the soul, was a common saying during this time period, explains kinesiology professor Jeffrey M. Janot Ph.D in an article on the IDEA Fitness website. The Greek physician Aristophanes prescribed rhythmic movement as a cure for common ailments.

Muscular endurance tests using calisthenic-type exercises are convenient to use. The curl-up and push-up are the most common calisthenic-type muscular endurance tests used by fitness professionals. The curl-up (for abdominal muscle endurance) has been suggested as an alternative to the sit-up due to dissatisfaction with the involvement of the hip flexors when performing a sit-up motion (Neiman, 1995).

The purpose of this study was to investigate the effect of rhythmic exercises program on the health related physical fitness components among male students.
METHOD

Selection of subjects

A group of 60 sportspersons were selected for this study from the various colleges of Osmania University, Hyderabad, India during the year 2012. The age of the subjects was between 18-22 years. The purpose and importance of this study was explained to the participants. The doubts of the participants were addressed and explained in detail.

Experimental Design

The subjects were segregated in two groups namely rhythmic exercise group and control group. Group-A (REP, subjects =30) and Group-B (CG, subjects: N=30). The training program was employed for 12 weeks, 45 minutes of training per session, four days in a week. The following rhythmic exercise training program was employed on the participants; Arm circle, bending side twisting, jump with front and side arm raises, squats, lying side leg raises, standing leg raises, tree press, and rolling reach.

Procedure of testing

The selected physical fitness test considered for this study was body composition (body mass index), muscular strength (parallel bench press 1RM), muscular endurance (sit-up test for 30 sec), and cardio-vascular endurance (12 min run & walk test) and flexibility (sit and reach test). A Pre and post test was conducted before and after the 12 weeks training program. The training was given at the Golden Gym, Health, & fitness centre, Hyderabad, India. All the scores were recorded for analyzing the data.

Statistical Analysis

To compare the mean differences between the two groups, mean, Standard deviation and t-tests were computed by means of Statistica Software. A significance level at 0.05 level was adjusted.

Table-1
<table>
<thead>
<tr>
<th>Sl.no</th>
<th>Fitness Variables</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body composition</td>
<td>Body mass index (BMI)</td>
</tr>
<tr>
<td>2</td>
<td>Muscular strength</td>
<td>Parallel bench press (1RM, kgs)</td>
</tr>
<tr>
<td>3</td>
<td>Muscular endurance</td>
<td>Sit-ups test (30 sec)</td>
</tr>
<tr>
<td>4</td>
<td>Cardio-vascular endurance</td>
<td>12 min run &amp; walk (Meters)</td>
</tr>
<tr>
<td>5</td>
<td>Flexibility</td>
<td>Sit and reach test (cms)</td>
</tr>
</tbody>
</table>

**RESULTS**

The analyzing data for rhythmic group and control group is presented in the table -2 by the help of statistical tools i.e. mean, standard deviation and t test.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Test</th>
<th>Rhythmic Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N=30</td>
<td>N=30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>S.D</td>
</tr>
<tr>
<td>BMI</td>
<td>Pre</td>
<td>22.98</td>
<td>4.13</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>22.60</td>
<td>3.49</td>
</tr>
<tr>
<td>Sit-ups (30 sec)</td>
<td>Pre</td>
<td>19.30</td>
<td>4.22</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>22.97</td>
<td>4.58</td>
</tr>
<tr>
<td>Bench press (1RM)</td>
<td>Pre</td>
<td>34.98</td>
<td>7.58</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>34.99</td>
<td>7.56</td>
</tr>
<tr>
<td>12 min run &amp; walk</td>
<td>Pre</td>
<td>1206.7</td>
<td>210.8</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>1310</td>
<td>217.9</td>
</tr>
</tbody>
</table>
The analyzing of data reveals that the mean and standard deviation with regard to body composition (body mass index) pertaining to rhythmic training group subjects from pre to post test were (22.98, 4.13) and (22.60, 3.49). Whereas the control group subjects shows mean, standard deviation with regard to BMI from pre to post test were (23.48, 4.47) and (23.25, 3.95) respectively.

Muscular endurance (sit-ups test for 30 seconds), performance shows by rhythmic training group from pre to post test were (19.30, 4.22) and (22.97, 4.58) respectively. Whereas the control group subjects shows mean, standard deviation with regard to sit-ups performance from pre to post test were (19.43, 4.17) and (19.57, 4.37) respectively.

The rhythmic training group had not shown any performance with regard to muscular strength (bench press 1RM), from pre to post test were the mean and standard deviation (34.98, 7.58) and (34.99, 7.56) respectively. Whereas the control group subjects shows mean, standard deviation with regard to bench press exercise performance from pre to post test were (34.13, 6.76) and (34.20, 6.72) respectively.

The participants of rhythmic group had shows greater performance with regard to cardio-respiratory endurance (12 minutes run & walk) with mean and standard deviation were (1206.7, 210.8) and (1310.0, 217.9) from pre to post test respectively. The mean and standard deviation for the control group with regard to cardio-respiratory endurance were (1126.7, 200.32), and (1127.5, 198.96) respectively.

The mean, standard deviation with regard to flexibility (sit & reach test) of rhythmic training group subjects from pre to post test were (17.95, 8.96) and (22.63, 8.79). Whereas the control group subjects regard to flexibility performance had shows mean, standard deviation from pre to post test were (18.71, 10.43) and (18.75, 10.39) respectively.
DISCUSSION

The results of the present study indicate that the rhythmic training group had significantly increased in the muscular endurance, cardio-respiratory endurance, and flexibility. Rhythmic training group had also loses weight and reduces body mass index (BMI) from pre to post test, which is very encouraging and significant. The result of study is in consonance with Toy (2008), Blessing, D.L., Wilson, et al (1987). Lastly rhythmic training group had not shown any improvement with regard to muscular strength from pre to post test, which is not significant. The improvement with regard to the selected fitness variables, i.e. body mass index, muscular endurance, cardio-respiratory endurance, and flexibility were significantly higher for the rhythmic training group in compared with the control group which had not shown any significant improvement in the selected fitness variables from pre to post test.

CONCLUSIONS

It is concluded that the effect of training program on the rhythmic group had shows significant performance from pre to post test by reducing their body weight and the control group had not shows any significant result.

It is concluded that the rhythmic group had shows significant improvement from pre to post test with regard to muscular endurance, cardio-respiratory endurance, and flexibility in compare with their counter part i.e. control group.

Lastly both the groups had not shown any significant improvement with regard to muscular strength from pre to post test.

ACKNOWLEDGEMENT

The Author thank the authorities of King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, the subjects of Osmania University and Mr. Seemab Azeem for the help in completion of this study.

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IDEA Fitness, History of Fitness Lance Dalleck, September 2002


**************************************************
EFFECT OF THE PHYSICAL EDUCATION PROGRAMME FOR COLLEGE GOING WOMEN STUDENTS

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** Dr.SYED KAREEMULLA, Director of Kupam University, Kupam. A.P

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INTRODUCTION:
Girls have been shown to be less physically active than boys further, various groups such as girls living in low income semi-urban and rural areas, may be already physically exhausted by other forms of day long “occupation” activities in their daily life. These girls may need support actions such as adequate nutrition, advice on physical activities most appropriate to their needs and possibly adapted leisure pursuits.

Women’s especially those in the field of games and sports, still have a long way to go equally of encouragement and opportunity for women’s participation in sports is facing throughout the world and virtually absent even in advanced societies. The winds of change through slower in eroding the restraints imposed by a male dominated social system than many think reason able are blowing with greater force, over a greater area and with greater result.

**PURPOSE OF THE STUDY:**

The purpose of the study was to find out the effect of physical education programme at college going women students regard to attitude and adjustment.

**HYPOTHESIS**

It was hypothesized that there would be significant different attitude and adjustment of women students participating in physical education programmed.

**METHODOLOGY:**

The data pertaining to the psychological characteristics were collected from 100 subjects. This students college going women’s students from rural area different colleges affiliated to Bangalore university, Ramanagara district were between selected as random sampling subject there age were ranged 18 to 21 years. Who were studying in the college of rural area Ramanagara Dist. The subjected divided into two groups namely participating group A-50 and Non participating group B-50. Each group assigned to games and sports for women students, certain measure was questioner used as research tool.

**STATISTICAL TECHNIQUE:**

Statistical technique was used to analyze the Descriptive and T-test.

**TABLE-1**

Descriptive Statistics of Attitude between Physical Education Program Participants And Physical Education Program Non Participants Women Students

<table>
<thead>
<tr>
<th></th>
<th>Physical Education Program Participants</th>
<th>Physical Education Program Non Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>58</td>
<td>78</td>
</tr>
</tbody>
</table>
TABLE-2

T-ratio of the means of attitude between Physical Education Program Participants
And Physical Education Program Non Participants Women Students

<table>
<thead>
<tr>
<th>STUDENTS</th>
<th>T-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td>P. E. P. N. P</td>
</tr>
<tr>
<td></td>
<td>58</td>
</tr>
<tr>
<td>S.D</td>
<td>03</td>
</tr>
</tbody>
</table>

Significant at 0.05 levels

It is evident from table-02 that significant difference was found between the mean scores of physical education program participant and physical education program non-participant women students in relation to attitude as the t-ratio was found 14, which was higher value than the required value a 0.05 level of significance.

FIGURE-1
**TABLE-3**

Descriptive Statistics of social Adjustment between Physical Education Program Participants and Physical Education Program Non Participants Women Students

<table>
<thead>
<tr>
<th></th>
<th>Physical Education Program Participants</th>
<th>Physical Education Program Non Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>1.23</td>
<td>2.17</td>
</tr>
<tr>
<td><strong>S.D</strong></td>
<td>0.72</td>
<td>0.92</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td><strong>Minimum</strong></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Maximum</strong></td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>
TABLE-4

T-ratio of the means of social Adjustment between Physical Education Program Participants and Physical Education Program Non Participants Women Students

<table>
<thead>
<tr>
<th>STUDENTS</th>
<th>P. E. P. P</th>
<th>P. E.P. N. P</th>
<th>T-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td>1.23</td>
<td>2.17</td>
<td>3.26*</td>
</tr>
<tr>
<td>S.D</td>
<td>.72</td>
<td>.92</td>
<td></td>
</tr>
</tbody>
</table>

Significant at 0.05 levels

It is evident from table-04 that significant difference was found between the mean scores of physical education program participant and physical education program non-participant female students in relation to home adjustment as the t-value was found 3.26, which Was higher value than the required value at 0.05 level of significance.

FIGURE-2
CONCLUSION

The difference was found between the mean scores of physical education program participant and non-participant women students in relation to social adjustment as the t-value was found 3.26 and attitude as the t-value was found 14 which was higher value than the required value at .05 level of significance.

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EFFECT OF PLYOMETRIC TRAINING ON SPEED AMONG ENGINEERING WOMEN STUDENTS

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ABSTRACT

Plyometric is a type of exercise training designed to produce fast, powerful movements and improve the functions of the nervous system, generally for the purpose of improving performance in sports – Plyometric movement, in which a muscle is loaded and then contracted in rapid sequence, use the strength, elasticity and innervations of muscles and surroundings tissue to jump higher and run faster, depending on the desired training goal.
For this purpose Twenty (n=20) female students studying bachelor of physical education, Andhra University, Visakhapatnam were selected as subjects at random and the age ranged between 17 and 22 years. The selected subjects were randomly divided into two equal groups of ten subjects each (n=10). The groups were one experimental group (EG) and one control (CG). During the training period, the experimental groups underwent their respective training program for eight weeks 3 days per week and a session on each day apart from their regular activities. Control group (CG), who did not participate in any specific training. Speed was taken as variable for this investigation and did not participate in any specific training. Speed was taken as variable for this investigation exercises were used in this experiment. These are the exercise used as Plyometric in this study 1. Drop jump, 2. tuck jump; 3. Split jump; 4. Bounding; 5. Single leg hop; hurdle drills; 7. Medicine-ball exercises; 8. Stepping 9. box jump. The pre and post test were conducted one day before and after the experimental treatment.

KEYWORDS:
Plyometric Training, fast-twitch and slow-twitch fiber, Medicine ball exercise & hurdle drills

INTRODUCTION:

Sports training is a scientifically based and pedagogically organized process which through planned and systematic, effect on performance ability and performance readiness aims at sports perfection and performance improvement as well as at the contest in sports competition (Theiss and Schnabel, 1987). Plyometric is a type of exercise training designed to produce fast, powerful movements and improve the functions of the nervous system, generally for the purpose of improving performance in sports – Plyometric movement, in which a muscle is loaded and then contracted in rapid sequence, use the strength, elasticity and innervations of muscles and surroundings tissue to jump higher and run faster, depending on the desired training goal (Goran, 2007). It is a high intensity workout and only well conditioned athletes should use them as a training tool and it is used to enhance the ability of muscles to generate power (Chu, 1998). Plyometric training exaggerates the stretch-shorten cycle (SSC), using activities such as jumping, hopping and bounding. A Plyometric contraction involves first a rapid muscle lengthening movement (eccentric phase), followed by a short resting phase (amortization phase), then an explosive muscle shortening movement (concentric phase), which enables the muscles to work together in doing the particular motion (Baumgartner et.al., 1987).
Speed is an ability to execute motor action under given condition in maximum possible time (Clarke & Clarke, 1987). Muscles are made up of a combination of fast-switch and slow-switch fibers. Fast-switch fibers contract rapidly and slow-switch fibers contract more slowly with lower level of force. If all other things are equal, athletes with longest muscle fibers and greater percentage of fast switch fiber should have the ability to run faster (Jarver, 1978) than an athlete with shorter slow-switch fibers. Eicher (1975) pointed out that speed is the product of two factors, stride length and stride frequency. Increasing either factor automatically increases a runner’s sprinting speed. Stride frequency is an inborn quality; it might be possible to improve it slightly through training. But the stride length can be increased by increasing the leg strength and power (Zafeieiridis et al., 2005). In this study fifty meters sprint has been taken as a test for measuring the speed of the subjects.

METHODS

Twenty (n=20) female students studying bachelor of physical education, Andhra University, Visakhapatnam were selected as subjects at random and the age ranged between 17 and 22 years. The selected subjects were randomly divided into two equal groups of ten subjects each (n=10). The groups were one experimental group (EG) and one control (CG). During the training period, the experimental groups underwent their respective training program for eight weeks 3 days per week and a session on each day apart from their regular activities. Control group (CG), who did not participate in any specific training. Speed was taken as variable for this investigation and did not participate in any specific training. Speed was taken as variable for this investigation exercises were used in this experiment. These are the exercise used as Plyometric in this study 1. Drop jump; 2. Tuck jump; 3. Split jump; 4. Bounding; 5. Single leg hop; hurdle drills; 7. Medicine-ball exercises; 8. Stepping 9. Box jump. The pre and post test were conducted one day before and after the experimental treatment.

DATA ANALYSIS

Mean and standard deviation were calculated for speed for the training group. And the data were analyzed by using analysis of covariance (ANCOVA). The statistical significance level was fixed at 0.05.

RESULT AND DISCUSSION

Table

Analysis of Covariance on Speed of Experimental Group and the Control Group
Table I shows that the pretest mean of experimental and control groups on speed are 8.72 and 8.66 respectively. The obtained F ratio of 0.77 for the pre test mean is less than the table value 4.41 for DF 1 and 18 required for significance at 0.05 levels. The post tests mean of experimental and control groups are 8.34 and 8.63 respectively. The obtained F ratio of 34.95 for post test mean is greater than the table value 4.41 for df 1 and 8 required for significant at 0.05 level. The adjusted post test mean of experimental and control groups are 8.34 and 8.63 respectively. The obtained F ratio of 34.87 for adjusted post test mean is also greater than the required table value 4.45 for df 1 and 17 required for significant at 0.05 level. The result of the study indicated that there was a significant difference in speed between the post test and adjusted post tests mean of the resistance training group and the control group at 0.05 levels.

The Plyometric training group demonstrated greater increases in speed compared with the control group. Plyometric training has also helped to improve leg strength at a significant level. Many research studies revealed that the use of different training modes elicits different training adaptations and further it indicates that it also includes the volume specific adaptations in speed (Goran et al., 2007). From the results of the present study and literature, it is concluded that the dependent variables such as speed was significantly improved due to the moderate intensity plyometric training. The pre, post and adjusted post mean values on speed of the experimental group and the control group are presented in figure 1.
CONCLUSION

Any practical application requires careful implementation and individual experimentation. In summary, the speed can be improved during the age between 17 and 22 years of female undergraduate students and favor the prescription of moderate intensity plyometric training during the initial adaptation period. From this study we can conclude that there was a significant improvement on speed due to moderate intensity plyometric training as compared to control group.

REFERENCES:


ABSTRACT

Non-communicable Diseases account for nearly half of all deaths in India. Obesity is recognized as an important risk factor for various diseases. Just as having too much body fat can be a health risk, having too little body fat is also a health risk. One goal of basic education is to develop the student's capacity to undertake self-assessment of their abilities. Physical education professionals should also search for opportunities to promote students' capabilities for self-assessment associated with physical and motor fitness. The purpose of the study was to establish relationship between self perceived and actual body composition of female students pursuing post graduation. Subjects for the study were 486 female post graduate students of Kuvempu University. In order to assess self-perceived body composition the subjects were required to indicate on a scale of 1 to 7 their self-perceived "Body Composition", relative to actual. Results showed significant negative correlation between self perceived body composition and Body Mass Index of post graduate female students. The results indicate that the subjects with higher BMI perceived higher body fat possession where as the subjects possessing lesser BMI perceived lesser body fat. The discussion on outcome is elaborated in the present study.

Introduction

Non-communicable Diseases account for nearly half of all deaths in India. Cardiovascular Diseases, Cancer, Diabetes, Chronic Obstructive Lung Disease, Mental Disorders and Injuries are main causes of death and disability due to non-communicable diseases. Unless interventions are made to prevent and control non-communicable diseases, their burden is likely to increase substantially in future. Considering the high cost of medicines and longer duration of treatment non-communicable diseases constitute a greater financial burden to middle and low income groups. While socioeconomic development tends to be associated with healthy behaviours, rapidly improving socioeconomic status in India is associated with a reduction of physical activity and increased rates of obesity and diabetes.
Increased consumption of foods rich in salt, sugar and trans fats, use of tobacco and alcohol and reduced physical activity have increased risk of occurrence of non-communicable diseases in the country (WHO, 2011).

Obesity is recognized as an important risk factor for various diseases. Studies have indicated an increase in all cause mortality with increased body mass index. The risk of diseases appears to increase as a function of the percent fat content in the body, above an upper limit of normal (Singh, Sikri & Garg, 2008). About one half of body fat is located deep within body. The remaining fat is between skin and muscles. A fit person has the right amount of body fat neither too much nor too little.

Although excess body fat is excess baggage that slows us down, we need a certain amount of fat for our bodies to function normally. Fat, or adipose tissue, is an essential part of our nerves, spinal cord, brain, and cell membranes. Internal fat pads the kidneys and other organs; external fat offers a layer of protection against cold weather. Women store essential fat in their hips, thighs, and breasts. This fat is readily available to nourish a healthy baby if a woman becomes pregnant (Garg, 2006; & Sridevi, 1997).

Just as having too much body fat can be a health risk, having too little body fat is also a health risk. Eating disorders such as anorexia nervosa, anorexia athletica, and bulimia have many negative health consequences and can be fatal. Many experts believe that our nation’s obsession with leanness as seen on TV, in the movies, and in magazines contributes to eating disorders (Garg, 2006; & Sridevi, 1997).

Being under weight can result in abnormal functioning of various body organs. In fact, exceptionally low body fat levels can result in serious health problems, particularly among teenagers. Females with especially low levels of body fat experience health problems related to the reproductive system and risk loss of bone density (Garg, 2006; & Sridevi, 1997).

One goal of basic education is to develop the student's capacity to undertake self-assessment of their abilities. The purpose of developing self-assessment proficiencies is to support improvements in study skills and the growth of the student's self-knowledge. Physical education professionals should also search for opportunities to promote students' capabilities for self-assessment associated with physical and motor fitness (Huotari, Saakslahti and Watt, 2009). The purpose of the study was to establish relationship between self perceived and actual body composition of female students pursuing post graduation.

Method

Subjects for the study were female post graduate students of Kuvempu University studying in final year during 2013-14. All together 486 subjects were randomly selected from twenty eight post graduate departments for this study. All the subjects selected for this study were tested for self perceived fitness and actual body composition. Self-perceived body composition was assessed using a slightly modified version of a questionnaire by Delignieres et al., (1994). In order to assess self-perceived body composition the subjects were required to indicate on a scale of 1 to 7 their self-perceived "Body Composition", relative to actual. There were verbal anchors against each odd value on the rating scale; a value of 1 indicating a perceived lower body fat, and 7 indicating an abundance of it. Response 1 on the
questionnaire described ‘I am abnormally fat’ and response 7 on questionnaire described ‘I am exceptionally lean’. Body composition was measured in terms of Body Mass Index. Descriptive statistics like mean, standard deviation and correlation coefficient between self perceived and actual body composition were determined by employing Pearson’s product moment correlation coefficient.

Results and Discussion

The results of the study pertaining to standing height, body weight and Body Mass Index expressed in terms of Mean and Standard Deviation are presented in table 1.

### TABLE 1.

Mean and Standard Deviation of Standing Height, Body Weight and Body Mass Index of post graduate female students of Kuvempu University

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Standing Height</td>
<td>1.56</td>
</tr>
<tr>
<td>2</td>
<td>Body Weight</td>
<td>49.19</td>
</tr>
<tr>
<td>3</td>
<td>Body Mass Index</td>
<td>20.18</td>
</tr>
<tr>
<td>4</td>
<td>Self Perceived body composition</td>
<td>4.31</td>
</tr>
</tbody>
</table>

Pearson product moment correlation coefficient was employed for the present study to establish probable relationship between self perceived and actual body composition. The results are depicted in table 2.

### TABLE 2.

Summary of Pearson Product Moment Correlation on Self perceived body composition and Body Mass Index of post graduate female students

<table>
<thead>
<tr>
<th>BMI</th>
<th>Self perceived body composition</th>
<th>Pearson Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>1.000</td>
<td>-.638**</td>
</tr>
</tbody>
</table>
Result showed in table 2 makes it clear that there is a significant negative correlation between Self perceived body composition and Body Mass Index of post graduate female students. The results indicate that the subjects with higher BMI perceived higher body fat possession where as the subjects possessing lesser BMI perceived lesser body fat.

It is very important to assess body composition timely on regular basis. This will be helpful in dealing with both under weight and over weight problems among young females. It is also essential to understand the self perception of females regarding their body composition. Correct perception will indirectly aid in overcoming under weight as well as over weight problems. The perception of body composition affects life style and food habits of subjects. This situation is favorable in dealing under weight and problems relating to overweight and obesity. Contrary results were obtained by Rahmani-Nia, et. al. (2011) on self perceived and measured body composition of male college students. There was no significant association between self perceived body composition and the percentage of fat (r =.042).

**CONCLUSION**

In the present investigation the female post graduate students with higher BMI perceived higher body fat possession where as the subjects possessing lesser BMI perceived lesser body fat.

**REFERENCES**

THE SOCIO-ECONOMIC STATUS AND ITS INFLUENCE ON ATTITUDE TOWARD PARTICIPATION IN PHYSICAL EDUCATION AND SPORTS OF NON-RESIDENTIAL HIGH SCHOOL STUDENTS

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ABSTRACT:

Swamy Vivekananda a great Indian saint states that “better to construct a stadium instead of constructing ten hospitals”. Plato a great Greek philosopher states that “Lack of physical activity destroy the good conditions of every human being, while movement and methodical physical exercise save it and preserve it”. Hence providing play field along with methodical/scientific physical education and sports programme in the society will be the key to develop strong participation motive in physical education and sports for develop physical fitness and exercise adherence among young brood. This study sought to examine the socio-economic status and its influence on attitude toward participation in physical education and sports of non-residential high school students. The study was carried out in non-residential high schools governed by government of Karnataka State, India. Hundred and twenty (120) high school students were the respondents. Two self-developed questionnaire “Participation in Physical Education and Sports Attitude Scale (PPESAS)” and “Socio-economic Status Scale (SES)” were served as instruments in gathering the data. The study revealed that the students of high socio-economic status had a higher attitude toward participation in physical education and sports than the students of low socio-economic status and the student of average socio-economic status. The study also indicated that students who are from high and average socio-economic status are most significantly influenced.

Key words: Socio-economic Status, Attitude, Physical Education and Sports

INTRODUCTION
Running, jumping, throwing, claiming, playing is the natural instinct of every living being. The word ‘Nature’ is having two distinct dictionary meaning, one is character and other is all the living, nonliving thing exists in the world. It clearly says human beings are the part of nature. Existence of physical movement within and outside the body is very basic for every living being and it is the nature. In the name of modernization peoples are living in very fast push button technology life style. They ride instead of walk, sit instead of standing and watch instead of participation and this is against the nature. As a result society has at a higher risk of hypo-kinetic disease. It directly affect on the peoples rate of lifespan around the globe. Swami Vivekananda a great Indian educationist states that “if wealth is lost nothing is lost, if health is lost something lost, if characteristic is lost everything is lost”. Hence there is an urgent need to develop strong participation motive in physical education and sports to develop exercise adherence and healthy lifestyle among young brood.

STATEMENT OF THE STUDY

The purpose of the study was framed to find out the socio-economic status and its influence on attitude toward participation in physical education and sports of non-residential high school students

HYPOTHESIS

It was hypothesized that there is no significance influence of socio-economic status on attitude toward participation in physical education and sports of non-residential high school students.

DELIMITATION OF THE STUDY

Study was delimited to 120 students consists of 60 boys and girls each of non residential schools governed and run by the government of Karnataka state. It is also delimited to Socio Economic Status and attitude towards participation in physical education and sports of non-residential high school students.

LIMITATION OF THE STUDY

Extraneous factors other than socio economic status which are influencing on attitude of high school students towards participation in physical education and sports were not considered. Socio economic status was measured through parental occupation, education, income, poverty level and category of the students. Questionnaire was constructed by the research scholar himself and was limited to his knowledge. The responses obtained from the subjects are treated as correct and genuine.

SIGNIFICANCE OF THE STUDY

The result of the study will help to know the socio-economic status and its effect on attitude of high school students toward physical education and sports. The study will also help the school administration to plan, revise and formulate appropriate physical education and sports curricular activity in the school for catering the demands and interests of the students of different socio-economic status. To the physical education teacher study will helps while dealing and handling student with different socio-economic background and on the basis of this study he may inculcate what are the things to do to improve the physical education and sports performance of the students who are in the lower class family.

METHODOLOGY
The present investigation pertaining to “the Socio-economic status and its influence on attitude toward participation in physical education and sports of non-residential high school students” is in the framework of ex-post-facto research. The total sample consists of hundred and twenty (60 boys and 60 girls) high school students are from non-residential high schools run by government of Karnataka belonging to high, middle and low socio economics status.

<table>
<thead>
<tr>
<th>Sample Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Boys</td>
</tr>
<tr>
<td>Girls</td>
</tr>
</tbody>
</table>

The socio-economic status of the high school students is considered as independent variable and attitude toward participation in physical education and sports of high school students is considered as dependent variable. For the study purpose two instruments in the form of questionnaire are developed to assess the socioeconomic status and attitude of toward participation in physical education and sports of high school students’. All items were written in English.

1. Participation in Physical Education and Sports Attitude Scale (PPESAS) was developed. Which consists of 5-point likert-type forty (40) questions covering benefits of participation in physical education and sports on five different aspects such as academic, psychological, general, social and health. To improve accuracy of despondence equal number of positive and negative questions covered in each aspect. The possible minimum and maximum scores of this scale is 40 and 200 respectively. A high score on this scale means a positive attitude toward participation in physical education and sports and vise versa.

2. Socioeconomic Status Scale (SES) was developed. This scale consists of 3-point likert-type five (5) questions related to parental occupation, education, income, poverty level and category. The possible minimum and maximum scores of this scale is 5 and 15 respectively. High score on this scale means a high socioeconomic status and vise versa. Students are categorized into three groups as high, middle and low SES on the basis of scores achieved 11-15, 06-10 and 01-05 respectively.

To meet the objectives of the present study the data was collected by administering PPESS and SES questionnaire to the students of high schools governed by Karnataka State. Follow up procedure will be adopted to obtain maximum response from the subject.

STATISTICAL ANALYSIS

To achieve meaningful conclusions one-way analysis of variance (ANOVA) was computed. If the ‘F’ ratio was significant Scheffe’s test was applied as a post hoc test to determine significant difference if any, among three paired means. The level of significance of test ‘F’ ratio obtained by analysis of variance was fixed at 0.05 level of confidence.
TABLE 1
ONE-WAY ANALYSIS OF VARIANCE (ANOVA) OF DATA ON THE SOCIOECONOMIC STATUS
AND IT'S INFLUENCE ON ATTITUDE TOWARD PARTICIPATION IN PHYSICAL EDUCATION
AND SPORTS OF HIGH SCHOOL STUDENTS

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between group</td>
<td>48268</td>
<td>2</td>
<td>24133.8</td>
<td>52.84*</td>
</tr>
<tr>
<td>Within group</td>
<td>53432</td>
<td>117</td>
<td>456.7</td>
<td></td>
</tr>
</tbody>
</table>

*significant at .05; Critical F-ratio with 2, 117 df > 3.07

The presentation of result in Table 1 shows that there is a significant influence of socio-economic status on attitude of high school students toward participation in physical education and sports (F=52.84; P>.05). The null hypothesis was rejected because the calculated F-value 52.84 is more than the critical table value is 3.07 at .05 alpha levels with 2 and 117 degrees of freedom.

TABLE 2
SCHEFFE’S POST HOC TEST FOR THE DIFFERENCES AMONG THREE PAIRED MEANS OF HIGH, MIDDLE AND LOW SES HIGH SCHOOL STUDENTS ON ATTITUDE TOWARD PARTICIPATION IN PHYSICAL EDUCATION AND SPORTS

<table>
<thead>
<tr>
<th>Adjusted Post test Mean</th>
<th>Mean Difference</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low SES</td>
<td>Middle SES</td>
<td>High SES</td>
</tr>
<tr>
<td>81.93</td>
<td>106.78</td>
<td>24.85</td>
</tr>
<tr>
<td>81.93</td>
<td>131.1</td>
<td>49.12</td>
</tr>
<tr>
<td>106.78</td>
<td>131.1</td>
<td>24.27</td>
</tr>
</tbody>
</table>

*significant at 0.05

Table 2 shows that the adjusted post test means difference on low SES, Middle SES and High SES high school students. The mean difference is greater than the confidence interval value 24.1 which shows significant differences at .05 level of confidence. It indicate that there is a significant difference in attitude of high school students toward participation in physical education and sports between the adjusted post test means of Low SES, Middle SES and High SES groups.
RESULT AND FINDINGS OF THE STUDY

The socioeconomic status is significantly influences the attitude toward participation in physical education and sports of non-residential high school students. The students of high socio-economic status had a higher attitude toward participation in physical education and sports than the students of low socio-economic status and the student of average socio-economic status. Students of high and average socio-

Economic status have higher attitude toward participation in physical education and sports than the students of low socio-economic status.

CONCLUSION

Plato a great Greek philosopher states that “Lack of physical activity destroy the good conditions of every human being, while movement and methodical physical exercise save it and preserve it”. Massive young population is a great resource of the huge country of India. Present young people will be the future member of the work force who will need to use knowledge to maintain a healthy life style. So developing positive attitude of participation in physical education and sports is very essential among these young people who studied in school and colleges.

REFERENCES

ANALYSIS OF ANTHROPOMETRIC MEASUREMENTS OF ATHLETICS AND COMBATIVE SPORTSMEN

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ABSTRACT:

Anthropometry plays an important role in sports design, industrial design, clothing design, where statistical data about the distribution of body dimensions in the populations are used to optimize the products. Change in the life styles, sports performance, nutrition and ethnic composition of population leads to changes in the dimensions an require regular updating anthropometrical data. The application of anthropometrical techniques to the understanding and developing athletic physique has been a immense help to the athletic trainer and coaches in matching right kind of sorting individual with right sport or athletic events, identifying talent, designing individualized training regiments to suit each athlete according to the body build and helping athlete to maintain proper body composition i.e. lean muscle mass and fat ratio level.

Hence, it is the need of the present hour to conduct research studies to understand various factors in terms of anthropometric variables of our Indian sports family. In common with all sports and games athletics and combative games develops specificity in their conditioning. Specificity is regarded as the area where the effects of training are specific. This specificity is heightened because of the degree to which players are subjected.

So the main purpose of the study was to analyze the anthropometric variables Biacromial diameter, Bitochanteric diameter, Chest width, Bi-iliac diameter, Knee width (R+L), Ankle diameter (R+L), Elbow width(R+L),Wrist diameter(R+L),Height and Weight of athletics and combative sportsmen. For this study data was collected from one hundred and fifty National level athletics and judo players each. Subjects were selected randomly and the age of the subjects was ranging from 17-25 years. The data collected was...
treated with the statistical technique’s Z test and found there is a significant difference between athletics and judo players.

Index Terms : Anthropometry, Biacromial diameter, Bitochanteric diameter, Bi-iliac diameter, Ankle diameter.

INTRODUCTION:

Anthropometry- the measurements of man-provides scientific methods and observations on the living man and the skeleton. Anthropometry represents the typical and traditional tool of human biology, physical anthropology and axiology. There is a great importance for anthropometry- measurements in game and sports performance. The physical activities of players and athletes are very much influenced by anthropometry variables.

There is ample number of research work carried out to reveal various parameters of players in different games, but in India, the research studies are still very scanty.

It is vital to understand these factors in depth, before selection of sports persons in competitive preparations, failing which chances of optimizing the performance is considerably less. Hence, it is the need of the present hour to conduct research studies to understand various factors in terms of anthropometry variables of our Indian sports family. In common with all sports and games athletics and combative games develops specificity in their conditioning. Specificity is regarded as the area where the effects of training are specific. This specificity is heightened because of the degree to which players are subjected.

Athletics and Combative games characterized as an individual and resistance activity where the athletes have to overcome the time and distance and Gravity in normal environment at a specific place. In same sense combative games, players have to overcome the resistance of opponent who is physically, mentally strong and active in normal environment at training and competition. It is considered as the whole body exercise. People involved in these activities develop various physical abilities. This was the basic motivational factor for the research scholar to take up a search topic on the analysis of the anthropometrical Measurements that are developed through athletics (track and field) and combative games and to enlighten the same in relation to other sports, games and people who are involved in sedentary activities to engage themselves to lead a physically, mentally and socially sound and healthy happy life.
PURPOSE OF THE STUDY:

The main purpose of the study was to analyze anthropometric variables Biacromial diameter, Bitochanteric diameter, Chest width, Bi-iliac diameter, Knee width (R+L), Ankle diameter (R+L), Elbow width (R+L), Wrist diameter (R+L), Height and Weight of athletics and combative sportsmen.

METHODOLOGY:

To achieve the purpose of the study, data was collected from three hundred players, one hundred and fifty players from each game. Players have represented their respective states in athletics and combative sports at national level. Subjects are randomly selected and anthropometric variables Biacromial diameter, Bitochanteric diameter, Chest width, Bi-iliac diameter, Knee width (R+L), Ankle diameter (R+L), Elbow width (R+L), Wrist diameter (R+L), Height and Weight measured for the subjects those who were ranging from 17-25 years.

STATISTICAL TECHNIQUE: The collected data was analyzed by using ‘Z’ statistical technique with the help of 19th version of SPSS.
Results and Findings of Anthropometric Variables

**TABLE- 1**

MEAN, STANDARD DEVIATION AND 'z' VALUES OF ANTHROPOMETRIC VARIABLES AMONG ATHLETES AND COMBATIVE SPORTS MEN

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Particulars</th>
<th>Athletes Mean</th>
<th>Athletes SD</th>
<th>Combative sports Mean</th>
<th>Combative sports SD</th>
<th>z-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Biacromial diameter</td>
<td>38.75</td>
<td>2.21</td>
<td>38.81</td>
<td>2.95</td>
<td>0.18</td>
</tr>
<tr>
<td>2</td>
<td>Bitochanteric diameter</td>
<td>30.82</td>
<td>2.46</td>
<td>30.44</td>
<td>2.51</td>
<td>1.31</td>
</tr>
<tr>
<td>3</td>
<td>Chest width</td>
<td>27.98</td>
<td>3.2</td>
<td>28.68</td>
<td>2.88</td>
<td>1.99*</td>
</tr>
<tr>
<td>4</td>
<td>Bi-iliac diameter</td>
<td>26.13</td>
<td>2.14</td>
<td>26.91</td>
<td>3.16</td>
<td>2.51*</td>
</tr>
<tr>
<td>5</td>
<td>Knee width(R+L)</td>
<td>19.23</td>
<td>1.63</td>
<td>19.38</td>
<td>3.91</td>
<td>0.43</td>
</tr>
<tr>
<td>6</td>
<td>Ankle diameter(R+L)</td>
<td>13.32</td>
<td>1.09</td>
<td>13.42</td>
<td>1.14</td>
<td>0.72</td>
</tr>
<tr>
<td>7</td>
<td>Elbow width(R+L)</td>
<td>12.68</td>
<td>0.84</td>
<td>12.76</td>
<td>1.13</td>
<td>0.68</td>
</tr>
<tr>
<td>8</td>
<td>Wrist diameter(R+L)</td>
<td>10.83</td>
<td>0.84</td>
<td>11.05</td>
<td>1.21</td>
<td>1.84</td>
</tr>
<tr>
<td>9</td>
<td>Height</td>
<td>17.19</td>
<td>0.68</td>
<td>16.7</td>
<td>0.71</td>
<td>6.16*</td>
</tr>
<tr>
<td>10</td>
<td>Weight</td>
<td>58.43</td>
<td>7.61</td>
<td>62.23</td>
<td>11.4</td>
<td>3.4*</td>
</tr>
</tbody>
</table>

Fig.1 Comparison of mean value of Anthropometric variables between Athletics and Combative sports
When the scores of various Anthropometric variables in relation to athletics and combative sports are compared there was difference in all the variables and significant difference as per the ‘z’ test at 0.05 level was found in the variables Chest width, Bi-iliac diameter, Height and Weight.

DISCUSSION ON FINDINGS

The result obtained in the present study after statistical analysis of the data shows that there is difference in the average scores of the selected Anthropometric variables Biacromial diameter, Bitochanteric diameter, Chest width, Bi-iliac diameter, knee width (R+L), Ankle diameter (R+L), Elbow width (R+L), wrist diameter (R+L), Height weight and. Hence the hypothesis that there exists difference among the parameters of Anthropometric measurements across the athletes and combative sportsmen may be accepted.

CONCLUSIONS

1. As per the second hypothesis collected data was analysed and concluded that there exist a difference in Anthropometric variables across the athletes and combative sportsmen at 0.05 level.

2. After the analysis of collected data it was concluded that the significance exists in anthropometric variables Chest width, Bi-iliac diameter, Height & Weight at 0.05 level.

3. The study enables Physical Education Teachers to identify the structural characteristics of child and encourage him to specialize in disciplines, which demands these functions.

4. Study have revealed that the individuals who have excelled in different sports have specific body types.
REFERENCE


EFFECT OF SMALL – SIDED HANDBALL GAMES ON AEROBIC POWER OF MALE HANDBALL PLAYERS

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Abstract

Aim: The aim of our study is to assess the effect of small – sided handball games on aerobic power of male handball players.

Method: Sixteen (16) handball players were selected and randomly classified into two groups namely training group (TG = 8) and control group (CON = 8). Sixteen handball players were tested before training, after three weeks of training and after six weeks of training. The aerobic power of handball players was measured through Yo-Yo intermittent recovery test level II. The TG group performed 4 × 4 min small sided game at an intensity of 90-95% of heart rate maximum (HRmax), separated by 4 minutes of active recovery during which handball passing drill was performed at 60-65% of HRmax. To assess the training effect 2 × 3 repeated measure ANOVA on last factor repeated was performed. When interaction is significant simple effect was calculated and followed by Scheffe S post hoc test. Results: The result of our study showed that six weeks of small-sided handball game significantly improved aerobic power ($F = 51.36, p = 0.000$) of handball players. The training intervention showed aerobic power 4.75% of improvement after three weeks and 8.83% after six weeks of small-sided handball game training.

Conclusion: We concluded that handball specific aerobic training programs might be appropriate enough to improve both aerobic power of handball players in short duration.

Keywords: Handball, Yo-Yo intermittent recovery test level II, Aerobic power, small sided game.
INTRODUCTION

Handball is a body contact Olympic sports filled with complex sports activity. Handball require greater amount of aerobic fitness. Modern game structured with fast pace which keep the players on toe to sprint, fake, throw and jump repeatedly without getting fatigue. The intensity of the game has been improved as a result of new training methodologies. Small-sided game training which are very popular in soccer and rugby, where players use smaller play area and less number of participants during small-sided games, each player comes into contact with the ball and deals with common game situations more often (Capranica et al. 2001). The aim of our study is to assess the effect of small – sided handball games on aerobic power of male handball players.

Methods

Subjects

Sixteen (16) university level handball players were selected from Department of Physical Education and Sports Sciences, Annamalai University, Chidambaram, Tamilnadu, India. The selected subjects represented Annamalai University in Indian University Competition. The selected handball players age 22.12 ± 3.22 years; height 174.50 ± 7.83 cm and weight 65.62 ± 7.79 kg. These players have minimum of eight years of playing experience and gave willingness to take part in the study.

Study design

The subjects were randomly assigned to two groups. Group 1 (n = 8) performed small – sided handball game while Group 2 (n=8) served as control group. Testing of each group was performed on three occasions first before administration of training as pre test, after three weeks of training as mid test and after six weeks of training as post test.

Variable and test

Yo-Yo intermittent recovery test level II

The aerobic capacity of handball players was measured through Yo-Yo intermittent recovery test level II. The players were administered with ten minutes of warming up. Then players were asked to line up in front of twenty meter marked area with cones. The tester instructs the subjects to run half way and return to the starting point when the sound signal produced from music player. The tester keeps recording the distance covered by the players. We
used formula for estimation of VO$_2$ max = distance in meter $\times$ 0.0136 + 45.3 (Bangsbo et al. 2008).

**Small – sided handball game training**

Handball specific aerobic training will be performed 3 days per week for six weeks. They perform 4 repetitions of high intensity game with duration of 4 minutes with intensity of 90 to 95% of HRmax and 4 minutes of active recovery with intensity of 60 to 65% of HRmax they performed handball passing drills. The players were strapped with polar heart rate monitor and exercise heart rate were fixed and if they perform below or above the fixed range it produces the beep sound alert the players.

**Rules**

The coaches encourage the players to perform activity of high intensity. In this training 4 players play against 4 players at high intensity in a standard handball court of 40 × 20 meters. In order to play at high intensity we simplified handball rules in order to avoid interruption in the game and increase the exercise load. The rule modifications are a) dribbling and defence contacts are not allowed, b) walking, ball hitting below the knee of court player and illegal dribbles were not penalised, c) goal keeper throw was granted immediately after a goal, d) goal will not be validated unless all four players present in the opponents court at the time of goal, e) ball will be replaced immediately when it is thrown out of the playing area, f) throw in administered immediately without delay, g) penalty throw, substitutions, warning and disqualifications were not granted, g) goalkeepers were instructed to remain inside goalkeeper area during the entire duration.

**Statistical technique**

A two-way repeated measure ANOVA with last factor repeated was applied to examine the difference in aerobic capacity between groups and testing conditions. When interaction is significant simple effect was applied and Scheffe S post hoc test was applied to the difference between different testing conditions. All the statistical tests were calculated using the statistical package for the social science (SPSS) for windows (Verion 16). The level of statistical significance was set at $p < 0.05$.

**Results**

The two way repeated measures on last factor was conducted which examined the effect of small – sided handball game training for three and six weeks duration on aerobic power.

There was a significant interaction between the groups and testing conditions on aerobic power ($F = 51.36, p = 0.000$). The simple effect analysis revealed that at mid test ($F = 10.83, p = 0.005$) and post test ($F = 36.16, p = 0.000$) significant difference between the handball specific aerobic training group and control group. However, handball specific aerobic training group showed significant difference at different testing conditions ($F = 19.62, p = 0.000$) but there was no difference on control group. Since handball specific aerobic training group showed significant difference at different testing conditions, Scheffe S post hoc test was applied. This clearly show
that aerobic power improved 4.75% after three weeks of training and 8.83% of improvement after six weeks of handball specific aerobic training in male handball players.

Discussion

The primary finding of our study showed that aerobic power and anaerobic endurance improved as a result of handball specific aerobic training for three and six weeks. This training design provided improvement in aerobic power by 4.75% and 8.83% after three and six weeks of training. The aerobic power of handball players improved significantly after three and six weeks of high intensity game. Earlier, Chittibabu (2013) in his study showed that handball specific repeated sprint training for eight weeks is more effective in increasing aerobic capacity of men handball players. The training load adopted in repeated – sprint training with game specific which resulted in 11.79% of changes in aerobic capacity, however, the improvement in the present study is less. In the present study we implemented skill based conditioning games which constitutes both handball specific skills and fitness. The high intensity game and active recovery facilitate to improve aerobic capacity of male handball players. Similarly, Helgerud et al. (2001) proved that aerobic power has been shown to improve in soccer players. Similarly, Coutts and his colleagues (2010) clearly state that game based training improves both fitness and skill. The present study clearly shows that 3 weeks of training resulted in 4.75% of improvement and 8.83% after six weeks of training. This clearly shows that short duration of this training can improve aerobic capacity of male handball players. The improvement in aerobic capacity after the handball specific aerobic training protocol is consistent with the findings of previous studies in soccer (Helgerud et al. 2001) and rugby (Gabbett 2006). The changes in aerobic capacity due to handball specific aerobic training may result in several changes in cardiovascular function, including increased maximal cardiac output, increased stroke volume, and reduced heart rate at rest and during submaximal exercise. The most significant change in cardiovascular function with long endurance training is the increase in maximal cardiac output, resulting primarily from improved stroke volume (Baechle & Earle, 2008).

Conclusion

It is concluded that small – sided handball game training programs might be appropriate enough to improve aerobic power of handball players in short duration. This improvement might contribute to match performance.

References


COMPARISON OF SPRINTING PERFORMANCE AMONG HANDBALL PLAYERS OF DIFFERENT PLAYING POSITION

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ABSTRACT
Introduction: Handball around the world is more dynamic and faster than ever before. Handball is a strenuous body contact sport which emphasis on speed, power, agility, strength, flexibility and endurance arm throwing, hitting, blocking, and pushing. During the course of match players has to sprint for fast breaks quickly than their opponents. In handball playing position like back court, wing, pivot and goalkeeper have different role during their game. The purpose of the study is to compare sprinting performance among male handball players of Annamalai University with respect to different playing position.

Method: Thirty two (32) male handball players were selected from Department of Physical Education and Sports Sciences, Annamalai University, Chidambram, Tamilnadu, India. These players were classified into four groups as backs (n = 12), wings (n = 7), pivots (n = 7) and goalkeepers (n = 6) respectively. The sprinting performance was selected as criterion variables. To measure speed 30 meters sprint test was administered. The collected data was analysed using one way Analysis of variance (ANOVA). When F ratio was found significant, Scheffe’s post hoc test was applied to know the difference between the four groups.

Result and Discussion: The result of the study showed that sprinting performance (F = 2.931, p = 0.051) among handball players of different playing position showed no significant difference. However, wing players performed faster sprint than backs, pivot and goalkeeper. Relative to other playing positions, wings were found to be superior in the speed of movement frequency, sprint and speed of movement with ball; and along with the back player position, they might had different physique. Earlier studies showed that wings and back players have also been reported to have a less pronounced endomorphic component as compared with goalkeepers and pivots, where this component is more pronounced (Roguli et al. 2005; Hasan et al. 2009; Sibila & Pori 2009). Such morphological-motor properties enable the wings to cross the ball more easily in defense and to perform fast counterattack.

Conclusion: It is concluded that handball players of different playing position showed no significant difference on sprinting performance. In handball the role of players with respect to playing position on speed has been clearly highlighted though this study.

Keywords: Sprinting performance, 30 meters dash, Handball players
Sprinting ability and agility are some of the most significant, and visible, components for handball success. An important ability to react quickly, apply significant force rapidly in the appropriate direction and to redirect that force. Speed and agility involved learned motor skills. Although running speed is generally correlated with athleticism, the ability to adapt and redirect speed appropriately to the needs of the game is an essential skill for athletic success, especially in team games. Therefore, the purpose of the study is to compare sprinting performance among male handball players of Annamalai University with respect to different playing position.

Method

SUBJECTS

Thirty two (32) male handball players were selected from Department of Physical Education and Sports Sciences, Annamalai University, Chidambram, Tamilnadu, India. These players were classified into four groups as backs (n = 12), wings (n = 7), pivots (n = 7) and goalkeepers (n = 6) respectively. These selected subjects, who practice handball regularly and take part in competition. The selected subjects mean age: 21.62 ± 1.90 years; weight: 64.59 ± 7.25 kg and height: 172.07 ± 7.25 cm. The volunteered subjects signed a separate consent form to participate in the study.

VARIABLES AND TEST

The sprinting performance was selected as criterion variables. To measure speed 30 meters sprint test was administered. All timing was recorded manually using a stop watch by establishing both tester and equipment reliability.

TESTING

All testing was conducted outdoor handball court with mud surface. Prior to the test, subjects performed a standardised warm-up followed by test. After completion of the test they were instructed to perform suitable warm-down for 20 minutes.

STATISTICAL TECHNIQUE

The collected data was analysed using one way Analysis of variance (ANOVA). When F ratio was found significant, Scheffé’s post hoc test was applied to
know the difference between the four groups. All the statistical tests were calculated using the statistical package for the social science (SPSS) for windows (Version 16).

Results

The result of the study showed that sprinting performance ($F = 2.931$, $p = 0.051$) among handball players of different playing position showed no significant difference (Table 1). However, wing players performed faster sprint than backs, pivot and goalkeeper. Since $F$ is not significant post hoc test was not performed.

**TABLE 1**

ANOVA for speed

<table>
<thead>
<tr>
<th>Variables</th>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>$F$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed (sec)</td>
<td>Between Groups</td>
<td>0.867</td>
<td>3</td>
<td>0.289</td>
<td>2.931</td>
<td>.051</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>2.760</td>
<td>28</td>
<td>0.099</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DISCUSSION**

Team handball is a game in which changes from one type of action to another are very frequent, and hence agility and speed are extraordinary important. In the present study no difference was elicited in speed among handball players of different playing position. However, wing players performed faster sprint than backs, pivot and goalkeeper (Figure 1). Relative to other playing positions, wings were found to be superior in the speed of movement frequency, sprint and speed of movement with ball; and along with the back player position, they might had different physique. Earlier studies showed that wings and back players have also been reported to have a less pronounced endomorphic component as compared
with goalkeepers and pivots, where this component is more pronounced (Roguli et al. 2005; Hasan et al. 2009; Sibila & Pori 2009). Such morphological-motor properties enable the wings to cross the ball more easily in defense and to perform fast counterattack.

**FIGURE 1**

Sprinting performance of handball players with respect to playing position

<table>
<thead>
<tr>
<th>Position</th>
<th>Time (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pivot</td>
<td>4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 5.0</td>
</tr>
<tr>
<td>Goalkeeper</td>
<td>4.2, 4.3, 4.4</td>
</tr>
<tr>
<td>Back</td>
<td>4.2, 4.3, 4.4</td>
</tr>
<tr>
<td>Wing</td>
<td>4.2, 4.3, 4.4</td>
</tr>
</tbody>
</table>

**CONCLUSION**

It is concluded that handball players of different playing position showed no significant difference on sprinting performance. In handball the role of players with respect to playing position on sprinting performance has been clearly highlighted though this study. The coaches and physical education teachers use this information while supplementing training to players and also use this information in the process of designing training program.

**REFERENCES**

AN ANALYSIS STUDY ON POSTURAL DEVIATION OF C.B.S.E HIGHER SECONDARY SCHOOL BOYS IN THRISUR CITY

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ABSTRACT

The purpose of the study was to analyze the postural deviation of the CBSE Higher Secondary School Boys in Thrissur district at Kerala. For the purpose of the study, a total of 300 higher secondary school boys randomly were selected from the 5 CBSE syllabus schools in Thrissur district. The age of the selected subjects were ranged from 15 to 18 years. The subject belonged to different areas of Thrissur districts. The variable selected for this test was Posture and the test for the study New York Posture Rating Test was used. The data which was collected from the subjects were treated statistically. Percentage analysis of data’s was used for this study. The hypothesis stated that, there will be a postural deformity in the students of CBSE Higher Secondary School Boys; Thrissur city has been accepted from the obtained results. Very few students show the good posture and many students coming under slight general deviation or marked general deviation. Further improvement in posture and body mechanics depend upon the awareness of posture and its consequences if it is not maintained correctly. In the case of spine, hip, shoulder, upper back, lower back, trunk and abdomen more than 60% deviation is found. Head part having 43% shows good and the rest is considered as slight general deviation or marked general deviation

KEY WORDS: POSTURE DEVIATION, NEW YORK POSTURE RATING TEST
Posture is a reflection of the "position" of many systems that are regulated, determined and created through limited functional patterns. These patterns reflect our ability and inability to breathe, rotate, and rest, symmetrically with the left and right hemispheres of our axial structure.

Posture can be defined as the relationship of the parts of the body to the line of the center of gravity. The posture is a gauge of mechanical efficiency of the neuromusculoskeletal system in the erect position.

Some postural characteristics may be associated with the individuals’ physique type, for e.g.; individuals with ectomorphic physique are prone to faulty alignment, largely due to subtleness at musculo-ligamentous structures, further they are less in the mesomorphic components, they are weak muscularly and find difficulty to maintain good posture. Human, a unique being is affected both by disease and postural deformity. Among these two, the latter happens mainly because of malnutrition, lack of physical exercise and works, day to day life and lack of postural knowledge. Postural deviation is not a disease, it could be cured. It is malarrangement of the body segment postural deformity mostly affects the vital function and efficient mechanical movements of a body.

It is estimated that 80% of population has some postural deficiency. Most experts agree that prevention, early detection and correction of postural condition are important to the quality of one’s life and leisure pursuits. Poor posture is generally an imbalance in the pull of muscles responsible for maintaining specific posture. The major causes for poor posture includes faulty mechanics, over development of one’s set of muscles at the expense of other, lack of body awareness, illness, injury, poor diet, etc.

The need for body mechanics teaching is wide spread, if one may judge from the no: of doctors, parents, teachers and others who criticize the posture of both children and adult, knowledge and skill in body mechanics is basic to habitual improvement and is valuable even to those few fortunate individuals who seem to have no difficulty in maintaining habitually desirable courage. Since the need is wide spread, and since an effective approach should reach young children. The place to begin this type of training is certainly in the school

What our schools need today is not specialized, corrective or remedial programmers for the few but departmental preventive programmes for all. The earlier in life the child acquires good body mechanics the greater are its chances of using these to the point where they become habitual and unconscious.

Each person’s posture is an expression of his or her thought, feelings, moods, etc. posture is affected by height, weight, fitness, body type, body image and self concept. Each person possesses not one but many posture. Any position is posture and one individual assumes thousands of static and
dynamic posture each day. Standing, walking, running, sitting, sleeping, climbing, etc. The appraisal of body alignment is based therefore, upon careful observation of many postures.

Through the appraisal of the posture of school children and subsequent amelioration of problems of body alignment, the physical educator makes a unique contribution of personality development, peer acceptance and vocational success.

Proper posture requirements

The Common Postural deformities on School going children

For many reason, many of our school going children seem to be living with poor posture. This is an indication of the failure of physical education department, which concentrates mainly on competitive sports, neglecting the fact that they have to contribute to children’s normal development. It is always possible to improve our posture through training. Not only it is important for as to correct the already existing postural faults among some children but also to help the normal children develop proper body mechanics. So that they benefit from proper body courage in future.

Many teachers are interested in the future health of their students, and are aware of the importance of good posture, but find it difficult, if not impossible, to convince their students to sit correctly. It is therefore necessary to understand why some children slouch, and what sort of persuasive information is
likely to be effective. Diseases such as rickets soften the bones of many babies who then sag under the weight of their own body and sometimes develop mild spinal curvatures which persist. However any prolonged disease, especially one which produces a loss of appetite, or any period of starvation or poor nutrition during childhood can weaken their bones and have a similar effect. Similarly if the child spends every night sleeping in a bed which is flat and soft the bones of their spine will take on their proper shape, but if they spend 8 hours each night sleeping in a spring mesh bed or a hammock their spine will take on the shape of a C-curve, especially if their bones have also been weakened and made malleable by disease.

A few years later when these children start attending school and try to sit upright they are therefore trying to straighten their bent spinal bones with their spinal muscles which soon become fatigued and uncomfortable, so the student gives up and slouches. These students need to have flat, well cushioned bedding which will contribute to the process of straightening their bones while they are still malleable, and they will need to be provided with ergonomically designed chairs and desks to assist in the prevention of any further deformity. Other factors which contribute to poor posture are poor eyesight which induces a student to lean close to their desk to see the text in their books, and tallness, where the child has to stoop down to do his bookwork. These problems can be prevented by providing spectacles Where necessary, and by providing seating and desks which are appropriate for the student’s size. Another important problem to consider is the fact that students only see themselves when they look in the mirror, so they only see the front view, where a slouched spine is not apparent. Therefore they can be asked specifically to look at themselves in the mirror sideways. They should also be shown how to recognize clues to poor posture, such as the sloping effect it has on the shoulders, and they can be informed about the uneven height of shoulders, or the sliding of their collar to one side of their neck which give evidence of sideways curvatures of the spine which would otherwise not be perceived. Students will also need to be told, in a convincing way, of the harmful effects of poor posture, so that they cooperate with suggestions to improve their posture. For example, they need to be made aware of the fact that poor posture in childhood results in spinal deformity and other health problems in adulthood, and that it is much easier to prevent these than trying to treat them later. In this regard photos of deformed spines and diagrams of the internal anatomy being crushed under a stooped back would be useful.

METHODOLOGY

For the purpose of the study, a total of 300 higher secondary school boys randomly were selected from the 5 CBSE syllabus schools in Thrissur district. The age of the selected subjects were ranged from 15 to 18 years. The subject belonged to different areas of Thrissur districts. The variable selected for this test was Posture. New York Posture Rating Test used for collection of data. The data which was collected from the subjects were treated statistically. Percentage analysis of data’s was used for this study.

RESULT
The data and analysis of data regarding the study of postural deformities among CBSE Higher Secondary School Boys in Thrissur city, according to the New York State Posture Rating Test is given below.

**FINDINGS**

Percent analysis of lateral posture grade of C.B.S.E. higher secondary school boys as presented in table 2.

**Table 2**

Percentage analysis of lateral posture

| Grade of CBSE Higher Secondary School Boys |
|---|---|---|---|---|---|---|---|
| Sl. No.| Total no. of students | Body part | No. of students coming under good | % of good | No. of students coming under fair | % of fair | No. of students coming under poor | % of poor |
| 1 | 300 | Head | 131 | 43.66 | 114 | 38 | 55 | 18.33 |
| 2 | 300 | Shoulder | 123 | 41 | 111 | 37 | 66 | 22 |
| 3 | 300 | Spine | 110 | 36.66 | 115 | 38.33 | 75 | 25 |
| 4 | 300 | Hip | 103 | 34.33 | 120 | 40 | 77 | 25.66 |
| 5 | 300 | Feet | 95 | 31.66 | 100 | 33.33 | 105 | 35 |
| 6 | 300 | Arches | 109 | 36.33 | 120 | 40 | 71 | 23.66 |

The above table shows that the percentage analysis of lateral posture variables of C.B.S.E. higher school boys, in the head part, 43.6 percentage of subjects rated good, 38 percentage shows under fair and remaining 18.33 percentage shows poor head posture.
In the shoulder part, 41 percentages of subjects rated good, 37 percentage shows under fair and remaining 22 percentages shows poor shoulder posture.

In the spine part, 36.66 percentages of subjects rated good, 38.33 percentage shows under fair and remaining 25 percentages shows poor spine posture.

In the hip part, 34.33 percentages of subjects rated good, 40 percentage shows under fair and remaining 25.66 percentages shows poor hip posture.

In the feet part, 31.66 percentages of subjects rated good, 33.33 percentage shows under fair and remaining 35 percentage shows poor feet posture.

Finally, in the Arches of foot part, 36.33 percentages of subjects rated well, 40 percentage shows under fair and remaining 23.66 percentage poor head posture.

FIGURE 3

Bar diagram of percentage of lateral Deviations of posture in New York Posture Rating Test
Figure 3 presents the bar diagram of percentage of lateral deviations of posture of C.B.S.E. higher secondary school boys.

Percent analysis of anterior-posterior posture grade of C.B.S.E. higher secondary school boys as presented in table 3.

**TABLE 3**

Percentage analysis of anterior-posterior

Posture grade of CBSE Higher Secondary School Boys.

<table>
<thead>
<tr>
<th>Total no. of students</th>
<th>Body part</th>
<th>No. of students coming under good</th>
<th>% of good</th>
<th>No. of students coming under fair</th>
<th>% of fair</th>
<th>No. of students coming under poor</th>
<th>% of poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>Neck</td>
<td>120</td>
<td>40</td>
<td>114</td>
<td>38</td>
<td>66</td>
<td>22</td>
</tr>
<tr>
<td>300</td>
<td>Chest</td>
<td>124</td>
<td>41.33</td>
<td>130</td>
<td>43.33</td>
<td>46</td>
<td>15.33</td>
</tr>
<tr>
<td>300</td>
<td>Shoulder</td>
<td>118</td>
<td>39.33</td>
<td>123</td>
<td>41</td>
<td>59</td>
<td>19.66</td>
</tr>
<tr>
<td>300</td>
<td>Upper back</td>
<td>113</td>
<td>37.66</td>
<td>120</td>
<td>40</td>
<td>67</td>
<td>22.33</td>
</tr>
<tr>
<td>300</td>
<td>Trunk</td>
<td>115</td>
<td>38.33</td>
<td>127</td>
<td>42.33</td>
<td>58</td>
<td>19.33</td>
</tr>
<tr>
<td>300</td>
<td>Abdomen</td>
<td>100</td>
<td>33.33</td>
<td>103</td>
<td>34.33</td>
<td>97</td>
<td>32.33</td>
</tr>
<tr>
<td>300</td>
<td>Lower</td>
<td>98</td>
<td>32.66</td>
<td>102</td>
<td>34</td>
<td>100</td>
<td>33.33</td>
</tr>
</tbody>
</table>
The table 3 indicate that the percentage analysis of anterior-posterior posture grade of C.B.S.E. higher school boys,

In the neck part, 40 percentage of subjects rated good, 38 percentage shows under fair and remaining 22 percentage shows poor neck posture.

In the chest part, 41.33 percentages of subjects rated good, 43.33 percentage shows under fair and remaining 15.33 percentage shows poor chest posture.

In the shoulder part, 39.33 percentages of subjects rated good, 41 percentage shows under fair and remaining 19.66 percentage shows poor shoulder posture.

In the upper back part, 37.66 percentages of subjects rated good, 40 percentage shows under fair and remaining 22.33 percentage shows poor upper back posture.

In the trunk part, 38.33 percentages of subjects rated good, 42.33 percentage shows under fair and remaining 19.33 percentage shows poor trunk posture.

In the abdomen part, 33.33 percentages of subjects rated good, 34.33 percentage shows under fair and remaining 32.33 percentage shows poor abdomen posture.

Finally, In the lower back part, 32.66 percentages of subjects rated good, 34 percentage shows under fair and remaining 33.33 percentage shows poor lower back posture.

**FIGURE 4**

Bar diagram of percentage of anterior- posterior Posture in New York Posture Rating Test
Figure 4 presents the percentage of anterior-posterior posture grade of C.B.S.E. higher secondary school boys.

DISCUSSION ON HYPOTHESIS

The purpose of the study was to analyze critically the postural status among the CBSE Higher Secondary School Boys in Thrissur city. The hypothesis stated that, there will be a postural deformity in the students of CBSE Higher Secondary School Boys, Thrissur has been accepted from the obtained results. Very few students show the good posture and many students coming under slight general deviation or marked general deviation.

1. Further improvement in posture and body mechanics depend upon the awareness of posture and its consequences if it is not maintained correctly.
2. In the case of spine, hip, shoulder, upper back, lower back, trunk and abdomen more than 60% deviation is found.
3. In the head part 43% shows good and the rest is considered as slight general deviation or marked general deviation.
4. Only some student show good in all the aspect of the test. Others are having some deformities whether they are good in one and they will be bad for the other.
5. Since good posture is directly related to abdominal and back muscles. It follows that the development of these muscles as well as their correct use will tend to bring about the physical development necessary for erect carriage.

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LATEST TRENDS IN SPORTS, SPORT-EVENT TOURISM
SUB THEME: SPORTS ADMINISTRATION AND MANAGEMENT.

Paper Presented by: Dr. Alka Joshi, Director Physical Education-
M.J.Kundalia Mahila Arts & Commerce College, Rajkot;
& Ph.D. Guide – Physical Education.

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ABSTRACT

Today we are continuously examining various ways and means of taking care of our ever increasing population by providing them with their basic needs and livelihood. Our financial experts are for ever
trying to ensure that foreign money comes in to our country by various means. The challenge before them is to make sure that money comes in, money keeps rolling, as a result of which people have their livelihood and their basic needs are provided for. In order to meet this challenge we need to look at a new emerging concept which is known as Sport – Event Tourism.

Sport-Event Tourism is similar to what we call pilgrimage in India. Thousands of people in India travel long distances for visiting famous temples, churches, and mosques in our country. Sport-Event tourism is similar to this concept but with a slight difference. In Sport-Event Tourism the host city has to draw on the interest of people who like to participate in Sport-Events as Organizers, participants, or spectators and build up a continuous long lasting tourism demand and supply system.

Sport-event tourism is globally significant in terms of its popular appeal and ability to generate travel and related benefits for destinations, and in large scale of related commercial sponsorship. Although a great deal of attention has been given to events in general, and to some of the impacts of sport-events, little research is being directed at the supply-demand system as a whole, and many specific issues are therefore being ignored. In general, the benefits from organizing such Sport-Events include the following.

a. attracting high-income tourists and creating a new generation of tourists who might visit the host country repeatedly  
b. creating a favorable image of the host country as a tourism destination  
c. creating and/or modernizing a locale's tourism infrastructure  
d. using the international media's presence to communicate with the world  
e. creating a skilled workforce in the organization, management, and funding sectors specializing in unique, tourist-friendly sporting events

This Sport – Event Tourism will certainly be a boon to our financial sector if analyzed and developed properly.

MAIN ARTICLE

Today we are continuously examining various ways and means of taking care of our ever increasing population by providing them with their basic needs and livelihood. Our financial experts are for ever trying to ensure that foreign money comes in to our country by various means. The challenge before them
is to make sure that money comes in, money keeps rolling, as a result of which people have their livelihood and their basic needs are provided for. In order to meet this challenge we need to look at a new emerging concept which is known as Sport – Event Tourism.

Sport-event tourism is globaly significant in terms of its popular appeal and ability to generate travel and related benefits for destinations, and in large scale of related commercial sponsorship. Although a great deal of attention has been given to events in general, and to some of the impacts of sport- events, little research is being directed at the supply-demand system as a whole, and many specific issues are therefore being ignored.

DEFINITION OF SPORT-EVENT TOURISM

Sport-Event Tourism is similar to what we call pilgrimage in India. Thousands of people in India travel long distances for visiting famous temples, churches, and mosques in our country. Sport-Event tourism is similar to this concept but with a slight difference. In Sport-Event Tourism the host city has to draw on the interest of people who like to participate in Sport-Events as Organizers, participants, or spectators and build up a continuous long lasting tourism demand and supply system.

In defining Sport-Event tourism at least two major perspectives must be taken;

Consumers - Sport-Event tourism is travel for the purpose of participating in or viewing a sport -event

Destinition – Sport-Event tourism is the development and marketing of sport-events to obtain economic and community benefits.

In addition, it must be noted that from the event organizer’s perspective, tourists are but one of the target sectors to attract, and to event sponsers the tourism market is only one of several industries with which relationships are to be forged.

THE SPORT-EVENT MARKETING SYSTEM

The supply and demand sides of the the Sport-Event Marketing System are connected through a variety of important intermediaries. Supply is characterized by Sport-Event venues and the destinations in which they are held, including all the services necessary to host visitors. From the tourism perspective all visitors are potentially important, although some are likely to generate greater benefits through their spending patterns. Media broadcasts or other reports of the event represent other types of supply , to be consumed by different types of specteters and fans who don’t travel for the event , but for whom exposure to the event might contribute to an enhanced image of the destinition and potential future visits. A third type of supply is that provided by sponsors of events who make possible event media coverage but also create opportunities for special promotions and products to be consumed by several intended audiences: visitors, media spectetors, and fans. The demand side encompasses several groups , beginning with the teams, leagues, and sport- governing bodies that generate the events. They must be sold on the venue and destinination through formal bidding process. Sport-Events have four primary markets ; athletes, officials, spectators, and the media. Each of these markets attend for a different reason and, therefore, requires a
different promotion appeal. Further, events vary in terms of their focus. Some are more participant oriented like tournaments and marathons, and others are more targeted at spectators like auto races, world championships.

This new concept of Sport – Event Tourism is easily understood by studying the following example of marketing sport and a city.

MARKETING SPORT AND A CITY: THE CASE OF ATHENS 2004

The opportunity for a city to host the Olympic Games constitutes an enormous economic, social, and cultural commitment, as the Olympics are the world's biggest sporting event. It is an opportunity that, if properly managed and marketed, will bring a number of positive long-term benefits to the rest of the country in which the city is located.

While the Games last only 2-3 weeks, 10 years of preparation will have gone before to ensure both a successful bid and the smooth operation of the Games once the bid wins. The experience of cities that have hosted the Olympic Games demonstrates that, if they are carefully planned and promoted, the Games can generate significant growth over a long period. A primary factor in such growth is the increase in tourism that a nation can continue to enjoy long after the Olympic Games have concluded.

From a tourism perspective, the Olympic Games can certainly be considered the most important sporting event. Frequently, organizers' purpose in undertaking such events is to increase tourism in a city or country. In general, the benefits from organizing such events include the following:

f. attracting high-income tourists and creating a new generation of tourists who might visit the host country repeatedly
g. creating a favorable image of the host country as a tourism destination
h. creating and/or modernizing a locale's tourism infrastructure
i. using the international media's presence to communicate with the world
j. creating a skilled workforce in the organization, management, and funding sectors specializing in unique, tourist-friendly sporting events

Properly managed, the Olympic Games can change a country's tourism industry significantly and for the long term. Effects tend to fall within three categories, the Olympic market, the internal tourism market, and the international tourism market. The Olympic market consists of a network of economic activities that result from organization of the event and require significant investment of time and funding. Aspects of the Olympic market are marketing (mainly promotion and public relations), funding and donations, preparation of athletic and related facilities, tickets and other spectator services, transportation and accommodation (of athletes, spectators, dignitaries), and safety and emergency services. For every Olympiad, a workforce is formed to undertake these tasks, creating thousands of jobs and extensive activity in the host city. (Later in this paper, an attempt is made to estimate economic and non-economic effects of the Olympic market, based on previous studies.)
A large nation's internal tourism market also experiences an impact when one of its cities is to host the Olympic Games. However, in Greece as opposed to the U.S. or even Australia, the internal tourism market is of less significance. In terms of both area and population, Greece is the smallest country chosen to host an Olympic Games. One might go so far as to refer to Greece itself as the "city" that has undertaken the responsibility of hosting the Games.

The right to host the Olympics brings with it long-term effects on the city and nation's international tourism market, as well. Such effects begin to be felt immediately after a country has won a bid to host the Games and persist until several years after the closing ceremony. In the case of Athens, this period covered the years 1998 to 2011. International tourism was expected to extend to three types of tourist: visitors traveling before the Games, spectators and other visitors during the Games, and visitors drawn to the country at some point by the Olympics-related publicity. The first category comprised, for Athens, persons who were likely to visit Greece in preparation for the Games, such as the members of the Olympic family, media representatives, sponsoring organizations' representatives, athletes, dignitaries, and some spectators. Such individuals also constitute the second category and can be expected to peak in number as the Olympic athletes compete. Finally, the third category includes all tourists from outside Greece who were expected to visit Greece between 1998 and 2011 due to promotional efforts linked to the 2004 Games.

**GAMES' DIRECT IMPACT ON TOURISM**

The direct impact of the Olympic Games on tourism is embodied in the arrival of all those directly involved in Olympic athletic events, as well as those participating in the associated cultural Olympiad; direct impact's chronology is before and during the Games. Whatever the city hosting the Games, demands associated with direct impact remain similar and are based mainly on the number of sports included (currently 28). While estimating direct impact involves some rather arbitrary decisions, the final overall result is not influenced, as it is of very small size. Moreover, a slight increase in the relevant figures was allowed to reflect visitors at the cultural Olympiad.

The tourist category of most importance is the before-Olympics visitors, who include numbers of representatives of the International Olympic Committee (IOC). The IOC is contractually obligated to send representatives to Greece regularly to audit activities and check the progress of the Games' organization. The second largest category of visitors includes members of international federations for various sports. They monitor the development of facilities in which competition will take place. The third category consists of athletes. As the date of the Games approaches, athletes begin to visit the country to become accustomed to the climate and sporting facilities. The final category is made up of sponsors and members of the media.

The total number of visitors expected in Greece during 1998-2004 on Olympic Games' business was 111,000. This figure constitutes a very small percentage of all tourists who would have ultimately visited Greece as the result of the publicity about the country linked to the 2004 Games.
Again, the effect of the Olympic Games on tourism had relevance both for Athens and for Greece as a whole. Initially, forecasts of the numbers of tourists throughout Greece were made. These forecasts were then used to estimate the number of tourists to arrive in Athens, according to three national scenarios. The first national scenario was confined to those arrivals directly linked to the Games and assumed that the level of demand would be minimal. The second national scenario assumed a steady increase in demand leading up to the Games and stabilizing a few years after the Games. The third national scenario assumed a small increase in tourism before and during the Games, a large increase after the Games, and a small decrease several years after the Games.

The Olympic Games of 2004 presented a great opportunity for the rehabilitation of Athens and the Attica prefecture as a whole. Some infrastructure projects were already under way; together with Athens' international promotions during the subsequent seven years, these projects helped Athens enhance the proportion of the Greek tourism industry it claimed. Under a first city scenario, Athens would have maintained, at the least, its share of all tourists arriving in Greece, which early in the 1980s was 40% but slipped to 16% in the mid 1990s.

Under the second city scenario, Athens' share of the total number of tourists in Greece would have increased significantly, attaining for the period 1998-2011 an average 22% of all tourists. During the 1990s, the proportion of tourists in Greece who were visiting Athens was as high as 22.3%, but averaged 18.22%.

According to a third scenario, Athens' share in the numbers of foreign visitors to Greece would have moved from 18% in 1998 to 22% in 2004; after 2004, the city's share would decrease, returning to the 18% figure in 2011. Across the whole period, the average proportion of Greek tourism claimed by Athens was forecast to be 16.9.

MAXIMIZING BENEFITS TO TOURISM INDUSTRY THAT MAY SURROUND THE GAMES

The Olympic Games are a unique tourism-sport event presenting an outstanding opportunity to develop long-term gains for any nation's tourism Industry. Supply and demand continue to figure in marketing, and in the case of Greece and the 2004 Olympics, it was to be ensured that the tourism infrastructure could meet the demand for accommodation posed by extra thousands of tourists yet not overestimate the number of tourists who would have visited Greece.

The approach to marketing the Games, one that involved three basic, interdependent elements. The first is supply, which includes organization of and preparation for the Games, the choice of the host city, all services that will be required, media (television, radio, and print), and grants offered by IOC and the host city. The second element of the marketing system comprises intermediaries between the supply and the demand. Often, these intermediaries participate in securing the successful bid for the Olympics, for instance by finding sponsors, working to attract spectators, and generally organizing the athletic events. The third element of the marketing system is demand, which includes all national athletic teams, all
Federations supporting the Olympic sports, spectators and tourists, the media audience (television viewers, radio listeners, and readers), and all official sponsors of the Games.

From the example of Olympics hosted by Greece, how can any host city best tap into the elements of this framework to maximize publicity generated by the Games? The host city could pursue a series of strategies, including the following:

1. Host athletic events during the period prior to the Games to allow athletes to experience the climate.
2. Host athletic events featuring other sports, in cooperation with these sports' federations.
3. Host participative athletic events targeting those potential tourists who enjoy recreational athletics.
4. Before and after the Games, organize sports related excursions highlighting the regions associated with athletics.
5. Organize cultural exhibitions and scientific and professional conferences offering a sports angle.
6. Supply the media with information before and after the Games, using news broadcasts.

**CONCLUSION**

From the above discussion and from the example of Olympics hosted by Greece we see that the new trend of Sport-Event Tourism can be beneficial in several ways.

Sport-Event Tourism is a new trend in the marketing field which may be able to generate considerable benefits for the host city, as seen from the discussion above. The sport-event would have important economic effects on the host city. Publicity surrounding the Sport-Event is expected to increase tourism. New jobs would be created and the nation's GDP would grow.

The most important source of the increase in economic activity would be money spent by tourists visiting the host city as a result of the Sport-Event exposure.

Increased tourism would create additional need for accommodation. This would be a starting point for Hotel Catering industry.

This Sport – Event Tourism will certainly be a boon to our financial sector if analyzed and developed properly.

**REFERENCES**


8. Article by George Karlis
A STUDY ON ANXIETY BEHAVIOUR AMONG THE SPORTSWOMEN AND NON SPORTWOMEN

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ABSTRACT

The study was carried out to appraise the significant difference of Anxiety behavior among the sportswomen and non sportswomen. The Ex-post-fact research method was adopted. To achieve the purpose 200 sportswomen and non sportswomen were selected randomly as subject, the age ranging from 20 to 25 year. The questionnaire anxiety test was administered. The data pertaining to variable in this study has been examined by using “t” test. The “t” value is 0.12 is lesser than table value. The conclusion is drawn that there is no significant difference in anxiety behaviour of among the sportswomen and non
sportswomen as it is not conformed. It might be due to their living condition and poverty made them to manage their emotion.

**INTRODUCTION**

The pressure experienced by players especially at a professional level is recognized as influencing playing performance. Heavy playing schedules, competition for team places, the media and fans as well as the pressure to win trophies all play a part in players developing high stress and anxiety levels. Even experienced players can suffer from pre-match anxiety. Developing ways to control this is important in order to prevent players from ‘falling’ apart. And anxiety level will be decided by individual life style and social environment.

**ANXIETY:**

Anxiety is a physiological response to a real or emarginated threat. It is a complex emotional state characterized by a general fear or foreboding usually accompanied by tension. It is related to apprehension and tear and is frequently associated with failure, either real or anticipated. It often has to do with inter-personal relations and social situations. Feeling of rejection and insecurity are usually a part of anxiety. According to Frost (1971), anxiety is “an uneasiness and feeling of foreboding often accompanied by a strong desire to excel”. Hence, anxiety state arises from faulty adaptations to the stress and strains of life and is caused by over actions in an attempt to meet these difficulties.

Various aspects of the self-concept have been correlated with be general test anxiety. In a study of the relationship between a self-esteem and test anxiety in grades 4 through 8, many and many 11 (1975) found statistically significant negative correlations between the measures of self esteem and each of the measures of general and test – anxiety, when scores were analyzed by total group, grade level, and sex.

Chand and Grau (1977) have investigated the relationship of perceived self and ideal self ratings with high and low levels of anxiety in college women. Subjects with a high degree of anxiety were found to have a significantly greater discrepancy between their perceived self and ideal concept than subjects who had low levels of anxiety.

A discriminate analysis of self-ratings of college students having differential manifest anxiety, by, Mukherjee (1969), has revealed that those with high scored on the manifest Anxiety scale tend to rate themselves lower on perseverance and higher on perfection dimensions than those scoring low. A multivariate analysis that the high group expressed an overall inferior self-image than the low group.

Though some earlier studies had reported no significant difference in terms of anxiety level between groups of actualized and non-actualized subjects, Witkins et al (1977) found a confirmation of a
hypothesis inverse relation between levels of self-actualization and anxiety. These latter workers discussed their results in relation to the conceptual distinction between debilitating and facilitating anxiety.

and their respective effect on psychological growth. On the basis of their studies, Rokeach and his associates (Frucher et al., 1959; Rokeach and Fruchter, 1959) concluded that dogmatism as related to anxiety. These initial findings led to Rokeach’s contention that dogmatism “is nothing than a total network of psychoanalytical defense mechanisms “. Although some inconsistent results have been obtained, the general trend seems to confirm Roktach’s findings by showing a positive relationship between dogmatism and anxiety (Bryne et al., 1966; Castle 1971; Hauson & Bush 1971; Hauson & Clune 1973; Norman 1966; Castle 1971; Hauson & Bush 1971; Hauson & Clune 1973; Norman 1966; Rebhum 1966; Rokeach & Restle 1960; Smiltres 1970).

The personality dimension of internal-external locus of control has been related to anxiety by many researchers. Among normally functioning individuals externality has been found to be related to debilitating, although not facilitating anxiety (Butterfield 1964; Watson 1967; Feather 1967; Platt & Elesenman 1968; Shybut 1970; Shybut 1970; Strassberg 1973). Ray and Kutahn administrated the M.A. Scale ad the locus of control of scale and demonstrated that anxiety scales and locus of control were measuring conceptually separate variables which correlate with each other.

Extraversion and neuroticism dimensions of personality as measured by I be Maudsley personality inventory, were correlated with scores on the Manifest anxiety scale, in a study by Bending (1957). The correlations of anxiety with both extroversion and neuroticism were found to be significant. However, the direction of relationships in case of extroversion was negative and in case of neuroticism positive.

The present investigator (1985) in one of his studies concluded that (i) the competitive anxiety decreases “with the increase in age in the case of the male athletes but it increases in the case of female athletes, (ii) in the case of male and female athletes, the competitive anxiety in the Indian athletes has no relationship with their experience of participation in competition, (iii) the Indian athletes have moderate level of competitive anxiety as compared to the sample norms proving the inverted U-shape the relationship between performance and anxiety. In another study, he (1986) found that there were no significant differences in the anxiety sources of athletes, whether males or females on the basis of four different categories of athletes i.e. sprinters, middle and long distance runners, throwers and
jumpers. Also there were no significant differences in the anxiety scores of hockey players whether males or females on the basis of their playing position i.e. forwards, centre and backs.

METHODOLOGY

Statement of problem

The purpose of the study is to assess the sports competitive anxiety among the Sportswomen non-sportswomen of K.S.W.University Bijapur.

Variables:

Independent:- Sportswomen and Non-sportswomen of University players.

Dependent Variable:- Anxiety behavior.

HYPOTHESIS

To answer the problems set for the present study, the following Hypotheses were formulated.

1. There will be no significant difference between mean, competitive anxiety scores of sport women and non-sport women of Karnataka State Women’s University, Bijapur.

OBJECTIVE

1. To assess the anxiety behavior of the Sportswomen and non-sportswomen

LIMITATIONS:-

1. The study is limited to the measuring the level of anxiety among the sportswomen and non-sportswomen.

2. The study would be limited to the sportswomen and non-sportswomen of Karnataka State Women’s University Bijapur.
DELIMITATION

1. The present study tries to analyze probe the level and extent of anxiety, among the sports and non-sportswomen.

SIGNIFICANCE OF THE STUD

The present investigation is conducting with the following objectives.

1. To examine the difference in pattern of anxiety behaviors between sportswomen and non-sportswomen of University.

RESULTS AND DISCUSSION

For the purpose of the present study two samples were drawn from the sportswomen and non-sportswomen of Karnataka State Women’s University, Bijapur at random. The total sample consisted of 200 students of equal education qualification. The sports sample consisted to 100 P.G. students who have participated and represented in different athletic meet at different levels and non-sportswomen sample consisted of 100, those did not participated in any sports activities. The two samples were selected from different P.G. Department of Karnataka State Women’s University, Bijapur.

Table – 1

<table>
<thead>
<tr>
<th>P.G. Students</th>
<th>Sportswomen</th>
<th>Non-sportswomen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Science</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Commerce</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

The subjects were divided into groups to facilitate the administration of competitive anxiety scale and locus of control scale. Each group consisted of 100 P.G. Students. The entire sample consisted of female students were excluded from the study in order to eliminate the influence of such factors as would result from lack of sex homogeneity.

Test Administration

Tools
Anxiety:

The Sinha’s Comprehensive anxiety scale were administered to two samples of P.G. students, who were belonging to sportswomen and non-sport women group. The athletes sample consisted of 50 P.G. students who were studying in one or other P.G. course and has participated in sports activities at different levels of competition. The non-sportswomen sample consisted of those students who were studying in different P.G. Courses and who did not participate in any sports activities.

At first instance, the Sinha’s comprehensive anxiety scale and separate answer sheets were issued to each student in the group. They were asked to go through the instruction given in the front page.

Then for the whole group the instructions were read out loudly and method making in the answer sheet was demonstrated on the black board. First of all, the subjects were asked to sheet was also explained to the group. The subjects were informed to be free in working their responses. The SCAT were administered in a good and permissive atmosphere and it was maintained throughout the administration to all groups as far as possible.

They were also informed that the test is neither a test of their intelligence nor of their proficiency.

While there were answering the question supervision was done to know whether they were following instructions in answering SCAT, or not, personal data sheet was also checked to know whether they have filled on all the information that was given on the personal data sheet.

Scoring:

Inventory was scored accurately by the help of the manual in the present study. After completing the scoring of all 200 answers and sheets for both anxiety of both sportswomen and non-sportswomen students, they were statistically analyzed to answer the problems that were set for the investigation.
1. To know the significant difference of anxiety behavior among the sportswomen and non-sports, mean, variance, standard deviation and ‘t’ were calculated. The results are discussed here.

**TABLE – 1**

Table Showing the mean, Sd and acquired ‘t’ value of anxiety behavior of Sportswomen and non-sportswomen

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>Mean</th>
<th>Sd</th>
<th>‘t’ Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Non-sportswomen</td>
<td>45.3</td>
<td>2.62</td>
<td>0.12</td>
</tr>
<tr>
<td>02</td>
<td>Sportswomen</td>
<td>43.3</td>
<td>2.70</td>
<td></td>
</tr>
</tbody>
</table>

The mean scores and standard deviation on non-athletes and athletes were 45.3, 2.62 and 43.3, 2.70 respectively which show that there is not much or little deviation in the anxiety level of sportswomen and non-sportswomen. Both non-sports and sportswomen showed almost same level in
anxiety behaviors. When these scores were subjected to ‘t’ test, the acquired ‘t’ value was 0.012 which was lower than ‘t’ table value at 0.05 level hence. It reveals that there is no difference in anxiety behavior of Sportswomen and non-sportswomen. Hence formulated hypothesis was rejected. This may be due to the fact that the respondents consisted to sportswomen and non-sportswomen are coming from rural areas they are exposed to various activities and faced lot of problem to pursuing their degree and education and hard working nature made them to sustain stress and manage anxiety behavior effectively when they exposed to situation.

Conclusion:

The Study carried out by researcher reveals that anxiety behavior will manifested by situational factor but sportswomen and non-sportswomen chosen for this study were coming from the rural and poverty background, these factor made them to cultivate the sustainable ability and managing skills among the sportswomen and non-sportswomen of the university.

REFERENCES


A COMPARATIVE STUDY OF WAIST-HIP RATIO AMONG VARYING LEVELS OF BLOOD PRESSURE GROUP

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INTRODUCTION

Movement and activity are basic functions needed by human organism to grow, develop, and maintain health. However, physical activity is no longer a natural part of our existence. We live in an automated world where most of the activities that used to require strenuous physical exertion, can be accomplished by machines with the simple pull of a handle or push of a button. Automobiles, elevators, escalators, telephone, intercoms, remote controls, electric garage door openers, etc. are all modern-day commodities that minimize the amount of movement and efforts required by the human body.

One of the most significant detrimental effects of modern-day technology has been an increase in chronic conditions which are related to a lack of physical activity, like hypertension, heart diseases, chronic low back pain and obesity. These conditions are also referred to as hypo-kinetic diseases. The term “hypo” implies low or little, and “kinetic” implies motion.

OVER WEIGHT & OBESITY

Fat people tend to have higher blood pressure than thin people. There is a strong association between obesity and hypertension. Several studies have shown that a reduction in systolic and diastolic pressures occurs with weight loss: reduction in weight of 3kg produces an estimated fall in blood pressure of 7/4 mm Hg; one of 12 kg gives a fall of 21/13 mm Hg.

With waistlines increasing rapidly around the world, a study predicts that by 2030, almost 58 % of the world’s population will be overweight or obese. This is the issue which will be difficult to ignore in Gujarat, too. When it comes to food, Gujarat offers a wide and fatty palette. Guajarati’s are known for their indulgence in farsaan (namken) which is high on oil content and with fast food joints becoming an integral part of urban landscape, there will be an increase in number of overweight people. According to survey, 20% of women and 15.4% of men are obese in Gujarat.

BLOOD PRESSURE

Most people are not even aware, till their doctor tells them that their blood pressure is high. This is because high blood pressure (HBP) frequently exists without any apparent symptoms. For this reason this disease came to be known as The Silent Killer. There are 600 million hypertensive in the world, according to the World Health Report, 2002. The report says that blood pressure is the top most risk factor for death and disability in the world.
History has noted that renowned physician Dr. William Harvey, internationally acclaimed scientist Edward Jenner, Richard Bright and Louis Pasteur and many other public figures had to leave this world due to high blood pressure. India leader Jawaharlal Nehru, towering scientist Dr. Vikram Sarabhai, world famous social worker Mother Teresa, one of the leading Indian businessmen Dhirubhai Ambani and many others were also victims of high blood pressure.

However, it should not be inferred that high blood pressure affects only public figures. In fact, it makes no distinction between a king and pauper, a public figure and layman, a male and a female, the young and the aged.

**WHAT RESEARCH SAYS?**

Lawrence de Koning, Anwar T. Merchant, Janice Pogue and Sonia S. Anand conducted a study to determine the association of waist circumference (WC) and waist-to-hip ratio (WHR) with the risk of incident cardiovascular disease (CVD). Fifteen articles (n = 258,114 participants, 4,355 CVD events) reporting CVD risk by categorical and continuous measures of WC and WHR were included. They concluded that WHR and WC are significantly associated with the risk of incident CVD events. A 1 cm increase in WC is associated with a 2% increase in risk of future CVD and a 0.01 increase in WHR is associated with a 5% increase in risk. These simple measures of abdominal obesity should be incorporated in CVD risk assessments.

Welborn, Dhaliwal and Bennett conducted a study to evaluate clinical measures of obesity for their ability to predict death from Cardiovascular Disease (CVD) and Coronary Heart Disease (CHD), parallel with conventional cardiovascular risk factors. Cross-sectional analysis of an age and sex, stratified sample of 9,206 adults, aged 20–69 years from Australian capital cities. Blood pressure, fasting serum lipid levels, smoking, history of heart disease or diabetes, and obesity as measured by Body Mass Index (BMI), waist circumference and waist–hip ratios were recorded. Hazard ratios for the risk factors predicting CVD mortality and CHD mortality. They concluded that Body Weights, Waist-Circumferences and Sagittal-Diameters had more predictive power in men, and in women, the Arm-Circumferences replaced the Sagittal Diameters.

**PURPOSE OF THE STUDY**

The purpose of this study was to compare waist-hip ratio among varying levels of blood pressure group.

**HYPOTHESES**
On the basis of the knowledge reflected by the available literature, research findings, experts opinion and the scholar’s own understanding of the problem it was hypothesized that there will be no significant difference in Waist-Hip Ratio among varying levels of blood pressure group of male subjects.

PROCEDURE

Selection of Subjects

The purpose of the present study was to assess Waist-Hip Ratio among varying levels of Blood Pressure Group. In order to draw an adequate representative sample, 670 Male subjects of age group between 45 to 55 years were selected by incidental sampling from the hospitals of Baroda, Ahmedabad, Rajkot and Surat. Further they were bifurcated into three groups of 331, 312 and 27 according to their level of Blood Pressure i.e. High Blood Pressure, Normal Blood Pressure and Low Blood Pressure. To ascertain the level of Blood Pressure of the respondent help was taken from the medical doctors.

Collection of Data

After gathering authentic research tools to collect the data pertaining to Body Surface Area and Waist-Hip Ratio, the researcher had approached various hospitals for necessary permission & approval to collect the data from the subjects. Researcher had gone to OPD (Out Patient Department) of various hospitals on different days between 10 am to 2 pm during the day. The researcher had personally visited the hospitals from the four major cities of Gujarat state.

STATISTICAL ANALYSIS OF THE DATA AND RESULTS OF THE STUDY

Since the purpose of the study was to assess and compare the Waist Hip Ratio in varying levels of Blood Pressure, initially frequency table was prepared and further to identify the mean difference between the varying Levels of Blood Pressure groups One Way Analysis of Variance test was used to.

TABLE –1

FREQUENCY DISTRIBUTION TABLE OF WAIST HIP RATIO ACCORDING TO VARYING LEVELS OF BLOOD PRESSURE GROUP
### Table 1: Representation of Subjects in Various Categories of Risk Related to Waist Hip Ratio of High Blood Pressure, Normal Blood Pressure, and Low Blood Pressure Groups

<table>
<thead>
<tr>
<th>RISK</th>
<th>High Blood Pressure</th>
<th>Normal Blood Pressure</th>
<th>Low Blood Pressure</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>&lt; 0.83</td>
<td>10 (3.02%)</td>
<td>8 (2.56%)</td>
<td>2 (7.41%)</td>
</tr>
<tr>
<td>Moderate</td>
<td>0.83 – 0.88</td>
<td>29 (8.76%)</td>
<td>22 (7.05%)</td>
<td>10 (37.04%)</td>
</tr>
<tr>
<td>High</td>
<td>0.89 – 0.94</td>
<td>129 (38.97%)</td>
<td>204 (65.38%)</td>
<td>7 (25.93%)</td>
</tr>
<tr>
<td>Very High</td>
<td>0.94&gt;</td>
<td>163 (49.24%)</td>
<td>78 (25.00%)</td>
<td>8 (29.63%)</td>
</tr>
<tr>
<td>Total (N)</td>
<td>331</td>
<td>312</td>
<td>27</td>
<td>670</td>
</tr>
</tbody>
</table>

The above Table 1 shows the representation of the subjects in various categories of Risk related to Waist Hip Ratio of High Blood Pressure, Normal Blood Pressure, and Low Blood Pressure group. From the table it was found that out of total 670 subjects, 20 (2.99%) were in Low Risk category, 61 (9.10%) were in Moderate Risk category, 340 (50.75%) were in High Risk category and 249 (37.16%) were in Very High category respectively.

Further, among varying levels of Blood Pressure i.e. High Blood Pressure, Normal Blood Pressure and Low Blood Pressure, out of total 331 in High Blood Pressure subjects following were the results; 10 (3.02%) were in Low Risk category, 29 (8.76%) were in Moderate Risk category, 129 (38.97%) were in High Risk category and 163 (49.24%) were in Very High category respectively.

Out of total 312 subjects in Normal Blood Pressure subjects following were the results; 8 (2.56%) were in Low Risk category, 22 (7.05%) were in Moderate Risk category, 204 (65.38%) were in High Risk category and 78 (25.00%) were Very in High category respectively.

Out of total 27 subjects in Low Blood Pressure subjects following were the results; 2 (7.41%) were in Low Risk category, 10 (37.04%) were in Moderate Risk category, 7 (25.93%) were in High Risk category and 8 (29.63%) were in Very High category respectively. Data pertaining to this is represented in Graph 1.
Graph 1: Graphical Representation of Waist Hip Ratio of Varying Levels of Blood Pressure Group
TABLE –2

SIGNIFICANT DIFFERENCE OF WAIST HIP RATIO AMONG VARYING LEVELS OF BLOOD PRESSURE GROUP

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Table value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>.067</td>
<td>2</td>
<td>.034</td>
<td>19.737*</td>
<td>3.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1.140</td>
<td>667</td>
<td>.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1.208</td>
<td>669</td>
<td>.002</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at .05 level

It is evident from the table 2 that there was a significant difference in Waist Hip Ratio of Male subjects aged 45 to 55 years among varying levels of Blood Pressure groups, as the obtained F value (19.737) is greater than the tabulated F value (3.00) which is required to be significant at .05 level with (2,667) degree of freedom.

As the F-Ratio was found significant in case of Waist Hip Ratio the Scheffe’s Test Post-Hock was applied to test the significant difference between the means of varying level of blood pressure groups. The results pertaining to this are presented in Table-3.

TABLE – 3

TABLE OF MULTIPLE COMPARISONS OF WAIST HIP RATIO AMONG VARYING LEVELS OF BLOOD PRESSURE GROUP

<table>
<thead>
<tr>
<th>(I) group</th>
<th>(J) group</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Blood Pressure</td>
<td>Normal Blood Pressure</td>
<td>.01693(*)&amp;</td>
<td>.00326</td>
</tr>
<tr>
<td></td>
<td>Low Blood Pressure</td>
<td>.03699(*)&amp;</td>
<td>.00828</td>
</tr>
<tr>
<td>Normal Blood</td>
<td>High Blood Pressure</td>
<td>-.01693(*)&amp;</td>
<td>.00326</td>
</tr>
<tr>
<td>Pressure</td>
<td>Low Blood Pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Low Blood Pressure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Blood Pressure</td>
<td>-.03699(*)</td>
<td>.00828</td>
<td></td>
</tr>
<tr>
<td>Normal Blood Pressure</td>
<td>-.02006</td>
<td>.00830</td>
<td></td>
</tr>
</tbody>
</table>

* The mean difference is significant at the .05 level.

It is evident from the Table-3 that there was a Significant Difference between the mean score of High Blood Pressure & Normal Blood Pressure group as well as of High Blood Pressure & Low Blood Pressure group, whereas there was no Significant Difference between the Normal Blood Pressure and Low Blood Pressure group. Thus it was evident that WaistHip Ratio of Normal Blood Pressure group was significantly better in comparison to High Blood Pressure group and Low Blood Pressure group.
Graph 2: Graphical Representation of Mean Scores of Waist Hip Ratio among Varying Levels of Blood Pressure Group
DISCUSSION OF FINDINGS

• Findings revealed that there was a significant difference on comparing the mean scores of Waist-Hip-Ratio among varying levels of Blood Pressure.
• A study done by Welborn&Dhaliwal showed that obesity assessed by Waist Hip Ratio is better predictor of Cardio Vascular Diseases. The people who carry excess weight around the middle are at higher risk of High Blood Pressure.
• Thus, having a desired Waist Hip Ratio is essential for maintaining Normal Blood Pressure.

DISCUSSION OF HYPOTHESES

The hypothesis that there will be no significant difference in Waist-Hip Ratio among varying levels of Blood Pressure Groups could not be accepted in light of the results.

Conclusions

The results were in agreement with the association between Waist Hip Ratio with Blood Pressure level. Obesity and gaining more weight could be identified as one of the important components for increase in Blood Pressure. Therefore, necessary care must be taken by individuals to maintain weight and Fat in order to maintain the Normal Blood Pressure.

Healthy body composition is essential for optimizing health and minimizing the risk of many of the most prevalent chronic conditions and diseases seen in our society today. All should participate in daily fitness program whether having hypertension or not to enhance fitness level. If hypertension patients participate in fitness program they must consult doctor and participate in physical fitness program under supervision of fitness consultant or expert. Also those who are not having hypertension should do physical exercise to maintain weight which helps directly to reduce health risks.

REFERENCES

ABSTRACT

Physical fitness is one of the most important components for every game and sports. A physically fit person can perform more work with less fatigue and tiredness. The level of physical fitness varies from person to person. It depends upon the nature of work, size, shape, structure, age, sex and adaptability of an individual. The aim of this study to compare on Flexibility and muscular endurance between Manipuri and Tamilnadu football players in Annamalai University. Heredity, climatic condition and geographical condition, food habit, the race, bodily constitution and emotional state have considered as the limitations of the study., 15 (N=15) Manipuri and 15 (N=15) Tamilnadu football players were selected in randomly those who were studied various faculties in Annamalai university. The age group was 18 to 25 years. The purpose of the study speed and cardio-vascular endurance components were selected. Flexibility was measured by sit and reach test and muscular endurance was measured by sit-ups test. The level of confidence to the ’t’ ratio was fixed at 0.05 level for significance, which was considered enough for the purpose of the study. It was concluded after obtaining the results of the study that there is no any significant difference on speed and cardio-vascular endurance components among the Manipuri and Tamilnadu football players.

KEY WORDS
INTRODUCTION

"Physical fitness is one's richest possession; it cannot be purchased, it has to be earned through a daily routine of physical exercise." “Physical fitness is the ability to perform daily tasks vigorously and alertly, with energy left over for enjoying leisure-time activities and meeting emergency demands. It is the ability to endure, to bear up, to withstand stress, to carry on in circumstances where an unfit person could not continue, and is a major basis for good health and well-being”. Physical well being is the prime necessity to life happily. Physical fitness is the one of the most important component for every game sports. Physically fit people can perform more work with less fatigue and tiredness. The football game is one of the most interesting and strenuous game played by thousand people around the world, that requires running, speed, explosive strength, cardio-vascular endurance and agility are more important. In the game of football Flexibility and muscular endurance are the most important components. Flexibility is the ability of a person to move the parts of the body through as wide a range of motion as possible without undue strain to the joints and its muscle attachments, and the muscular endurance or stamina enables an individual to perform sustained work by a particular muscle group over a period of time. The muscular endurance may be defined as "the ability of muscle to maintain a certain level of tension or to repeat identical movements or pressures over the maximum period of time with one's maximal force". Both physical fitness variables are most important for the footballer's or any sports persons. The study was delimited to Manipuri and Tamilnadu football players those were studied various faculties in Annamalai University. The study was confined to those in the age group of 18 to 25 years and each group fifteen (N=15) players were selected randomly. The purpose of the study Flexibility and muscular endurance components were selected. Heredity, climatic condition, topography and geographical condition, food habit, the race, bodily constitution, habits and emotional state have considered as the limitations of the study.

METHODS

To achieve the purpose of the study, fifteen Manipuri and fifteen Tamil Nadu mail football players were selected randomly those who were studied in Annamalai university, their Age ranged from 18 to 25 years. The purpose of the study flexibility and muscular endurance were selected to comparison between Manipuri and Tamilnadu football players. Before conducting the test, test procedure was explained to the subject. Assessment of flexibility by seat and reach test and muscular endurance measure by bent knee sit-ups test. The data analyzed by the 't' ratio at the 0.05 level of significance.
RESULT

ANALYSIS OF THE DATA ON FLEXIBILITY BETWEEN MANIPURI AND TAMILNADU FOOTBALL PLAYERS IN

TABLE - I

Mean, standard deviation and 't' ratio on sit and reach test of Manipuri and Tamilnadu football players.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
<th>'t'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manipuri</td>
<td>22.73</td>
<td>7.73</td>
<td>0.533</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>21.33</td>
<td>6.01</td>
<td></td>
</tr>
</tbody>
</table>

Significant at 0.05 level confidences, the table value for insignificant at 0.05 level of confidence in 2.04.

Table - I indicates that the mean, standard deviation and 't' ratio of Manipuri and Tamilnadu football players. The mean and standard deviation value were 22.73 ± 7.73 for Manipuri football player and 21.33 ± 6.01 for Tamil Nadu football players respectively and the 't' ratio for these values was 0.533. The obtain 't' ratio for sit and reach test was found insignificance at 0.05 level of confidence. Since this values were lower than the required table values of 2.04 the degree of freedom 28.

The result of the study shows that there was no significant difference that exists between Manipuri and Tamilnadu football players on sit and reach test.

The mean value on sit and reach test of Manipuri and Tamil Nadu football player were graphically presented in figure - I.
Figure- I. Mean values of Manipuri and Tamil Nadu football players on sit and reach test.

ANALYSIS OF THE DATA ON BENT KNEE SIT-UPS TEST BETWEEN MANIPURI AND TAMILNADU FOOTBALL PLAYERS IN TABLE -II

Mean, standard deviation and ‘t’ ratio on muscular endurance of Manipur and Tamilnadu football players.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
<th>‘t’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manipuri</td>
<td>36.20</td>
<td>6.82</td>
<td></td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>33.73</td>
<td>6.26</td>
<td>1.03</td>
</tr>
</tbody>
</table>

Significant at 0.05 level confidences, the table value for insignificant at 0.05 level of confidence in 2.04.

Table - II indicates that the mean, standard deviation and ‘t’ ratio of Muscular endurance of Manipuri and Tamilnadu football players. The mean and standard deviation value were 36.20 ± 6.82 for Manipuri football player and 33.73± 6.26 for Tamil Nadu football players respectively and the 't' ratio for these values was 1.03 The obtain 't' ratio for Muscular endurance was found insignificance at 0.05 level of confidence. Since this values were lower than the required table values of 2.04 the degree of freedom 28. The result of the study shows that there was no significant difference that exists between Manipuri and Tamilnadu football players on Muscular endurance.

The mean value on Muscular endurance of Manipuri and Tamil Nadu football player were graphically presented in figure II

Figure- II. Mean values of Manipuri and Tamil Nadu football players on muscular endurance.
DISCUSSION

The findings from statistical analysis have revealed and established that flexibility and muscular endurance of Manipuri and Tamilnadu football players are same, there is no significant difference between Manipuri and Tamilnadu football players those who were studied in Annamalai University.

CONCLUSIONS

It was concluded after obtaining the results of the study that there is no any significant difference, which exists on selected physical fitness variable on flexibility and muscular endurance among the Manipuri and Tamilnadu football players.

REFERENCE

Debendra Kansal, Test and Measurement in Sports and Physical Education


ANALYTICAL STUDY ON PHYSICAL FITNESS AMONG FOOT BALL PLAYERS AND HOCKEY PLAYERS OF HYDERABAD

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**Srinivas Nallella

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**Research Scholar, Department of Physical Education, Osmania University.

INTRODUCTION

Physical fitness is a general state of health and well-being or specifically the ability to perform aspects of sports or occupations. Physical fitness is generally achieved through correct nutrition, exercise, hygiene and rest. It is a set of attributes or characteristics that people have or achieve that relates to the ability
to perform physical activity. Before the industrial revolution, fitness was the capacity to carry out the day’s activities without undue fatigue. However with automation and changes in lifestyles physical fitness is now considered a measure of the body’s ability to function efficiently and effectively in work and leisure activities, to be healthy, to resist hypo kinetic diseases, and to meet emergency situations.

A comprehensive fitness program tailored to an individual typically focuses on one or more specific skills, and on age- or health-related needs such as bone health many sources [citation needed] also cite mental, social and emotional health as an important part of overall fitness. This is often presented in text books as a triangle made up of three points, which represent physical, emotional, and mental fitness. Physical fitness can also prevent or treat many chronic health conditions brought on by unhealthy lifestyle or aging. Working out can also help people sleep better. To stay healthy it is important to engage in physical activity.

**OBJECTIVE OF THE STUDY**

The study is to determine the significant difference of physical fitness between foot ball player’s and Hockey players of Hyderabad.

**SIGNIFICANCE OF THE STUDY**

This study aims to know the physical efficiency of the players of the two games i.e., Football Players and Hockey. The results of this study might help to give an idea to physical education teachers, coaches and players.

**HYPOTHESES**

1. There may not be any significant difference between foot ball players and Hockey players in relation to their Physical fitness Speed.
2. There may not be any significant difference between foot ball players and Hockey players in relation to their Physical fitness Agility.
3. There may not be any significant difference between foot ball players and Hockey players in relation to their Physical fitness Endurance.
DESIGN OF THE STUDY:

The study has focused the following experimental design.
SAMPLE OF THE STUDY:

The study was formulated based on the simple random sampling. The samples were collected from the 50 Foot ball players and Hockey Players in the age group of 20 – 25 years from Hyderabad was considered.

Showing the Sample of the Study

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Category of the subjects</th>
<th>Number of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Foot ball players</td>
<td>50</td>
</tr>
<tr>
<td>2.</td>
<td>Hockey Players</td>
<td>50</td>
</tr>
</tbody>
</table>

TOOLS USED:

The present study under investigation selected the following physical fitness.

- Physical Fitness
  - Speed (50 yard dash), Endurance (Cooper Test 12 Minute Run / Walk) and Agility (4x 10Mts Shuttle Run).

DATA COLLECTION PROCEDURE

The subjects of the study were in the age group between 20 to 25 years, 50 foot ball players and Hockey players of Hyderabad were considered. The study is delimited for the Hyderabad. The researcher has collected the data separately for foot ball players and Hockey players. The subjects were tested in three categories of Physical Fitness i.e. Speed (50yard dash), Endurance (Cooper Test 12 Minute Run / Walk) and Agility (4x 10Mts Shuttle Run).

RESULTS AND DISCUSSIONS:
Table: 1 showing that the significant difference between football players and Hockey Players in relation to their speed are presented.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Subjects</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>df</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Foot ball players</td>
<td>50</td>
<td>8.07</td>
<td>0.962</td>
<td>98</td>
<td>4.035</td>
<td>1.980</td>
</tr>
<tr>
<td>2</td>
<td>Hockey players</td>
<td>50</td>
<td>10.96</td>
<td>1.190</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table: 2 showing that the significant difference between football players and Hockey Players in relation to their Agility are presented.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Subjects</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>df</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Foot ball players</td>
<td>50</td>
<td>9.44</td>
<td>1.113</td>
<td>98</td>
<td>4.72</td>
<td>1.980</td>
</tr>
<tr>
<td>2</td>
<td>Hockey players</td>
<td>50</td>
<td>10.21</td>
<td>1.190</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3 showing that the significant difference between football players and Hockey Players in relation to their Endurance are presented.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Subjects</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>df</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Football players</td>
<td>50</td>
<td>2.94</td>
<td>0.490</td>
<td>98</td>
<td>1.47</td>
<td>1.980</td>
</tr>
<tr>
<td>2</td>
<td>Hockey players</td>
<td>50</td>
<td>3.17</td>
<td>0.394</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CONCLUSION:**

Physical fitness is the ability to perform vigorous physical activity. It is not measured in terms of achieving specific motor skills, but rather it is assessed in terms of muscle strength, endurance, and flexibility. The circulatory and respiratory systems are also involved because of their role in supplying muscles with blood and oxygen.

In considering muscles, strength is the maximum force that can be exerted by a muscle, and endurance is the ability to perform a muscular activity at less than maximum force, for example, in doing a series of chin-ups. Flexibility is the ability of a joint to move through a normal range of motion. The components of physical fitness (strength, endurance, flexibility, and capacity of circulatory and respiratory systems) can only be maintained through regular exercise. Although the percentage of body fat is not a main factor in physical fitness, it must be considered because of its effect on a person’s ability to exercise. There is debate in the fitness community about whether an individual can be considered fit if he or she is overweight.

The body will adapt to a regular exercise program by improving the function of the cardiac and respiratory systems. The blood will have a greater capacity to carry oxygen, which in turn will improve the body’s ability to work. The heart and respiratory systems will be more efficient during rest and exercise, and the resting heart rate is usually reduced. These changes take place when a person participates in a rhythmic endurance activity such as walking, running, and cycling, or continuous sports activities.
REFERENCES:-


A COMPARATIVE STUDY OF MENTAL TOUGHNESS AMONG PLAYERS OF INDIVIDUAL AND TEAM SPORTS OF NAVSARI AGRICULTURAL UNIVERSITY

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INTRODUCTION

Today performance in sports not only systematic training to develop physical, physiological variable and technical aspect of sport but also demand training and consideration of psychological characteristics for success in this field. Today’s athletes face acute and unique challenges. The standards are higher, the competition is tougher and the stakes are higher.
There are certain moments during competition that appear to carry great psychological significance, when the momentum starts to shift in one direction or another. These situations require athletes to remain completely focused and calm in facing the difficult circumstances. The journey towards peak performance is rarely a perfectly smooth. Even great athletes and teams suffer setbacks.

Mental toughness is an ability to consistently sustains one’s ideal performance state during adversities in competition. Having the natural or developed psychological edge that enables individual to cope better than others with the many demands (competition, training, and lifestyle) that sport places on a performer. Specifically, be more consistent and better than others in remaining determined, focused, confident, and in control under pressure.

Mental toughness has specific principles and they are (1) Control what you think. (2) Control what you visualize. (3) Control how you look. The central nervous system cannot tell the difference between the thought and the actual event. Muscles undergo a 1/3 contraction every time individual visualize an action. The more vivid, detailed, and real the visualization the more powerful the effect. Mental toughness depends on controlling individual’s emotional response to events. Control the situation rather than letting the situation control individual. Player can’t control winning, but player can control their mental state, which will help them to perform better. Performing better will help in winning.

Sport psychologists (researchers and practitioners), coaches, sports commentators, sports fans, and athletes acknowledge the importance of mental toughness in sporting performance. Despite widespread agreement on the importance and benefits of mental toughness high quality research into mental toughness is limited.

**WHAT RESEARCH SAYS?**

Fourie and Potgieter (2001) investigated the components of mental toughness as reported by 131 expert coaches and 160 elite athletes from 31 sport codes. The written statements of coaches and athletes were analysed by means of an inductive content analysis. This resulted in the identification of 12 components of mental toughness. These are: motivation level, coping skills, confidence maintenance, cognitive skill, discipline and goal-directedness, competitiveness, possession of prerequisite physical and mental requirements, team unity, preparation skills, psychological hardiness, religious convictions and ethics. The coaches regarded concentration as the most important characteristic, while the athletes regarded perseverance as most important. The coaches rated the effectiveness of coaches and sport psychologists in strengthening the characteristics of mental toughness more highly than athletes did. Jones (2002) revealed that literature on mental toughness is characterized by a general lack of conceptual clarity and consensus as to its definition, as well as a general failure to operationalize the construct in a consistent manner. His study addressed two fundamental issues surrounding mental toughness: how can it be defined? And what are the essential attributes required to be a mentally tough performer? Ten international performers participated in either a focus group or one-on-one interviews, from which a definition of mental toughness and the attributes of the ideal mentally tough performer emerged. The resulting definition emphasized
both general and specific dimensions, while the 12 attributes covered self-belief, desire/motivation, dealing with pressure and anxiety, focus (performance-related), focus (lifestyle-related), and pain/hardship factors.

Golby, Sheard and Lavallee (2003) examined the relations between demographic characteristics of rugby players and selected aspects of psychological performance in rugby league football. Mental toughness was assessed using Psychological Performance Inventory and Hardiness on the Personal Views Survey III-R. Participants (N=70) were international rugby league footballers representing four teams (Wales, France, Ireland, England) in the 2000 Rugby League World Cup. Participants completed the questionnaires in training camp. Welsh-nationality players had a significantly higher mean score on two of the hardiness subscales. Hardiness measures displayed the greatest and most frequently statistically significant differences. The findings concur with previous work indicating superior hardiness is related to improved performance in sports.

PURPOSE OF THE STUDY

The purpose of the study was to compare the Mental Toughness level among the players of individual and team sports.

HYPOTHESIS

It was hypothesized that there will be no significant difference in mental toughness among players of individual and team sports.

METHODOLOGY

SAMPLE: Purposive sampling was done in which subjects for the present study were the male students of Navsari Agricultural University, Navsari studying various courses in the academic year 2013-14. These subjects were divided into two groups based on their participation in individual and team sports at Inter University level competitions. Thus a number of thirty-nine boys in team sports and thirty in individual sports were identified and included in the study.

TOOL: The “MENTAL TOUGHNESS QUESTIONNAIRE” prepared by Dr. Alan Goldberg was used to determine mental toughness level of the players of team and individual sports. There are total 30 questions in the mental toughness questionnaire. There are five components namely reboundability, ability to handle pressure, concentration, confidence and motivation in the questionnaire and each component has six questions which have two options true or false.

ANALYSIS
The scores arrived from 30 individual players and 39 team players were compared by applying the ‘t’ test. The resultant value of 1.145 was found not significant at the predetermined confidence level of 0.5 level of significance, which can be seen in the table below:

<table>
<thead>
<tr>
<th>Groups Compared</th>
<th>Mean</th>
<th>Standard Error</th>
<th>Mean diff.</th>
<th>‘t’ ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual sports</td>
<td>18.13</td>
<td>0.456</td>
<td></td>
<td>0.456</td>
</tr>
<tr>
<td>Team Sports</td>
<td>19.28</td>
<td>0.554</td>
<td></td>
<td>0.554</td>
</tr>
</tbody>
</table>

The required value of ‘t’ ratio to be significant at .05 level was 2.00

It is evident from Table that there is no significant difference between the mean scores on Mental toughness of the players of individual and team sports, since the obtained value of ‘t’ (1.145) is lower than the tabulated value of ‘t’ (2.00) which was required to be significant at (67) degree of freedom at 0.05 level of confidence. The graphical presentation is as below:

graph of Mean Scores on mental toughness among the players of individual and team sports

Also the five components of mental toughness i.e. rebound ability, ability to handle pressure, concentration, confidence, motivation were analyzed separately and compared by applying ‘t’ test.
DISCUSSION OF HYPOTHESIS

The hypothesis stated earlier, that there would be no significant difference in mental toughness among the players of individual and team sports, was accepted.

MAJOR FINDINGS

1. The players of individual and team sports have no significant difference in mental toughness.
2. No significant difference was found among the player of individual and team sports in rebound ability as a component of mental toughness.
3. Also ability to handle pressure as a component of mental toughness does not show any significant difference among the players of individual and team sports.
4. Concentration as a component of mental toughness had no significant difference among the player of individual and team sports.
5. There was no significant difference in confidence level as a component of mental toughness among the players of individual and team sports.
6. Motivation level as a component of mental toughness also has not shown any significant difference among the players of individual and team sports.

CONCLUSION

On the basis of the findings of the present study the following conclusion was drawn:

This study revealed no significant difference among the players of Individual and Team sports on Mental Toughness. This clearly shows that both the Individual and Team sports require Mental Toughness as they involve themselves to prepare mentally for various competitions.

Mental toughness is considered to be one of the important components of any type of sport. This is certainly an important factor to make the player stable and persistent to perform well in the competition.

REFERENCES


GENOTYPE OF ANGIOTENSIN CONVERTING ENZYME (ACE) IN EGYPTIAN BASKETBALL JUNIORS

1, Hussien, Sanaa. 2, Elnemr, Abdelaziz. 3, Elkhateb, Nariman.
1: FPEA (Alexandria University, Egypt) 2: FPEG (Helwan University, Egypt), 3: FPEG (Helwan University, Egypt).

ABSTRACT

Introduction
Genetic readiness plays an important role in guiding youth while performing different activities that fits their genetically nature. Genes were found responsible for detecting physical structure of players. A vast amount of research results highlights the importance of heritable genes in deciding player’s profile, previous research’s confirmed that players having DD, ID and II genes had better results in speed-power, medium speed, and VO2 max consumption respectively. This study aimed to identify the relationship between the genotype of Angiotensin converting enzyme (ACE), and both of Vo2max and vertical jump tests in some Egyptian basketball juniors.

Methods
15 Basketball Juniors participated in the study, Blood group samples were analyzed, and Vo2max and vertical jump tests were examined.

Results & Discussion
The results showed significant Correlation level (p=0.01) between (ACE) and both of Vo2max and
vertical jump tests were found.

Conclusion

The type percentages of blood plasma serum enzyme plays an important role in Vo2max and vertical jump performance

Key words: Gene, Angiotensin converting enzyme, Genotype.

REFERENCE


INTRODUCTION:

Genetic readiness plays an important role in guiding youth while performing different activities that fits their genetically nature. Genes were found responsible for detecting physical structure of players to help coaches to manipulate dynamic loads to increase their athletic level significantly. However, such nature could only be seen in talented players who carry the required genes. A vast amount of researches such as Andy (2004), Payne and Montgomery (2003), Hopkins (1998) highlights the importance of heritable genes in deciding player’s profiles. It is noteworthy that Slama (2008) stated that making an athlete should be according to a set of scientific procedures that leads by physical and medical measurements (genetic - physiological -morphological) and types of nutrition and Health Care.

Payne and Montgomery (2003) and Andy (2004) agreed that the Angiotensin Converting Enzyme (ACE) gene is one of the most important genes in the study of the sports field. Sonna et.al (2001), Abou El Elaa, ( 2003), and Tsianos ( 2004 ) adds on the importance of the ACE gene in the sports field and stated that every individual has a kind of genetic diversity of the gene ACE.

Most of the researchers consider whether the (ACE) gene is responsible for several functions that affect physical preparation despite any training given to them. Collins (2009) and Woods(2009) indicate that high level of aerobic fitness is the important requirement to the excellence performance and the standard for measuring the level of aerobic capacity and maximum consumption of oxygen, which is influenced by genes , and it appeared that 47% of the genetically talented athletes to have a greater response to training.

Previous research such as Tsianos et.al (2004), Collins(2009),Hopkins(1998) and Woods(2009)confirmed that players having DD, ID and II genes had better results in speed- power, medium speed, and VO2 max consumption, respectively, it was the rationale for the present study in youth basketball players. Enzyme (ACE) Genotype.
The purpose of this study was: (a) to identify the relative configuration, types and structures of angiotensin converter enzyme (ACE) in some Egyptian basketball juniors, and (b) to identify the relationship between (ACE), consumption of Vo2max, and vertical jump in some Egyptian basketball juniors.

Methods: 15 Basketball Juniors participated in the study, Blood group samples were analyzed, and Vo2max and vertical jump tests were examined. Analysis of genes was performed to determine the genotype and its percentage.

Data were collected by conducting anthropometric measurements (height and weight) and physical measurements (vertical jump) in basketball juniors.

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3 Department of Gymnastics Coaching Sciences, Faculty of Physical Education for Women, Helwan University, Cairo, Egypt.

RESULTS & DISCUSSION

The results showed significant correlation level (p=0.01) between (ACE) and both of Vo2max and vertical jump tests.

TABLE 1

The mean and the standard deviation of height and weight

In Basketball Juniors

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>168.4±</td>
<td>11.45±</td>
</tr>
<tr>
<td>Weight</td>
<td>59.67</td>
<td>11.42</td>
</tr>
</tbody>
</table>

N=15
TABLE 2

The mean and the standard deviation height and weight according to genetic Diversity (ACE) in Basketball Juniors

TABLE 3

Genetic diversity of the gene ACE in Basketball Juniors

N=15

<table>
<thead>
<tr>
<th>Genotypes</th>
<th>DD</th>
<th>ID</th>
<th>II</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetition</td>
<td>9</td>
<td>5</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Percentage</td>
<td>%60</td>
<td>%33.33</td>
<td>%6.67</td>
<td>%100</td>
</tr>
</tbody>
</table>

Figure (1)

shows the genotype of the Basketball

parentage of gene (ACE) in Junior

<table>
<thead>
<tr>
<th>Genetic diversity Variables</th>
<th>DD</th>
<th>ID</th>
<th>II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>12.35 ± 168.78</td>
<td>12.17 ± 167.0</td>
<td>172</td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td></td>
<td>60</td>
</tr>
</tbody>
</table>
TABLE 4

The mean, standard deviation and correlation coefficient of
The Vo2max and gene (ACE) converter in Basketball Juniors

N=15

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>VO2max</td>
<td>51.0000</td>
<td>5.20988</td>
<td>.831**</td>
</tr>
<tr>
<td>ACE Gene</td>
<td>50.7393</td>
<td>5.75053</td>
<td></td>
</tr>
</tbody>
</table>
The mean, standard deviation and correlation coefficient of Vertical jump test

And gene ACE converter in Basketball Juniors

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Jump</td>
<td>38.2000</td>
<td>6.50494</td>
<td>0.995**</td>
</tr>
<tr>
<td>ACE Gene</td>
<td>51.0000</td>
<td>5.20988</td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSIONS

The researchers found that nine players carrying genotype DD, five players carrying ID, and one player holder for installation genetic II. Also, results showed there is a significant relationship between Gene and Vo2max test at the level of 0.01, and between Gene and vertical jump test at the level of 0.01.

As a result of this study, the recommendations are made for future research to take advantage of these results when selecting and training players for basketball game. Further, genetic tests should be conducted to predict the level of performance. Also, more research should be conducted to show how to recruit basketball players to play in different position in the game depending on the genetic diversity of the ACE gene. Finally, more studies need to be conducted for the development of genetic tests to be used for selecting the players for national teams, especially for the young men.

REFERENCE


THE EFFECT OF THE VACUSPORT REGENERATION DEVICE ON
LACTATE CONCENTRATION AFTER STRESS TEST

Abdelaziz A. Elnemr, 1, Nariman M. Elkhateb,2, Sanaa A. Hussien, 3, Osama A. Elnemr,4

INTRODUCTION:

World Class Athletes all follow perfectly designed training schedules, but the athlete who has the advantage of shortening their regeneration time, will not only be able to train as hard and intensively as their competitors, but will be able to do so more often.

The best athlete is the one who recovers quicker than the others, and who can get back to peak training earlier.
The Vacusport Regeneration System is a new system for quicker regeneration and the replenishment of the athlete’s performance in competitive sports. It offers new dimensions to the science of training, adding one further dimension to performance improvement.

The device’s method is to increase tissue and muscle perfusion to achieve waste product removal and to accelerate reduction of lactate and creatine kinase.

The basic research for this solution was carried out in space, aimed at improving the blood flows in astronauts experiencing negative effects of extended periods of weightlessness. This technology has now been refined to improve athletic performance. The athlete immediately feels the effect.

The physical principle is the alternating vacuum: intermittent negative pressure application

The technique: Increase of microcirculation and improvement of capillarization through rhythmical capillary dilatation and capillary compression caused by cyclical positive and negative pressure changes around the lower body (external second heart). The post exercise laboratory values have been measured, and confirm the improvement of the aerobic – anaerobic endurance.

The Effect of Exchange between Negative and Positive Pressure Phases

- Improvement of blood circulation
- Lymph activation
- Increase of infiltration

Improved performance by quicker regeneration

In competitive sports, the regeneration phase, can be as important as the training itself.

The period between two exercise sessions is used to replenish the athlete’s body systems in the quickest possible time, especially in sports utilising the large muscle systems of the lower body.

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On contrary, in a study that examined the effect of a 12 week of Vacumed (similar to vacusport) sessions (1 session every 2 days) on the level of lactate and creatine kinase showed that quicker reduction was happened (1). In this study a total of 50 athletes were accompanied in their training process over a period
of 12 weeks. Canoeists, swimmers, rowers, football players, tennis players and track and field athletes took part in the investigation. The athletes from different sport disciplines trained in the same training group, with half of the training group being subjected to a 30-minute treatment with the Vacumed every 2 days (40 – 50 mbar, pressure/negative pressure ratio = 7/5 sec). At the same time all the athletes took part in the regeneration training prescribed by the trainer. In addition 2 x per week before and after training a blood sample was taken from the athletes (both Vacumed group and non-Vacumed groups) and the following parameters measured: Repose lactate (directly before training) - post-strain lactate (directly after training - CK, urea, uric acid and leukos (1200 blood examinations on the 50 athletes).

At the beginning of the observation and at the end of the observation a scaled lactate test was carried out on all the athletes. In addition before the beginning of each training session all the athletes were questioned on their motivation and subjectively-felt degree of regeneration using a numeric rating scale. The athletes belonging to the Vacumed group were additionally questioned on their opinion of the effectiveness of the Vacumed. Dr. med. Alf explained that the treatment method works like an external lymph heart. This is proven by laboratory values and the improvement of aerobic- and anaerobic condition as well as by former studies of space medicine which was originally the starting point of this unique treatment procedure. In another study that examined the effect the lower body negative pressure device on regeneration of basketball Players, a blood sample was taken from the athletes before and after stress test, the results showed significant increase in lactate concentration after the stress test, then all the training group being subjected to a 30-minute treatment with the Vacusport and another blood sample was taken from the athletes, the analysis showed a significant decrease in lactate concentration after the vacusport regeneration session.

It is clear that more data are needed to determine the effects of the different regeneration methods on the removal of lactic acid and waste products (5) (6) (7) (8) (9) (10).

Methods: 12 female basketball players took part in the investigation (age, 18.22 ± 1.87 yr.; weight, 72.15 ± 3.44 kg; height, 177.86 ± 3.02 cm; body mass index, 19.21 ± 2.35 Kg/m2). All subjects were tested in lactate graded exercise test (Bruce Protocol) in a laboratory setting (Table 1) (2) (6), the test was followed directly by 40 minute treatment with the Vacusport (40 – 50 mbar, pressure/negative pressure ratio = 7/5 sec).

During the test the speed and the elevation of the treadmill was increased at regular intervals (every 3 min) and blood samples were taken by h/p/cosmos portable Sirius lactate test meter at each increment as follows.

(Table 1) Lactate Graded Test (Bruce Protocol)

<table>
<thead>
<tr>
<th>Km/h</th>
<th>Elevation %</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.7</td>
<td>10.00</td>
<td>3</td>
</tr>
<tr>
<td>4.00</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>5.4</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>6.7</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>8.00</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>8.8</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>9.6</td>
<td>22</td>
<td>3</td>
</tr>
</tbody>
</table>
Blood lactate is then plotted against each workload interval to give a lactate performance curve for each player (11) (12) (14). The percent of lactate changes from pre-training to post-training were calculated. All subjects were examined by a physician, and none had any medical problems.

**RESULTS & DISCUSSION**

The results (table 2) showed significant decrease in lactate concentration between the pre-test (7.9 ± 1.6 mmol/L) and post-test after 40 minutes of Vacusport regeneration session (1.1 ± 0.36 mmol/L) (P < 0.05).

(Table 2) Significance of differences in lactate concentrate between pre & post vacusport session

![Fig.1 Significance of differences in lactate concentration between pre & post Vacusport session](image-url)

<table>
<thead>
<tr>
<th>Lactate Concentration</th>
<th>Pre Vacusport regeneration session</th>
<th>Post Vacusport regeneration session</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>mmol/L</td>
<td>Avg</td>
<td>Std Dev.</td>
<td>Avg</td>
</tr>
<tr>
<td></td>
<td>7.9</td>
<td>1.6</td>
<td>1.1</td>
</tr>
</tbody>
</table>

The result of the research is clear. Due to an improved blood circulation and purification a quicker reduction of lactate could be verified. This is the
result of an enhancement of the microcirculation and the optimization of the capillarization through rhythmical capillary dilatation and capillary compression achieved by pressure and negative pressure.

Key words: Regeneration, Lower Body Negative Pressure Device, Vacusport and Graded exercise test.

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A COMPARISON OF POWER PERFORMANCE VARIABLES IN SINGLE LEG JUMP BETWEEN DOMINANT AND NON-DOMINANT LEGS FOR YOUNG MEN

Elkhateb Nariman ,1, Abdelaziz Elnemr, 2, Ahmed Abdellatif,3, Osama Elnemr,

4, Wesam Shawky,5, Walaa Eldin Hazzaa,6.

1: FPEC (Cairo, Egypt), 2, 3, 4, 5&6: FPEG (Giza, Egypt)

INTRODUCTION:

Many researches have studied the differences in strength between dominant (D) and nondominant (ND) limbs. Many others have studied the muscle imbalance which is a result of one’s regular training or sport leading to one muscle group being stronger or weaker than another. This imbalance is quantified by use of an isokinetic or isotonic dynamometer or on the basis of differences between the isolated actions of
"agonist" (the muscle or muscle groups actively causing the movement and "antagonist" (the muscle or muscle group located on the opposite side of the limb) (1) (2).

Muscle strength imbalances have been linked with poor agility performance and higher injury risk. Isokinetic dynamometry has been used to investigate such imbalances; however, this method is impractical and inaccessible for most strength and conditioning coaches. Several previous studies have shown side-to-side strength imbalances to be present in well-trained athletes (4) (6) (8) (10).

Muscular imbalance is a term frequently used in the fields of rehabilitation as well as performance sport, describing substantial deviation from normative data or muscle performance differences between limbs (11, 29) The differences in strength between dominant (D) and nondominant (ND) limbs were measured by various researchers. (1) (2).

Muscle balance does not always mean equal strength, just a proper ratio of strength, power, or muscular endurance of one muscle or muscle group relative to another muscle or muscle group. Recently, the differences in power performance variables can be measured using different devices, this study aimed to examine the different output power performance variables between (D) and (ND) legs using Optogait.

In addition to the higher injury risk associated with muscular imbalances, assessment of unilateral leg function is necessary after injury to effectively evaluate and monitor the progress of the client during the rehabilitation process. During rehabilitation, limb strength symmetry is used as an evaluation criterion to determine the level of participation in sporting events and activities of daily living. Range of motion, muscular strength and endurance, and power are also often measured to assess limb symmetry. Non-weight bearing isokinetic testing is a widely used method to measure maximum unilateral strength for strength comparisons between legs (9) (5).

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2, 3, 4 & 6 Department of Coaching sciences, Faculty of Physical Education for Men, Helwan University, Giza, Egypt. Non-weight bearing strength testing may not provide sufficient information to predict performance during weight bearing tasks (Pincivero et al., 1997). (11)

The majority of previous studies comparing side-to-side leg strength have found differences between the dominant and non-dominant leg. Several reliable and valid unilateral tests are currently being utilized to measure leg strength. Isokinetic and isometric strength are commonly measured with an open kinetic chain, single-joint test. Burnie and Brodie (1986) (1). Masuda et al. (2003) found negligible differences between the dominant and non-dominant isokinetic leg strength during knee flexion/extension, hip flexion/extension, and hip abduction/adduction in university soccer players. Neumann et al. (1988) found no difference between right and left isometric hip abduction torque across multiple hip angles in young adult men and women (6) (7). Recently, the differences in power performance variables can be measured using different device, this study aimed to examine the different output power performance variables between the dominant (D) and nondominant (ND) legs using Optogait device.
Methods Twenty three right-legged young men participated in the study (age, 17.52 ± 1.44 y, weight, 72.17 ± 3.38 kg; height, 169.58 ± 2.94 cm). Each subject carried out 5 squat jumps with the right leg and 5 squat jumps with the left leg. By using Optogait which is a system for optical detection made by a transmitting and a receiving bars. Each one contains 96 LEDs communicating on an infrared frequency with the same number of LEDs on the opposite bar. Once positioned on the floor, the system detects the interruptions of the communication between the bars - caused by the player’s movement - and calculates the duration and position system for optical detection made by a transmitting and a receiving bars. The following power variables could be measured: height of jump, Contact time, Flight time, Power, Jumping point and used area.

Results The results showed significant differences in all power performance variables between dominant and nondominant legs (P < 0.05). The mean of all (D) leg power variables were higher than (ND).

Tab. 1 Mean ± standard deviation of the Power performance in the test comparison between Dominant and Non Dominant Legs

<table>
<thead>
<tr>
<th>Power performance / Leg</th>
<th>Dominant</th>
<th>Non Dominant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0,85 ±0,33</td>
<td>1,82 ±1,37</td>
</tr>
<tr>
<td>Contact time</td>
<td>0,97 ±0,06</td>
<td>0,37 ±0,05</td>
</tr>
<tr>
<td>Flight time</td>
<td>21,47 ±5,87</td>
<td>17,08 ±4,83</td>
</tr>
<tr>
<td>Height</td>
<td>14,89 ±3,86</td>
<td>7,31 ±3,86</td>
</tr>
<tr>
<td>Power</td>
<td>14,34 ±8,25</td>
<td>8,72 ±13,70</td>
</tr>
<tr>
<td>Jumping Point</td>
<td>20,08 ±7,55</td>
<td>25,81 ±6,55</td>
</tr>
<tr>
<td>Used area</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Discussion & Conclusion

The results of the present study seem to correspond to the fact that if certain patterns or muscular actions are performed repeatedly, power performance variables develop more in the dominant leg than the nondominant leg (3) (13).

Research results showed that additional exercises are needed to improve the ratio between no dominant and dominant leg power performance no dominant to prevent injuries and enhance performance.

The results of the present study provide further support to previous findings of the presence of muscular imbalance in athletic individuals (4) (6) (10) (12). In particular, Elnemr et al. (2012) who found significant differences between strength D-ND legs in the maximum strength achieved during bilateral leg extension (3), Ross et al. (2004) who revealed higher dominant isokinteic knee strength than no dominant leg strength in young adult men and women, (13) and Newton et al. (2006) who found significant differences between strength D-ND limbs in peak and average force achieved during bilateral squat, single and bilateral vertical jumps (8).

There is no compensation in power performance variables balance between the (D) and (ND) leg, so this should be taken into consideration in the training programs to improve the power variables

REFERENCES


Key words: Dominant, Power performance, Opt gait, contact time.

“EFFECT OF PLYOMETRIC TRAINING AND SWISS BALL TRAINING ON BIOCHEMICAL VARIABLES AMONG UNIVERSITY LEVEL BASKETBALL PLAYERS”

Dr.C.Arumugam,*  Dr.S.Balaganesan** coacharumugam@gmail.com

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ABSTRACT

Aim: The purpose of the study was to find out the effect of Plyometric training and Swiss ball training on selected biochemical variables among university men basketball players.

Swiss ball exercises have become popular in recent times. It has been well documented that this kind of performing exercises on an unstable surface has a greater impact on muscular activity, compared to that of exercises being performed on a stable surface. Stanton, Reaburn and Humphries (2004) have proved that use of Swiss ball training to improve physical fitness and performance. According to the American Council on Exercise and results obtained from the that it was the Plyometric training which used to improvements in vertical jump performance, acceleration, leg strength, muscular power, increased joint awareness and overall pro-perception. The physiological changes of these training resulted in improvement of physical fitness such as muscular strength, endurance agility and flexibility. But the level of improvement may not be same. No doubt both the trainings are essential to enhance and maintain physical fitness and performance. The hypothesis was that whether the biochemical variables have any impact on physical fitness and performance? So the researchers are much interested in bringing out the effect of two different trainings and its impact on the selected bio chemical variables, which has not been studied so far. Ethical committee of Christian Medical College Vellore has approved this study.

Intervention: For the purpose of this study, sixty university level men basketball players were randomly selected from Thiruvalluvar and VIT University Vellore in Tamil Nadu state, who participated in university level tournaments. The subjects were randomly selected and their age group was between 19 to 25 years. They were given plyometric training, swissball training accordingly for twelve weeks. Initial data were collected on selected variables and final data were also collected after 12 weeks training and were statistically processed and analyzed.

Results: The findings of this study reveals that HDL has not been influenced the university basketball players due to the Plyometric and Swiss ball training, however the LDL has significantly altered from base line. The control group did not have any changes in bio chemical variables when compared to other treatment groups of university level Basketball players.

Conclusions: It was concluded that the experimental groups had significantly altered the bio chemical variables among the university level Basketball players.

Keywords: Plyometric training, Swiss ball training, LDL and HDL

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** Physical Director Christian Medical College Vellore, TN South India.
INTRODUCTION

The Greek Philosopher Galen wrote that exercise with a ball “is able to give the most intense workout and the gentlest relaxation” since the late 1980s education programmes outlining the benefits of Swiss ball training have appeared in both the therapeutic and athletic conditioning sectors. Rutherford and Jones (1986) suggested that adaptations from Swiss ball training are likely to result in better coordination of synergistic and stabilizer muscles. Behm (2002) and colleagues reported the effect of unstable conditions, as induced by sitting on Swiss ball on force production of the knee extensors. Robert examined the effect of Swiss ball exercises on core stability and stated that there is a improvement in core strength among the subjects. So number of studies reveals that improvements are possible in Swiss ball training.

Top level performance in sports could only be possible through scientific, systematic and, planned sports training as well as channelizing them into appropriate games and sports by finding out their potentialities among the several methods of training. (Carl, 1969). Successful sports performance at the highest levels of competition often depends heavily on explosive power of the athletes involved. In many individual sports such as track and field events, gymnastics and diving ability to use high levels of strength as quickly and as explosively as possible is essential to performs at a elite level. Many team sports also require high levels of explosive power, such as basketball, volleyball and football for achieving success at elite levels of competition.

According to the American Council on Exercise, and researcher results it was the plyometric training which used with a periodized strength-training program, can contribute to improvements in vertical jump performance, acceleration, leg strength, muscular power, increased joint awareness and overall pro-perception (Adams, et al., 1992; Potteiger et al., 1999; Paasuke et al., 2001; Miller et al., 2002). Dr. Chu (1996) states “Plyometric has undergone a considerable metamorphosis over the past few years. New ideas and techniques will lead the reader into the second generation of plyometric training. Plyometric drills usually involve stopping, starting, and changing directions in an explosive manner. These movements are components that can assist in developing agility (Craig, 2004; Miller et al., 2001; Parsons et al., 1998; Yap et al., 2000; Young et al., 2001).

Plyometric exercises are based on the understanding that a concentric (shortening) muscular contraction is much stronger and it immediately follows an eccentric (lengthening) contraction of the same muscle. It is a bit like stretching out a coiled spring to its fullest extent and then letting it go: immense levels of energy are released in a split second as the spring recoils. Plyometric exercises develop this recoil or, more technically, the stretch/reflex capacity in a muscle. With regular exposure to this training stimulus, muscle fiber should be able to store more elastic energy and transfer more quickly and powerfully from the eccentric to the concentric phase. The other advantage of plyometric training is that it comprises jumping and throwing movement patterns that involve a stretch-shortening-cycle (SSC). The muscle and tendons are first lengthened with an eccentric load – e.g. pulling back your arm to throw a ball – which may increase the subsequent concentric force production and/or allow release of elastic energy – e.g. as the arm accelerates forwards to release the ball. Since most sporting movements involve
sprinting, jumping and throwing SSC movements, plyometric training can be viewed as highly sport specific plyometrics,

It is an essential factor to play Basketball and it has been influenced by the plyometric training. By enhancing balance and control of body positions during movement, agility theoretically should improve. Agility training objectives (Stone and O’Bryant, 1984) and plyometric activities have been used in sports such as football, tennis, soccer or other sporting events that agility may be useful for their athletes (Parsons and Jones, 1998; Renfro, 1999; Robinson and Owens, 2004; Roper, 1998; Yap and Brown, 2000). Traditional floor exercises such as sit-up, focuses on improving the potential of global but not local muscles. At that point, it should be noted that while work in harmony (Cholewicki & VanVliet, 2002). One surpassing characteristic of the Swiss ball training is that core stabilizer muscles are activated more on unstable rather than stable surfaces. Another advantage of the Swiss ball sit-up exercise is the preventing of extra compressive force to spine that is generated in traditional sit-ups. Swiss ball sit-up exercise can minimize the load on the spine (McGill, 1998).

ETHICAL COMMITTEE APPROVAL

The ethical committee of Christian Medical College has approved to conduct this study vide its letter IRB no 7476 dated 20.4.2011.

METHODOLOGY

For the purpose of this study, sixty university level men basketball players were randomly selected from Thiruvallevar and VIT University Vellore in Tamil Nadu state, who participated in university level tournaments. The subjects were randomly selected and their age group was between 19 to 25 years with mean age of 22 with standard deviation ± 2.5 years. The subjects expressed their willingness to participate in the study. The dependent variables such as High density lipoprotein, and Low density lipoprotein were selected for this study. The selected subjects were divided into three equal groups, namely experimental Group I Plyometric training group, experimental Group II Swiss ball training group and a Control group. Experimental Group I underwent 12 weeks of plyometric training, Group II underwent Swiss ball training for 12 weeks designed by the researcher. Group III was considered as control group which was not involved in any special treatment. To measure the biochemical parameters of the university level basketball players,’ 5 ml of venous blood was drawn from an antecubital vein after a 12 h fast and 24 h after the last session of exercise. LDL and HDL were determined by enzymatic method using Boehringer Mannhein kit (Mukharjee, 1997). After the completion of 12 weeks experiment, the subjects were measured of the selected biochemical variable as post test. The difference between the initial and final scores was considered as the effect of the respective training. The significance of the differences was subjected to statistical treatment using ANCOVA. In all cases 0.05 level was fixed to test the significance
RESULTS

Table 1

ANALYSIS OF COVARIANCE ON HIGH DENSITY LIPOPROTEIN AMONG PLYOMETRIC TRAINING, SWISS BALL TRAINING AND CONTROL GROUP.

(Scores in mg/dl)

<table>
<thead>
<tr>
<th></th>
<th>PLYOMETRIC TRAINING</th>
<th>SWISS BALL TRAINING</th>
<th>CONTROL GROUP</th>
<th>SOURCE OF VARIANCE</th>
<th>SUM OF SQUARES</th>
<th>df</th>
<th>MEAN SQUARES</th>
<th>OBTAINED F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Between</td>
<td>10.03</td>
<td>2</td>
<td>5.02</td>
<td>1.30</td>
</tr>
<tr>
<td>Pre Test Mean</td>
<td>55.65</td>
<td>54.65</td>
<td>55.20</td>
<td>Within</td>
<td>220.30</td>
<td>57</td>
<td>3.86</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Between</td>
<td>8.23</td>
<td>2</td>
<td>4.12</td>
<td>1.01</td>
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<tr>
<td>Post Test Mean</td>
<td>56.65</td>
<td>55.80</td>
<td>55.95</td>
<td>Within</td>
<td>232.70</td>
<td>57</td>
<td>4.08</td>
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<td></td>
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<td>1.40</td>
<td>2</td>
<td>0.70</td>
<td>0.36</td>
</tr>
<tr>
<td>Adjusted Post Test Mean</td>
<td>56.29</td>
<td>56.19</td>
<td>55.92</td>
<td>Within</td>
<td>108.59</td>
<td>56</td>
<td>1.94</td>
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<td>Mean Diff</td>
<td>1.00</td>
<td>1.15</td>
<td>0.75</td>
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Table F-ratio at 0.05 level of confidence for 2 and 57 (df) = 3.16, 2 and 86 (df) = 3.16. Not *Significant

The results of this study indicate that there is no statistically significant difference among the adjusted post-test means of plyometric training, Swiss ball training and control group on High density...
lipoprotein. The ordered adjusted means on High density lipoprotein are presented through bar diagram for better understanding of the results of this study in Figure-1.

![Bar diagram showing ordered adjusted means of HDL](image.png)

**Figure -1**

**ON ORDERED ADJUSTED MEANS OF BIOCHEMICAL VARIABLE - HIGH DENSITY LIPOPROTEIN**

**TABLE - 2**

ANALYSIS OF COVARIENCE ON LOW DENSITY LIPOPROTEIN AMONG PLYOMETRIC TRAINING, SWISS BALL TRAINING AND CONTROL GROUP.

(Scores in mg/dl)

<table>
<thead>
<tr>
<th></th>
<th>PLYOMETRIC TRAINING</th>
<th>SWISS BALL TRAINING</th>
<th>CONTROL GROUP</th>
<th>SOURCE OF VARIANCE</th>
<th>SUM OF SQUARES</th>
<th>df</th>
<th>MEAN SQUARES</th>
<th>OBTAINED F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre Test Mean</strong></td>
<td>96.37</td>
<td>95.70</td>
<td>96.18</td>
<td>Between</td>
<td>4.71</td>
<td>2</td>
<td>2.36</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Within</td>
<td>3959.11</td>
<td>57</td>
<td>69.46</td>
<td></td>
</tr>
<tr>
<td><strong>Post Test Mean</strong></td>
<td>92.64</td>
<td>94.04</td>
<td>95.42</td>
<td>Between</td>
<td>77.01</td>
<td>2</td>
<td>38.50</td>
<td>0.61</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Within</td>
<td>3620.81</td>
<td>57</td>
<td>63.52</td>
<td></td>
</tr>
</tbody>
</table>
The results of this study indicate that there is statistically significant difference among the adjusted post-test means of plyometric training, Swiss ball training and control group on Low density lipoprotein. Therefore, it is concluded that there is significant difference among the adjusted post-test means of plyometric training, Swiss ball training and control group on Low density lipoprotein. To determine which of the paired means had a significant difference, the Scheffe’s test was used as post-hoc test and the results are presented in the table 2.

**TABLE 2**

Scheffe’s Confidence Interval Test Scores on Low density lipoprotein

<table>
<thead>
<tr>
<th>MEANS</th>
<th>Required C I</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Plyometric Training Group</td>
<td>Swiss ball Training Group</td>
</tr>
<tr>
<td>92.38</td>
<td>94.39</td>
</tr>
<tr>
<td>92.38</td>
<td>95.33</td>
</tr>
<tr>
<td>94.39</td>
<td>95.33</td>
</tr>
</tbody>
</table>

*Significant

The results revealed that, due to plyometric training there was a significant decrease in the level of LDL as compared to the Swiss ball training and control groups. The ordered adjusted means on Low density lipoprotein are presented through bar diagram for better understanding of the results of this study in Figure 2.
It has been reported that those who participate in physical activities such as walking, cycling, jogging or brisk walking might have normal values of the mentioned chemical substances. On the other hand, it is reported that the effects of strength activities have negative effects on the vascular endothelium, which is essential for the maintenance of hemostatic balance and the local regulation of vascular tone. Therefore, even although extensive research has been conducted in this field, there are crucial gaps in our knowledge especially the influence of different training methods, such as plyometric training and Swiss ball training on selected biochemical variables. This research made an attempt to find out the effect of plyometric training and Swiss ball training on selected biochemical variables among university men basketball players.

It was found plyometric and Swiss ball training failed to significantly improve biochemical variables. The findings of this study are in agreement with the findings of Baljinder Singh Bal et. al. (2012) and Barr SI, et. al. (1991) who found the volume of swimming exercise may not be related to the degree of change in blood lipid and lipoprotein levels in healthy subjects with high activity levels. In this study, trained university level men basketball players were tested on the effect of plyometric training and Swiss ball exercises and similar physical activities failed to significantly influence triglycerides of the subjects.

HDL cholesterol is determined by many factors. Exercise often plays an important role in raising it. Endurance athletes, such as runners and cyclists, typically have much higher HDL cholesterol than
sedentary individuals. However, research has not shown a direct relationship between exercise and increased HDL cholesterol. A study by T. Yates et. al. (2010) found that the amount of habitual physical activity was strongly correlated to HDL cholesterol over a four-year period. Hwahyung Lee et. al. (2009) high levels of HDL cholesterol among elite college athletes are sport-dependent, with runners and wrestlers having significantly higher HDL than throwers and weight lifters. Thus it has not been conclusively demonstrated that which exercise training lowers HDL. Measurements made before and after exercise training has produced variable results with no clear consensus as to whether or not moderate or vigorous exercise can increase HDL. This research is intended to know how far the experimental protocols, plyometric training and Swiss ball training influence the HDL among university men basketball players.

The impact of habitual aerobic exercise on LDL appears to be quite variable. However, the majority of studies comparing endurance athletes to sedentary controls or the general population reported that athletes had lower LDL levels, with leaner athletes frequently having the lowest values. Although it appears that endurance training may decrease LDL, there is little information about the biochemical mechanism producing this change. Thus the independent effect of exercise type (aerobic vs resistance training) on LDL levels is not fully confirmed by existing theoretical knowledge. (Len Kravitz, and Vivian Heyward, 2003) This research is intended to know how far the experimental protocols, plyometric training and Swiss ball training influence the LDL among university men basketball players.

CONCLUSION

It was concluded that the HDL was not statistically changed from base line of the university level Basketball players; however the LDL was statistically altered due to the Plyometric and Swiss ball training among the University level Basketball players.

REFERENCE

EFFECT OF AEROBIC EXERCISE AND YOGASANAS ON BODY WEIGHT

AMONG OBESE MEN

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ABSTRACT

BACKGROUND:

Obesity is recognized as a major global burden to health. In India when the child reaches adolescence their level of physical activity declines. There is evidence that children and adolescents of urban families are more overweight than rural, possibly because of decreased physical activities, sedentary lifestyle, altered eating patterns and increased fat content of the diet. Increase in sedentary activities, such as television viewing and computer games, is suspected to be responsible for the decline in physical activity levels. Overweight and obesity during adolescence has some immediate consequences, particularly as they relate to body image and self-esteem, and becomes a risk factor for overweight and obesity as an adult. One quarter to one-half of the individuals who are obese in adolescence remain obese in adulthood. In order to eradicate obesity it is therefore important to encourage sustainable physical activity habits in
children, and further reinforcing these habits in adolescents, which will help establish desirable healthy lifestyle patterns that continue into adulthood.

**Aim:** The aim of the study was to find out the effectiveness of Aerobic exercise and Yogasanas on Body weight among obese men.

**Methods:** The 120 male obese men were selected from the residents of Greater Pondicherry within a radius of 1 to 3 kilometers distance. The selected subject’s age group ranges from 25 to 40 years. These subjects were diagnosed as obese by the consultant physician of the Pondicherry institute of medical sciences if the body mass index (BMI) was more than normal limits > 27.8. These selected subjects were classified into three namely Experimental Group I (Yogasanas Group), Experimental group II (Aerobic exercise Group) and Experimental group III (Yogasanas plus Aerobic Group). These subjects body weight were measured on all the three groups before and after respective training. The training intervention lasted for 60 minutes per day for 6 days in a week for total period of 12 weeks. The collected data was evaluated using Analysis of Covariance (ANCOVA).

**Results:** The training interventions could record significant reduction in Body weight. Aerobic exercise training was found better than Yogasanas training in reducing Body weight but the combined intervention of Yogasanas plus aerobic exercise training was more effective to reduce Body weight in obesity.

**Interpretation:** Significant reduction is evident in the case of systolic blood pressure and no change in diastolic blood pressure. It seems these interventions could significantly control circulatory functions that in turn indicate a healthy condition of heart and lungs. Moreover, since the obese subjects were Male, their circulatory process is becoming weak as compared to the adolescent period. Therefore, the systolic blood pressure was found on higher side, although diastolic blood pressure remained fluctuated. However, the result finally indicates that the combined stimulus i.e., Yogasanas plus aerobics training could attribute significantly better result in controlling systolic blood pressure and diastolic blood pressure to normal range.

**Conclusion:** Although both the Yogasanas plus Aerobic Group, when practiced separately, were found useful for reducing obesity, there seems to be many advantages which are complimentary to each other. Therefore, a combined approach on the basis of the principles of Yogasanas plus Aerobic Group may prove better in controlling the obesity. Yogasanas is a slow activity. Therefore it is felt that the Aerobic exercise should be taken up first followed by Yogasanas by keeping a gap of 15 to 30 minutes in between them.

**Keywords:** Blood pressure, obese, male, yogasanas, aerobi

**INTRODUCTION**

Obesity, defined as an excess of adipose tissue in the body, is currently considered a public health problem worldwide (Galuska, et. Al.,1996; Hodge, et. Al.,1996; De Onis 2000) Obesity and overweight develop when there is a disparity between energy intake and expenditure (Ogden et. al., 2003; Troiano, et.al., 1955) and are related to health risks and problems in children (Morgan, et. al., 2002).
developed counties, the prevalence of obesity has greatly increased in all population groups, particularly in high socioeconomic level populations. Obesity is the metabolic disorder mostly found in infants, children and adults in higher middle class society. Investigations (Ghala, 1997; George, Thorn and Chill, 1977; Simon and Johns, 1984) have revealed that the obese persons are more prone to fractures and severe injuries. Then it reduces the efficiency of the obese. Emotional and other psychological disturbances are also mostly associated with obesity. Obesity is observed more in women then in men. Frequent use of oral contraceptive pills is also an important factor noticed in obese women. Regular alcohol intake and lack of physical activity is the predominant cause in obese administrative people. Hereditary tendencies towards over eating and lethargic behavior are one of the causes of the obesity. Ventro-medical nucleus of hypothalamus and feeding center in the lateral hypothalamus area regulate the food intake. Lesions in this area may lead to obesity as the satiety center is not functioning and therefore there is no control on the intake of food.

METHODS

Subjects

One hundred and forty four obese men selected as samples for the experimental study. These subjects age ranged between 25 to 40 years. For this, a purposive sampling technique was used. Further, the sample subjects were randomly assigned into almost four equated groups, viz., three experimental groups (Group I:n₁=37): (Group II:n₂=35): (Group III:n₃=42) and one control group (Group IV:n₄=37). All these subjects were residing within radius of one to three kilometres range in greater Puducherry. The research scholar made sure from the subjects that the entire groups were ready to go through the experimental treatment. Finally it was decided to select 120 subjects for the post test having 30 subjects in each group for data collection after 12 weeks experimental training. The pulse rate is measured in the number of such beats per minute.

Pilot Study

To ensure the consistency in the intensity and repetition in the experimental treatment a pilot study was conducted. The pilot study was conducted on twenty randomly selected subjects from yogasanas and aerobic exercises group. The average time and repetition time were calculated for yogasanas and also on aerobic exercises separately. Further it was also worked out for the maximum training load for yogasanas and also on aerobic exercises.

DAILY ADMINISTRATION OF TRAINING INTERVENTIONS

Training programmes on Yogasanas and Aerobic exercises were scheduled separately. Although attendances of the subjects were taken regularly, the percentage of attendance of majority of the participants after completion of training was found more than 95%. In fact, some of the subjects were dropped out because of their inability to continue training. Any questions asked by the subjects had been clarified. They were also motivated properly to undergo the training schedule.
YOGASANAS TRAINING

Yogasanas training were imparted to the Yogasanas Group (with strictly vegetarian diet as per the principals of Yogasanas) at Puducherry. The yogasanas practices, their sequence and daily schedule extras, was prepared on the basis of traditional yogic texts and was common for both these groups. The asanas are Shuddhi Kriyas, Vaman, Neti, Vasra dhauti, Kapalabhati, Ardhalasana, Sarvangasana or Viparita Karani, Matsyasana, Pavan muktasana, Supta Vakrasana Naukasana, Vakrasana, Gomukhasana, Vajrasana, Tadasana, Chakrasana, Kati Vrikshasana, Hastapadasana, Anulom, Vilom, Ujjayi pranayama, Bhastrika Prasayama, Suryabhedan Pranayama. The duration of the practical class was one hour. Such practical classes were held in the morning on all 6 days of a week, except holidays. The Yogasanas teachers were after the training. It was supervised by the research fellow.

AEROBIC EXERCISES

Formal aerobic exercises will be divided into different levels of intensity and complexity. This allowed participants to select their level of intensity according to their fitness level. Many gyms offer a wide variety of aerobic exercises for participants. Each pattern is designed for a certain level of experience. Following Dance-Group were included in one hour programme of aerobic exercises for these obese persons for 3 to 5 minutes each with the help of western music. The exercises are basic Warm up stepping, basic V step, basic L step, basic A step, straddle step Jump and turn Jump and bend forward Climbing action with a right leg and raising hands above head Climbing action with a left leg and raising hands above head Climbing action with right leg and clap Climbing action with left leg and clap.

Statistical Analysis

Descriptive statistics was applied to process the data before employing the inferential statistics. Since the variables of varied nature (morphological) along with programme (pre-test and post-test) was conducted for four different groups (Yogasanas Group, Aerobic exercises group and Yogasanas plus Aerobic exercises Group and Control Group) ANCOVA was applied. Scheffe’s post hoc test for variables was applied to see the significant improvement, if any, as a result of three different training interventions.

Results

In Body Weight, of “Yogasanas training Group,” “Aerobic exercises training Group”, “Yogasanas plus aerobic exercises training Group” and Control Group” as presented in Figure1. The analysis showed that after adjusting the pre test mean the adjusted post test F is significant Scheffe’s post Hoc test applied and it reveals Control group did not show significant change in Body weight (CD=0.12, p>0.05). Yogasanas training showed significantly better result over the Control in reducing Body weight (CD=0.31, p<0.05). Aerobic exercise training was found significantly better than the Control in reducing Body weight (CD=0.35, p<0.05). Yogasanas plus aerobic exercise training showed significantly better

Result than the Control in improving Body weight (CD=0.45, p<0.01). Aerobic exercise training was found significantly superior to Yogasanas training in reducing Body weight (CD=0.25, p<0.05). Yogasanas plus aerobic exercise training showed significant superiority over the Yogasanas training
(CD=0.29, p<0.05) and Aerobic exercise training (CD=0.32, p<0.05) respectively in reducing Body weight.

![Figure 1 changes on Body Weight](chart.png)

<table>
<thead>
<tr>
<th></th>
<th>Yoga</th>
<th>Aerobics</th>
<th>Y+A</th>
<th>Cont</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series1</td>
<td>80.05</td>
<td>75.8</td>
<td>72.14</td>
<td>85.1</td>
</tr>
</tbody>
</table>

**DISCUSSION OF RESULTS**

Yogasanas has a hoary past and it was evolved from our Indian *Rishi* Culture. In the past many scientific investigations on Yogasanas and allied disciplines have already been done separately to record its positive effect on one’s health and fitness. However, nowadays, Aerobic exercises are being popular among the mass and could claim amazing impact on health and fitness of common mass. Ample research is available on “Yogasanas” and “Aerobics” for human health and obesity, however, information about their combined effect on morphological and physiological variables of obese subjects is meager in literature. The research design followed was a true experiment (randomized control). The result of pilot experiment on 20 obese males (Yogasanas group, Aerobics group, Yogasanas plus Aerobics group, and Control group) for a period of 15 days revealed a mild reduction in body fat%. This result gives an insight to the present investigator to conduct this experiment with more data on selected morphological and physiological variables considering a true experimental design. The appearance of such results of combined training intervention in pulse rate may be due to fact that Yoagasanas practices might have enhanced micro circulation so that the nutrition as well as oxygen reaches to the deep muscles of heart, whereas the components of aerobic perhaps enhanced macro- circulation of blood. Thus, Aerobic
exercises and Yogasanas plus aerobic exercises training might have helped to reduced Body weight with an improved trend among the male obese.

CONCLUSION

Thus, the result and discussion as presented above revealed that combination of Yogasanas and Aerobic exercises training intervention was found useful in reducing body weight and cardiovascular efficiency during rest condition of obese male.

REFERENCES


EFFECTS OF 6-WEEKS YOGASANAS TRAINING ON AGILITY AND FLEXIBILITY OF MALE CRICKET PLAYERS
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ABSTRACT

The aim of the study was to assess the effects of 6-week yogasanas training on agility and flexibility in male cricket players. A group of fifteen inter-college level male cricket players of Silver Ock Engineering College, Gujarat Technology University, Ahmedabad (Gujarat, India) aged 19-24 years were selected for the present study. To measure agility, shuttle run test was conducted and to measure flexibility, sit and reach test was conducted. Pre and post difference data was analyzed with t-test. The level of $p \leq 0.01$ was considered significant. The agility and flexibility significantly improved with the yogasanas introduced to the group for 6 weeks. As there was a significant difference between pre and post training data of agility ($t=5.34$) and flexibility ($t=8.27$). The yogasanas training may be recommended to improve agility and flexibility to enhance sports performance

Key word: Yogasanas, Agility, Flexibility

INTRODUCTION

The term “yoga” and the English word “yoke” are derived from Sanskrit root “Yuj” which means union. Yoga is a psycho-somatic-spiritual discipline for achieving union & harmony between our mind, body and soul and the ultimate union of our individual consciousness with the Universal consciousness (Madanmohan, 2008).

Yoga is an ancient Indian practice that couples physical postures with conscious attentions to breathing and a meditative practice. Yoga is used to foster mental and physical awareness, which recognise the inseparable nature of the two. Yoga literally means “yoke”, which accurately describes this mind-body connection, and allows one to overcome the perceived limitations of oneself (Choudhary, 2007: iyengar, 2001).

Cricket is a very popular game which is approximately played in on every continent of the world, as with the growing popularity of this game it has been a centre for many researches on the skills related to this game, cricket is entirely different from other team games, it is entirely based on technical skills, to be master of a particular skill years of practice is required as well as physical fitness, so physical fitness, so physique of a player also play a dominant role in performance of a player.
Man’s fitness deteriorated in the last few decades due to the development of machines and other scientific discoveries which decreased the movement of man. In order to provide required physical fitness and health, many societies started providing various activities and other fitness devices because it is assumed that “Physical fitness is to the human body what tuning is to engine”

Despite an increase in interest pertaining to the benefits of yoga practice, research focusing on the relationship between yoga practice and attention is limited. This study employed a quasi-experimental pre-test, post-test design to measure whether yogasanas has effects on physical performance of players or not. Studies have depicted that yoga gives favourable impacts on both the physical and mental health of players. Physical effects include lowered blood pressure, lowered cholesterol, reduced heart rate, and lowered risk of coronary diseases (Mc Caffrey et al., 2005; Ramos-Jimenez et al., 2009). Yoga also improved physical fitness, strength, joint flexibility (Di Benedetto et al., 2005; Chen et al., 2008) and reduced the risk of falling (Arlene et al., 2010).

**MATERIAL & METHODS**

15 (Fifteen) randomly selected male cricket players of *Silver Ock Engineering College, Gujarat Technology University, Ahmedabad (Gujarat, India)* aged 19-24 years were choose to a 6 –weeks yogasanas training programme. This lasted for 6 weeks with consistent daily 40 min session, was conducted for continuous six days in a week with Sunday as resting day. The Training consisted of a following yogic asana.

1. Chakra-asana
2. Dhanurasanas
3. Halasana
4. Saravagasana
5. Trikonasana
6. Pascimottanasana

**VARIABLES & TESTS:**

The Subjects were tested on the following physical fitness variables.

Variables

1. Agility  Shuttle Run Test
2. Flexibility  Sit and Reach

Table1: Pre & Post Test Score Difference between Agility and Flexibility after Training
<table>
<thead>
<tr>
<th>TESTS</th>
<th>PRE TEST</th>
<th>POST TEST</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MEAN</td>
<td>SD</td>
<td>MEAN</td>
</tr>
<tr>
<td>1. SHUTTLE RUN</td>
<td>10.01</td>
<td>0.195</td>
<td>9.56</td>
</tr>
<tr>
<td>2. SIT &amp; REACH</td>
<td>37.6</td>
<td>2.06</td>
<td>43.5</td>
</tr>
</tbody>
</table>

Significant at 0.05 level ‘t’ (28) = 2.05

Graph 1: Graphical Representation of Difference between Agility and Flexibility after Training
RESULTS:

The data so collected was treated statistically and tabulated by working out their arithmetic mean, standard deviation and t-values. The data collected was analyzed but taking significance value of (p-0.01). The analyses shows that there was a significant difference between two groups on the basis of shuttle run (t=5.34) and sit and reach test (t=8.27).

DISCUSSION:

The study showed that there was a significant increase in agility and flexibility of the players. Postures which are assumed during the asana are mainly isometric exercises which give optimally maintained stretch to the muscles. Yog asana were also shown to improve flexibility and health perception (Cowen and Adams. 2005). Therefore with the 6 week training of players there was a significant improvement of agility and flexibility.

CONCLUSION:

The present study suggests that 6-weeks of yogasanas training had significant effect. Agility and flexibility. These data provide more evidence to support the beneficial effect of yogasanas training on agility and flexibility and thus, such training may be recommended to enhance sports performance.

ACKNOWLEDGEMENT:

The researchers would like to thank the players, coaches, managers and physical education teachers for their cooperation and whole hearted support in the collection of data.
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RELATIONSHIP BETWEEN MENTAL HEALTH AND EMOTIONAL INTELLIGENCE AMONG THE FEMALE GYMNASTS

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INTRODUCTION

Gymnastics is one of the most popular sports in modern age. It is a technical sport and the performance of the gymnast is evaluated on the basis of technique and difficulty of the skill. The exercises in gymnastics are so technically complex and often executed at such speed that the move is completed before its full impact has registered on the audience.
Mental health is a factor of evaluating overall health and plays an important role in ensuring dynamism and productivity in any society. Mental health has been defined as not only lack of disease or disabilities, but the optimal physical, mental and social state. However, mental health plays an important and undeniable role in improving performance of Athletes.

The term emotional intelligence was first used by Thorndike in 1920. He defined social intelligence as the ability to understand and manage men and women, boys and girls in order for their intellectual activity about each other.

The main objective of this study was to find relationships among these variables in the population of Female Gymnasts.

**METHODOLOGY**

The sample of the present study was drawn from the 53rd Junior National Artistic Gymnastic Championship held at National Sports Academy at Khelgaon Public School, Khel Gaon, Allahabad. Thirty (30) female Gymnasts aged ranging between 12 to 15 years were selected randomly as subjects for the study. In this study, following data collection tools are used:

A- Mental Health Questionnaire (Goldberg and Hile, 1979):

General Health Questionnaire (GHQ)) has been developed by Goldberg and Hillary in 1997, which includes 28 questions and has four scales. The questionnaire contains four subscales of physical symptoms, anxiety, social function, and depression. To test the response from right to left in the grading score of zero, one, two or three are awarded.

B. Bar-On R Emotional Intelligence Questionnaire:

In this Questionnaire include five areas of emotional intelligence (interpersonal relationships composition- intrapersonal relationships composition- stress management composition- adaptability composition general mood) and a coordination index and subscales were measured. The score of one to
five are awarded. This study design is correlative that has been used to evaluate significance of the relationship of variables by using Pearson correlation coefficient and to compare the scores of emotional intelligence and mental health among the female Gymnasts, T-test was applied. All the statistical calculations were performed using computer software SPSS.

RESULTS AND DISCUSSION

Table 1: Mean Value of emotional intelligence and mental health

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>R</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Intelligence</td>
<td>30</td>
<td>448.62</td>
<td>43.81</td>
<td>0.38</td>
<td>0.037*</td>
</tr>
<tr>
<td>mental health</td>
<td>57.44</td>
<td>5.89</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

*. Correlation was significant at the 0.05 level

The results show that there is a positive relation between emotional intelligence and mental health. These findings are consistent with results with the findings of (Jain et al., 2005), the significant correlation between emotional intelligence and emotional and social health of individuals is consistent. Other research findings indicate that emotional intelligence is able to predict the mental health. results of research indicate that Gymnasts with high emotional intelligence have more mentally healthy. Therefore it is recommended that techniques of increasing emotional intelligence should be trained in other sports also.
CONCLUSIONS

Purpose of this study was investigating the relationship between emotional intelligence and Mental health. Emotional Intelligence will contribute to success in most endeavors. If improving Gymnasts EI can help them deal more ably with their emotional work and reduce the incidence of psychological stress and improved mental health.

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EFFECT OF SILAMBAM TRAINING PROGRAM ON SELECTED PHYSICAL AND PHYSIOLOGICAL VARIABLES AMONG RURAL STUDENTS

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ABSTRACT

The purpose of this study was to investigate handgrip strength and reaction time in practitioners of silambam arts. The main objective was to examine handgrip strength (handgrip dynamometer) and reaction time in these participants by measuring simple reaction time (Yardstick reaction time scale) fifteen sedentary participants from rural students were selected for this study. Eight weeks of silambam training program were conducted to the subject, weekly five days from Monday to Friday on every evening 6.00 pm to 8.00 pm. The training group were measured the pretest and posttest on handgrip strength and reaction time. Results indicated that there was insignificant in handgrip strength after eight weeks of silambam training. Results indicated that there was significant improvement in reaction time (p > 0.05) after eight weeks of silambam training. When compare with pre-test and post-test. Furthermore, the silambam participants have faster handgrip strength and reaction time to hand stimuli. These results are consistent with the physical aspects of the silambam arts.

Key words: Handgrip Strength, Reaction Time and Silambam

INTRODUCTION

Ancient South India was ruled by Several Kings, if we go back in time, we might get the exact meaning for the word Silambam. The world "Silambam" must have come from the exact word of "Kaal silambam". The Silambam has its own history in Tamil Nadu, there is an Epic called 'Silapadhigaram' in which a country was cursed by Kannagi and the kingdom was destroyed by her curse through Fire, Earth Quake, and Flood, this is history. Today we don’t see women wearing the same type of ornament; it has changed in to "Goolasu" Chains and Rings. A person holds a pair of 'Kai Silambam' in his hand and dance to the Music of Pambai, Udakai and Urami Melam. This dance is usually performed in front of god Shakthi. The King Veerapandia Kattabomman (1760-1799) relied mainly on their prowess in Silambam in their warfare with the British Army. The history of Silambam in South India is above 5,000 years or above according to ancient texts. The research says that it was originated before the Aryans race migrated to India.

Kalla Kambu practice has teaching us how to know our mind power and physical balance. By practicing this method we can feel the spiritual power, also concentration, confident, rhythm knowledge, inner feelings development.

There are so many historical evidences regarding silambam. Our ancestors used very large swords and spears because of their physical and mental fitness. Silambam also develops our sense of timing, presence of mind, and helps us in essential breathing and for keen observation. It also develops intuition and self-defense. Silambam was the basis for Japan’s Samurai and such other arts.
STATEMENT OF THE PROBLEM

The purpose of this study was to find out the effect of silambam training program on selected physical and physiological variables among rural students.

Hypothesis

It was hypothesized that there would be insignificant changes of silambam students on their handgrip strength and It was hypothesized that there would be significant changes of silambam students on their reaction time.

METHODOLOGY

Selection of Subjects

This study was designed to effect on handgrip strength and reaction time of silambam students. To achieve this purpose, fifteen rural students were selected for this study. Their age ranged from 21 to 25 years.

Data were obtained from the subjects on selected physical and physiological variables like handgrip strength and reaction time. The collected data were subjected to statistical treatment using dependent ‘t’ ratio to find out the significance of the means obtained.

Selection of Variables

The scholar reviewed the available scientific literature pertaining to silambam form book and journals and also discussed with the experts, feasibility, availability of instruments and equipment’s. The following variables are given in the table below and their related list.

Dependent Variables

1. Handgrip Strength
2. Reaction Time

Experimental Design

A research design is used to achieve the effect of silmabam training program on dependent variables design was used. The subjects were randomly selected from the total population. All students were accepted the demand and received consent from the participants.

Administration of Test

The dependent variables were tested with the following test items.

1. Handgrip strength - Handgrip Dynamometer
2. Reaction Time - Yardstick Reaction Time Scale (in milliseconds).

Training Program

Eight weeks of silambam training program were conducted to the subject. The training start from the basis movements to advance skills. Fifteen rural students were selected and they were practiced silambam techniques weekly five days from monday to friday on every evening 6.00 pm to 8.00 pm.

The training schedule was distributed in 20 minutes stick warming up, 90 minutes silambam training and last 10 minutes warmdown. The Silambam Exercises were practiced by the training group are listed down.

1. Guru Vanakkam
2. Long Stick
3. Double Short Stick
4. Chopper Knife
5. Sword & Shield
6. Spear fighting / Spear Swing
7. Maduvu (Deer Horns)
8. Short and long stick
9. The steel-whip
10. Saber Sword Blade

Collection of Data

The training group were measured the pretest and posttest on handgrip strength and reaction time. The pretest was measured two days before training start and posttest was measured after eight weeks of training scheduled. The raw scores were taken for all the subjects and recorded. The handgrip strength noted with one time fully and relax and reaction time noted with seconds in time.

Statistical Analysis

The purpose of the study was to find out the effect of progressive silambam training on 15 male silambam students in rural. To find out the effectiveness of dependent variable by through independent variable, dependent ‘t’ test as a statistical tool was used to bring out the results.

ANALYSIS OF DATA
The statistical analysis applied on collected data and interpreted the results is presented in the below table

**TABLE - I**

Computation of paired ‘t’ test for Reaction Time and Handgrip strength in Silambam Training Group

<table>
<thead>
<tr>
<th>Variable</th>
<th>Test</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>‘t’ ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reaction Time (in Milliseconds)</td>
<td>Pre Test</td>
<td>12.60</td>
<td>15</td>
<td>1.99</td>
<td>0.52</td>
<td>7.172*</td>
</tr>
<tr>
<td></td>
<td>Post test</td>
<td>10.00</td>
<td>15</td>
<td>1.25</td>
<td>0.32</td>
<td></td>
</tr>
<tr>
<td>Handgrip strength</td>
<td>Pre test</td>
<td>123.53</td>
<td>15</td>
<td>8.509</td>
<td>2.197</td>
<td>-7.089*</td>
</tr>
<tr>
<td></td>
<td>Post test</td>
<td>133.07</td>
<td>15</td>
<td>8.705</td>
<td>2.248</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level of confidence. Degree of freedom 14.

The above table indicates that obtained pre and posttest means of reaction time of silambam group is 12.60 and 10.00 respectively. The 't' value required to be significant at 0.05 level of confidence at 14 degree of freedom is 2.05 and the ‘t’ ratio calculated was 7.172, which was more significant than the tabulated value at 0.05 level of confidence. So, the hypothesis was accepted in this variable.

The above table also indicates that obtained pre and post-test means of handgrip strength of silambam group is 123.53 and 133.07 respectively. The calculated 't' value is -7.089, it was found that insignificant results between pre and post-test means. So, the hypothesis was rejected in this variable.

**Figure-1**

Bar Diagram Showing the Mean Difference on Reaction Time in Silambam Group (in Milliseconds)
CONCLUSIONS

Within the limitation of the study and on the basis of the obtained results, the following conclusions had been drawn:
1. From the results it was stated that, there was no significant improvement in handgrip strength after eight weeks of silambam training.

2. From the results it was stated that, there was significant improvement in reaction time after eight weeks of silambam training.

REFERENCES

This investigation was purported to evaluate the Physical Fitness Status of Schoolboys adapted by RDT Hockey Academy in the Rayalasema District of Andhra Pradesh, India. For this reason, 916 schoolboys from thirty-two (32) schools in four (4) different districts adapted by RDT hockey academy in the Rayalasema District of Andhra Pradesh, India were considered as subjects. These subjects were in the age group of 11 to 16 years, and they were assessed for their physical fitness status. The fitness parameters were restrained to height, weight, speed, explosive power, flexibility, agility and cardiorespiratory endurance using standardized tests and procedures. The data collected were subjected to statistical analysis by means of One-way ANOVA, and Bonferroni corrections post hoc test. The confidence interval was fixed at P<0.05 in all cases. The research findings ensure statistically considerable age difference on selected variables, and it implies that age differences influence almost all fitness parameters.

**INTRODUCTION**

In India, for centuries of years from Vedic age to till date, the gurukuls and schools have played a vital role in the provision of physical activity to children and youth. Now a day, physical education is a mandated part of the school curriculum that too particularly in the State of Andhra Pradesh, India, and it is obligatory to assess and report the level of school student’s fitness. The educational aspects of physical education are to develop the knowledge, behavioral skills, and motor skills necessary to develop and maintain a physically active and healthy lifestyle. As such, the priority for physical education is seen as providing opportunities for students to engage in enjoyable physical activity, to become physically fit, and to learn generalizable motor and behavioral skills (McKenzie, 2003). Yet, participation in physical education was reduced by substitutions of other activities for physical education and student exemptions.

Customarily, the role of schools in providing and promoting physical activity has been during the school day and on the school campus immediately after school hours. Although there have been exceptions, school-based programs usually have been sponsored by the schools themselves and supervised by school employees. However, enormous potential appears to exist for schools to expand their role in providing students with additional physical activity by building institutional relationships with community-based providers of physical activity. Such relationships could manifest in several ways. Schools can make their facilities available to community based organizations during after-school, weekend, and summer vacation. Also, schools can collaborate with community organizations in promoting physical activity programs to students and their parents. Because transportation can be a barrier to students’ participation in after-school programs, schools can collaborate with community organizations, including transit authorities, to ensure that students have the opportunity to participate in programs beyond the school day.

Although school-community linked physical activity programs offer much promise, little research has addressed the efficacy of such initiatives for increasing physical activity in children and youth. The nurturing of young players was carried out by Rural Development Trust (RDT), an NGO based in Anantapur, Andhra Pradesh, India. RDT Hockey academy benefited many young players across Andhra Pradesh, by adapting the students of various schools. Thereby, an attempt was made to record and report
the physical fitness status of schoolboys of different ages adapted by RDT hockey academy in the Rayalasema district of Andhra Pradesh.

METHODOLOGY

In this study, nine hundred and sixteen (916) male school students, aged 11 to 16 years were selected as subjects, at random from the schools adapted by RDT hockey academy spread across the district of Rayalasema, Andhra Pradesh, India. The selected subjects were tested for their physical characteristics (height and weight) and fitness capabilities (speed, explosive power, flexibility, agility and cardiorespiratory endurance) using standardized tests and procedures. The data collected were subjected to statistical analysis by means of One-way ANOVA, and Bonferroni corrections post hoc test. The confidence interval was fixed at p < 0.05 in all cases.

RESULTS

The data on height, weight, speed, explosive power, flexibility, agility and cardiorespiratory endurance were analysed for statistical significant age difference using one-way ANOVA. Thereafter, post hoc tests were performed using Bonferroni corrections. All those results were tabulated in tables from 1 through 3.

Table – 1: Mean and Standard Deviations on Anthropometric Measurements and Physical Fitness Components

<table>
<thead>
<tr>
<th>Variables</th>
<th>Descriptive</th>
<th>Age Groups</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>11 yrs</td>
<td>12 yrs</td>
<td>13 yrs</td>
<td>14 yrs</td>
<td>15 yrs</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>112</td>
<td>222</td>
<td>249</td>
<td>196</td>
<td>99</td>
</tr>
<tr>
<td>Height</td>
<td>Mean</td>
<td>137.34</td>
<td>142.38</td>
<td>147.54</td>
<td>150.82</td>
<td>155.35</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>7.05</td>
<td>7.94</td>
<td>9.11</td>
<td>9.32</td>
<td>8.96</td>
</tr>
<tr>
<td>Weight</td>
<td>Mean</td>
<td>27.74</td>
<td>31.03</td>
<td>34.22</td>
<td>37.21</td>
<td>41.19</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>4.98</td>
<td>6.27</td>
<td>7.31</td>
<td>7.00</td>
<td>7.90</td>
</tr>
<tr>
<td>Speed</td>
<td>Mean</td>
<td>5.78</td>
<td>5.75</td>
<td>5.54</td>
<td>5.41</td>
<td>5.51</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>.52</td>
<td>.57</td>
<td>.63</td>
<td>.64</td>
<td>.57</td>
</tr>
<tr>
<td>Explosive Power</td>
<td>Mean</td>
<td>1.48</td>
<td>1.55</td>
<td>1.61</td>
<td>1.68</td>
<td>1.72</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>.16</td>
<td>.18</td>
<td>.21</td>
<td>.25</td>
<td>.23</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Mean</td>
<td>3.63</td>
<td>4.15</td>
<td>5.59</td>
<td>5.69</td>
<td>7.00</td>
</tr>
</tbody>
</table>
The descriptive statistics depicted in Table 1 reveals that all the variables confined to this study improved with age of the schoolboys. However, the speed, agility and cardiorespiratory endurance of the schoolboys were slightly impinged at the age of 15 and 16 years, which might be the result of academic stress, lack of motivation, sports performance saturation, gain in body mass, so on and so forth that needs to be investigated further.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Between Groups</td>
<td>33166.969</td>
<td>5</td>
<td>6633.394</td>
<td>90.449</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>66737.778</td>
<td>910</td>
<td>73.338</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Between Groups</td>
<td>18807.955</td>
<td>5</td>
<td>3761.591</td>
<td>80.890</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>42317.551</td>
<td>910</td>
<td>46.503</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td>Between Groups</td>
<td>18.145</td>
<td>5</td>
<td>3.629</td>
<td>10.275</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>321.401</td>
<td>910</td>
<td>.353</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explosive Power</td>
<td>Between Groups</td>
<td>7.380</td>
<td>5</td>
<td>1.476</td>
<td>33.143</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>40.528</td>
<td>910</td>
<td>.045</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexibility</td>
<td>Between Groups</td>
<td>1127.764</td>
<td>5</td>
<td>225.553</td>
<td>14.216</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>14437.968</td>
<td>910</td>
<td>15.866</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agility</td>
<td>Between Groups</td>
<td>446.681</td>
<td>5</td>
<td>89.336</td>
<td>31.856</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>2551.975</td>
<td>910</td>
<td>2.804</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiorespiratory Endurance</td>
<td>Between Groups</td>
<td>12.098</td>
<td>5</td>
<td>2.420</td>
<td>6.599</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>333.643</td>
<td>910</td>
<td>.367</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2 shows that statistically significant difference exists between different ages on height, weight, speed, explosive power, flexibility, agility and cardiorespiratory endurance as the obtained $F (5, 910) = 90.449, 80.890, 10.275, 33.143, 14.216, 31.856$ and $6.599$ respectively, $(p < 0.05)$. Since, six different age categories were considered in this study, the statistical analysis was further continued to post hoc test using Bonferroni corrections to find out the paired mean differences, and it was given Table 3.

**Table – 3: Post Hoc Tests on Anthropometric Measurements and Physical Fitness Components**

<table>
<thead>
<tr>
<th>Age in Years</th>
<th>Height</th>
<th>Weight</th>
<th>Speed</th>
<th>Explosive Power</th>
<th>Flexibility</th>
<th>Agility</th>
<th>Cardio Respiratory Endurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>12</td>
<td>5.039*</td>
<td>3.286*</td>
<td>0.027</td>
<td>0.068</td>
<td>0.515</td>
<td>0.584*</td>
</tr>
<tr>
<td>13</td>
<td>10.199*</td>
<td>6.476*</td>
<td>0.237*</td>
<td>0.125*</td>
<td>1.952*</td>
<td>1.319*</td>
<td>0.281*</td>
</tr>
<tr>
<td>14</td>
<td>13.477*</td>
<td>9.473*</td>
<td>0.370*</td>
<td>0.199*</td>
<td>2.055*</td>
<td>1.843*</td>
<td>0.308*</td>
</tr>
<tr>
<td>15</td>
<td>18.014*</td>
<td>13.451*</td>
<td>0.269*</td>
<td>0.238*</td>
<td>3.366*</td>
<td>1.657*</td>
<td>0.344*</td>
</tr>
<tr>
<td>16</td>
<td>24.319*</td>
<td>18.364*</td>
<td>0.326*</td>
<td>0.388*</td>
<td>3.892*</td>
<td>2.789*</td>
<td>0.281</td>
</tr>
<tr>
<td>12</td>
<td>13</td>
<td>5.160*</td>
<td>3.190*</td>
<td>0.210*</td>
<td>0.057</td>
<td>1.438*</td>
<td>0.735*</td>
</tr>
<tr>
<td>14</td>
<td>8.438*</td>
<td>6.187*</td>
<td>0.343*</td>
<td>0.132*</td>
<td>1.540*</td>
<td>1.259*</td>
<td>0.196*</td>
</tr>
<tr>
<td>15</td>
<td>12.975*</td>
<td>10.165*</td>
<td>0.242*</td>
<td>0.170*</td>
<td>2.851*</td>
<td>1.074*</td>
<td>0.232*</td>
</tr>
<tr>
<td>16</td>
<td>19.280*</td>
<td>15.078*</td>
<td>0.299*</td>
<td>0.321*</td>
<td>3.378*</td>
<td>2.206*</td>
<td>0.169</td>
</tr>
<tr>
<td>13</td>
<td>14</td>
<td>3.278*</td>
<td>2.997*</td>
<td>0.133</td>
<td>0.075*</td>
<td>0.102</td>
<td>0.524*</td>
</tr>
<tr>
<td>15</td>
<td>7.815*</td>
<td>6.975*</td>
<td>0.031*</td>
<td>0.113*</td>
<td>1.414*</td>
<td>0.338</td>
<td>0.064</td>
</tr>
<tr>
<td>16</td>
<td>14.120*</td>
<td>11.888*</td>
<td>0.089</td>
<td>0.264*</td>
<td>1.940</td>
<td>1.470*</td>
<td>0.001</td>
</tr>
<tr>
<td>14</td>
<td>15</td>
<td>4.537*</td>
<td>3.978*</td>
<td>0.101</td>
<td>0.038</td>
<td>1.311</td>
<td>0.186</td>
</tr>
<tr>
<td>16</td>
<td>10.842*</td>
<td>8.891*</td>
<td>0.044*</td>
<td>0.189*</td>
<td>1.838</td>
<td>0.947*</td>
<td>0.027</td>
</tr>
<tr>
<td>15</td>
<td>16</td>
<td>6.304*</td>
<td>4.913*</td>
<td>0.058</td>
<td>0.151*</td>
<td>0.526</td>
<td>1.132*</td>
</tr>
</tbody>
</table>
From Table 3, it is understood that almost each of the paired mean differences on height, weight and agility varied between ages. It is also found that the adjacent age categories didn’t vary considerably between them with regard to speed, explosive power, flexibility and cardiorespiratory endurance, while the speed, flexibility and cardiorespiratory endurance of the boys aged 14 to 16 years were not good enough as it is supposed to be.

Partaking in games and sports has long been assumed to provide health benefits to young players. In spite of certain reservations about this conjecture, the studies of some (Rossi et al., 2004; Skolnick, 1993; Aaron et al., 1995) have shown that health benefits accrue to young people who participate in sports. The results of the present study exhibit a mixed trend influence of sports participation.

CONCLUSION

The findings of this study reveal that most of the boys adapted by RDT hockey academy are getting taller and heavier with age, which ensures that the growth and development process were not hindered by means of systematic training program adopted in the academy. But, the result of this study necessitates rigorous training regimen for improving the physical fitness status of boys with regard to their age, as most of the fitness parameters level were not evidently varied among age categories of schoolboys adapted by the hockey academy.

REFERENCES:


ABSTRACT

Curriculum is a document that organized in sequential manner for delivering practicable learning experiences to students through its theoretical and practical contents. So, physical education and sport curriculum is educational program which create an opportunity for the learners to participate in lifelong learning experiences through different physical activities. Most educators underline that, physical education and sport program is concerned with the holistic development of knowledge and experience that help the learners to develop physical fitness and creative thinking ability. This study was intended to designate the appropriateness and significance of physical education and sport curriculum in its theoretical and practical content for preparatory students (11th & 12th) of Oromiya Region in Ethiopia. Three hundred (306) preparatory students by simple random from eight (8) model preparatory schools of the region and all physical education and sport teachers practicing the subject were taken as sample of study, to get appropriate sufficient data, observation were also conducted by researcher. The study targeted on the coverage of the physical education and sport curriculum, its relevance with maturity level of students, the availability of facilities, inclusiveness, integrity, and promotion of lifelong regular physical activity. Some relevant questions for the study were structured in close and open ended for the students and teacher. The data obtained from respondents through open ended questioners were analyzed in percentage quantitatively, interview and observation by researcher were narrated qualitatively followed by percentage result. The obtained results from respondents through all methods indicates that, the content of the physical education and sport curriculum practiced in the sampled schools of the region has so many limitation in equip the students with expected knowledge and experience specially in motor skills, inclusion and in promoting lifelong regular physical activity participation of the students, the activity included in the curriculum is also were not encouraging the students to practice the subject up to standard. So, appropriate action must be taken by concerned body for the overall content and activities included in the physical education and sport curriculum of the region.

Key: Curriculum, theoretical, practical, preparatory students

INTRODUCTION

Back Ground of the Study

The word “curriculum” is derived from the Latin word curriculum- meaning “the course or circuit that a race is to follow, it implies the path or track to be followed or the course of study to be undertaken”
Curriculum is defined by considering someone teaches something to someone somewhere (Schwa, 1978). Some people understand curriculum as everything that runs or occurs under the auspices of the school and a process, not just textbooks and other learning materials, which includes intended, taught and learned content.

Intended, taught and learned curriculum of physical education and sport develops the skills, knowledge, values and attitudes needed for establishing and enjoying an active and healthy lifestyle, as well as building students confidence and competence in solving problems as individuals and in groups or teams through a wide range of learning activities. It also emphasizes on the relation between theory and practical skills that designed to develop the interest and build up the potential of students in the areas of physical education and sports. Appropriate physical education and sport program participation were help students to gain a deeper understanding of human movement and promote the well-being of individuals in a society. Different research works indicate that, physical education and sport will enhance students’ collaboration and communication skills, creativity and critical thinking skills. It is generally accepted that encouraging a healthy lifestyle characterized by regular physical activity in children and youth were world-wide priority for future health, to overcome the challenges posed by sedentary lifestyles. Like many other major countries of the world in the world, Ethiopia also facing the same problems. The Physical education and sport curriculum is designed to address the problems of mentally and physically unfit citizens and the spreading of chronic disease. Though; the theoretical and practical activist of physical education and sport should foster healthy living and contribute to the development of well-being for all students. But, in most case, the curriculum of physical education and sport lack to achieve these objectives due inappropriate and irrelevant contents included it. (Hardman, 2000) cited, in most countries of the world physical education and sport curriculum were in relevance and lack of quality, it was not participatory and inclusive, that why most learners were not interest to practice it. In the region of indicated country also the overall relevance of physical education curriculum were need emphases, that why the researcher interested to deal the problem, The purpose of this study was to consider specifically the content coverage, participatory, inclusiveness and integration of physical education and sport curriculum practiced in the region.

METHODOLOGY

The study was conducted in East Africa Ethiopia, specifically Oromiya region which account 40% of the total population and wide land coverage than any other fourteen (14) region of the country. The region was also highly populated and economically the potential area of the country, moreover; it was the home of most world class elite long distance runners’ athletes. To carry out this study, the researcher prefer survey research methods.

Subject of the Study

To get the appropriate and sufficient source for the study, the researcher take eight (8) model preparatory schools (11th & 12th grade) from the education office of the region deliberately. Then by simple random technique, 180 male and 120 female including 6 (4 male and 2 female) disabled students of the schools, totally 306 students from 2850 (1950 male and 900 female) considering the number and sex of the
students in each sampled schools. The overall average age of the students were 18+ 3. The researcher also uses all physical education and sport teachers six (6) male and two (2) female instructs the subject in the school as the sample of study. Moreover; to strengthen the study, the researcher observe the availability of text book, teachers guide, syllabus and curriculum of the subject in the school and real teaching learning situation in the school.

**DATA GATHERING TOOLS OR TECHNIQUES**

Both quantitative and qualitative data gathering techniques were used for the study. Quantitatively appropriate closed ended questioner for all students and open ended questioner for 32 students and all disabled students were structured and distributed. All physical education teachers and sixteen (16) students were interviewed including disabled students. To obtain relevant data for the study, the researcher also observe three theoretical and three practical physical education and sport classes and observe the availability of teaching materials like book teachers guide for theoretical class and court, balls and other relevant materials to practice the subject.

**DATA ANALYSIS**

All the quantitative data resource were analyzed and interpreted in percentage, interview and observation were narrated with quantitative data on the on the issues of the study.

**Result of the Study**

The overall results of the study were summarized in the following two pie charts for male and female, and the response of teachers and the observation conducted by the researcher also narrated with the students’ response as follows in the discussion part


DISCUSSION

Curriculum is a guide line and the heart of teaching learning process on which the students’ future life relay on, so it is a document which need continuous evaluation and taking necessary action is very essential, predominantly the appropriateness of each tasks and activities included in it. But in this study as we can see from the Pie chart of male students response about the curriculum of physical education and sport they practice in the sampled school of the region, where the study conducted were need improvements in coverage, inclusion, integrity and in creating opportunity for heterogeneous students. Because 80% of male students’ response indicate that the curriculum they practice unsatisfactory in overall aspect, only 15% of male students’ response indicate that the curriculum was satisfactory, few students were students, 5% unable to decide. On the other hand, the data gathered through interview from physical education and sport teachers and some students including the observation conducted by the researcher also strength the response of the students. Majority of these model schools were have no any teaching material like textbooks for students, ball and plying filed for basketball and handball, the basketball and handball were major ball games included in the content of the curriculum at this grade level all over the region. In the case of disabled students, they are totally out of the system as the researcher observed and the students also agreed that even a single day they are not involved in the practical classes, except theoretical section. In general the curriculum of physical education and sport of the region lack to achieve the educational objective of the subject.

Similarly the response obtained from female students were presented in the above Pie chart, which is almost the same with the male students’ response. As we see from the chart, 73% of the students agreed that, the physical education and sport curriculum content theoretically as well as practically were not appropriate and impracticable as well as it was not encourage and invite all students to practice it,
moreover; the activities included in it were not relevant with the existing situation of the school environment. In addition to this; it was not inspire and motivate all students’ specially female and disabled students. The response from physical education and sport teachers of the sampled school also strongly support the idea of students particularly the participation of female and disabled students. The researcher observe that almost all female students were sitting under the tree or play their own game up to the end of the class and the disabled students totally were not come to the sport ground during practical class.

CONCLUSION

It was not easy work to develop practicable educational document like curriculum, syllabus, and textbook for students and teacher’s guide at all grade level by considering the heterogeneity of the learners, especially physical education and sport subject which practices both theoretical and practical activities together. The overall problems identified about the physical education and sport curriculum in indicated specific region where the study conducted were lack of expected coverage in both theoretical and practical content, not comprehensive, less integrity within in its content and with other related subjects, lack of relevant with maturity level of learners in both mentally and physically. Not only this, it also limited in promoting the role and benefit of regular physical activities participation and in create opportunity for further study and understanding about the subject for the students. These were the core teething troubles that identified by the study in obstructing and hindering the practicing of physical education and sport curriculum for preparatory students in the oromiya region of Ethiopia.

Recommendation

Based on the findings obtained from this study, the following appropriate actions were suggested by researcher to ensure a high quality physical education and sport program in preparatory schools of the country specifically oromiya region where the study was conducted:

- The physical education and sport curriculum contents that the students practice in the schools should emphasis on promote lifelong learning experience and continuous learning opportunities that help the learners to lead health and quality life particularly at preparatory schools
- Sequentially integrated theoretical activities and practical skills should include in the curriculum for preparing the learners for further understanding and study about the subject.
- Before designing the curriculum, curriculum developer and professionals should assess the existing situation of the schools, what and which tasks or activities are practicable
- The maturity level, need, interest and individual difference of the students, generally the heterogeneity of the students also should take into consideration
- At this grade level include advanced discipline of the subject like (e.g., biomechanics, exercise physiology, sport medicine, sport psychology and motor learning) should introduced for the learners

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rk.htm

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EFFECTS OF YOGIC PRACTICES AND PHYSICAL EXERCISES ON VITAL CAPACITY

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ABSTRACT

The purpose of the study was to find out the effects of yogic practices and physical exercises on vital capacity. To achieve this purpose of the study, Forty five women students studying in the Shri M.M.Ghodasara mahila Arts & Commerce College, Junagadh, Gujarat were selected as subjects at random. Their age ranged between 18 to 24 years. The selected subjects were divided into three equal groups of fifteen each namely yogic practices group, physical exercises group and control group. The experimental group-I underwent yogic practices, group-II underwent physical exercises for three days per week for eight week whereas the control group (Group-III) maintained their daily routine activities and no special training was given to them. The following variables namely vital capacity was selected as criterion variable. The subjects of the three groups were tested on vital capacity using wet spirometer at prior and immediately after the training period. The collected data were analyzed statistically through analysis of covariance (ANCOVA) to find out the significant difference, if any among the groups. Whenever the obtained “F” ratio was found to be significant, the scheffe’s test was applied as post hoc test to find out the paired mean difference, if any. The 0.05 level of confidence was fixed to test the level of significance which was considered as an appropriate. The results of the study showed that there was a significant difference exists among yogic practices group, physical exercises group and control group on vital capacity. And also yogic practices group and physical exercises group showed significant improvement on vital capacity when compared to control group.

Key words: Yogic Practices, Physical Exercises, Vital Capacity, ANCOVA.

References:
EFFECTS OF YOGIC PRACTICES AND PHYSICAL EXERCISES ON VITAL CAPACITY

INTRODUCTION

Physical fitness refers to the organic fitness of the individual to perform a daily task with vigorous their by implying the degree of fitness one has to maintain his life with reserved energy (Robert V. and Hockey, 1989). Training is a systematic process of repetitive progressive exercise of work involving learning and acclimatization. Training is the net summation of adaptations induced by regular exercise. Students on the exercises with reference to fitness state that it enables the tolerate more effectively, subsequently stresses of similar nature. The process of stressing the sportsman and his adaptation to these stress is called sports training and it is the mean by which sports performance is improved (Hardayal Singh, 1991).

Yoga is a science of right living and it works when integrated in our daily life. It works on all aspects of the person: the physical, mental, emotional, psychic and spiritual. The word yoga means ‘Unity’ or ‘Oneness’ and is derived from the Sanskrit word ‘Yuj’ which means ‘to join’. ‘Yoga provides one of the best means of self improvement and attaining one’s full potential. In the advanced stages of yoga, superconscious states are attained which result in a feeling of bliss, deep peace and the emergence of psychic powers (Edwin Bryant, 2009).

Physical exercise is any bodily activity that enhances or maintains physical fitness and overall health and wellness. It is performed for various reasons including strengthening muscles and the cardiovascular system, honing athletic skills, weight loss or maintenance, as well as for the purpose of enjoyment (Charles A. Bucher, 1990).

METHOD:

The purpose of the study was to find out the effects of yogic practices and physical exercises on vital capacity. To achieve this purpose of the study, Forty five women students studying in the Shri M.M.Ghodasara mahila Arts & Commerce College, Junagadh, Gujarat were selected as subjects at random. Their age ranged between 18 to 24 years. The selected subjects were divided into three equal groups of fifteen each namely yogic practices group, physical exercise group and control group. The experimental group-I underwent yogic practice, group-II underwent physical exercises for three days per week for eight weeks whereas the control group (group-III) maintained their daily routine activities and...
no special training was given to them. The following variable namely vital capacity was selected as criterion variable. The subjects of the three groups were tested on vital capacity using wet spirometer at prior and immediately after the training period. The collected data were analyzed statistically through analysis of obtained “F” ratio was found to be significant, the scheffe’s test was applied as post hoc test to find out the paired mean difference, if any. The 0.05 level of confidence was fixed to test the level of significance which was considered as an appropriate.

During the training period the Group-I underwent yogic practices and group-II underwent physical exercises for three days per week (alternative days) for eight weeks. Every day the workout lasted for 20 to 30 minutes approximately including warming up and warming down periods. Group-III acted as control who did not participate in any strenuous physical exercises and specific training throughout the training period. However, they performed activities as per their curriculum.

The analysis of covariance on vital capacity of yogic practices group, physical exercises group and control group have been analyzed and presented below.

The analysis of covariance on vital capacity of the pre and post test scores of yogic practices group, physical exercises group and control group have been analyzed and presented in Table-I.

**Table-I**

Analysis of Covariance of the Data in vital Capacity of Pre and Post Tests Scores of Yogic Practices, Physical exercises and Control Groups

<table>
<thead>
<tr>
<th>Test</th>
<th>Yogic Practices Group</th>
<th>Physical exercise group</th>
<th>Control Group</th>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Squares</th>
<th>‘F’ Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
<td>Between</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.D.</td>
<td></td>
<td></td>
<td></td>
<td>Within</td>
<td>42</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
<td>Between</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.D.</td>
<td></td>
<td></td>
<td></td>
<td>Within</td>
<td>42</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted Post test</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
<td>Between</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.D.</td>
<td></td>
<td></td>
<td></td>
<td>Within</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
*Significant at 0.05 level of confidence.

(The table values required for significance at 0.05 level of confidence for 2 and 42 and 2 and 41 are 3.222 and 3.226 respectively).

The adjusted post test means of yogic practices group, physical exercises group and control group on vital capacity are 10.80, 10.81 and 10.70 respectively. The obtained “F” ratio of 9.645 for adjusted post test means is greater than the table value of 3.226 for df 2 and 41 required for significance at 0.05 level of confidence on vital capacity.

Since, three groups were compared whenever the obtained “F” ratio for the adjusted post test was found to be significant, the scheffe’s test was applied as post hoc test to find out the paired mean differences, if any and it was presented in table-I–A.

Table-I–A The Scheffe’s Test for the Differences between Paired Means on Vital Capacity

<table>
<thead>
<tr>
<th>Yogic Practices Group</th>
<th>Physical Exercise Group</th>
<th>Control Group</th>
<th>Mean differences</th>
<th>Confidence Interval Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level of confidence.

The table-I-A showed that the mean difference values between yogic practices group and physical exercises group, yogic practices group and control group, physical exercises group and control group on vital capacity were 0.10, 0.18 and 0.06 respectively which were greater than the required confidence interval value 0.03.

Results and Discussion:

The results of the study showed that there was a significant difference between yogic practices group and physical exercises group, yogic practices group and control group, physical exercise group and control group on vital capacity.

Conclusion:

Based on the results of the study, the following conclusions were made. The results of the study showed that there was a significant difference among yogic practices group and physical exercise group, physical exercise group and control group on vital capacity. And also it was showed that there was a significant improvement on vital capacity due to yogic practices and physical exercise, whereas the improvements were in favour of physical exercises group. The results of the study are incorrelated with
the results of Bobber, Cheng and Fetcher which they resulted the significant improvement on selected criterion variables due to yogic practices and physical exercises.

REFERENCES:

EFFECT OF SELECTED ASANAS ON PHYSICAL COMPONENTS

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ABSTRACT

The study is an experimental one, where pre & post test experimental design has been followed. The present study focuses on the effect of selected Yoga Asanas on selected components. Viz. strength, speed, coordinative ability and endurance. In the present study a group of 40 male students was selected randomly from the Smt. S.B. Patel Arts & Shri R.N. Amin Commerce college - vaso. The age Group range was between 18 to 25 years. These 40 students were equally divided in two groups, consisting of 20 students each. These two groups of students were given specific exercise with general warming up. Group A was given selected Yoga asanas viz. Sarvangasana, Halasana, Matsyasana, Chakrasana, Dhanurasana, Paschimottanasana, Ardh Matsyendrasana, Padahastan, Utkatasana. Group B was controlled group and was not given any type of exercise except general warming up exercise. These students went through asana practice for eight weeks training programe of 6:30 to 7:30 AM on weekdays, Sunday being off days. AAHPER Youth Fitness Test (1989) is used to measure the motor fitness ability of the subjects. T-test is applied to test the significance of the means. Results like strength, endurance and coordinative abilities. Whereas, speed can’t be enhanced through the practice on asanas.

Key words: Physical components, AAHPER, speed, endurance.

References:


EFFECT OF SELECTED ASANAS ON PHYSICAL COMPONENTS

INTRODUCTION:
The asanas history dates back to the oldest literature Rig Veda, but the first complete text on Yoga was written by Patanjali, 500 years BC. Asana is the third step in Patanjal Yoga (Ashtanga Yoga) and First step in the Hatha Yoga Pradipika written by Swami Swatmarama (Original Text of Hatha Yoga). The word asana is derived from the Sanskrit word ‘Aas’ which means ‘existence’, thus, state of existence is Asana or Position. Patanjali defines Asana as a Steady and Comfortable position. It is known for the effects such as increased efficiency, stamina, increased immune capacity, quiet & calm mind, easy control over emotions and improvement in attitude. The present study focuses on the effect of selected asanas viz. Sarvangasana, Halasana, Matsyasana, Chakrasana, Dhanurasana, Paschimotanasana, Ardh Matsyendrasana, Padahatsasana, Utkatasana on selected physical components. Viz. Strength, Speed, Coordinative ability and Endurance. The study hypothesized that there will be significant effects of Asanas on selected physical components. However it was not possible on the part of the researcher to control the socio-economic conditions of the students.

**METHOD:**

The study is an experimental one, where pre & post test experimental design has been followed. In the present study a group of 40 male students was selected randomly from the campus of Smt. S.B. Patel Arts & Shri R.N. Amin Commerce college- vaso. The age group range was between 18 to 25 years. Theses 40 students were equally divided in two groups, consisting of 20 students each. These two groups of students were given specific exercise with general warming up. Group A was given selected Asanas viz. Sarvangasana, Halasana, Matsyasana, Chakrasana, Dhanurasana, Paschimotanasana, Ardh Matsyendrasana, Padahatsasana, Utkatasana. Group B was controlled group and was not given any type of exercise except general warming up exercises. These students went through yogic asana practice for eight weeks training program of one hour daily during morning in the strict supervision of the researcher. This one hour training program was consisted of 20 minutes general warming up with light exercises plus 35 minutes asana schedule and 5 minutes Savasana with normal breathe. Training was started from about one round of every asana with 30 second stay and reached up 3 rounds having one minute stay of every asana with the rest 30 seconds between two. A suitable rest was given between the rounds, wherever required.

Data was collected on the chosen variable at the pre and post experimental stage. The following test was used to collect the data.

Physical test AAHPER Youth Fitness’s Test (1989) was used to measure the following motor

**FITNESS ABILITY OF THE SUBJECTS.**

Pull- ups : To measure arm and shoulder strength.
Sit- ups: To measure abdominal strength and endurance.
Shuttle Run: To measure coordinative ability.
Standing Broad Jump: To measure explosive strength/power.
50 Yard Dash: To measure speed.
600 Yard Run: To measure endurance.

RESULTS AND DISCUSSION:

TABLE – 1 Asana Group Differences Pre test and Post test mean of physical components

<table>
<thead>
<tr>
<th>Components</th>
<th>Asana Group Pre-test</th>
<th>Asana Group Post-test</th>
<th>T- test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Pull- ups</td>
<td>4.54</td>
<td>1.14</td>
<td>6.25</td>
</tr>
<tr>
<td>Sit- ups</td>
<td>20.44</td>
<td>3.11</td>
<td>23.90</td>
</tr>
<tr>
<td>Shuttle Run</td>
<td>12.75</td>
<td>1.22</td>
<td>12.70</td>
</tr>
<tr>
<td>Standing Broad Jump</td>
<td>1.93</td>
<td>0.09</td>
<td>1.97</td>
</tr>
<tr>
<td>50 Yard Dash</td>
<td>6.82</td>
<td>0.71</td>
<td>6.64</td>
</tr>
<tr>
<td>600 Yard Run</td>
<td>1.49</td>
<td>0.10</td>
<td>1.46</td>
</tr>
</tbody>
</table>

Significant at 0.05 level of significance; t 0.05(19) = 2.093

TABLE – 2

Controlled Group Differences between Pre test and Post test mean of physical components

<table>
<thead>
<tr>
<th>Components</th>
<th>Control Group Pre-test</th>
<th>Control Group Post-test</th>
<th>T- test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Pull- ups</td>
<td>4.05</td>
<td>1.50</td>
<td>4.30</td>
</tr>
<tr>
<td>Sit- ups</td>
<td>21.40</td>
<td>2.81</td>
<td>21.35</td>
</tr>
<tr>
<td>Shuttle Run</td>
<td>13.15</td>
<td>0.83</td>
<td>13.15</td>
</tr>
<tr>
<td>Standing Broad Jump</td>
<td>1.93</td>
<td>0.08</td>
<td>1.93</td>
</tr>
<tr>
<td>50 Yard Dash</td>
<td>6.72</td>
<td>0.25</td>
<td>6.71</td>
</tr>
</tbody>
</table>
The means of the pull ups and Sit ups are higher in the post test than the pre test of Asana groups and their t-test are significant. It indicates that the shoulder strength and the abdominal strength and endurance of the asana group have increased. Whereas, on the other hand, these values are non significant for controlled group suggest that there is no considerable change in shoulder and abdominal strength of that group. Time of shuttle run in post test of asana group has decreased in comparison to pre test of the same group and T- test value is Significant in the case suggest that there is increase in the agility of the asana group. However controlled group does not indicate any such changes in speed and agility. Mean of standing broad jump has increased to 5 cm from pre test to post of asana group, whereas no such change is perceived in controlled group indicates that explosive strength has increased only in the case of asana group. For 50 Yard dash T- test valve of neither asana group nor controlled are significant, which clearly indicate that asana have hardly any effect on running speed. In 600 Yard run, T-test value is significant in the case of asana group reveals the fact that these selected asanas have enhances the endurance of the asana group. Whereas non significant T value of controlled group suggest no change in the endurance of the controlled group. Table- 1 and Table- 2 depict the data of pre and post test of Asana group and Controlled group.

CONCLUSION :

Results of the research inferred that there is a significant effect of the Asana on physical components like strength, endurance and coordinative abilities. Whereas speed can’t be enhanced through the practice of asanas.

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“THE EFFECT OF SOCIAL SUPPORT ON THE PERFORMANCE OF KHO-KHO WOMEN’S PLAYERS”

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ABSTRACT

INTRODUCTION

The aim of the study is to know the effect of Social support on kho kho women’s players. The concept of social support has been occupying a prominent place in the lives of the individuals. It speaks about enhancing qualities and the feelings of being cared for, loved and accepted. A broad definition of social support is the "resources provided by others" (Cohen and Syme, 1985). Social support stems from relationships with family members, friends, colleagues, and acquaintances.

Statement of the problem: To study the effect of social support on the performance of Kho Kho Women’s players.

OBJECTIVES:

To study the impact of social support on the performance of the Kho Kho Women’s Players.

HYPOTHESES:

There is a significant influence of social support on Kho Kho Women’s Players performance.

THE SAMPLE:

The study was conducted on a sample of 20 players of Kho Kho Women’s Players selected from Karnataka State Women’s University Bijapur. The selection was done based on level of social support.

SOCIAL SUPPORT APPRAISAL SCALE:

This is developed by Vaux, et.al. (1986) which consists of 234 items with five alternatives.

STATISTICAL ANALYSIS:

To meet the objectives of the study and to verify the formulated hypotheses the data were analyzed, using the statistical technique of t-test to compare the sample sub-groups.

CONCLUSIONS:

There is an effect of social support on the performance of Women’s players and the sample with high social support exhibited higher sport performance of women.

Key Wards: Social support, Social factors.

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“THE EFFECT OF SOCIAL SUPPORT ON THE PERFORMANCE OF KHO-KHO WOMEN’S PLAYERS”

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INTRODUCTION

The concept of social support has been occupying a prominent place in the lives of the individuals. It speaks about enhancing qualities and the feelings of being cared for, loved and accepted. The pressures of such aid and support from significant others in the form of emotional care is understood to play a vital role in the life of individuals. Social support is usually defined as the existence of people on whom we can rely, people who let us know that they care about, value, and love us. A broad definition of social support is the "resources provided by others" (Cohen and Syme, 1985). Social support stems from relationships with family members, friends, colleagues, and acquaintances. Social capital refers to the features of society that facilitate cooperation for mutual benefit, such as interpersonal trust and civic associations. Individual social support and cohesive, capital-rich communities help to protect physical and mental health and facilitate healthy behaviors and choices. Thus the pressures of social support debit the appropriate representation of psychological assets or resources. It is an exchange of resources between two individuals: the provider or the recipient. It is the essence of being social, mutual nurturing good caring, which instills the feeling of belonging that satisfies the affiliation needs of an individual. Thus the social support is a factor that enhances behavioral activities in the individual by way of generating care, love, understanding, intimacy and sense of belonging. Thus a person enjoying higher social support is believed to be more productive whether it is social setting or a field of competition. Hence, the present study addresses itself in analyzing the influence of the performance of sports persons especially Kho Kho Women’s players selected from Karnataka State Women’s University Bijapur.
The findings of the study would be of immense use in coaching, guiding, and training the Youth. The term social support likely is a very familiar concept to most individuals and many would agree that it plays an important role in influencing the well-being of children and families. Broadly speaking, “social support consists of social relationships that provide (or can potentially provide) material and interpersonal resources that are of value to the recipient, such as counseling, access to information and services, sharing of tasks and responsibilities, and skill acquisition” (Thompson, 1995, p.43). Furthermore, the category of interpersonal resources often includes a range of emotional supports (e.g., empathy, caring, love, and trust), informational supports (e.g., advice, suggestions, access to information, etc.) and instrumental supports (e.g., aid in kind, sharing of tasks and responsibilities, skills acquisition, among others), that either by themselves, or in combination with more concrete material resources, helps the recipient cope and adapt to stressful life events and supports their positive well-being (Barrera, 1986; Dunst & Trivette, 1985; Lakey & Cohen, 2000; Thompson, 1995).

The reviews of this related study is Lynn and Frances (1996) examined the role of stress, competitive anxiety, mood state, and social support in athletic injury. Specifically, we hypothesized that athletes reporting high levels of stress, high competitive trait anxiety, negative mood state, and low social support would exhibit greater incidence of injury and injury severity.

**SIGNIFICANCE OF STUDY**

The study makes an attempt to assess the influence of social support – the social factors--on sports performance of Kho Kho Women’s players selected form Karnataka State Women’s University Bijapur. It is well understood that these factors are highly inter-related to sports activities. Knowing the significant influence of a sports educationist can manipulate these psychological factors to improve the performance of sports.

**STATEMENT OF THE PROBLEM**

To study the effect of social support on the performance of Kho Kho Women’s players

**OBJECTIVES:**

1. To study the impact of social support on the performance of the Kho Kho Women’s Players.
HYPOTHESES

1. There is a significant influence of social support on Kho Kho Women’s Players performance.

THE SAMPLE:

The study was conducted on a sample of 20 players of Kho Kho Women’s Players selected from Karnataka State Women’s University Bijapur. The selection was done based on level of social support. The respondents were administered social support scales. Based on the scores obtained in the sample was divided into high and low social support. The sample selected like this was given the performance of Kho Kho Women’s Players.

1. SOCIAL SUPPORT APPRAISAL SCALE

This is developed by Vaux, et.al. (1986) which consists of 234 items with five alternatives. As per the manual of the scale, higher score indicates higher social support. The reliability and the validity of the scale are fairly high.

STATISTICAL ANALYSIS

To meet the objectives of the study and to verify the formulated hypotheses the data were analyzed, using the statistical technique of t-test to compare the sample sub-groups.

The aim of this study was to know the effect of social support on the performance of Kho Kho Women’s players. The players were selected Karnataka State Women’s University Bijapur. The players were administered the social support scale and grouped into high and low categories of social support. Thus the sample was grouped equally into two groups high and low social support. The subgroups on these variables were subjected to Kho Kho Women’s performance. The t-test was applied to compare the sample sub-groups on mental health, social support. The data were organized and presented in the tables.

Table-1: Shows the Mean’s and t-values of Sports Performance of Kho Kho Women’s Players in Two categories of Social Support (N=20)
Table 1 presents the mean scores of the sample divided into two groups based on social support. Thus, there are two groups: high and low social support. The mean scores of the high social support group are 32.22, and those of the low social support group are 29.19. This clearly indicates that the high social support group has a higher performance than the low social support group. The t-value of 3.19 is significant at 0.01 levels, suggesting a significant difference in the performance of the Kho Kho Women’s players. The high social support group generally gains more reinforcement, encouragement, and motivation from family members, friends, teachers, coaches, and significant persons who encourage the sport persons by way of their support. This perceived social support produces more spirit of playing, participating, and acquiring new sports skills. However, the low social support group lacks these facilities of cooperation, help, and encouragement, leading to inadequate performance. As a result, the low social support group’s sport performance is comparatively lower than the high social support group in the given performance.

The aim of the present investigation was to explore the impact of social support on the performance of Kho Kho Women’s players selected from KS Women’s University Bijapur. The sample selected was 20 players equally divided into high and low social support groups. The data of the Kho Kho Women’s performance of the sample were statistically analyzed, and the conclusions were drawn as follows:

**CONCLUSIONS:**

1. There is an effect of social support on the performance of Women’s players.
2. The sample with high social support exhibited higher sport performance of women.

**BIBLIOGRAPHY**

Behzadi Singh (2011) the study is mainly concerned with volleyball players who participated in the inter college competition. Now days, the Game volleyball is becoming as a professional sport rather than the competitive sport. So the competitiveness among the volleyball players is growing up day by day with different color. The main purpose of this study was to compare pre-competitive anxiety and post-competitive anxiety in inter- collegiate volleyball players. A group of 170 volleyball players (boys=85 and girls=85) were selected from different colleges affiliated to Guru Nanak Dev University, Amritsar, Punjab, India through purposive sampling technique. Their age was ranged from 18 to 25 years. Data were collected from athletes using a Sports Competitive Anxiety Test - (SCAT) consists of fifteen items which include 5 spurious items, 8 positive items and 2 negative items. The t-test was used to test the effect of anxiety level between pre and post completion. The significance level was determined as p<0.01. The result of the study reveals that there was significant difference in 0.01 levels of pre-competitive anxiety and post competitive anxiety among the male and female inter-collegiate volleyball players.
EFFECT OF 12 WEEKS FREE WEIGHTS AND RESISTANCE TRAINING ON MUSCULAR STRENGTH ON JUNIOR LEVEL BASKET BALL PLAYERS

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INTRODUCTION

Sport is all forms of usually competitive physical activity which through casual or organized participation, aim to use, maintain, improve physical ability and skills while providing entertainment to participants, and spectators. A sport consists of a physical and mentally competitive activity carried out with a recreational purpose for competition, for self-enjoyment, to attain excellence, for the development of a skill, or some combination of these. Sports training is a process of preparation of sportsman based on scientific and pedagogical principles for higher performance. Resistance training is a type of strength-training exercise that gets use muscles against some form of resistance. The most common forms of resistance are free weights and strength-training equipment. Strength training is an important part of a total physical fitness plan for both men and women. It improves muscle strength and endurance. Free weights, often called dumbbells, come in different weight sizes or can be adjusted to hold different weights. Using free weights for resistance strength training has many advantages. Different muscles to maintain balance while using free weights, better overall improvement in muscle strength. Free-weight exercises may provide more benefits in strength and endurance for everyday activities.

METHOD

One hundred and five junior Basketball male players were selected from Tamil Nadu state on purposive sampling. The player’s age ranged from 13 years to 15 years as per their school records. The subjects were divided into three groups namely group I (n=35) served as a control group, group II was assigned to free weight training programme and group III was assigned to resistance training programme, for a period of twelve weeks for three days in a week. The experimental training programme (i.e., free weight and resistance training ) on the junior basketball players were tested before and after the experimental programme on the following selected criterion measures such as sit-ups, push-ups, and half – squat jump. To find out Muscular Strength sit- ups (Strength endurance of abdomen muscles), push-ups (Strength endurance of the arm and shoulder muscles) and half Squat jump (Strength endurance of leg muscle).
RESULTS OF THE STUDY

The statistical analysis of data collected on Muscular Strength variable has been presented in the following tables. The data pertaining to sit-ups, push-ups and half-squat jump, for control group and experimental group I free weights (weight training) and experimental group II (Resistance training) were statistically analysed by Analysis of Co-Variance (ANACOVA). The obtained $F$ ratio was tested for significance at 0.05 level of confidence. Scheffe’s post-hoc test of significance was employed in order to test the significance difference between paired adjusted means.

### TABLE I
ANALYSIS OF COVARIANCE PRE-TEST AND POST-TEST ON SIT-UPS

<table>
<thead>
<tr>
<th></th>
<th>Control group</th>
<th>Experimental group I</th>
<th>Experimental group II</th>
<th>SOV</th>
<th>SS</th>
<th>MSS</th>
<th>df</th>
<th>‘F’ ratio</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test mean</td>
<td>17.66</td>
<td>18.61</td>
<td>18.26</td>
<td>B</td>
<td>16.50</td>
<td>8.25</td>
<td>2</td>
<td>0.46</td>
<td>0.633</td>
</tr>
<tr>
<td>SD</td>
<td>3.84</td>
<td>4.17</td>
<td>4.68</td>
<td>W</td>
<td>1833.06</td>
<td>17.97</td>
<td>102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post test mean</td>
<td>17.51</td>
<td>21.17</td>
<td>23.41</td>
<td>B</td>
<td>613.01</td>
<td>306.51</td>
<td>2</td>
<td>15.82</td>
<td>0.000</td>
</tr>
<tr>
<td>SD</td>
<td>4.24</td>
<td>4.31</td>
<td>4.66</td>
<td>W</td>
<td>1975.98</td>
<td>19.37</td>
<td>102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted test mean</td>
<td>18.00</td>
<td>20.77</td>
<td>23.33</td>
<td>B</td>
<td>488.90</td>
<td>244.45</td>
<td>2</td>
<td>63.84*</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>W</td>
<td>386.74</td>
<td>3.83</td>
<td>101</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the table I it can be seen that the obtained ‘$F$’ value was 63.84 which was much greater than the required $F$ value of 3.09 at 0.05 level of confidence.

Scheffe’s post-hoc Ia

<table>
<thead>
<tr>
<th>Control group</th>
<th>Experimental group I</th>
<th>Experimental group II</th>
<th>Mean difference</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.00</td>
<td>20.77</td>
<td></td>
<td>2.77*</td>
<td></td>
</tr>
</tbody>
</table>
Scheffe’s table Ia shows post-hoc method of testing the significant of the difference between the paired means following a significant analysis of covariance for free weight training group, resistance training group and control group. The adjusted general muscular strength means in order of magnitude and the difference between this means for the control and two experimental groups are given in the table the mean difference between the control and free weight training group was 2.77. In the comparison between resistance training group and control group were 5.33 and comparison between free weights group and resistance group were 2.56. which was significant at 0.05 level of confidence. This result shows that the resistance group had a batter improvement when compared to the free weight group and control group.

**TABLE II**

**ANALYSIS OF COVARIANCE PRE-TEST AND POST-TEST ON PUSH-UPS**

<table>
<thead>
<tr>
<th></th>
<th>Control group</th>
<th>Experimental group I</th>
<th>Experimental group II</th>
<th>SOV</th>
<th>SS</th>
<th>MSS</th>
<th>df</th>
<th>f ratio</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test mean</td>
<td>9.57</td>
<td>9.39</td>
<td>9.56</td>
<td>B</td>
<td>0.74</td>
<td>0.37</td>
<td>2</td>
<td>0.56</td>
<td>0.945</td>
</tr>
<tr>
<td>SD</td>
<td>2.71</td>
<td>2.37</td>
<td>2.58</td>
<td>W</td>
<td>667.51</td>
<td>6.54</td>
<td>102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post test mean</td>
<td>10.09</td>
<td>11.92</td>
<td>14.06</td>
<td>B</td>
<td>272.62</td>
<td>136.31</td>
<td>2</td>
<td>21.75*</td>
<td>0.000</td>
</tr>
<tr>
<td>SD</td>
<td>2042</td>
<td>2.59</td>
<td>2.50</td>
<td>W</td>
<td>639.37</td>
<td>6.27</td>
<td>102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted test</td>
<td>10.03</td>
<td>12.01</td>
<td>14.01</td>
<td>B</td>
<td>273.73</td>
<td>136.87</td>
<td>2</td>
<td>89.89*</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>W</td>
<td>153.78</td>
<td>1.52</td>
<td>101</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the table II it can be seen that the obtained ‘F’ value was 21.75 in post test mean and adjusted test 89.89 which was much greater than the required F value of 3.09 at 0.05 level of confidence.
Scheffe’s post-hoc IIa

<table>
<thead>
<tr>
<th>Control group</th>
<th>Experimental group I</th>
<th>Experimental group II</th>
<th>Mean difference</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.03</td>
<td>12.01</td>
<td>14.01</td>
<td>1.98*</td>
<td></td>
</tr>
<tr>
<td>10.03</td>
<td>12.01</td>
<td>14.01</td>
<td>3.98*</td>
<td>0.912</td>
</tr>
</tbody>
</table>

Table IIa shows post-hoc method of testing the significant of the difference between the paired means following a significant analysis of covariance for weight training group, resistance training group and control group. The adjusted general muscular strength on push-ups means in order of magnitude and the difference between these means for the control and two experimental groups are given in the table IIa. The mean difference between the control and free weight training group was 1.98. In the comparison between resistance training group and control group were 14.01 and comparison between free weights group and resistance group were 2.00 which are significant at 0.05 level of confidence. This result shows that the resistance group had a better improvement when compared to the free weight group and control group. The mean result was shown on the following graph II.

**TABLE III**

<table>
<thead>
<tr>
<th>Pre test mean</th>
<th>Control group</th>
<th>Experimental group I</th>
<th>Experimental group II</th>
<th>SOV</th>
<th>SS</th>
<th>MSS</th>
<th>df</th>
<th>‘F’ ratio</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD</td>
<td>18.80</td>
<td>18.80</td>
<td>18.71</td>
<td>B</td>
<td>0.22</td>
<td>954.30</td>
<td>2</td>
<td>0.01</td>
<td>0.988</td>
</tr>
<tr>
<td></td>
<td>2.56</td>
<td>3.39</td>
<td>3.15</td>
<td>W</td>
<td>0.11</td>
<td>9.36</td>
<td>102</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
From the table III it can be seen that the obtained ‘F’ value was 16.63 in post test and adjusted test 72.63 which was much greater than the required F value of 3.09 at 0.05 level of confidence.

<table>
<thead>
<tr>
<th>Control group</th>
<th>Experimental group I</th>
<th>Experimental group II</th>
<th>Mean difference</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.86</td>
<td>21.50</td>
<td>2.64*</td>
<td>0.349</td>
<td></td>
</tr>
<tr>
<td>18.86</td>
<td>23.06</td>
<td>4.2*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.50</td>
<td>23.06</td>
<td>1.56*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Scheffe’s post-hoc IIIa
Scheffe’s table IIIa shows post-hoc method of testing the significant of the difference between the paired means following a significant analysis of covariance for weight training group, resistance training group and control group. The adjusted general muscular strength on half squat jump means in order of magnitude and the difference between this means for the control group and two experimental groups are given in the table. The mean difference between the control group and free weight training group was 2.64. In the comparison between resistance training group and control group were 4.20 and comparison between free weights group and resistance group were 1.56. This was significant at 0.05 level of confidence. This result shows that the resistance group had a better improvement when compared to the free weight group and control group. Graph shows mean different of push-ups, pull-ups and half squat jump result.

CONCLUSION AND RECOMMENDATIONS

It was concluded from the results of the study muscular strength has improved significantly after the effect of twelve weeks resistance and free weight training programmes. On sit-ups, push-ups and half squat jump. There was a significant difference found resistance training group which was good comparably than the control group and free weight training group. The same study can do for other games players, gender and trainer.

References:


http://blog.codyapp.com/a-basic-free-weights-workout-for-beginners/#sthash.rpwvkHg2.dpuf

BODY COMPOSITION AND DIETARY INTAKE AMONG MALE THANG -TA ATHLETES OF MANIPUR –A PRELIMINARY STUDY

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ABSTRACTS

Objective: To study the body composition and dietary intake of male Thang-Ta athletes of Huyen-Lallong and Thang-Ta training centers Irilbung, Manipur. Methodology: 42 Thang-Ta male athletes (21 each from two training centers) who are undergoing training of Thang-Ta from Manipur were studied by using Tanita body composition analyzer, which is based on Bioelectrical Impedance Analysis method and 24 hour recall method in Dietary intake. Results: In body composition, Huyen-Lanlong training centre athletes were having less in Body weight (49.22+ 5.35 kg) BMR (6206+307.37 kj) FFM (44.83+4.7kg) and TBW (32.33+3.70kg) then the Thang –Ta training centre athletes which was statistically significant (P<0.05). However, the food and nutrient intake of both the training centers athletes were less than the RDA. Conclusion: Both the training center athletes
body composition scores was similar to average athletes of today’s sportspersons, but they have less intake of daily foods for energy as athlete.

Key words: Body Composition, Dietary Intake, Thang-Ta, and Huyen- Lallong.

INTRODUCTION

Body composition is an integral component of total health and physical fitness. Analysis of Body composition can depict the percentage of various components (fat, muscles, skeletal mass) of the total body weight of an individual and provides precise information about overall body functioning. In athletes, body composition and weight are important factors that contribute their optimum exercise performance. It is generally accepted that a lower relative body fat is desirable for successful competition in most of the sports. This is because additional body fat adds to the weight of the body without contributing to its force production or energy producing capabilities, which means a decrease in relative strength.

Thang Ta is an indigenous game of Manipur. The name denotes a set of armed and unarmed fighting techniques developed by the Meitei people of the state. The formal name for this martial system is Huyen Lallong (art of warfare). Now days, it is played as sports Thang Ta by youngsters. The athletes have to learn and execute a rigorous practice routine of different sets of exercises, after having mastered basic exercises that develop balance, flexibility, agility, endurance, and coordination. It is an elaborate system of physical culture that involves breathing methods, meditations, and rituals. Also, the basic stances of the drum dance and the cymbal dance have been influenced by this martial art.

Traditional Athletics are always often pushed to the back seat and often neglected. Manipur contribute significantly to the medal tally of the country. The quest of physical fitness has been tremendously increased in the recent past due to increase health awareness among general population. Body composition assessment is an essential part of the evaluation and selection of sports persons for diverse fields of sports, standard data on such parameters are still lacking in the Indian context. There is a dearth for data on body composition on Manipuri Thang- Ta athletes. The present study was therefore aimed at assessing the body composition and dietary intake of male Thang- Ta athletes from Manipur.

MATERIAL AND METHODS

The study was a cross sectional study. Purposive sampling was used to select a total of 42 male Thang -Ta athletes from the Huyen- Lallong and Thang-Ta cultural association Manipur.
The athletes were from the beginner athletes who participating in the 6th month’s specific training for Thang –Ta as regular in their respective training centers. Body weight and other body composition variables like body fat %, body fat mass, fat free mass, body mass index, basal metabolic rate BMR, Total body water were studied with the help of body composition analyzer (TBF 300 A, Tainita, Japan). Height was measured using an anthropometry set to the nearest 0.5 cm. The dietary intakes of all the athletes were recorded by using 24 hour recall methods for 7 days.

**PROCEDURE**

Proper instructions to all selected athletes were given one day prior the test. They should have proper sound sleep at night, free from any physical exertion on the day of the test and three hours after a light breakfast before the measurement. The measurements were done in the respective training center at morning. The height and age of the student were recorded and they were asked to relax for half an hour and to empty their bladder before recording the body composition parameters (Fat %, Body Fat Mass, Fat Free Mass and Total body water). The athletes were asked to stand on the foot pad of the instrument with minimum clothing. Their Dietary intakes were recorded by using 24 hour recall method for 7 day.

**RESULT AND DISCUSSION**

The present study of Body composition and Dietary intake of Manipuri Thang -Ta athletes is discussed in the following. Table. 1 shows the physical characteristics of the Thang- Ta athletes of two training centers. i.e Thang- Ta and Huyen- Lallong. The mean age of Thang- Ta athletes from Thang -Ta and Huyen- Lallong training center was found as (16.17±1.60) yrs, (16.52±1.60) yrs respectively. The BMI of all the athletes from both the training center were found to be normal in comparison with WHO classification of BMI (2007).

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Training center</th>
<th>t –value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Thang –Ta</td>
<td>Huyen- Lallong</td>
</tr>
<tr>
<td>Age (yr)</td>
<td>16.17±1.60</td>
<td>16.52±1.60</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>160.3±8.30</td>
<td>1.57±4.88</td>
</tr>
<tr>
<td>Weight( kg)</td>
<td>53.50±6.81</td>
<td>49.22±5.35</td>
</tr>
<tr>
<td>BMI (kg/ m2)</td>
<td>20.85±2.54</td>
<td>19.70±1.98</td>
</tr>
</tbody>
</table>

*Indicate (P<0.05) of significance

Table II: Mean, SD and t value of Body composition of Thang -Ta athletes (N= 42)
The body composition for Huyen-Lallong training centre athletes were having less in Body weight (49.22± 5.35) BMR (6206±307.37) FFM (44.83±4.7) and TBW (32.13±3.70) then the Thang–Ta training centre athletes which was statistically significant (P<0.05)

Table III and IV shows the daily food and nutrient intake of the Thang-Ta athletes.

Table III: Mean Food Intake of Thang-Ta Athletes
(N= 42)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Thang-Ta</th>
<th>Huyen-Lallong</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cereals</td>
<td>550</td>
<td>500</td>
<td>-9.09</td>
</tr>
<tr>
<td>Pulses</td>
<td>40</td>
<td>30</td>
<td>-25.0</td>
</tr>
<tr>
<td>Vegetables</td>
<td>350</td>
<td>360</td>
<td>2.8</td>
</tr>
<tr>
<td>Fruits</td>
<td>150</td>
<td>70</td>
<td>-53.3</td>
</tr>
<tr>
<td>Milks and milks products</td>
<td>750</td>
<td>210</td>
<td>-72.0</td>
</tr>
</tbody>
</table>

*Indicate (P<0.05) of significance
### Table IV: Mean Nutrient Intake of Thang-Ta Athletes

(N= 42)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>RDA</th>
<th>Training center</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Thang –Ta</td>
<td>Huyen –Lallong</td>
<td>Actual</td>
<td>Actual</td>
<td>Excess /Deficit (%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Actual Intake</td>
<td>Intake</td>
<td>Intake</td>
<td>(%)</td>
<td></td>
</tr>
<tr>
<td>Energy (kcal)</td>
<td>3180n</td>
<td>2842</td>
<td>-10.62</td>
<td>2789</td>
<td>-12.29</td>
<td></td>
</tr>
<tr>
<td>Protein (g)</td>
<td>61.5#</td>
<td>41</td>
<td>-33.3</td>
<td>37.4</td>
<td>-39.2</td>
<td></td>
</tr>
<tr>
<td>Fat (g)</td>
<td>50 #</td>
<td>30</td>
<td>-40</td>
<td>28</td>
<td>-24</td>
<td></td>
</tr>
<tr>
<td>Calcium (mg)</td>
<td>800#</td>
<td>306</td>
<td>-61.7</td>
<td>300</td>
<td>-62.5</td>
<td></td>
</tr>
<tr>
<td>Iron (mg)</td>
<td>28#</td>
<td>25.5</td>
<td>-8.9</td>
<td>24.6</td>
<td>-12.1</td>
<td></td>
</tr>
<tr>
<td>B-Carotene (mcg)</td>
<td>4800#</td>
<td>3433</td>
<td>-28.4</td>
<td>3300</td>
<td>-31.2</td>
<td></td>
</tr>
<tr>
<td>Riboflavin (mcg)</td>
<td>1.8#</td>
<td>1.1</td>
<td>-38.8</td>
<td>1.3</td>
<td>-27.7</td>
<td></td>
</tr>
<tr>
<td>Thiamine (mcg)</td>
<td>1.5#</td>
<td>1.2</td>
<td>-20.0</td>
<td>1.0</td>
<td>-33.3</td>
<td></td>
</tr>
<tr>
<td>Vitamin C (ml)</td>
<td>40#</td>
<td>31</td>
<td>-22.5</td>
<td>34</td>
<td>-15</td>
<td></td>
</tr>
</tbody>
</table>

5 σ Satyanarayana, 1985

6 n NIN (2007), 7#ICMR (2010)
All foods and nutrients were consumed at levels less than the recommended allowances, except vegetables and fleshy food which shows slight excess of (2.8 and 16.6) and (0.85 and 10.0) per cent respectively in Thang- Ta and Huyen- Lalong training centers’ Thang- Ta athletes.

CONCLUSION

From the result of the study it can be concluded that the Body Composition and Dietary intake of Manipur male Thang -Ta athletes of two training centers were found as low in fat % comparatively to those similar sports like Taekwondo, Wusu and judo in general with the maintaining of Body Composition within the range of an athletes. Dietary intake also found as less when compared to the Recommended Dietary Allowance. Recommendation and suggestion of the researcher to the Thang -Ta athletes of Manipur is that to enhance their present performance, they should maintain their body composition by taking optimum diet with the consultation of the expert for their energy requirement.

REFERENCES


COMPARATIVE STUDY BETWEEN BASKETBALL AND TUG OF WAR INTRAMURAL TEAM ON MOTOR SKILL RELATED FITNESS AND ANTHROPOMETRY TEST OF GANDHINAGAR DISTRICT
ABSTRACT

The purpose of this study was to compare Anthropometry measurement of the Basketball and Tug of War players of Intramural winner-up girl’s team of Bright International School, Gujarat, India. For the purpose of this study 12 players of each sport were selected. The age of subjects ranged between 15 to 19 years. The Anthropometry measurement was measured by Norgan and Johnson Anthropometry test and Motor skill related fitness was measured by standard test used for this type of data collection. The test was administered at Bright international School, Gandhinagar of Gujarat. To ensure that the data collected was reliable, each subject was given specific number of trials to perform the respective test for anthropometry and motor skill related fitness. The motor skill related fitness test was administered to all the subjects as per prescribed procedure. The paired mean and independent t-test was used to analyze the data. The level of significance was set at .05. It has been observed from the analysis of given data and interpretation of findings that significant relationship was found between Basketball and Tug of war Players of Gandhinagar District.

Key word: Anthropometry measurement , Motor Skill related fitness

INTRODUCTION

The ability to perform complex muscle-and-nerve acts that produce movement; fine motor skills are small movements like writing and tying shoes, gross motor skills are large movements like walking and kicking

The concept that an athlete's ability to perform different motor skills is determined by one general ability Thus, a person with high general motor ability would tend to learn motor skills more quickly than a person with low general motor ability. This concept is disputed by those who believe that an athlete has a large number of specific independent motor abilities.
Another challenge is that the subject is more of theory aspect than the practical in the colleges of education and the primary school children needs more of the practical motor skills to perform correct various physical activities like running, walking, jumping etc and also maintain physical fitness. Though law or policy in Ghana gave room for all school going age children the right to do physical education, most primary schools pupils do not do it. This made the primary pupils to find it difficult to perform the prerequisite motor skills such as balance, agility, speed, reaction time and accuracy. More so, belief and research finding stated that greater physical strength, boys performance on physical ability tasks is faster, better and more accurate than girls performance (Lips, 2001).

Anthropometry is the study of human height, weight and the size of different body parts, and how those measurements vary under certain circumstances. Anthropometrical data and formulae are used in anthropological and medical research, forensic investigations and industrial design. Anthropometrics is the study of the human body measurements to be used in anthropological classification and comparison. Anthropometry is the science of measuring the human body's height, weight, and size of constituent parts, such as the skin fold thickness for study and comparison purposes.

METHODOLOGY

Twelve girls player of each sports group (Basketball and Tug of war) of the winner-up team of Intramural were selected as subjects. The age of subjects ranged between 15 to 19 years. All the scientific literature related to the sports of Basketball and Tug of war from books, magazines, journals of the Department of Physical Education, Gujarat Vidyapith, keeping the feasibility in mind especially in the case of availability of instruments. For data collection Norgan and Johnson Anthropometry test and motor skill related fitness test was used to assess research procedure of the respected sample. In order to analyze the data, the paired mean and independent t-test was used. The level of significance was set at 0.05.

Results:

Table-1

Significance of difference motor Skill related fitness test of Basketball and Tug of war Players

<table>
<thead>
<tr>
<th>Motor skill related fitness test</th>
<th>Variables</th>
<th>Tug of War</th>
<th>“t”</th>
<th>Measurement Unit</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illinois agility Run</td>
<td>Agility</td>
<td>17.82</td>
<td>20.72</td>
<td>5.46*</td>
<td>Sec</td>
</tr>
<tr>
<td>Bass test of dynamic</td>
<td>Balance</td>
<td>85.58</td>
<td>73.25</td>
<td>4.81*</td>
<td>Marks</td>
</tr>
</tbody>
</table>

192
<table>
<thead>
<tr>
<th>Test of Ability</th>
<th>Coordinating</th>
<th>Pretest</th>
<th>11.92</th>
<th>3.96*</th>
<th>Marks</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Jump</td>
<td>Power</td>
<td>Pretest</td>
<td>14.58</td>
<td>6.79*</td>
<td>Inch</td>
<td>HS</td>
</tr>
<tr>
<td>Stick Drop Test</td>
<td>Reaction time</td>
<td>Pretest</td>
<td>18.42</td>
<td>7.68*</td>
<td>Inch</td>
<td>HS</td>
</tr>
<tr>
<td>Running Test</td>
<td>Speed</td>
<td>Pretest</td>
<td>20.42</td>
<td>8.83*</td>
<td>Yard</td>
<td>HS</td>
</tr>
</tbody>
</table>

Significant at 0.05 levels $t_{0.05(28)} = 2.04$

It is observed from table-1 that the calculated “t” is more than the tabulated “t” Hence; it may be considered that there was significant difference found in that specific variables between pre-test and post test of experimental group at 0.05 level of significance. If calculated “t” is less than the tabulated “t” Hence; it may be considered that there was no significant difference found in that particular variable and then properly mention in above table as following.

HS= Highly Significance, S= Significance, NS= Not Significance

Figure-1
Graphical Presentation of Comparative Mean Values of Motor Ability Test of Basketball and Tug of War Players
### Table-2

Significance of difference Anthropometry test of Basketball and Tug of War Players.

<table>
<thead>
<tr>
<th>Motor Ability Test</th>
<th>Basketball (Mean)</th>
<th>Tug of War (Mean)</th>
<th>“t”</th>
<th>Unit</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>77.58</td>
<td>59.33</td>
<td>3.61*</td>
<td>Kg</td>
<td>S</td>
</tr>
<tr>
<td>Height</td>
<td>157.00</td>
<td>164.25</td>
<td>2.21*</td>
<td>Cm</td>
<td>S</td>
</tr>
<tr>
<td>Wrist Circumference</td>
<td>97.17</td>
<td>83.17</td>
<td>4.31*</td>
<td>Cm</td>
<td>S</td>
</tr>
<tr>
<td>Thigh Circumference</td>
<td>56.92</td>
<td>48.33</td>
<td>6.94*</td>
<td>Cm</td>
<td>HS</td>
</tr>
<tr>
<td>Chest Circumference</td>
<td>97.92</td>
<td>77.00</td>
<td>4.02*</td>
<td>Cm</td>
<td>S</td>
</tr>
<tr>
<td>Calf Circumference</td>
<td>42.33</td>
<td>35.92</td>
<td>5.38*</td>
<td>Cm</td>
<td>HS</td>
</tr>
</tbody>
</table>

Significant at 0.05 levels

$t_{0.05(28)} = 2.04$
It is observed from table-2 that the calculated “t” is more than the tabulated “t” Hence; it may be considered that there was significant difference found in that specific variables between pre-test and post test of experimental group at. 0.05 level of significance. If calculated “t” is less than the tabulated “t” Hence; It may be considered that there was no significant found in that particular variable and properly mention in above table as following.

HS= Highly Significance, S= Significance, NS= Not Significance

**Figure-2**

Graphical Presentation of Comparative Mean Values of Anthropometry measurement of Basketball and Tug of War Player

DISCUSSION

On the basis of obtained results, it has been observed that there was significant difference found in Anthropometry measurement of basketball and Tug of war group. Results also revealed that Basketball group height was very high compare to tug of war player. Result also find out that Tug of war player group weight, wrist circumference, thigh circumference, chest circumference, calf
circumference were very high compare to Basketball player group. Over all observation found significant difference in Anthropometry measurement of Basketball and Tug of War group at this stage.

On the basis of obtained results, it has been observed that there was significant difference found in Motor skill related fitness test of basketball and Tug of war player group. Results also revealed that Basketball group Illinois agility Run, Bass test of dynamic balance, Stick test of coordination, Vertical jump test, Stick drop test, Running test of speed were performance very tremendous compare to Tug of war player group.

Research confirmed scientifically that Basketball player group performed more effective. Overall performance of basketball player in motor skill related fitness test was better than Tug of war player group. It was also found that Tug of War player group strong in anthropometry measurement compare to basketball group. It might be due to the less sample size and low skill level of the player or it may be due to the nature of activity/sports also.

CONCLUSIONS

The analysis of the data revealed that significant relationship was found among basketball in relation to Agility, Balance, Coordination, Power, Reaction time, Speed, Jumping ability, motor skill related fitness component because the games demand high level of performance in particular component. Tug of war in relation to chest, thigh circumference, wrist circumference, calf circumference measurement of Anthropometry because the Tug of War demand Power, Strength high level of ability requirement in this game.

REFERENCE


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http://www.answers.com/topic/general-motor_ability#ixzz2bD4AGtWp

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THE IMPACT OF SPORTS PROGRAMS IN TECHNICAL COLLEGES AT DAKSHINA KANNADA AND UDUPI DISTRICT

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2) Gerald Santhosh D’Souza, Deputy Director, Department of P.G Studies and Research in Physical Education and Sports, Mangalore University, Mangalagangothri.

INTRODUCTION

Technical colleges refers to professional colleges imparting technical education such as engineering colleges. These colleges play an important role in creating future engineers and professionals to lead
industrial growth in the country. Similarly many of these technical colleges offer seats under sports scholarships and spend a significant amount of money towards organising sports events. Many of the excellent sportspersons also contribute to the development of their colleges and sports in general by carrying over their sports skills to the sports events conducted by these colleges. Obviously the researcher since employed in a technical institution himself ventured to make a study on the role of these colleges in developing and promoting sports.

Aim of the Study: The aim of the study was to pinpoint the conduct of sports programmes at technical colleges around Dakshina Kannada, Udupi district and to propose steps to change the sports administrative set up or to overhaul the sports policies thereby add more bite to the professional development of sports in these institutions.

Methodology: The research did a survey study, using the tools of study such as questionnaire, personal interviews and observations and examining documental evidences. The study was delimited to the districts of Dakshina Kannada. The collected data was analysed descriptively and presented in the form of tables and charts. The areas covered included Sports management, Sports Facilities, Programme planning and Infrastructure.

Results: Some of the findings include:

- Culture of sports management at technical colleges.
- Planning for sports programme at technical colleges.
- Encouragement and other facilities provided under technical colleges.
- College management role in encouraging the sports programmes in technical colleges.

Conclusion: It is an obvious fact that the main aim of technical colleges is to promote academic excellence in technical field. Still while dealing with the youth it is the bound duty of any educational institution to inculcate sports programmes and facilities to all the students. This will enable them to understand the importance of developing health, social interaction, psychological balance, emotional well being and thereby making oneself a fit citizen of the country. The results indicate that these technical institutions fulfil these purposes to a significant extent.

Keywords: Sports management, Sports Facilities, Programme planning and Infrastructure.
INTRODUCTION AND NEED OF THE STUDY:
Technical colleges refer to professional colleges imparting technical education such as engineering colleges. These colleges play an important role in creating future engineers and professionals to lead industrial growth in the country. Similarly many of these technical colleges offer seats under sports scholarships and spend a significant amount of money towards organising sports events. Many of the excellent sportspersons also contribute to the development of their colleges and sports in general by carrying over their sports skills to the sports events conducted by these colleges. Obviously the researcher since employed in a technical institution himself ventured to make a study on the role of these colleges in developing and promoting sports.

The aim of the study was to pinpoint the conduct of sports programmes at technical colleges around Dakshina Kannada, Udupi district and to propose steps to change the sports administrative set up or to overhaul the sports policies thereby add more bite to the professional development of sports in these institutions. The research did a survey study, using the tools of study such as questionnaire, personal interviews and observations and examining documental evidences.

The study was delimited to the districts of Dakshina Kannada. The collected data was analysed descriptively and presented in the form of tables and charts. The areas covered included Sports management, Sports Facilities, Programme planning and Infrastructure. Some of the findings include culture of sports management at technical colleges, planning for sports programme at technical colleges, encouragement and other facilities provided under technical colleges and college management role in encouraging the sports programmes in technical colleges. In finaity the overhaul spectrum of the study is based on sports management, sports Facilities, programme planning and infrastructure.

LITERATURE REVIEW:
The Study conducted by NYSP( National Youth Sport Program)and purpose was to examine the benefits of youth participation in a sport-based youth development in the summer program, the National Youth Sport Program (NYSP). This study also identified areas of programmatic strength within the program, as well as areas for improvement. 193 participants in NYSP completed a pre- and post-test that assessed belonging, social competence, athletic competence, and competence related to eight specific sports. Significant improvements in perceptions of overall athletic competence and competence related to five specific sports were found. Although perceptions of social competence and belonging increased from pre-to-post test, findings were not statistically significant. Site observations resulted in the identification of strengths and areas that also inform areas for programmatic improvement. Implications for the design, implementation, and evaluation of sport-based youth development programs are discussed.

Alexis Lyras Jon Welty Peachey, (2011) in the thier study Integrating sport-for-development theory and praxis, revealed that there has been a growing social movement toward the use of non-traditional sport practices as a vehicle for social change, reaching communities with messages in ways traditional sport practices cannot. However, effectiveness of sport to promote positive social change has been minimal. The absence of scientific evidence and an undergirding theoretical framework of how sport can work for social change indicate significant gaps between theory and practice. Thus, this paper was twofold. First, we provide the theoretical foundations of sport-for-development theory (SFDT) to showcase how sport interventions can most effectively promote social change and development. Secondly, we utilise the SFDT programme recommendations as a blueprint to compare and contrast two sport interventions that use sport as a vehicle to promote positive social change, one at the global and the other at the local level. Based on this analysis, suggestions for future research and practice are provided.
Blake S. Davis Scott Menard (2013) in their study named “Long term impact of youth sports participation on illegal behaviour”, examines the relationship between sports involvement and illegal behaviour, in both the long and the short-term, in a national sample, using propensity score matching and negative binomial regression to examine the short and long-term impacts of youth sports participation and adult illegal behaviour. The results suggest that in general, sports participation has very little if any direct impact on illegal behaviour, but participation specifically in contact sports, either alone or in combination with participation in noncontact sports, is associated with reduced frequency of some illegal behaviour. Implications for policy and future research are considered. The high light of the study was Adolescent sports participation in general does not appear to be effective in reducing later illegal behaviour, Participation specifically in contact sports, however, does appear to have some beneficial effects and Whether adolescent sports participation is beneficial in reducing subsequent illegal behaviour depends on the specific type of illegal behaviour.

Reflective practice has come to be recognised as a core element of professional expertise and it can refer to the ability to analyse one's own practice, the incorporation of problem solving into learning by doing, or application of critical theory to the examination of professional practice. Each of these forms of reflective practice raises a number of significant issues for sport management practitioners, particularly in terms of the way they view their practice. This article explores the concept of reflection and considers its potential contributions to the management of sport. The paper identifies four focal dimensions: (1) the definition and theoretical traditions of reflection, (2) notions of reflection-in-action and reflection-on-action, (3) principles that ought to underpin reflective practice in sport management, and (4) methodological issues requiring further research and examination. It is argued that all forms of reflection are vital to skilful sport management practice. It is suggested that critical reflection provides unique opportunities to understand the practitioner's world, and, in so doing, to provide opportunities for emancipatory practice as suggested by Allan Edwards, (1999) in his study “Reflective Practice in Sport Management”.

Maureen O’Neill et al (2013) in thier study Pressures to perform: An interview study of Australian high performance school-age athletes’ perceptions of balancing their school and sporting lives. Said that High performance school-age athletes struggle to balance the demands of their sporting and educational roles. They are like “hyphenated” individuals striving to deal with more than one life. Their investigation examines the views of talented athletes who are full-time school students to elicit their perspectives of how they deal with the pressures to perform in these two different arenas. Previous published research on this topic has not included athletes’ views or “given voice” to school-age high performance athletes’ perceptions of how they balance two full-time lives. This study incorporated a cross-sectional design using qualitative techniques in an interpretivist paradigm. Data collection was through interviews using Livescribe™ pen. NVivo 9.2™ was used to analyse interviews from nine current and 10 former school-age high performance athletes (n = 19) across a range of sports. Findings were categorised into five themes: physical, social, educational, psychological and economic issues. In particular participants in this study identified specific problems they experienced with physical and social issues of: tiredness, nutritional awareness, procrastination, and personal sacrifices. All participants indicated they wanted to pursue both their education and sport, reinforcing the Element theoretical construct that doing both connects their sense of identity, purpose and well-being. Implications for policy and practice in schools and in sports are discussed with a view to identifying the characteristics that define an ‘athlete friendly school’. Research findings from this study also provide suggestions about how these young athletes, their parents, and teachers can optimise the dual-demands and pressures on these athletes’ lives.
Analysis and Interpretation:

<table>
<thead>
<tr>
<th>Table 1: Exhibit of the respondent opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>College at</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Mangalore</td>
</tr>
<tr>
<td>Udupi</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

| Outdoor Games                          |
|                                        |
| Availability of ground and teams       |
|                                        |
| Foot Ball                              | Male | 15 | 94.00 |
| Basket Ball                            | Male  | 06 | 37.00 |
|                                        | Female | 03 | 19.00 |
| Athletics                              | Both | 16 | 100.00 |
| Volley Ball                            | Male | 16 | 100.00 |
|                                        | Female | 09 | 56.00 |
| Ball                                   | Male | 09 | 56.00 |
|                                        | Female | 08 | 50.00 |
| Throw Ball                             | Female | 16 | 100.00 |
| Cricket                                | Male | 10 | 63.00 |
| Kabbadi                                | Male | 06 | 37.00 |
| Handball                               | Male | 06 | 37.00 |

| Indoor Games                           |
|                                        |
| Chess                                  | Both | 14 | 88.00 |
| Table Tennis                           | Male | 15 | 94.00 |
|                                        | Female | 13 | 81.00 |
| Carrom                                 | Both | 15 | 94.00 |
| Gymnasium                              | Both | 00 | 00.00 |
| Swimming                               | Both | 00 | 00.00 |

From the above table 1, the researcher found that 81 per cent of the technical colleges are situated at Mangalore district and rest at Udupi district. In the outdoor game category, almost all the colleges do say they have foot ball team, followed by 37 percent colleges have male basket ball team and 19 per cent have female basket ball team. Cent per cent colleges have their men volley ball team as against to 56 per cent of female team. 56 and 50 per cent colleges say that they both male and female respectively. Cent per cent again in throw ball teams for female, only 63 per cent colleges have cricket team for male. In the Kabaddi and hand ball team in male categories, 37 per cent colleges agreed they have team.

In the indoor category, 88 per cent colleges offer chess both teams, followed by 94 per cent colleges have male table tennis and 81 per cent have female table tennis teams. 94 per cent colleges have carom teams and zero colleges for gymnasium and swimming teams.

Finding from the study: from the above study, it was found that as follows
- Majority of the technical colleges lie in the Mangalore district.
- All Technical colleges have athletic teams, throw ball for women and volley ball team in men category.
- Majority of technical colleges have foot ball for men, chess and carom teams for both categories.
- Majority colleges does not have women’s team
- Worst being is no teams and grounds are there for gymnasium and swimming sport events.

SUGGESTIONS TO THE STUDY:
Majority colleges lack in motivating the students to participate in the events, so to improve this department of physical education should educate the importance and imbue the cultural of participating in the events not just for sport initiated students and for non sports students.

Mains stream of the colleges lack infrastructure, management of the respective colleges should seriously have to consider this ground reality check and provide the adequate needy infrastructure to the students to participate in the events.

A plump budget for the sports department to initiate the scholarship programmes under sport category will encourage sports culture and ethos involved in it.

Proper recognition to deserved students will enrich the other to involve and participate in the colleges.

Proper sport curriculum in the academic calendar in all the technical colleges must be mandatory.

CONCLUSION OF THE STUDY:
From the above research conducted by the investigators found that there are foremost crisis or setback in giving the prominence or attention to sports in the technical colleges, be it by students or by the college authorities. This will definitely have an impact on health in coming days. In order to cover come the paramount of unwanted ailments, colleges authorities must have got from languid thoughts and students should come out from lethargic life style and permeate the sport culture within them. For above to take place the physical department should table out with available resources and coming day’s department should make within the curriculum. This execution will be fruitful at least by implementing from coming academic year.

BIBLIOGRAPHY:

EFFECTS OF REMEDIAL EXERCISE ON THE POSTURAL DEFORMITIES OF THE UPPER EXTREMITIES OF SCHOOL GIRLS

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ABSTRACT:
The scholar took an interest in rectifying the deformities of the spinal column among school girls which determines their physical and mental fitness. Physical educators are concerned with dynamic posture in sitting, standing, walking, running and other body positions. The aim is to have individuals develop a body carriage suited to their own body build. The achieve goal the research scholar selected thirty students on the basis of nature of deformities namely Kyphosis, Lordosis and Scoliosis, from Methodist Girls’ Higher Secondary School, Tiruchirappalli. The computation of one-way analysis of variance of F-ratio is used to test the significance of difference between the means of paired sets. The result reveals that reasonable to conclude that repeating the exercise for longer duration until the deformity is cured may alleviate the spinal deformities, self rectifier also helps to alleviate the deformity by the individual themselves. Further it is concluded that if the individual herself keeps the spine in correct alignment by her conscious effort may help to alleviate a little.

Keywords: deformities, Kyphosis, Lordosis and Scoliosis.

EFFECTS OF REMEDIAL EXERCISE ON THE POSTURAL DEFORMITIES OF THE UPPER EXTREMITY OF SCHOOL GIRLS

Dr J. Suganithi, Associate professor Head Department of physical Education H.H. the Rajah’s College Pudukottai, Tamilnadu, India

INTRODUCTION

The Researcher took an interest in rectifying the deformities of the spinal column among school girls which determines their physical and mental fitness.

The attitudes about good posture have changed from that favoring a rigid, static, upright, unnatural position to one of efficient, graceful, yet somewhat relaxed body movement. Physical educators are concerned with dynamic posture in sitting, standing, walking, running and other body positions. The aim is to have individuals develop a body carriage suited to their own body build. The best posture will be characterized by balance and proper alignment of body segments to give one maximum support and movement with the least strain. Deaver (1933) has compiled not only the dire effects of posture but the great mental and physical rewards for those who maintain good posture.

Posture refers to the thousands of different segmental alignment of the body assumed during daily movements in routine activities and while at work and play. Each man’s posture expressions of
his thoughts, feelings and moods. Physical education is the only subject in the curriculum which
focuses upon the body as instrument of expression. Through the appraisal of the posture of school
children and the subsequent amelioration of problems of body alignment, the physical educators
make a unique contribution to personality development, peer acceptance and vocational success.
Each person possesses not one but many postures. Any position is a posture and one individual
assumes thousands of static and dynamic postures each day – standing, walking, running, sitting,
sleeping, stooping, climbing and infinitum. The appraisal of body alignment is based, therefore, upon
careful observation of many postures.

Posture plays a pivotal role in an individual as it would enormously influence his healthy and
social life. These specific and standardized proportions of each part of the body would not only
beatify the persons figure impressively but it would also help him to move about gracefully with
proper gait. The bony part of the body should be proportionally covered with developed muscles
wherever necessary. This may again differ from man to man in relation to his age, occupation and
the type of physical activity in which he indulges constantly in his daily life. Besides the bone-
strength, the muscle-balance also makes its contribution for a good posture. An Individual who
indulges in desk work or carries weights over his shoulders neglects physical activity and leads a
sedentary life. Such a person must necessarily be given physical activities as a part of daily routine,
so as to cover the neglected parts of the body and also to act as corrective exercises for the
development of a good posture.

STATEMENT OF THE PROBLEM

The purpose of the study is to find out whether effective remedial exercise programme for
postural deformed children can bring about marked improvement in the structural aspects of the
deformities of the spinal column.

It is hypothesized that effective remedial exercise programme would bring out remarkable
improvement in the structural deformities of the spine.

METHODOLOGY

The purpose of the study is to find out the effects of remedial exercises for postural
deformities of spinal column.
In order to obtain the goal the research scholar selected thirty students on the basis of nature of deformities namely Kyphosis, Lordosis and Scoliosis, from Methodist Girls’ Higher Secondary School, Tiruchirappalli.

**STATISTICAL TECHNIQUE**

The computation of one-way analysis of variance of F-ratio is used to test the significance of difference between the means of paired sets.

**ANALYSIS OF VARIANCE TABLE: 1**

<table>
<thead>
<tr>
<th>Variances</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within sets</td>
<td>35.4</td>
<td>87</td>
<td>0.41</td>
<td></td>
</tr>
<tr>
<td>Between sets</td>
<td>23.4</td>
<td>2</td>
<td>11.7</td>
<td>28.5</td>
</tr>
</tbody>
</table>

* Significant at 0.01 Level.

As the obtained F value 28.5 is greater than the table value 4.88 for statistical significant, at 1 percent level, the hypothesis was accepted. This means the effect of treatment is significant.

**TABLE – II**

**COMPARISON OF KRAUS – WEBER STRENGTH TESTS**

Item wise improvement and percentage of Kraus-Weber strength test for kyphosis.

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Name of the Item</th>
<th>Initial</th>
<th>Final</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test-I</td>
<td>Abdominal Plus Posas(A+)</td>
<td>NIL</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>Test-II</td>
<td>Abdominals minus Psoas (A-)</td>
<td>NIL</td>
<td>17%</td>
<td>17%</td>
</tr>
<tr>
<td>Test-III</td>
<td>Psoas (P)</td>
<td>27%</td>
<td>40%</td>
<td>13%</td>
</tr>
<tr>
<td>Test-IV</td>
<td>Upper Back (UB)</td>
<td>47%</td>
<td>73%</td>
<td>26%</td>
</tr>
</tbody>
</table>
## DISCUSSION OF FINDINGS

### Item wise improvement and percentage of Kraus-Weber strength test for Lordosis.

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Name of the item</th>
<th>Initial</th>
<th>Final</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test-I</td>
<td>Abdominal Plus Posas (A+)</td>
<td>13%</td>
<td>33%</td>
<td>20%</td>
</tr>
<tr>
<td>Test-II</td>
<td>Abdominals minus Psoas (A-)</td>
<td>13%</td>
<td>23%</td>
<td>10%</td>
</tr>
<tr>
<td>Test-III</td>
<td>Psoas (P)</td>
<td>17%</td>
<td>27%</td>
<td>10%</td>
</tr>
<tr>
<td>Test-IV</td>
<td>Upper Back (UB)</td>
<td>33%</td>
<td>50%</td>
<td>17%</td>
</tr>
<tr>
<td>Test-V</td>
<td>Lower Back (LB)</td>
<td>37%</td>
<td>50%</td>
<td>13%</td>
</tr>
<tr>
<td>Test-VI</td>
<td>Back and Hamstrings (BH)</td>
<td>10%</td>
<td>20%</td>
<td>10%</td>
</tr>
</tbody>
</table>

## DISCUSSION OF FINDINGS

### Item wise improvement and percentage of Kraus-Weber strength test for Scoliosis.

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Name of the item</th>
<th>Initial</th>
<th>Final</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test-I</td>
<td>Abdominal Plus Posas (A+)</td>
<td>13%</td>
<td>30%</td>
<td>17%</td>
</tr>
<tr>
<td>Test-II</td>
<td>Abdominals minus Psoas (A-)</td>
<td>10%</td>
<td>23%</td>
<td>13%</td>
</tr>
<tr>
<td>Test-III</td>
<td>Psoas (P)</td>
<td>10%</td>
<td>23%</td>
<td>13%</td>
</tr>
<tr>
<td>Test-IV</td>
<td>Upper Back (UB)</td>
<td>17%</td>
<td>23%</td>
<td>06%</td>
</tr>
<tr>
<td>Test-V</td>
<td>Lower Back (LB)</td>
<td>-</td>
<td>-</td>
<td>NIL</td>
</tr>
<tr>
<td>Test-VI</td>
<td>Back and Hamstrings (BH)</td>
<td>-</td>
<td>-</td>
<td>NIL</td>
</tr>
</tbody>
</table>

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As the hypothesis is proved to be significant, the remedial exercises recommended of the scholar are found to be beneficial.

Besides this, the test wise comparison of the initial and final percentage of Kraus-Weber strength test for kyphosis, lordosis and scoliosis showed the increase in muscular strength. This is given in Table – II.

In kyphosis group, the test number – 1, abdominal plus proas (A+) showed 4 percent of improvement test number – 1, Abdominal minus Psoas (A-) showed 17 percent of improvement, test number – 3, psoas (p) showed 13 percent of improvement, test number – 4, Upper Back (UB) showed 26 percent of improvement, in test number – 5, Lower Back (LB) showed 13 percent of improvement and test number – 6, Back and Hamstring (BH) showed 10 percent of improvement. So, totally while comparing all the test items improvement of kyphosis group showed significant development in muscular strength.

In Lordosis group, the test number – 1, Abdominal plus Proas (A+) showed 20 percent of improvement, test number – 2, Abdominal minus psoas (A-) showed 10 percent of improvement test number – 3, Psoas (P) showed 10 percent of improvement, test number – 4, Upper Back (UB) showed 17 percent of improvement, test number 5, Lower Back (LB) showed 13 percent of improvement and test number – 6, Back and Hamstring (BH) showed 10 percent of improvement. So, totally lordosis group also showed significant development in muscular strength for all the test items.

In Scoliosis group, the test number – 1, Abdominal plus psoas (A+) showed 17 percent of improvement test number – 2, Abdominal minus Psoas (A-) showed 13 percent of improvement, test number-3, Psoas (p) showed 13 percent of improvement, test number-4, Upper Back (UB) showed 6 percent of improvement, test number-5, Lower Back (LB) and test number -6, Back and Hamstring (BH) showed a insignificant improvement. Out of the six tests conducted on the scoliosis group, the first four tests proved positive and gave satisfactory results but the last two test on the contrary gave insignificant overall effects.

Thus from the above discussions one can infer that the remedial exercises discussed by the scholar have a feasible effect on spinal deformities of the upper extremity.

CONCLUSIONS
1. It is reasonable to conclude that repeating the exercise for longer duration until the deformity is cured, may alleviate the spinal deformities.

2. The self rectifier also helps to alleviate the deformity by the individual themselves.

3. Further it is concluded that if the individual herself keeps the spine in correct alignment by her conscious effort may help to alleviate a little.

**RECOMMENDATIONS**

1. A similar study can be conducted for different age groups and their effect over amelioration.

2. This study can be conducted by taking into consideration the physical, physiological and psychological variables.

3. A similar study can be conducted by using yogic exercises and physical exercises instead of remedial exercises.

4. The scholar recommended these remedial exercises and self-rectifier to the educational authorities to include the necessary adaptive physical education or corrective measures in the school educational curriculum for the defective students.

**REFERENCES:**


EFFECT OF STEP AEROBIC TRAINING PROGRAMME ON BACK STRENGTH AND SPEED

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ABSTRACT

The purpose of the study was to find out the effect of step aerobic programme on back strength and speed among women students. To achieve this purpose, 20 women students were randomly selected as subjects from the Department of Physical Education and Sports Sciences, Annamalai University studying in various classes. The age of the subjects were ranged from 18 to 23 years. The subjects were further classified at random into two equal groups of 10 subjects each in
which group - I underwent step aerobic programme for three days per week for eight weeks and group - II acted as control who were not undergo any special training programme. The selected criterion variables such as back strength and speed were assessed by using dynamometer and 50 meters dash before and after the training period. The collected data were statistically analysed by using Analysis of Covariance (ANCOVA). From the results of the study it was concluded that there was a significant improvement on back strength and speed for step aerobic training group when compared with the control group.

* Assistant Professor, Department of Physical Education Physical Education, Annamalai University, Annamalainagar, Tamilnadu.

INTRODUCTION

In sports the word “Training” is generally understood to be a synonym of doing physical exercises. In a narrow sense, training is doing physical exercises for the improvement of performance.

Sports training is a scientifically based and pedagogically organized process which through planned and systematic effect on performance ability and performance readiness aims at sports perfection and performance improvement as well as at the contest in sports competition.

Step Aerobics is distinguished from other forms of aerobic exercise by its use of an elevated platform (the step). The height can be tailored to individual needs by inserting risers under the step. Step aerobics classes are offered at many gyms and fitness centers which have a group exercise program.

Strength is a vital factor on which the sports performance depends. Depending upon the magnitude and type of resistance to be tackled in various sports, the sportsman of different sports and different level and type of strength to achieve good performance.

Speed may be defined as the capacity of moving a limb or part of the body lever system or whole body with the greatest possible velocity.

“Speed is the performance prerequisite to do motor actions under given conditions (movement task, external factors, individual prerequisites) in minimum of time”.

Speed is generally defined as the ability to change the direction quickly and effectively while moving as nearly as possible at full speed. It is depended primarily on strength, reaction time, speed of movement and specific muscle co-ordination.

METHODOLOGY

The purpose of this study was to find out the effect of step aerobic on back strength and speed. To achieve the purpose of this study 20 college women students who were studying in the Department of Physical Education and Sports Sciences, Annamalai University during the academic year 2014-2015 were randomly selected as subjects. The age of the subjects were ranged from 18 to 23 years. The selected subjects were divided into two groups of ten subjects each. Group I
considered as experimental group who underwent step aerobic training and Group II considered as control that did not undergo any special training programme.

The experimental group underwent step aerobic training for 3 days (alternative days) per week for 8 weeks. The control group did not participate in any special training programme on strenuous physical activities apart from their day to day activities. The experimental group underwent their step aerobic under the instruction and supervision of the investigators.

The data were collected on selected criterion variables such as back strength and speed were measured by using back lift with the dynamometer and 50 meters dash at before and after the eight weeks of step aerobic as pre and post test. Analysis of covariance (ANACOVA) was applied to find out significant difference if any between the experimental and control group.

**Table – I**

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Group Name</th>
<th>Step Aerobic Group</th>
<th>Control Group</th>
<th>‘F’ Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back Strength (in Kilograms)</td>
<td>Pre-test Mean ± S.D.</td>
<td>44.99 ± 2.39</td>
<td>44.02 ± 2.11</td>
<td>0.896</td>
</tr>
<tr>
<td></td>
<td>Post-test Mean ± S.D.</td>
<td>47.13 ± 2.001</td>
<td>44.36 ± 1.89</td>
<td>22.31*</td>
</tr>
<tr>
<td></td>
<td>Adj. Post-test Mean ± S.D.</td>
<td>48.16</td>
<td>44.19</td>
<td>49.36*</td>
</tr>
<tr>
<td>Speed (in Seconds)</td>
<td>Pre-test Mean ± S.D.</td>
<td>13.89 ± 0.00096</td>
<td>13.36 ± 0.0008</td>
<td>0.889</td>
</tr>
<tr>
<td></td>
<td>Post-test Mean ± S.D.</td>
<td>12.07 ± 0.000134</td>
<td>13.59 ± 0.0007</td>
<td>5.966*</td>
</tr>
<tr>
<td></td>
<td>Adj. Post-test Mean ± S.D.</td>
<td>12.237</td>
<td>13.712</td>
<td>12.863*</td>
</tr>
</tbody>
</table>

* Significant at 0.05 level of confidence. (The table values required for significance at 0.05 level of confidence for 1 and 18 & 1 and 17 are 4.41 and 4.45 respectively).

**RESULTS**

Table-I showed that the results of the study there was a significant difference between experimental and control group on back strength and speed. Further the results of the study showed that there was a significant improvement in the performances of back strength and speed due to eight weeks of step aerobic programme. However the improvement was in favour of experimental group.

**CONCLUSIONS**

1. There was a significant difference between experimental and control groups on back strength and speed.
2. There was a significant improvement in the performances of back strength and speed. However this improvement was in favour of experimental group due to eight weeks of step aerobic programme.

REFERENCE:


[www.wikipedia.org](http://www.wikipedia.org)

Training Programme for Step Aerobic Group

1. Across the top
2. Around the World
3. A - Step
4. Basic Left
5. Basic Right
6. Charleston
7. Corner to Corner
8. Diagonal
9. Flamingo
10. Grapevine
11. *Helicopter*
12. Hop Turn
13. Horseshoe
14. Indecision
15. I – Step
16. Jumping Jack
17. K – Step
18. L – Step
19. Mambo Cha-Cha-Cha
20. Over the Top
ABSTRACT

The purpose of the present study was to find the effect of sand running on vital capacity and breath holding time. For this purpose, thirty male students studying Bachelor Degree in the Department Physical Education and Sports Sciences, Annamalai University in the age group of 18 – 22 years were selected. They were divided into two equal groups, each group consisted of fifteen subjects, in which Group – I underwent sand running and group – II acted as control group who did not participate in any special training. The training period for this study was three days in a week for twelve weeks. Prior to and after the training period the subjects were tested on vital capacity and breath holding time. Vital capacity was assessed by using the wetspirometer and breath holding time was assessed by holding the breath after a deep inhalation for maximum duration in seconds at resting condition. Analysis of Covariance (ANCOVA) was applied as statistical tool. The result of the study has shown that the sand running group has improved the vital capacity and also reduced the breath holding time after the sand running period when compared with the control group.

Key words: sand running, vital capacity and breath holding time.

INTRODUCTION

Training involves constructing an exercise programme to develop an athlete for a particular event. This increasing skill and energy capacities are equal consideration.

Training is applied now a days for any organized formation purposefully aimed at the rapid increase in the physical, psychological, mental and techno-motor performance capacity of men.

Training involves constructing an exercise programme to develop an athlete for a particular athletic event. Thus, increasing skill and energy capacities take equal consideration.

Physical training refers to the processes used in order to develop the components of physical fitness as for example, how to improve aerobic endurance, to stretch and relax muscles, to increase arm and shoulder strength to related exercise and programmes to specific requirements or individual sports.

Sand running, if we are using foot prints picture as a feedback, could be a good indicator of our running technique. Just look at your foot print, how deep is it and where the main pressure is located and you will be able to clearly define some errors of your running technique, such as a push off, an overstriding, etc. Particularly, it could be seen very well on wet sand, where your foot prints are very visible. Check these prints at the beginning of your running on sand and then repeat this check during your training to compare the change and correct, if it’s necessary. Running on sand could be used on a weekly basis or on a daily basis.
during specific time of your training (camping, for example) devoted to development of your strength, running skill and aerobic system. Better to combine this kind of training with running drills and normal running in order to transfer your new development into new running skill. In order to have full benefits of use of sand I would highly recommend to do barefoot sprint running and jumps on sand. All of these together will give you an incredible possibility to increase your potential in training and racing in running.

The volume of air inspired and expired per unit time is tightly controlled, both with respect to the frequency of breaths and to tidal volume. Breathing is regulated so the lungs can maintain the $P_{a_{O_2}}$ and $P_{a_{CO_2}}$ within normal range, even under widely varying conditions such as exercise.

Vital capacity is the maximum amount of air a person can expel from the lungs after a maximum inspiration. It is equal to the inspiratory reserve volume plus the tidal volume plus the expiratory reserve volume. A person’s vital capacity can be measured by a spirometer which can be a wet or regular spirometer. In combination with other physiological measurements, the vital capacity can help make a diagnosis of underlying lung disease. The unit that is used to determine this vital capacity is the millilitre (ml).

**MATERIALS AND METHODS**

This study under investigation involves the experimentation of sand running on vital capacity and breath holding time. Thirty male students those who were studying Bachelor Degree in the Department of Physical Education and Sports Sciences, Annamalai University and aged between 18 and 22 years were selected. The selected thirty subjects were randomly divided into two groups of fifteen each, out of which group - I $(n = 15)$ underwent sand running and group - II $(n = 15)$ remained as control, which did not participate any special activities. The training programme was carried out for three days per week during morning session only (6 am to 8 am) for twelve weeks. The load dynamics for sand running group was given in appendix. Vital capacity was assessed by using wetspirometer and breath holding time was assessed by holding the breath after a deep inhalation for maximum duration at resting condition.

**ANALYSIS OF DATA**

The data collected prior to and after the experimental periods on vital capacity and breath holding time on sand running group and control group were analysed and presented in the following table -1.

Table – I
Analysis of Covariance and ‘F’ ratio of Vital Capacity and Breath Holding Time for Sand Running Group and Control Groups

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Group Name</th>
<th>Sand Running Group</th>
<th>Control Group</th>
<th>‘F’ Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vital capacity (in Liters)</td>
<td>Pre-test Mean ± S.D.</td>
<td>3.45 ± 0.151</td>
<td>3.44 ± 0.183</td>
<td>0.035</td>
</tr>
<tr>
<td></td>
<td>Post-test Mean ± S.D.</td>
<td>3.69 ± 0.119</td>
<td>3.47 ± 0.149</td>
<td>6.451*</td>
</tr>
<tr>
<td></td>
<td>Adj. Post-test Mean</td>
<td>3.697</td>
<td>3.470</td>
<td>34.397*</td>
</tr>
<tr>
<td>Breath holding time (in Seconds)</td>
<td>Pre-test Mean ± S.D.</td>
<td>41.20 ± 1.549</td>
<td>41.30 ± 2.83</td>
<td>0.466</td>
</tr>
<tr>
<td></td>
<td>Post-test Mean ± S.D.</td>
<td>43.80 ± 1.398</td>
<td>41.20 ± 2.486</td>
<td>5.126*</td>
</tr>
<tr>
<td></td>
<td>Adj. Post-test Mean</td>
<td>42.644</td>
<td>40.966</td>
<td>9.819*</td>
</tr>
</tbody>
</table>

* Significant at .05 level of confidence.

(The table value required for significance at .05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

RESULTS

The training intensity for sand running group was shown in appendices. Before applying the experiment all the subjects of the sand running group and control groups were attended the pre-test, which was conducted a day prior to the commencement of the training and the data were collected on cardio-respirator endurance and breath holding time. After twelve weeks of training the post-test was conducted one day after the training period to find out any changes in the criterion variables.

The analysis of covariance (ANCOVA) was used to find out the significant difference if any, among the experimental groups and control group on selected criterion variables separately. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as an appropriate. After applying the analysis of covariance, the result of this study showed that there was a significant difference among sand running group and control group on vital capacity and breath holding time. The criterion variables such as, vital capacity was improved for sand running group and breath holding time was also significantly improved after the sand running period.

CONCLUSIONS

Vital capacity was improved for sand running group, when compared with the control group. The breath holding time was also improved for sand running group when compared with the control group.

APPENDICES

LOAD DYNAMICS
### Week | Warming – Up | Training Period | Reps : Sets | Rest - Relief | Warming – down
--- | --- | --- | --- | --- | ---
I – III | 5 minutes | 15 minutes | 2 : 1 | 6 min | 5 minutes
IV – VI | 7 minutes | 20 minutes | 2 : 1 | 5 min | 10 minutes
VII – IX | 10 minutes | 25 minutes | 2 : 2 | 5 min : 10 min | 15 minutes
X – XII | 15 minutes | 30 minutes | 2 : 2 | 5 min : 15 min | 20 minutes

**REFERENCE:**

Edward L. Fox and Donald K. Mathews, Interval Training, p. 178.
Dr. Ramanov, www.posttech.com
Jack Daniels, Robert Fitts and George Sheehan, Conditioning for Distance Running, (New York: John Willey and Sons Inc., 1978), p. 60.

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**AN ANALYSIS OF PSYCHOMETRIC TECHNIQUE ON SERVICE SKILLS**

S.NELLAIGANDHIMATHI* and Dr. J. SUGANTHI**

nellaimailsu@gmail.com

**ABSTRACT**

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The purpose of the study was to analyse the VMBR technique on women Badminton and volleyball players. To achieve this purpose, 31 women Badminton players and 31 volleyball players were selected from SRM University, Chennai, Tamilnadu, India. The components of VMBR technique include Relaxation Training, Visualization or Mental Imagery, and Performance of the skill in a stimulated Stressful environment. The dependent variables selected for this study was tested by French Short Service Test for badminton and Brumbach test for volleyball players. All the subjects were tested prior to and immediately after the training period on the selected dependent variables. The data obtained from the pre and post test were statistically analyzed with dependent 't'-test. The level of confidence was fixed at 0.05 levels. The results of the study showed that there was a significant improvement on selected dependent variables of VMBR among the Badminton players and Volleyball players.

Key Words : VMBR Technique, French Short Service Test

AN ANALYSIS OF PSYCHOMETRIC TECHNIQUE ON SERVICE SKILLS

*S.NELLAIGANDHIMATHI & **Dr. J. SUGAN THI.

INTRODUCTION

Popular all over the world, Badminton sports have two to four opposing players with rackets; they rally a ball or shuttlecock on a defined playing surface. Volleyball is a team sport in which two teams of six players are separated by a net. Each team tries to score points by grounding a ball on the other team's court under organized rules. Sports skill test are designed to measure the basic.

Although both physical and mental fitness is very important for many sports, it is skill that really defines how good someone is at their sport. Usually skill elements are removed from fitness test so that the pure fitness component is tested; although in some sport specific tests you have combined skill, techniques and fitness involved making it more relevant to the sport. It is assumed at this point that a scientific, objective test with statistical validation is the product desired. Although the basic steps for test development in motor performance are somewhat universal in nature, the approach to these steps may vary. Therefore, several ideas can be applied to the problem. The purpose of the study was to impact of VMBR technique on service skills of women badminton players and volleyball players.

METHODOLOGY

The purpose of this study was to assess the service skill level of Badminton and volleyball players. In order to achieve this purpose the skill test items were designed by the investigators, after analysing the various factors. These skill test items were French Short Service Test and Brumbach Volleyball Service Test. The above said test items were administered to thirty SRM university
volleyball team players and badminton players team as subjects and trails were conducted before and after orientation programme.

Data pertaining to the study were collected by administering the selected test items. Prior to collect data the coaches, managers and myself as a in charge of the teams were requested for the same before administering the tests, the subjects were briefed about the purpose of the study and details of all the tests were explained to them. Demonstrations of each skill test were given by the trained helpers. Subjects were also given sufficient number of trials to enable them to become absolutely familiar with the tests. To ensure uniform testing conditions, the subject were tested in the morning and evening sessions after warning-up during practice sessions, prior to the competition. Sufficient time was given in between the tests, so that the subjects could show their best performance.

**TEST ADMINISTRATION**

**French Short Service test**

Test Objective: To measure the ability to serve accurately with a low and short placement (degree of serving skill should be developed before the test is administered)

Age level: Junior high through college age.

Equipment: badminton racket, shuttles, rope to stretch above net, floor marking tape.

Validity: when tournament ranking were used as a criterion, a coefficient of .66 was reported.

Reliability: For college women, coefficients of .51 to .89 were reported.

**ADMINISTRATION AND DIRECTIONS:**

A rope is stretched 20 inches directly above and parallel to the net. A series of 2inch lines in the form of arcs are placed at distances of 22, 30, 38, and 46 inches from midpoint of the intersection of the centre line and the short service line of the right service court. Each measurement includes the width of the 2 inch lines. The test performer may stand anywhere in the right service area. Diagonally opposite the target. Twenty legal serves (may be two groups of ten) are attempted at the target. To earn points the serve must pass between the rope and net and land somewhere in the proper service court area for net and land somewhere in the proper service court area for doubles play.

**Scoring:**

The scorer stands in a position (centre of left service court facing the target) to determine if the shuttle passes between the rope and the net and to determine the point value of each serve. A score is awarded to any legal serve that passes between the rope and net and lands in the proper service court for doubles play. A score of 0 is recorded for any shuttle that does not pass between the rope and the net. The awarded points (5, 4, 3, 2, and 1) are based on the placement of the shuttle. Shuttles that land on a target line are awarded the point value of the higher area. If a shuttle hits the rope, the trail is not counted. Illegal serves may be repeated. The test score is the sum of the twenty serves.
2. **BRUMBACH VOLLEYBALL SERVICE TEST**

   **Objective:**
   To measure the ability to serve the volleyball low and deep into the opponent court.

   **Age level:** Junior high through college age.

   **Equipment:** Volleyballs, volleyball net, rope, tall standards, floor tape and tape measurement.

   **Validity and Reliability:** not reported.

   **Administration and Direction:** A rope is placed 4 feet above the net, and markings are placed on the floor. The test performer stands behind the rear end line and attempts to serve the ball between the net and the rope so that it lands deep in the backcourt on the opposite. Two sets of six trials are administered (total of twelve).

   **Scoring:** A serve that passes between the net and the rope receive the higher value for the target area in which it lands. Serves going over the rope receive the lesser value for the target areas. Serves that hit the rope are repeated. Foot faults, serves landing outside the target area are given a 0 score. The test score is the sum of the best trials.
TABLE

ANALYSIS OF VARIANCE BADMINTON SERVICE TEST AND VOLLEYBALL SERVICE TEST

In table the results shows that t value after orientation was multiple to many times when compared the value before orientation for both teams.

RESULTS

The statistical procedure was employed to estimate the improvement of the service skills of volleyball and badminton team. The mean is 30% increased than pre test level in both test and significantly increased their performance. Improvement is noticed through using VMBR technique. VMBR controls, Anxiety, Tension, Aggerssion, Stress, Depression, Negative thoughts and Disappointments. The dependent variables selected for this study was tested by French Short Service Test. All the subjects were tested prior to and immediately after the training period on the selected dependent variables. The data obtained from the pre and post test were statistically analyzed with dependent ‘t’-test. The level of confidence was fixed at 0.05 levels. The results of the study showed that there was a significant improvement on selected dependent variables of VMBR among the Volleyball and Badminton players.

CONCLUSION
It is understood that in the world class athlete such as sprinter Marian Jones, Tiger Woods, golf championchip, Willie Daven port five times Olympian, Steffigraf and Martina Navartilova and several others were functionally relaying on VMBR technique for their achievement.

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COMPLEX RELATIONSHIP BETWEEN SELECTED PSYCHOLOGICAL FACTORS AND ATHLETES PERFORMANCE: A ANALYTICAL THEORY

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INTRODUCTION

In elite sport today, it can be the smallest margin between ‘winning and losing’ or ‘success and failure’, but the impact can be massive. Given the huge amount of time, dedication, investment and reward that is involved in sport today, sport performers, coaches, and managers need to understand the importance of observing, analyzing and evaluating sports skills and techniques when trying to enhance performance. It is important that all performances are analyzed; if you were good, why were
you good, and if you were not good, what was different? If no evaluation takes place after performance then the performers may continue to make the same errors or not be able to take full advantage of opportunities when they arise.

Coaches, athletes and sports performers must have a thorough understanding of the demands of the sporting activity such as human movement, physiology, and the athlete’s psychological make-up, as well as the technical and tactical requirements to be successful. Today every sports performance is mainly depending upon psychological factors many research studies will be going on the relationship between psychology and sports. Sports psychology is the science subject it is inter related with sports. Sports psychology helps to the sports coaches when they adapted scientific coaching techniques during the training period. In this paper I try to explain which are psychological factors directly or indirectly effect on athletes performance and relationship with each other.

Aim of the study

Explain the relationship between selected psychological factors and athletes performance.

Athlete’s performance

Psychological preparation for sport is an essential aspect of successful sports performance at all levels. Elite sports performers make great use of psychological techniques before, during and after sports performance, both consciously and unconsciously. The higher the level of competition, the greater the psychological demands on the performer(s). Indeed many sport psychologists would argue that psychological preparation for sports performance is the most important part of sports performance. To effectively prescribe strategies to improve the performer’s psychological mindset an in-depth understanding of the theories and models underpinning psychological strategies is essential. Psychological preparation for sport is dependent on a wide range of factors, which differ for each individual sports performer. Therefore, understanding the underlying psychological principles and models will enable strategies to be adapted for a wide range of specific situations. In a sporting context, the execution of a range of sport specific skills is critical to produce high levels of performance. Due to the wide and varied nature of skills in sport it is essential to understand how we perform, and how we learn to be able to develop psychological performance.

Selected psychological factors and relationship with athletes performance

**RELAXATION**

After completion of hard training the athlete must taken proper rest, bcoz relaxation is helps to enhancing the performance during the training period athletes may use many relaxation techniques for reducing psychological stresses, it is helps to the athletes in normal condition.

- Yoga and meditation
- Physiotherapeutic modalities
- Massage
- Therapeutic exercise
- Less commitment
MOTIVATION

When the athletes are showing outstanding performance in competition they recognized by the society. Govt / Institutions / Agencies are find out the particular athletes and given encouragement through some intrinsic and extrinsic motivation.

- Awards/rewards
- Fulfillment of job requirements
- Reorganization by media and society
- Professional support by the coaches, physical education directors and co-players
- Positive opinion

SELF CONTROL

When the athletes are participating in the competition different situations will be occurred, during that period athletes may behave according to the game situations. Self control is helps to the maintain behaviour balance of the athletes as well as it helps to the development of positive attitudes of the athletes.

- Perfect knowledge regarding sports and games
- Disciplined daily routine
- Positive attitudes
- Physical and mental balance
- Positive opinion by others

Coping with injuries and self healing

Injuries is common in the sports field. un-condition of play field, equipments, poor knowledge and unsystematic training, these are the major reasons for sports injuries. when injuries are occurred athletes may know self healing techniques of the injuries.

- Reduce over load
- Systematic treatment
- Proper rest
- Precautions
- Therapeutic treatment

FOCUSING AND IMPROVING CONCENTRATION

Concentration is the major psychological factor of enhancing athletes performance. During teaching, training and coaching athletes must concentrate on physical exercises, various training programmes, precautions, techniques and tactics, rules of the game etc.

- Learning techniques and tactics
- Meditation
- Development of interest
- Involvement
- Calmness

MENTAL PRACTICE
Mental imagery is helps to the effective learning. advance mechanism is the new trend of preset situational training system. Mental practice is helps to the athletes in several ways, ex: learning tactics, learning techniques etc.

- Meditation
- Improving long term memories
- Autogenic training
- Development of analyzing strategy
- Development of mental toughness

PSYCHOLOGICAL PREPARATION FOR PEAK PERFORMANCE

“10 years hard training helps to the enhancing athletes performance, like that one second psychological depression collapse the 10 years performance”. This shows how psychological factors are directly influence on performance. When competition period near the coach must concentrate on his athlete because athletes are psychologically fit or not.

- Reducing stress
- Development of confidence
- Using motivational techniques
- Making understand of clear goal
- Close observations

MENTAL TOUGHNESS

One of the strongest psychological factor of enhancing athletes performance. during the training period athletes are suffered from various struggles, when athletes are successfully facing the struggles it helps to the development of mental toughness.

- Participating in maximum number of competitions
- Various struggles facing at during the training and coaching
- Various struggles facing with family, friends, colleagues and officials
- Continuous failures
- Understanding positive and negative statements

ATTENTION

Reading, writing, and listening attitude is mainly depending upon attention factors. In sports field athletes learn many things, such like techniques, tactics, rules etc. during the training and competition period each moment is important, that period attention will be taken wide role among athletes achievements.

- Modern training equipments
- New type of scientific coaching
- During video analysis
- During practicing the tactics
- Advance thinking/judgment
AGGRESSION

Aggression is the major psychological factor of enhancing the athlete performance as well as it is reason to the reducing performance. Stimulating of aggression is mainly depending upon situations, during the match, various situations will be occurred, when the athletes are failure to showing good performance in the competition automatically aggression is stimulated.

- Lack of rest
- Tough competitions
- Mental imbalance
- Depression
- Build up negative attitudes

REASONS FOR ANXIETY

Anxiety is the negative factor in sports psychology it indication to the failure of athletes. When athletes are suffered from anxiety performance will be stagnant or its reducing performance.

- Failure
- Negative opinion
- Negligence
- Insult
- Lack of appreciation
- Injury

REASONS FOR STRESS

Stress is the major psychological factor for reducing performance, psychological stress is very dangerous compare to the physical stress. When stress is occurs to the athletes automatically the athletes suffered from tension, it reduce thinking ability of mind, concentration, may athletes go to the confusion stage.

- Over load
- Poor communication
- Mental and physical imbalance
- Over confidence
- Learning bad habits
- Improper training
- Over Expectations

CONCLUSION

Psychological preparation for sport is an essential aspect of successful sports performance at all levels. Elite sports performers make great use of psychological techniques before, during and after sports performance, both consciously and unconsciously. It is how these psychological concepts and factors are applied and interact within sports performance that allows for the analysis of performance. From this, learners should understand that sports performance is dependent on a multitude of factors for success. Another important aspect of this topic is the level of analysis available to different types
of sports performers. For example, a school child in a physical education lesson may perform a basic 1.5 mile run so that the tutor can assess their aerobic endurance. In comparison, an elite athlete will have access to the full range of psychological support, such as sports psychologists, physiologists with human performance laboratories, and comprehensive biomechanical analysis using various information technology hardware and software.

ANALYSIS OF SELECTED ANTHROPOMETRIC CHARACTERISTICS PHYSICAL FITNESS AND ATHLETIC PERFORMANCE OF SCHOOLGIRLS ADAPTED BY RDT HOCKEY ACADEMY IN THE RAYALASEMA DISTRICT OF ANDHRA PRADESH

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ABSTRACT

This investigation was purported to evaluate the selected anthropometric characteristics, physical fitness and athletic performance of schoolgirls adapted by RDT hockey academy in the Rayalasema district of Andhra Pradesh, India. For this reason, 547 schoolgirls from twenty-six (26) schools in four (4) different districts adapted by RDT hockey academy in the Rayalasema District of Andhra Pradesh, India were considered as subjects. These subjects were in the age group of 11 to 16 years, and they were assessed for their selected anthropometric characteristics (height, weight), physical fitness (speed, explosive power) and athletic performance (100m dash) using standardized tests and procedures. The data collected were subjected to statistical analysis by means of One-way ANOVA, and Bonferroni corrections post hoc test. The confidence interval was fixed at p<0.05 in all cases. The research findings ensure statistically considerable age difference on selected variables, and it implies that age differences influence almost all fitness parameters.

Introduction

In India, for centuries of years from Vedic age to till date, the gurukuls and schools have played a vital role in the provision of physical activity to children and youth. Now a day, physical education is a mandated part of the school curriculum that too particularly in the State of Andhra Pradesh, India, and it is obligatory to assess and report the level of school student’s fitness. The educational aspects of physical education are to develop the knowledge, behavioral skills, and motor skills necessary to develop and maintain a physically active and healthy lifestyle. As such, the priority for physical education is seen as providing opportunities for students to engage in enjoyable physical activity, to become physically fit, and to learn generalizable motor and behavioral skills (McKenzie, 2003). Yet, participation in physical education was reduced by substitutions of other activities for physical education and student exemptions.

Partaking in games and sports has long been assumed to provide health benefits to young players. In spite of certain reservations about this conjecture, the studies of some (Rossi et al., 2004; Skolnick, 1993; Aaron et al., 1995) have shown that health benefits accrue to young people who participate in sports.

Customarily, the role of schools in providing and promoting physical activity has been during the school day and on the school campus immediately after school hours. Although there have been exceptions, school-based programs usually have been sponsored by the schools themselves and supervised by school employees. However, enormous potential appears to exist for schools to expand their role in providing students with additional physical activity by building institutional relationships with community-based providers of physical activity. Such relationships could manifest in several ways. Schools can make their facilities available to community based organizations during after-school, weekend, and summer vacation. Also, schools can collaborate with community organizations in promoting physical activity programs to students and their parents. Because transportation can be a barrier to students’ participation in after-school programs, schools can collaborate with community
organizations, including transit authorities, to ensure that students have the opportunity to participate in programs beyond the school day.

Although school-community linked physical activity programs offer much promise, little research has addressed the efficacy of such initiatives for increasing physical activity in children and youth. The nurturing of young players was carried out by Rural Development Trust (RDT), an NGO based in Anantapur, Andhra Pradesh, India. RDT Hockey academy benefited many young players across Andhra Pradesh, by adapting the students of various schools. Thereby, an attempt was made to record and report the selected anthropometric characteristics physical fitness and athletic performance of schoolgirls of different ages adapted by RDT hockey academy in the Rayalasema district of Andhra Pradesh.

METHODOLOGY

In this study, five hundred and forty-seven (547) female school students, aged 11 to 16 years were selected as subjects, at random from the schools adapted by RDT hockey academy spread across the district of Rayalasema, Andhra Pradesh, India. The selected subjects were tested for their anthropometric characteristics (height and weight), physical fitness (speed and explosive power) and athletic performance (100m dash) using standardized tests and procedures. The data collected were subjected to statistical analysis by means of One-way ANOVA, and Bonferroni corrections post hoc test. The confidence interval was fixed at p < 0.05 in all cases.

Results

The data on height, weight, speed, explosive power, and 100m dash were analysed for statistical significant age difference using one-way ANOVA. Thereafter, post hoc tests were performed using Bonferroni corrections. All those results were tabulated in tables from 1 through 3.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Descriptive</th>
<th>Age Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>11 yrs</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>58</td>
</tr>
<tr>
<td>Height</td>
<td>Mean</td>
<td>139.34</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>8.15</td>
</tr>
<tr>
<td>Weight</td>
<td>Mean</td>
<td>29.40</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>5.96</td>
</tr>
<tr>
<td>Speed</td>
<td>Mean</td>
<td>6.23</td>
</tr>
</tbody>
</table>
The descriptive statistics depicted in Table 1 reveals that all the variables confined to this study improved with age of the schoolgirls. However, the height, weight, power, and 100m dash of the schoolgirls were slightly impinged at the age of 16 years, which might be the result of academic stress, lack of motivation, sports performance saturation, gain in body mass, so on and so forth that needs to be investigated further.

### Table 2: Analysis of Variance on Anthropometric Characteristics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Between Groups</td>
<td>8807.898</td>
<td>5</td>
<td>1761.58</td>
<td>27.742</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>34289.370</td>
<td>540</td>
<td>63.499</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Between Groups</td>
<td>8074.912</td>
<td>5</td>
<td>1614.98</td>
<td>41.669</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>20929.081</td>
<td>540</td>
<td>38.758</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2 shows that statistically significant difference exists between different ages on height, weight, speed, explosive power, and 100m dash performance as the obtained $F$ (5, 540) is 27.742, 41.669, 2.760, 6.320 and 6.175 respectively, (p < 0.05). Since, six different age categories were considered in this study, the statistical analysis was further continued to post hoc test using Bonferroni corrections to find out the paired mean differences, and it was given Table 3.

Table 3: Post Hoc Tests on Anthropometric Characteristics
Physical Fitness and Athletic Performance

<table>
<thead>
<tr>
<th>Age in Years</th>
<th>Height</th>
<th>Weight</th>
<th>Speed</th>
<th>Explosive Power</th>
<th>100m Dash</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>2.49</td>
<td>3.11*</td>
<td>0.13</td>
<td>0.03</td>
<td>0.27</td>
</tr>
<tr>
<td>13</td>
<td>6.29*</td>
<td>6.06*</td>
<td>0.23</td>
<td>0.09*</td>
<td>0.48</td>
</tr>
<tr>
<td>14</td>
<td>11.62*</td>
<td>10.44*</td>
<td>0.31*</td>
<td>0.13*</td>
<td>1.11*</td>
</tr>
<tr>
<td>15</td>
<td>12.68*</td>
<td>13.80*</td>
<td>0.31</td>
<td>0.13*</td>
<td>1.11</td>
</tr>
<tr>
<td>16</td>
<td>9.97*</td>
<td>11.79*</td>
<td>0.33</td>
<td>0.12</td>
<td>0.75</td>
</tr>
<tr>
<td>12</td>
<td>3.81*</td>
<td>2.96*</td>
<td>0.10</td>
<td>0.05</td>
<td>0.75*</td>
</tr>
<tr>
<td>14</td>
<td>9.13*</td>
<td>7.33*</td>
<td>0.18</td>
<td>0.09*</td>
<td>1.38*</td>
</tr>
<tr>
<td>15</td>
<td>10.19*</td>
<td>10.69*</td>
<td>0.18</td>
<td>0.10*</td>
<td>1.38*</td>
</tr>
<tr>
<td>16</td>
<td>7.48*</td>
<td>8.68*</td>
<td>0.20</td>
<td>0.08</td>
<td>1.02</td>
</tr>
<tr>
<td>13</td>
<td>5.33*</td>
<td>4.37*</td>
<td>0.08</td>
<td>0.05</td>
<td>0.63</td>
</tr>
</tbody>
</table>
From Table 3, it is understood that most of the paired mean differences on height and weight varied between ages. It is also found that the adjacent age categories didn’t vary considerably between them with regard to explosive power, while the speed and 100m dash performance of the girls aged 14 to 16 years were not good enough as it is supposed to be.

In this study, school girls were grouped by chronological age, irrespective of their biological development, so some misclassification for children and adolescents in relation to their biological development may occur. Therefore, it is of interest to examine the associations between health-related physical fitness components and biological age in young girls.

Conclusion

The findings of this study reveal that older girls are taller and heavier, which ensures that the growth and development process were not hindered by means of systematic training program adopted in the RDT hockey academy. Per se, physical fitness and performance variables are generally higher in older girls. But, the result of this study necessitates rigorous training regimen for improving the physical fitness status of girls with regard to their age, as the fitness parameters and athletic performance level were not evidently varied among age categories of schoolgirls adapted by the hockey academy.

REFERENCES

EFFECT OF SAND RUNNING TRAINING ON SELECTED STRENGTH AND ENDURANCE RELATED VARIABLES AMONG SCHOOL BOYS

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ABSTRACT

Physical training is a process consisting of a series of physiological stresses that bring about or preserve specific adaptations to enhance a subject’s ability to tolerate the stressing factors arising
from training. Coaches and sports specialists use different types of training methods and training surfaces to improve performance. Walking or running on sand requires far greater effort than on firm ground and previous studies have measured the increase in energy expenditure in humans carrying or pushing loads on different surfaces. The state of Tamilnadu has a long coastline and vast river beds filled with dry sand which provide an ideal training field to develop biomotor abilities which can reflect in improved performance level in sports and games, but less information is available on this area of research regarding training in sand on biomotor variables. Hence the investigator was interested to find out the effects of sand running training on selected strength and endurance related variables among school boys. To achieve this purpose of this study, 40 sedentary school boys were selected as subjects. The age of the subjects were ranged from 17 to 19 years. The subjects were further classified at random into two equal groups of 20 subjects each namely experimental group and control group. Experimental group underwent sand running training for three days per week for eight weeks and control group followed their routine activities. The selected criterion variables namely cardiovascular endurance, VO$_2$ max, muscular endurance and explosive strength were assessed before and after the training period. The collected data were statistically analyzed by using Analysis of Covariance (ANCOVA). From the results of the study it was found that there was a significant improvement in cardiovascular endurance, VO$_2$ max, muscular endurance and explosive strength at among the experimental group when compared with the control group.

**Key Words:** Sand Running, Strength, Endurance

**INTRODUCTION**

Physical training is a process consisting of a series of physiological stresses that bring about or preserve specific adaptations to enhance a subject’s ability to tolerate the stressing factors arising from training (Coyle, 1988; Gollnick et al., 1984; Houston, 1986; Tidow, 1995). Therefore, training-induced skeletal muscle adaptations are such that the trained muscle increases its tolerance to exercise (Houston, 1986). Muscular strength and endurance are specific to each muscle or muscle group. That is, different muscles in the body can have different levels of strength and endurance. Coaches and sports specialists use different types of training methods and training surfaces to improve performance. Walking or running on sand requires far greater effort than on firm ground and previous studies have measured the increase in energy expenditure in humans carrying or pushing loads on different surfaces (Heinonen et al. 1959; Strydom et al. 1966; Haisman and Goldman, 1974) or when walking and running on a beach (Zamparo et al. 1992). Other studies have measured the change in energy cost due to different surfaces in reindeer Rangifer tarandus sibiricus (White and Yousef, 1978), goats and sheep (Dailey and Hobbs, 1989) and caribou Rangifer tarandus granti (Fancy and White, 1987). The softness of the sand, like the trampoline mat, absorbs and disperses your downward force which takes away any plyometric advantages of the stretch shortening cycle. Secondly, and this is the beneficial bit, unlike the trampoline, the sand makes your muscles work that much harder to actually get any height on your jump. The state of Tamilnadu has a long coastline and vast river beds filled with dry sand which provide an ideal training field to develop biomotor abilities which can reflect in improved performance level in sports and games. But less information is
available on this area of research regarding training in sand on biomotor variables. Hence the investigator was interested to find out the effects of sand running training on selected strength and endurance related variables among school boys.

METHODS

The purpose of the study was to find out the effect of sand running on selected endurance and strength parameters. To achieve the purpose of this study, forty students of Arunachalam Matriculation Higher secondary school, Kurichipady were selected as subjects. The selected subject’s age group ranged from fifteen to seventeen years. The subjects were randomly divided into two groups namely, experimental group and control group. Experimental group underwent sand running for twelve weeks and control group did not participate in any training program. The requirements of the experimental procedures, testing as well as exercise schedules were explained to them so as to avoid any ambiguity of the effort required on their part and prior to the administration of the study, the investigator got the individual consent from each subject. All the subjects were tested on the following variables before training (Pre), after training (Post): Cardiovascular Endurance, Leg explosive power, Muscular Endurance, and VO$_2$ Maximum. Cardiovascular Endurance, Leg explosive power, Muscular Endurance were measured using Cooper’s 12 minutes run/walk test, jump and reach test, sit up test respectively and VO$_2$ max was estimated using the procedure recommended by Greg M.Kline et al (1987). A pilot study was conducted to assess the initial capacity of the subjects in order to fix the exercise load. Based on the response of the subjects in the pilot study, training program was designed to ensure the suitability and the duration of training was scheduled. Further the pilot study helped to know the subjects capacity, to know the satisfactory effects of training and to know the difficulty of conducting training program and to set a clear understanding about the duration of time which was required for conducting the test. However the individual differences were not considered. This enabled the investigator to adapt suitable training schedule for this study. The subjects of the experimental group underwent a sand running program for eight weeks, 3 sessions (non alternative days) per week whereas the control group maintained their regular routine activities. A level stretch of dry sand in the river bank near Buvanagiri was utilized for the training and the subjects trained between 6.30 and 8 AM. The experimental group underwent continuous jogging (8 to 20 min), striding (50 mts - 2 to 3 repetitions with 1 min recovery period), bounding (30 mts - 2 to 3 repetitions with 1 min recovery period), galloping (30 mts - 2 to 3 repetitions with 1 min recovery period) and short sprints (25 mts - 3 to 5 repetitions with 2 min recovery period). Every session started with a warm-up and stretching session for five minutes and a warm-down session for five minutes. The data collected from experimental and control groups prior to and after completion of the training period on selected variables were statistically examined for significant differences if any, ANCOVA was used. In this study the random group design was used and both the groups were selected from the same population and also no effort was made to equate the groups prior to the commencement of the experimental treatment. In order to nullify the initial differences on selected dependent variable ANCOVA was used. The pretest means of the selected dependent variable was used as a covariate. Hence, the data collected from the two groups prior to and post experimentation on cardiovascular endurance, leg explosive power, muscular endurance and VO$_2$ maximum were statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). All the data were analyzed using SPSS statistical package. The level of confidence was fixed at 0.05 level of significance as the number of subjects was limited and also as the selected variables might fluctuate due to various extraneous factors.

RESULTS AND DISCUSSION

TABLE-I
### Analysis of Covariance for the Selected Variables among Experimental & Control Groups.

<table>
<thead>
<tr>
<th></th>
<th>Experimental Group</th>
<th>Control Group</th>
<th>F-Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cardio-Vascular Endurance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRE TEST</td>
<td>1652(29.84)</td>
<td>1658(78.02)</td>
<td>0.12</td>
</tr>
<tr>
<td>POST TEST</td>
<td>2078(149.35)</td>
<td>1645(28.93)</td>
<td>161.67*</td>
</tr>
<tr>
<td>AD PO TEST</td>
<td>2079</td>
<td>1644</td>
<td>166.86*</td>
</tr>
<tr>
<td><strong>VO₂ Max</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRE TEST</td>
<td>3.42(0.24)</td>
<td>3.60(0.12)</td>
<td>9.22</td>
</tr>
<tr>
<td>POST TEST</td>
<td>4.38(0.21)</td>
<td>3.59(0.11)</td>
<td>216.47*</td>
</tr>
<tr>
<td>AD PO TEST</td>
<td>4.45</td>
<td>2.52</td>
<td>1533*</td>
</tr>
<tr>
<td><strong>Muscular Endurance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRE TEST</td>
<td>17.60(1.60)</td>
<td>17.55(1.61)</td>
<td>0.01</td>
</tr>
<tr>
<td>POST TEST</td>
<td>25.75(1.41)</td>
<td>17.75(1.80)</td>
<td>244.42*</td>
</tr>
<tr>
<td>AD PO TEST</td>
<td>25.73</td>
<td>17.77</td>
<td>795.43*</td>
</tr>
<tr>
<td><strong>Explosive Strength</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRE TEST</td>
<td>25.75(4.39)</td>
<td>27.50(4.02)</td>
<td>1.73</td>
</tr>
<tr>
<td>POST TEST</td>
<td>36.90(4.51)</td>
<td>27.52(3.64)</td>
<td>52.73*</td>
</tr>
<tr>
<td>AD PO TEST</td>
<td>37.68</td>
<td>26.73</td>
<td>357.18*</td>
</tr>
</tbody>
</table>

### TABLE-II
The Pre And Post Test Means Of Experimental & Control Groups With Percentage Of Gain

<table>
<thead>
<tr>
<th></th>
<th>PRE TEST</th>
<th>POST TEST</th>
<th>Gain</th>
<th>Percentage of Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cardio-Vascular Endurance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>1652(29.84)</td>
<td>2078(149.35)</td>
<td>426↑</td>
<td>20.77↑</td>
</tr>
<tr>
<td>Control</td>
<td>1658(78.02)</td>
<td>1645(28.93)</td>
<td>13↓</td>
<td>0.78↓</td>
</tr>
<tr>
<td><strong>VO₂ Max</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>3.42(0.24)</td>
<td>4.38(0.21)</td>
<td>0.96↑</td>
<td>28.07↑</td>
</tr>
<tr>
<td>Control</td>
<td>3.60(0.12)</td>
<td>3.59(0.11)</td>
<td>0.01↓</td>
<td>0.27↓</td>
</tr>
<tr>
<td><strong>Muscular Endurance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>17.60(1.60)</td>
<td>25.75(1.41)</td>
<td>8.15↑</td>
<td>46.31↑</td>
</tr>
<tr>
<td>Control</td>
<td>17.55(1.61)</td>
<td>17.75(1.80)</td>
<td>0.02↑</td>
<td>1.14↑</td>
</tr>
<tr>
<td><strong>Explosive Strength</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>25.75(4.39)</td>
<td>36.90(4.51)</td>
<td>11.15↑</td>
<td>43.30↑</td>
</tr>
<tr>
<td>Control</td>
<td>27.50(4.02)</td>
<td>27.52(3.64)</td>
<td>0.02↑</td>
<td>0.07↑</td>
</tr>
</tbody>
</table>
Cardio-vascular endurance shows a significant increase (1652± 29.84 Vs 2078± 149.35: p>0.05) a increase of 20.77%. VO₂ Max shows a significant increase (3.42±0.24 Vs 4.38±0.21: p>0.05) i.e. increase of 28.07%. Muscular endurance shows a significant increase (17.60±1.60 Vs 25.75±1.41: p>0.05) which shows a increase of 46.31%. Explosive strength also shows a significant increase of 43.30%, (25.75±4.39 Vs 36.90±4.51: p>0.05). From the results of the study it was found that there was a significant improvement in cardio vascular endurance, VO₂ Max, muscular endurance and explosive strength; among the experimental group when compared with the control group.

CONCLUSIONS

The sand running program has resulted in a significant increase in cardio vascular endurance, explosive power, muscular Endurance, VO₂ maximum among school boys.

REFERENCES


THE CONFLICT MANAGEMENT STRATEGIES AMONG WRESTLING CLUBS OF GOLESTAN PROVINCE

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ABSTRACT

The study of conflict management strategies among wrestling clubs of Golestan province was aims of this article. The research methodology was descriptive-correlational and the data was collected via field procedure. The population of the study consisted of all adult wrestlers with four years of experience in wrestling clubs in Golestan province at the time of research (N=190). The participants of the study were 125 wrestlers who were selected from among the population based on cluster random sampling. The sample size was determined using Morgan table. To assess strategies of conflict management, Putnam's questionnaire (1991) was used. The results showed that, the participants' mean score of conflict management strategies was 3.209, out of the total score 5, with the standard deviation of 0.476. Collaborating strategy with average score of 3.590 and a standard deviation of 0.763, maximum and avoidance strategy with mean score 2.918 and standard deviation of 0.641 was the lowest. And there was a significant relationship between conflict management strategies and the selection of the individual characteristics of subjects.

Key Words: Conflict Management Strategies, Wrestling Clubs,

INTERDUCTION

Sport is full of conflict! Whether it is on or off the playing field, effectively dealing with conflict goes a long way in determining success. Internal team conflict can have a major impact on team dynamics and cohesion. As a coach, learning how to deal with these conflicts can become a major part of us everyday job. Therefore, conflict is a phenomenon which has both positive and negative effects on people’s and organization’ performance. Appropriate and effective use of conflict can improve the performance and raise an organization’s level whereas the inappropriate use of conflict may lead to a lower performance, create conflict and chaos in the organization. Effective use of conflict depends on a complete understanding of its nature, its main causes, and obtaining skill in its control and management which is nowadays considered as an important management skill (Rabinz, 1996). Cetin (2004) holds that if conflict can be properly identified and directed, it can be utilized as one of the most important devices for organizational growth. Therefore, we can say the sport teams are a kind of organization. Unlike the commonly held belief, the result of a game is not determined on the match day because there are numerous factors involved in the final outcome. A close look at the sports matches and competitions reveals that despite having high levels of capability and potentials, some athletes are not able to manifest their potentials fully due to conflicts with others an issue which leads to a decrease in the team’s performance. Considering the fact that different individuals of various
potentials and goals work in sport teams, therefore, the presence of conflict among them is a natural phenomenon. Based on the above-mentioned points, the researcher decided to study the conflict management strategies among in wrestling clubs of Golestan province.

MATERIALS AND METHODS

With regard to the topic and objectives of the study, the research methodology was descriptive correlational and the data was collected via field procedure. The population of the study consisted of all adult wrestlers with four years of experience in wrestling clubs in Golestan province at the time of research (N=190). The participants of the study were 125 wrestlers who were selected from among the population based on cluster random sampling. The sample size was determined using Morgan table. To assess strategies of conflict management, Putnam's questionnaire (1991) was used.

Both descriptive and inferential statistics were used to analyze the data. Qualitative data was described using percentage and frequency counts and quantitative data was illustrated using measures of central tendency and variability. Besides, based on the objectives of the study and data type, Pearson's correlation coefficient was used as inferential statistics.

RESULTS

The results of the research showed that 3.2% of wrestlers held master’s degree, 15.2% with bachelor’s degree and 20.8% with associate in arts’ degrees (or technicians) and 60.8% with diploma’s degree and less. Their average age was 22.17 years and their standard deviation was 5.701 years of which the oldest trainer was 40 years old and their youngest one was 16 years old. 6/13% of them have had experience in the league tournament. And 6/9% had a history of membership in the national team.

As shown in Table 1, the participants’ mean score of conflict management strategies was 3.209, out of the total score 5, with the standard deviation of 0.476. Collaborating strategy with average score of 3.590 and a standard deviation of 0.763, maximum and avoidance strategy whit mean score 2.918 and standard deviation of 0.641 was the lowest.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborating</td>
<td>3.590</td>
<td>0.763</td>
</tr>
<tr>
<td>Compromising</td>
<td>3.451</td>
<td>0.749</td>
</tr>
<tr>
<td>Avoiding</td>
<td>2.918</td>
<td>0.641</td>
</tr>
<tr>
<td>Accommodating</td>
<td>2.953</td>
<td>0.731</td>
</tr>
<tr>
<td>Competing</td>
<td>3.131</td>
<td>0.802</td>
</tr>
</tbody>
</table>
The data in Table 2 show that there was a significant relationship between conflict management strategies and the selection of the individual characteristics of subjects.

**Table 2: Correlation between individual’s characteristics and Conflict management strategies**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variables of individual’s characteristics</th>
<th>Education</th>
<th>Age</th>
<th>Experience in the league</th>
<th>Membership of national team</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborating</td>
<td></td>
<td>-0.285**</td>
<td>0.031</td>
<td>0.278**</td>
<td>0.232**</td>
</tr>
<tr>
<td>Compromising</td>
<td></td>
<td>-0.232**</td>
<td>0.023</td>
<td>0.334**</td>
<td>0.176</td>
</tr>
<tr>
<td>Avoiding</td>
<td></td>
<td>-0.031</td>
<td>-0.253**</td>
<td>0.111</td>
<td>0.205*</td>
</tr>
<tr>
<td>Accommodating</td>
<td></td>
<td>-0.065</td>
<td>-0.025</td>
<td>0.025</td>
<td>0.043</td>
</tr>
<tr>
<td>Competing</td>
<td></td>
<td>0.239**</td>
<td>0.261**</td>
<td>0.268**</td>
<td>0.228</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level**

*Correlation is significant at the 0.05 level

**DISCUSSION:** Making use of the two factors suggested by Blake and Mouton (1964) i.e. “concern for people and concern for production”, Thomas (1976) provided 5 strategies for conflict management which include: 1. Collaborating, 2. Compromising, 3. Avoiding, 4. Accommodating and 5. Competing. In order to select the most appropriate strategies, it is necessary to know the consequences of different conflict management strategies. The selected strategy for the management of conflict can be destructive or constructive. The most ideal solution for the settling of conflict is when both parties involved in the conflict feel victorious which is possible through collaboration (Rezaiyan, 2003). In collaborating strategy, the manager focuses on the interest of the persons involved in conflict and therefore, he tries to find a solution which meets both parties’ interest in the best way possible (Hellriegel, 1998). On the other hand, the strategy of avoiding in the conflict management indicates an aversion to tension, neglecting the disagreements and taking no sides. In this strategy, the manager pays attention to neither party’s interest (Sorensen, 1995). In the competing strategy, the manager tries to impose his own interests on the other party (Kreitner, 2004). In accommodating strategy, the manager prefers the other party’s interests to his own (Martochio, 1995). In compromising strategy, the manager looks for a solution in which both parties involved lose a part of their interests (Kreitner, 2004). Rahim (1992) states that collaborating strategy is the constructive use of conflict while avoiding and competing strategies show the non-constructive use of conflict, however, compromising and accommodating have a mixed use of conflict in management.
Knowing the consequences of conflict management strategies, to choosing the best strategy is important. Optional strategies for conflict management can be destructive or constructive; the best way to resolve the conflict is that both sides in the conflict have won (Rezaeian, 2003).

Relation to conflict management strategies wrestling coaches, the results showed that the collaborating strategy with mean 3.590±0.763 (maximum 5 points) is first priority. Due to the cooperation strategy marks a constructive and effective use of conflict,

Because of this strategy, the interests of both parties involved in the conflict (coaches and players) are fully funded; thus, although the average level of collaborating strategies is high, but it is necessary that optimizes increase. Avoidance strategy with mean 2.918±0.641 (maximum 5 points) has the lowest priority. Due to the use of avoidance strategy, indications are non-productive and ineffective conflict. Because this strategy does not meet any of the parties involved of interests in the conflict (coaches and players). Thus, although the use of this strategy is moderate to low, but the need is reduced. In this connection the results Janani (1389) showed that Iran futsal leagues coaches conflict management strategy are such that compromise and cooperation strategy in moderate level and competition strategy in moderate to high level and avoiding strategy in lower of moderate. While Rahim (1992) argues that use of collaborative strategies is signs of a constructive use of conflict and use of competition and avoidance strategies are signs of an inappropriate use of conflict.

Also in this study, it was concluded that demographic characteristics were significantly relationship with conflict management styles. This finding is consistent with the findings of Dilaver (2005). He concluded that Educational level of an organization is a major deterrent to establishing a correct relationship between them. People with higher educational levels than those with low education among professional groups are faced with less conflict.

The results showed that there was no significant correlation between age and conflict management styles. This finding is consistent with the findings of Ootez and colleagues (2005). During their research they found that older people use more than younger people of compromising style in dealing with conflict. In short, it can be concluded that the conflict in sport teams in an inevitable issue which can have positive or negative impacts on the teams’ performance. The effective and positive use of the conflicts requires effective management of the players’ conflicts.

ACKNOWLEDGMENT

The author would like to express his appreciation to the subjects for their participation and gorgan branch of Islamic Azad University for financial and moral support in this study.

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COMPARATIVE ANALYSIS OF MOTOR FITNESS AND BODY COMPOSITION AMONG BASKET BALL, FOOT BALL AND VOLLEY BALL PLAYERS

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ABSTRACT

Performance depends upon their motor fitness levels and their physiological and psychological levels. Basketball, football and volleyball players always tend to maintain optimum level of motor fitness as these games require more speed, strength, flexibility, balance, and endurance. The investigator was interested to find out whether the different levels of game preparation had made any differences among these sportsmen in their motor fitness and body composition variables. Hence, the investigator selected motor fitness variables, speed, flexibility, balance and endurance and body composition variables, body mass index and percent body fat to be compared among Andhra State Basketball, Football and Volleyball players.
The results presented in this study proved that speed among basketball, football and volleyball players as the obtained F value was significant. The paired mean comparisons proved basketball and football players’ were faster than volleyball players. This may be due to the fact that football and basketball players involve themselves in running during their game situations than volleyball players. The study proved that there was no significant differences among football, basketball and volleyball players on flexibility as all these players were involved in active games which resulted in adequate stretch shortening cycles, which in turn provided them equal range of motion and improved flexibility. The paired mean comparisons proved that basketball players and volleyball players were significantly have better dynamic balance than football players and there was no significant differences between basketball and volleyball players, it is further proved that there was significant difference between basketball, football and volleyball players as the obtained F value was significant. The paired mean comparisons proved that basketball players and volleyball players were significantly have better cardiovascular endurance than football players and there was no significant difference between basketball and football players.

The results of this study proved that there were significant differences on selected motor fitness variables, speed, balance and endurance among state level basketball, football and volleyball players of Andhra Pradesh and there was no significant difference on flexibility among state level basketball, football and volleyball players of Andhra Pradesh. On selected body composition variable, the results proved that there was no significant difference on percent body fat and there was significant difference on body mass index among state level basketball, football and volleyball players of Andhra Pradesh.

Key words: players, Sports, Endurance, Motor

INTRODUCTION

Sports in the present world have become extremely competitive. It is not the mere participation or practice that brings out victory to an individual. Therefore, sports life is affected by various factors like physiology, biomechanics, sports training, sports medicine, sociology and psychology etcetera. Athletic performance has dramatically progressed over the past few years. Performance levels unimaginable before are now common place, and the number of athletes capable of outstanding results is increasing.

In the above context, it is proposed to undertake the research study entitled ‘Comparative Analysis of Motor Fitness and Body Composition among Basket Ball, Foot Ball and Volley Ball Players’.

Objective of the Study: The objective of the study was to make a status analysis of the selected motor fitness and body composition variables of state level Basketball, Football and Volleyball players. And to analysis they obtained data to find out whether there were any significant differences among the selected players on the variables, speed, flexibility, balance, endurance, body mass index and percent body fat.

Statement of the Problem: The purpose of this study was to make a comparative analysis of selected motor fitness and body composition variables among basketball, football and volleyball players.
Hypothesis: 1. It was hypothesized that there would be significant differences on selected motor fitness variables, speed, flexibility, balance and endurance among state level basketball, football and volleyball players of Andhra Pradesh. 2. It was hypothesized that there would be significant differences on selected body composition variables, body mass index and percent body fat among state level basketball, football and volleyball players of Andhra Pradesh.

Significance of the study: 1. The present study would acquaint the physical education administrators with the motor fitness variables speed, flexibility, balance and endurance among basketball, football and volleyball players. 2. The study would acquaint the physical education administrators with the body composition variables body mass index and percent body fat among basketball, football and volleyball players. 3. It would facilitate to find out the differences among the three groups of players on selected motor fitness and body composition variables.

Delimitations:
1. This study was conducted on 30 basketball players, 30 football players and 30 volleyball players who competed at state level competitions in Andhra Pradesh during the year 2011-12.
2. The subjects were in the age group of 19 to 24 years.
3. This study was conducted only on men players.
4. The following variables were selected for this study.
   a) Motor Fitness Variables : Speed, Flexibility, Balance, Endurance
   b) Body Composition Parameters: Percent Body Fat, Body Mass Index

METHODOLOGY: To achieve the purpose of this study, thirty basketball players, thirty football players and thirty volleyball players who were selected to compete at state level competitions were randomly selected. The subjects were selected during the coaching camps organized by the state. The selected subjects’ age group was ranging from nineteen to twenty three years.

The selected subjects were measured of their motor fitness variables, speed, flexibility, balance and cardiovascular endurance; and body composition variables, percent body fat and body mass index using standard tests. The collected data were subjected to statistical treatment using ANCOVA. In all cases 0.05 level was fixed to test the significance of the results.

RESULTS AND DISCUSSIONS; The research question for this study was to find out the differences in selected motor fitness and body composition variables among state level football, basketball and volleyball players.

The results presented in this study proved that speed among basketball, football and volleyball players as the obtained F value was significant. The paired mean comparisons proved basketball and football players’ were faster than volleyball players. This may be due to the fact that football and basketball players involve themselves in running during their game situations than volleyball players. The study proved that there was no significant differences among football, basketball and volleyball players on flexibility as all these players were involved in active games.
which resulted in adequate stretch shortening cycles, which in turn provided them equal range of motion and improved flexibility.

The paired mean comparisons proved that basketball players and volleyball players were significantly have better dynamic balance than football players and there was no significant differences between basketball and volleyball players, it is further proved that there was significant difference between basketball, football and volleyball players as the obtained F value was significant. The paired mean comparisons proved that basketball players and football players were significantly have better cardiovascular endurance than volleyball players and there was no significant difference between basketball and football players.

The formulated hypothesis that that there would be significant differences on selected motor fitness variables, speed, balance and endurance among state level basketball, football and volleyball players of Andhra Pradesh was accepted at 0.05 level as there were significant differences among basketball, football and volleyball players. The obtained F value on flexibility was insignificant and hence, the formulated hypothesis that there would be significant differences on flexibility among state level basketball, football and volleyball players of Andhra Pradesh was rejected at 0.05 level and null hypothesis was accepted.

The results presented in this study gave way for consideration that whether the increase in body size has been the result of an increase in lean body mass or of an increase in body fat. It is logical to assume that an increase in body mass accompanied by an increase in fat-free mass would be particularly important in enhancing the performance of players. However, the different nature of playing situations can give different absorption of body fat was found in this study. It is proved that there was insignificant difference on percent body fat of the basketball, football and volleyball players as the obtained F value was less than the required F value to be significant at 0.05 level. This was due to the fact all the three groups of players were state level players and regularly involved in strenuous coaching and physical activities which kept their percent body fat in optimum required level. It is also proved that there was significant difference among the groups of players on body mass index as the obtained F value was greater than the required table value to be significant at 0.05 level. Even though there was significant difference between basketball players and football players and football players were found to be less BMI, there was no significant difference among the players when their percent body fat was considered. This shows that the enhanced BMI levels of basketball players was absorbed in body while assessing percent body fat.

The formulated hypothesis that that there would be significant differences on selected body composition variable body mass index among state level basketball, football and volleyball players of Andhra Pradesh was accepted at 0.05 level as there were significant differences among basketball, football and volleyball players.

The obtained F value on percent body fat was insignificant and hence, the formulated hypothesis that there would be significant differences on percent body fat among state level basketball, football and volleyball players of Andhra Pradesh was rejected at 0.05 level and null hypothesis was accepted.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS
The results of this study proved that there were significant differences on selected motor fitness variables, speed, balance and endurance among state level basketball, football and volleyball players of Andhra Pradesh and there was no significant difference on flexibility among state level basketball, football and volleyball players of Andhra Pradesh. On selected body composition variable, the results proved that there was no significant difference on percent body fat and there was significant difference on body mass index among state level basketball, football and volleyball players of Andhra Pradesh.

CONCLUSIONS:

1. There was significant difference on motor fitness variable, speed, among state level basketball, football and volleyball players. And it was also concluded that football players were significantly better than volleyball players.
2. There was no significant difference on motor fitness variable, flexibility, among state level basketball, football and volleyball players.
3. There was significant difference on motor fitness variable, dynamic balance, among state level basketball, football and volleyball players. And it was also concluded that basketball and volleyball players were significantly better than football players.
4. There was significant difference on motor fitness variable, cardiovascular endurance, among state level basketball, football and volleyball players. And it was also concluded that basketball and football players were significantly better than volleyball players.
5. There was no significant difference on percent body fat among state level basketball, football and volleyball players.
6. There was significant difference on body mass index among state level basketball, football and volleyball players. And it was also concluded that football players were significantly lesser than basketball players.

RECOMMENDATIONS:

1. Every player requires optimum level of motor fitness and the findings of this study proved that there were differences in motor fitness variables, speed, dynamic balance and cardiovascular endurance among basketball, football and volleyball players. Hence, it is recommended that players may concentrate more on improving their motor fitness levels.
2. A separate research may be conducted to assess the relationship between the methods of training and the resultant effects on selected motor fitness components and body composition variables of basketball, football and volleyball players.
3. The results of this study showed that there existed significant differences in body mass index of the players. Efforts may be made to give adequate care to maintain optimum level of this body composition variable by players.

REFERENCES


INTEGRATION OF VIDEO BASED ANALYSES TEACHING IN PHYSICAL EDUCATION

Ramananda Ningthoujam a, Dr. T. Inaobi Singhb

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ABSTRACT

Introduction: Today, Video Based Analysis (VBA) is one of the teaching methods widely used in the different fields that help in effective teaching and learning process. Objective: The aim of this article is to focus on the importance of VBA teaching method in the field of Physical Education (PE).
Method: For the purpose, a self-made video was constructed. A series of set shoot skill by one athlete who represented university in basketball was recorded using high speed camera. The materials included are one digital video camera and a laptop or computer with the software Windows Live Movie Maker, which allows frame-by-frame playback of the video. Results: The skill was divided into three (3) phases for analysing the body and leverage movements while executing the skill. Conclusion: Using of VBA in teaching any model-based practices will help in improving the motor educability, efficiency and performance of the students.

Key Words: video based analysis, high speed camera, window live movie maker, motor educability

INTRODUCTION

Today’s world is a world of technology revolution, wherein the desire to capitalize the new generation’s appetite for multimedia presentations are increasing. In such a scenario adopting the audio-visual method of teaching would be the most apt as teaching in Physical Education (PE) is a huge challenge. The classroom in actuality is a field of activity that involves myriad forms of unique teaching methodology1. Video Based Analysis (VBA) is one of the many teaching aids that would offer teachers, lecturers and curriculum developers to inculcate interest and attention among their students. Many studies and researches have claim that the use of VBA method of teaching enables quick learning among students.

Video analysis is a common tool that is used in modern sports to increase coaching performance for individual and team competitions. Coaches and trainers use this method as a corrective method that will help in improving the performance of the athletes. It serves as a feedback for the players which in turn help in motivating them to perform better. Besides, the use of Video analysis software helps in gait analysis, biomechanics research and injury rehabilitation.

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1.1 Objectives:
To emphasize the importance of Video Based Analyses teaching and inculcate the method in the field of Physical Education and Sports

1.2 Limitation:
Certain parameters like Velocity, Acceleration, Time of action, Angles, Distance / Displacement, Momentum, Speed are not considered in this article.

1.3 Definition:
The terminologies that you will come across in this article are discussed below:

1.3.1 Motor educability:
It refers to the ability to learn or the cognitive capacity to learn new skills.

1.3.2 Digital high Speed Camera:
A digital high speed camera is a device used for recording slow-motion playback films, or used for scientific study of transient phenomena.

1.3.3 Windows Live Movie Maker:
It is essentially a simple, easy-to-use video editor that helps you in putting together photos, videos, music and special effects to create an eye-catching presentation in a few easy steps.

1.3.4 Video Based Analysis
The technique used to get information about moving objects from video.

1.3.5 Set Shoot:
A two-handed basketball shot from a stationary position.

1.3.6 Motor Skill:
Motor skill is a movement which involve the neuro- muscular coordination.

2. METHOD AND MATERIAL
The method used to construct the self made video based analysis teaching aids are discussed below:

2.1 Participant:
A National Basketball player who has represented University was recruited as subject.

2.2 Material:
The materials included one digital video camera and a computer with software (window Live Movie Maker) allowing frame-by-frame playback of the video.
2.3 Procedure:

A series of set shoot skill by one athlete who represented university in basketball was recorded using digital high speed camera. The steps followed in bringing out this VBA teaching aid are given below:

2.3.1 Recording of the skill with digital high speed camera.

2.3.2 Converting the recorded videos into AVI format with the help of Download converter software.

2.3.3 Save the videos in a new folder.

2.3.4 Open the Window Live Movie Maker software (WLMM).

2.3.5 Browse the video.

2.3.6 Editing the video (set start point and end point) for cutting video clips.

2.3.7 Pause the clip where to analysed the movement and take a snapshot and save in a new folder.

2.3.8 Open an auto movie themes in WLMM.

2.3.9 Add the snapshot to your clips.

2.3.10 Add title, caption, music, etc to the clips

3. RESULT

As the result of VBA, the skill was divided into three (3) steps i.e. L Phase, I Phase and Good Bye Phase:

3.1 L Phase: The throwing hand is in the shape of “L” when ready (Step 1, 2, 3and 4)

3.1.1 Step 1: Ready position

- Heels rest lightly on the floor with weight on the balls of the feet.
- Feet a shoulder width apart.
- Ball held in front of the waist in the fingertips of two hands.
- Fingers spread wide with thumbs and little finger on 'Line'.
- Thumbs Close together at the rear.
- Elbows held close to the body.
- Head is stationary and erect.
- Eyes are fixed on the target.

3.1.2 Step 2: Flexing of joints
The elbows and knees joints start flexing which act as a lever to generate force for the action.

3.1.3 Step 3: Angles of Joints decreases

The elbows and knees angle decreases, counter action of upper and lower extremities can be seen. The upper extremities are moving backward and lower extremities are moving forward to maintain the balance.

3.1.4 Step 4: Range of Motion

The ball is at overhead with one line of the body before the elbow and knees start extending to get a highest range of motion (ROM)

3.2 I- PHASE: The throwing hand take I- shape when extended (Step 5 and 6)

3.2.1 Step 5: Leverage Extension

The Elbows and Knees start extending to give force to the ball.

3.2.2 Step 6: Back Spin

The fingertips are used to release the ball to make it spin backward so that the ball remains near the rim.

3.3 GOODBYE PHASE: wave goodbye when you snap your wrist (Step 7)
3.3.1 Step 7: Follow Through

The Elbows and knees are fully extended so that the body weight is transfer to the feet.

4. DISCUSSION

Several researchers have investigated the efficacy of using video models within computer-based multimedia applications in different fields. Even in PE and Sports, the use of computer application has been drastically increasing in many develop countries as motor skill in PE cannot be learnt overnight. It is a progressive change that occurs as a result of observation, experience, or practice².

Minna et al (2001) examined the effects of two forms of instruction, “traditional” and “traditional” plus strategy instruction (strategy-oriented), on students’ knowledge, game understanding, skill and game performance. The badminton players who received video-based strategy instruction for lessons were able to improve its badminton knowledge; game understanding and serving skill significantly whereas the group without video-based strategy instruction improved its badminton serving skill only³.

Likewise, in this study on set shoot, it has been noticed that there are many skills which could not be noticed by the naked eye. With the use of VBA, each and every body and leverage movement of the joints could be analysed to note the minute details of the movement. As learning a motor skill initially involves visual perception of the skill to be performed, the interest in mental imaginary accompany the development of the interest in skill acquisition. It enables an individual to visualize symbolic rehearsal of the skill, without there being any muscular movement. This method despite serving as a useful model for researches; it enables the athlete to analyse their progression for better future performance.

5. CONCLUSION

In conclusion, people have different level of motor educability. Due to individual cognitive difference, some are quick learner while others are slow. Findings and statistics have shown that the best means of facilitating or enhancing good teaching and learning is through the use of instructional materials which encompass audio visual materials like video based analyses. Therefore, VBA offers varied opportunities as it allows performance to be paused, repeated, played in slow motion and can be used in all types of model-based practices like sports education and other different fields.

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PRANAYAMA EXERCISES AND ITS SIGNIFICANCE ON PHYSIOLOGICAL ASPECTS OF CHILDREN WITH SPECIAL NEEDS IN OSMANIA UNIVERSITY HYDERABAD

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Osmania University, Hyderabad.

INTRODUCTION

Today’s fast competing and changing scenario of society has forced the individuals to concentrate their efforts on different dimensions of life. It is a matter of great concern that the abilities and potentials of disabled persons have not yet been fully explored and tackled but practically it is a great loss of human resources, which, if discovered, matured, appropriately channelized and utilized could add a new force to the progression of the society. In such an atmosphere of least concern rather neglect, it becomes a moral duty, rather a religious, to identify the handicapped people and to explore their potentials and weakness in scientific ways (Gajendragadkar, 1983). Physical disability is a common experience of everyday life. According to World Health Organizations (1980) disability means any restriction or lack of ability to perform any activity in the manner within the range considered normal for a normal being. Special needs individuals are not different from everyone they just need a little extra help along their way. This population has to have mediation because there are many who cannot speak for themselves. They need the help from a neutral person so that they can discuss complications that they may be dealing with without judgment. Advocacy is a necessity too because that individual needs a person to stand by their side and help them fight for what is right. In today’s society people only care about themselves.

Children with special needs:

Children with special needs are children with a variety of different disabilities, health and mental health conditions that require special intervention, services, or support.
Visually Challenged Children:

Visual impairment is the consequence of a functional loss of vision, rather than the eye disorder itself. Eye disorders which can lead to visual impairments can include retinal degeneration, albinism, cataracts, and glaucoma, muscular problems that result in visual disturbances, corneal disorders, diabetic retinopathy, congenital disorders, and infection. Visual impairment can also be caused by brain and nerve disorders.

Hearing Challenged Children:

Hearing impairment, or deafness, is a partial or total inability to hear. It is caused by many different factors.

Orthopedic Challenged Children:

The term "orthopedic" refers to impairments of the skeletal system; People with orthopedic handicaps usually have some difficulty with walking or movement.

Pranayama Exercises

Pranayama is traditionally viewed as a practice involving a lot more than just breathing for relaxation. It is a term having a broad range of meanings and connotations. It also stands for cosmic power, or power of the whole entire universe that reveals itself as a conscious living entity in us through the miracle of breathing. The sage Patanjali, in Yoga Sutras, defines Pranayama as “regulation of incoming and outgoing breath coupled with retention, in Sanskrit, the word Pranayama is composed of two parts, i.e. Prana and Ayama. The latter means control; it describes the action of Pranayama. Prana – that most people are unaware of – is vital energy. It is that energy that manifests itself as the self-energizing force embracing one’s body. When this force enfold the entire body with control, it is called Pranayama. The goal of Pranayama is not to bring the inhale and exhale into a particular relationship with each other. Nor is it to set up a particular length of breath. The different pranayama practices render lots of sundry possibilities for following the breath, as well. When you follow your breath, your mind is drawn into activities of your breath. Pranayama prepares us, in this manner for the stillness of meditation to come. Pranayama - The science of breath control, consist a series of exercises intended to meet these needs and to keep the body in vibrant health.

PHYSIOLOGY

Human physiology is the science of the mechanical, physical and biochemical functions of humans in good health, their organs, and the cells of which they are composed. The principal level of focus of physiology is at the level of organs and systems. Most aspects of human physiology are closely homologous to corresponding aspects of animal physiology, and animal experimentation has provided much of the foundation of physiological knowledge. Anatomy and physiology are closely related fields of study: anatomy, the study of form, and physiology, the study of function, are intrinsically tied and are studied in tandem as part of a medical curriculum. Traditionally, the academic discipline
of physiology views the body as a collection of interacting systems, each with its own combination of functions and purposes.

Respiratory system (or ventilatory system)

The respiratory system (or ventilatory system) is a biological system consisting of specific organs and structures used for the process of respiration in an organism. The respiratory system is involved in the intake and exchange of oxygen and carbon dioxide between an organism and the environment. In air-breathing vertebrates, respiration takes place in the respiratory organs called lungs. The passage of air into the lungs to supply the body with oxygen is known as inhalation, and the passage of air out of the lungs to expel carbon dioxide is known as exhalation; this process is collectively called breathing or ventilation. In humans, the anatomical features of the respiratory system include trachea, bronchi, bronchioles, lungs, and diaphragm. Molecules of oxygen and carbon dioxide are passively exchanged, by diffusion, between the gaseous external environment and the blood. This exchange process occurs in the alveoli air sacs in the lungs.

Breathing is important for two basic reasons.

- It is the only means of supplying our bodies and its various organs with oxygen which is vital for our health.
- Breathing is one of the ways to get rid of waste products and toxins from our body.

Oxygen is so vital

Oxygen is the most vital nutrient in our bodies. It is essential for the proper and efficient functioning of the brain, nerves, Glands and other internal organs. We can survive without food for weeks and without water for days, but without oxygen we will die within a few minutes. If the brain does not get proper supply of this essential nutrient, it will cause degradation of all the vital organs of the body. The brain requires more oxygen than any other organ.

Oxygen purifies the blood stream

One of the major secrets of energy and rejuvenation is a purified blood stream. The quickest and most effective way to purify the blood stream is by taking in extra supplies of oxygen from the air we breathe. The Breathing Exercises are the most effective methods ever devised for saturating the blood with extra oxygen.

- Oxygen recharges the body's batteries (the solar plexus).
- Most of our energy requirements come, not from food, but from the air we breathe.
- By purifying the blood stream, every part of the body benefits, as well as the mind.
- Rejuvenation of the skin will start to occur.
SIGNIFICANCE OF THE STUDY
This study is to find out the Pranayama Exercises and its significance on physiological aspects of the children with special needs in Osmania University Hyderabad.

OBJECTIVES OF THE STUDY
The purpose of the Study is to find out the Pranayama Exercises and its significance on physiological aspects of the children with special needs in Osmania University Hyderabad.

HYPOTHESES
There may not be any significant difference on physiological aspects in relation to their Pranayama Exercises of the children with special needs in Osmania University Hyderabad.

DESIGN OF THE STUDY
The study has focused the following experimental design.

SAMPLE OF THE STUDY
For the study 100 Osmania University Students were selected in different categories. The study was formulated based on the simple random sampling. The samples were collected from the 25 Visually Challenged children, 25 Hearing Challenged Children, 25 Orthopedic Challenged Children and 25 Normal Children in the age group of 20 – 25 years from Osmania University were considered.

Showing the Sample of the Study

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Category of the subjects</th>
<th>Number of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Visually Challenged Children/Students</td>
<td>25</td>
</tr>
<tr>
<td>2.</td>
<td>Hearing Challenged Children/ Students</td>
<td>25</td>
</tr>
<tr>
<td>3.</td>
<td>Orthopedic Challenged Children/ Students</td>
<td>25</td>
</tr>
<tr>
<td>4.</td>
<td>Normal Children / Students</td>
<td>25</td>
</tr>
<tr>
<td>5.</td>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

**Material &Methods:**

The present study under investigation selected the following Pranayama Exercises and test performed on physiological aspects i.e. vital capacity.

Pranayama Exercises

- Bhastrika Pranayama
- Kapalbhati Pranayama
- Bahya Pranayama
- Anuloma-Viloma Pranayama
- Nadi Shodhan Pranayama
- Bhramari Pranayama

Physiological tests

- Spiro meter (vital capacity)

**DATA COLLECTION PROCEDURE**

For the data collection 100 Osmania University Students were selected in different categories 25 Visually Challenged children, 25 Hearing Challenged Children, 25 Orthopedic Challenged Children and 25 Normal Children in the age group of 20 – 25 years of Osmania University from different departments pursuing degree/P.G. course in the University have been selected for the study and they have under gone physical fitness activities and Pranayama Exercises for 45 days daily 1 hour in the morning. The pre- test was taken, and then the post test was administrated after the systematic training of physical fitness activities and Pranayama Exercises on physiological aspects.
Benefits of Pranayama Exercises:

- It helps relieving the symptoms of asthma.
- It reduces the signs of oxidative stress in the body.
- Regular pranayama can extend life and enhance ones perception of life.
- Number of studies show that pranayama causes change in the cardio respiratory system including lowering of blood pressure
- Certain pranayama’s are excellent for weight loss.
- Strengthens the lungs and the respiratory system as a whole.
- Improves the blood purification process.
- Strengthens the mind to improve concentration and mind control.
- Improves the functions of the brain cells as the brain gets optimum purified blood supply.
- If done properly over a period of time, one can have amazing mental powers and psychic abilities such as mind reading, distant viewing, knowing past life information, ability to overcome gravity and float.... etc

RESULTS AND DISCUSSION

The results pertaining to the study are present in the following

The table-1 showing significant differences between Pre Test and Post Test of Visually Challenged Children in relation to their effect of Pranayama Exercises on Physiological aspects Vital Capacity.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>No. of Groups</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>df</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pre Test</td>
<td>25</td>
<td>2717.88</td>
<td>126.16</td>
<td>48</td>
<td>7.36</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>Post Test</td>
<td>25</td>
<td>2888.00</td>
<td>133.42</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table-2 showing significant differences between Pre Test and Post Test of Hearing Challenged Children in relation to their effect of Pranayama Exercises on Physiological aspects Vital Capacity.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>No. of Groups</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>df</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pre Test</td>
<td>25</td>
<td>2584.64</td>
<td>272.22</td>
<td>48</td>
<td>6.122</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>Post Test</td>
<td>25</td>
<td>2943.40</td>
<td>243.30</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table-3 showing significant differences between Pre Test and Post Test of Orthopedic Challenged Children in relation to their effect of Pranayama Exercises on Physiological aspects Vital Capacity.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>No. of Groups</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>df</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pre Test</td>
<td>25</td>
<td>2640.00</td>
<td>288.44</td>
<td>48</td>
<td>5.79</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>Post Test</td>
<td>25</td>
<td>2945.24</td>
<td>224.65</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table-4 showing significant differences between Pre Test and Post Test of Normal Children in
relation to their effect of Pranayama Exercises on Physiological aspects Vital Capacity.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>No. of Groups</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>df</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pre Test</td>
<td>25</td>
<td>2736.96</td>
<td>223.12</td>
<td>48</td>
<td>6.97</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>Post Test</td>
<td>25</td>
<td>3057.32</td>
<td>216.15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DISCUSSION OF THE STUDY

The find of the results has Significant differences between Pre Test and Post Test of Visually Challenged Children in relation to their effect of Pranayama Exercises on Physiological aspects i.e. Vital Capacity are mean values 2717.88, S.D values 126.16 and mean values 2888.00, S.D values 133.42, significant differences between Pre Test and Post Test of Hearing Challenged Children in relation to their effect of Pranayama Exercises on Physiological aspects i.e. Vital Capacity are mean values 2584.64, S.D values 272.22 and mean values 2943.40, S.D values 243.30, significant differences between Pre Test and Post Test of Orthopedic Challenged Children in relation to their effect of Pranayama Exercises on Physiological aspects Vital Capacity are mean values 2640.00, S.D values 288.44 and mean values 2945.24, S.D values 224.65, significant differences between Pre Test and Post Test of Normal Children in relation to their effect of Pranayama Exercises on Physiological aspects Vital Capacity are mean values 2736.96, S.D values 223.12 and mean values 3057.32, S.D values 216.15. It is very clear that a significant difference was found between the pre-test and the post-test with effect of pranayama exercises on the children with special need with regards to physiological aspects i.e. vital capacity.

Physiological effects of pranayama in respiratory system

Pranayam Exercises (yoga breathing) involves controlling the respiratory functions of the body which is generally involuntary under the human control. We live because we breathe. But there are certain breathing techniques which if properly done can bring about energy, cheerfulness and improve the health of the individual. We breathe in through the nose and the lungs function in retaining the breath and it is later exhaled. The breathing process depends on the health of the heart and lungs. If these organs are healthy then breathing can occur normally. Thus in normal breathing, inhalation and exhalation is not connected with the mind and hence it is not controlled. Moreover, inhalation and exhalation does not occur in correct duration of time. Sometimes inhalation occurs for more period of time than the exhalation. In pranayam, the breathing procedure is connected with the mind and hence there is specific duration of breathing. This helps in making a healthy body. The person becomes cheerful and can help in managing various disorders.

Pranayam helps in improving the supply of the oxygen. It can immensely improve the functioning of the lungs and initiate the proper way of breathing. It can thus provide a sense of well being and help to maintain a healthy heart. It prevents the development of various respiratory disorders.

CONCLUSION

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In the present study the effect of pranayam exercises have shown significant difference among the visually challenged students and some significant difference was found on hearing challenged students were has slight significant different was found on orthopedic challenged student and a greater variation has shown on the normal children when compared with the all the groups the hearing challenged children has concentrated high in improving. Hence, it is finally concluded that the Effect of Pranayama Exercises on Respiratory system (vital capacity) have shown a positive impact among Pre-Test and Post-Test of special need children. This leads to the development of right and desirable habits resulting in the formation of socially useful and cheerful citizens.

Pranayama is powerful breathing technique that ensures healthy body and calm mind. Regular practice of various types of pranayama improves breathing pattern, purifies blood, boosts resistance power and gives physical strength. Pranayama is a part of Yoga system that teaches you the art of extending your breath in many different ways. When practicing pranayama the breath should be skillfully inhaled, exhaled and retained. It teaches you to change the depth, rate and pattern of breathing. Breathing is vital for our survival as it is the only way we can send oxygen inside our body and into our organs. We can live for months without consuming food and days without water, however we can only survive a few minutes without breathing. When you learn the breathing techniques it will positively affect your actions and thoughts. Every thought we have changes the rhythm of our breath. When we are happy breathing is rhythmic and when we are stressed breathing is irregular and interrupted. Mastering the art of breathing is a crucial step towards self-healing and survival.

Suggestions & Recommendations:

- Pranayama techniques are beneficial in treating a range of stress related disorder.
- It reduces the signs of oxidative stress in the body.
- Pranayama improves the autonomic functions.
- Regular pranayama can extend life and enhance ones perception of life.
- Certain pranayama’s are excellent for weight loss.
- Strengthens the lungs and the respiratory system as a whole.
- Improves the blood purification process.
- Strengthens the mind to improve concentration and mind control.
- Improves the functions of the brain cells as the brain gets optimum purified blood supply.
- If done properly over a period of time, one can have amazing mental powers and psychic abilities such as mind reading, distant viewing, knowing past life information, ability to overcome gravity and float....etc

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IDENTIFYING PROFICIENT TRAINING METHOD AND ITS DETRAINING EFFECT ON SPEED AND EXPLOSIVE POWER

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sportprabha@gmail.com

ABSTRACT

The present study was designed to identify the proficient training method and its detraining effect on development of speed and explosive power. For the purpose of the study fifty female students were selected as subjects. The age of the subjects’ ranged from 17 to 20 years; height ranged from 150 to 160 centimeters and weight is 40 to 55 kilograms. The experimental design used in this study was random group design. The selected subjects were divided at random into five groups of ten each (n=10). Group I underwent speed training, Group II underwent explosive power training, Group III underwent combined training, Group IV underwent complex training and Group V acted as control group. All the subjects were tested prior to and after the training and during detraining period the data were collected at the end of third and sixth week for all the selected variables. The collected data from the five groups on pre-post experimentation and detraining (two cessation) were statistically analyzed by using two way (5x4) factorial ANOVA with last factor repeated measures. Hence, it is concluded from the results of the study that systematically and scientifically designed combined training programme may be given due recognition and be implemented properly in the training programmes of all the disciplines in order to achieve maximum performance.

INTRODUCTION

Sport and athletes have always been subjects for art. In early Greek Culture, where sport was so fundamental to social life, artists often used athletes as subjects, creating sculpture and decorating vases with athletes in action. Throughout history, artists have been intrigued by the physical beauty of the athletic body and the visual beauty of the athletic performance. As sport became the object for intellectual analysis and investigation during this century (Siedentop, 1998).
Isolated training is specific training schedule to meet the needs of highly focused objective. The term itself specifies its unique and solitary way of focus on a single component or a motor ability that determines performance. Speed training and explosive power training were used as isolated training for this study. Combined training is a comprehensive training approach that strives to improve all the marked components necessary to allow a sportsman to achieve optimum performance.

Key words : Isolated training, Combined training, Complex Training, Speed & Explosive Power.

* Dr.R.SaravanaPrabha, Assistant Professor, Department of Physical Education, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore.

Each of these components is necessary to achieve optimum physical, physiological and performance related goals. This training includes the integrated approach of developing speed and explosive power. Complex Training is road maps that can help one develop an important edge. In complex workouts, strength moves are combined with speed work to help to gain power and produce the greatest results in the least amount of time.

Speed is a skill that must be taught. All young athletes have mechanical, postural and technical issues that must be fixed in order to unlock their speed potential. Pure speed training has broken it down into step-by-step process. Speed is an integral part of every sport and can be expressed as any one of, or combination of, the following: maximum speed, elastic strength (power) and speed endurance. Explosive Power, combination of speed and strength and physical performance have been closely related and investigated by various investigators using different protocols. The ability of the athlete to produce high force at high velocity is an important component of the physical performance and functional capacity. However, power has been defined as the product of force (or torque) and velocity, it is rate of doing work (Baechle et al, 1997).

**PURPOSE OF THE STUDY**

The present study was designed to identify the proficient training method and its detraining effect on development of speed and explosive power.

1. The ultimate goal of research in physical education is to help coaches and physical educators to train their athletes and players based on new concepts to improve their performance.

2. The findings of the study would reveal the extent to which the speed and explosive power training improves the overall performance.

3. The results of the study may be useful to the professional colleagues of physical education and sports to prepare training schedules for specific event.

**HYPOTHESES**
1. There would be a significant improvement on selected independent variables due to the effect of isolated, combined and complex training.

2. There would be significant difference on the selected dependent variables among the experimental groups such as isolated, combined and complex training groups.

3. There would be a significant difference in selected dependent variables of experimental groups due to detraining impact.

**REVIEW OF RELATED LITERATURE**

Chelly (2001) studied the link between leg power, leg stiffness, and sprint performance. The ability to produce a stiff rebound during the maximal running velocity could be explored by measuring the stiffness of a rebound during a vertical jump. Blaykey (1987) conducted a study to determine the effects of plyometric exercise (depth drops) combined with weight training on dynamic leg strength and leg power. It was concluded that weight training will improve leg strength and power. Baker (2005) investigated the acute effect on power output of alternating an agonist and antagonist muscle exercise during complex training. This result may affect power training and specific warm-up strategies used in ballistic sports activities, with increased emphasis placed upon the antagonist muscle groups. Clark (2006) investigated the acute effects of a single set of contrast preloading on a loaded countermovement jump training session. These results suggest that a single set of preloading exercises enhances performance during a lower-body explosive power training session; however, the effects of a single preloading set may not peak until midway through the training session. Linossier (1997) investigated the effect of sprint training and detraining on supramaximal performances was studied in relation to muscle enzyme adaptations in eight students trained four times a week for nine weeks on a cycle ergometer. Effects on short-sprint ability and muscle anaerobic potential. On the other hand, a persistent training stimulus is required to maintain high aerobic capacity and muscle oxidative potential.

**METHODOLOGY**

For the purpose of the study fifty female students were selected as subjects. The age of the subjects’ ranged from 17 to 20 years; height ranged from 150 to 160 centimeters and weight is 40 to 55 kilograms. The experimental design used in this study was random group design. The selected subjects were divided at random into five groups of ten each (n=10). Group I underwent speed training, Group II underwent explosive power training, Group III underwent combined training, Group IV underwent complex training and Group V acted as control group. All the subjects were tested prior to and after the training and during detraining period the data were collected at the end of third and sixth week for all the selected variables. The collected data from the five groups on pre-post experimentation and detraining (two cessation) were statistically analyzed by using two way (5x4) factorial ANOVA with last factor repeated measures (Broota, 1989).

<table>
<thead>
<tr>
<th>Tests Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table I</strong></td>
</tr>
</tbody>
</table>

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Analysis of the data

The influence of independent variables on each criterion variables were analyzed and presented below.

Variable I – Speed

Table II

The mean and standard deviation of 50 meters run on speed of pretest, posttest and two cessations data of experimental and control groups (1/10th of a second)

<table>
<thead>
<tr>
<th>Groups</th>
<th>Pre Test</th>
<th>Post Test</th>
<th>First Cessation</th>
<th>Second Cessation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed Training</td>
<td>Mean</td>
<td>8.31</td>
<td>7.73</td>
<td>8.15</td>
</tr>
<tr>
<td></td>
<td>± SD</td>
<td>0.26</td>
<td>0.35</td>
<td>0.32</td>
</tr>
<tr>
<td>Explosive Power</td>
<td>Mean</td>
<td>8.30</td>
<td>7.85</td>
<td>8.17</td>
</tr>
<tr>
<td></td>
<td>± SD</td>
<td>0.33</td>
<td>0.25</td>
<td>0.22</td>
</tr>
<tr>
<td>Combined Training</td>
<td>Mean</td>
<td>8.34</td>
<td>7.42</td>
<td>8.14</td>
</tr>
<tr>
<td></td>
<td>± SD</td>
<td>0.21</td>
<td>0.36</td>
<td>0.22</td>
</tr>
<tr>
<td>Complex Training</td>
<td>Mean</td>
<td>8.38</td>
<td>7.63</td>
<td>8.28</td>
</tr>
<tr>
<td></td>
<td>± SD</td>
<td>0.52</td>
<td>0.31</td>
<td>0.42</td>
</tr>
<tr>
<td>Control Group</td>
<td>Mean</td>
<td>8.28</td>
<td>8.25</td>
<td>8.21</td>
</tr>
<tr>
<td></td>
<td>± SD</td>
<td>0.26</td>
<td>0.20</td>
<td>0.44</td>
</tr>
</tbody>
</table>

(Speed scores are expressed in Seconds)

Figure I

Mean scores of pre test, post test and two cessations among speed training, explosive power training, combined training, complex training and control groups on Speed.
The data of speed have been analyzed by two way factorial ANOVA (5x4) with repeated measures on last factor and the obtained results are presented in Table IV.

Table III

Two factor ANOVA on speed of speed training, explosive power training, combined training, complex training and control groups at three different stages of testing periods

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Squares</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>A factor (Groups)</td>
<td>0.959</td>
<td>4</td>
<td>0.24</td>
<td>0.92</td>
</tr>
<tr>
<td>Error I</td>
<td>11.78</td>
<td>45</td>
<td>0.26</td>
<td></td>
</tr>
<tr>
<td>B factor (Tests)</td>
<td>9.586</td>
<td>3</td>
<td>3.20</td>
<td>66.67*</td>
</tr>
<tr>
<td>AB factor (Interaction) (Groups and Tests)</td>
<td>3.073</td>
<td>12</td>
<td>0.26</td>
<td>5.42*</td>
</tr>
<tr>
<td>Error II</td>
<td>6.459</td>
<td>135</td>
<td>0.048</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at .05 level

From the table III and the obtained F-ratio, Factor A (Groups) did not differ significantly. The result of the study indicates that there is no significant difference among the paired means of Factor A (Groups) on Speed and also indicates that differences among the paired means of Factor B (Tests) on speed are statistically significant (P<0.05)

From the table III, the obtained F value of Interaction - A x B (Groups x Different stages of Tests) show that there is significant difference existing among the paired means of interaction A x B on speed (P <0.05). The results of the study indicated that there was a significant difference in the interaction effect (between rows (Groups) and columns (Tests)) on speed.
Table IV

The scheffe’s test for the differences between paired means of posttest with different groups on speed

<table>
<thead>
<tr>
<th>Speed Training Group</th>
<th>Explosive Power Training Group</th>
<th>Combined Training Group</th>
<th>Complex Training Group</th>
<th>Control Group</th>
<th>Mean difference</th>
<th>Confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.73</td>
<td>7.85</td>
<td></td>
<td></td>
<td></td>
<td>0.12</td>
<td>0.31</td>
</tr>
<tr>
<td>7.73</td>
<td>7.42</td>
<td></td>
<td></td>
<td></td>
<td>0.31*</td>
<td>0.31</td>
</tr>
<tr>
<td>7.73</td>
<td></td>
<td>7.63</td>
<td></td>
<td></td>
<td>0.10</td>
<td>0.31</td>
</tr>
<tr>
<td>7.73</td>
<td></td>
<td>8.25</td>
<td></td>
<td></td>
<td>0.52*</td>
<td>0.31</td>
</tr>
<tr>
<td>7.85</td>
<td>7.42</td>
<td></td>
<td></td>
<td></td>
<td>0.43*</td>
<td>0.31</td>
</tr>
<tr>
<td>7.85</td>
<td>7.63</td>
<td></td>
<td></td>
<td></td>
<td>0.22</td>
<td>0.31</td>
</tr>
<tr>
<td>7.85</td>
<td>8.25</td>
<td></td>
<td></td>
<td></td>
<td>0.40*</td>
<td>0.31</td>
</tr>
<tr>
<td>7.42</td>
<td>7.63</td>
<td></td>
<td></td>
<td></td>
<td>0.21</td>
<td>0.31</td>
</tr>
<tr>
<td>7.42</td>
<td>8.25</td>
<td></td>
<td></td>
<td></td>
<td>0.83*</td>
<td>0.31</td>
</tr>
<tr>
<td>7.63</td>
<td>8.25</td>
<td></td>
<td></td>
<td></td>
<td>0.62*</td>
<td>0.31</td>
</tr>
</tbody>
</table>

*Significant at .05 level.

It may be concluded that the mean difference between speed training and combined groups, speed training and control groups, explosive power training and combined training groups, explosive power training and control groups, combined training and control groups, and complex training and control groups were 0.31, 0.52, 0.43, 0.40, 0.83 and 0.62 respectively.

The values are greater than the confidence interval value 0.31, which shows significant difference at .05 level of confidence.

Table V

The scheffe’s test for the differences between paired means of speed training group with different tests on speed

<table>
<thead>
<tr>
<th>Pre Test</th>
<th>Post Test</th>
<th>First Cessation</th>
<th>Second Cessation</th>
<th>Mean Difference</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.31</td>
<td>7.73</td>
<td>8.15</td>
<td>8.33</td>
<td>0.58*</td>
<td>0.28</td>
</tr>
<tr>
<td>8.31</td>
<td>8.15</td>
<td>7.73</td>
<td>8.33</td>
<td>0.16</td>
<td>0.28</td>
</tr>
<tr>
<td>8.31</td>
<td>8.33</td>
<td>7.73</td>
<td>8.15</td>
<td>0.02</td>
<td>0.28</td>
</tr>
<tr>
<td>7.73</td>
<td>8.15</td>
<td>7.73</td>
<td>8.33</td>
<td>0.42*</td>
<td>0.28</td>
</tr>
<tr>
<td>7.73</td>
<td>8.33</td>
<td>8.15</td>
<td>8.33</td>
<td>0.60*</td>
<td>0.28</td>
</tr>
<tr>
<td>8.15</td>
<td>8.33</td>
<td>8.15</td>
<td>8.33</td>
<td>0.18</td>
<td>0.28</td>
</tr>
</tbody>
</table>
*Significant at .05 level

Table V clearly indicates that the mean difference between pre test and post test, post test and first cessation values, and post test and second cessation values are 0.58, 0.42 and 0.60 respectively which are greater than the confidence interval value of 0.28 at .05 level of confidence.

The results of the study showed that there was a significant difference between pre test and post test, post test and first cessation values, and post test and second cessation values of speed training group on speed.

<table>
<thead>
<tr>
<th>Pre Test</th>
<th>Post Test</th>
<th>First Cessation</th>
<th>Second Cessation</th>
<th>Mean Difference</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.30</td>
<td>7.85</td>
<td></td>
<td></td>
<td>0.45*</td>
<td>0.28</td>
</tr>
<tr>
<td>8.30</td>
<td></td>
<td>8.17</td>
<td></td>
<td>0.13</td>
<td>0.28</td>
</tr>
<tr>
<td>8.30</td>
<td></td>
<td></td>
<td>8.27</td>
<td>0.03</td>
<td>0.28</td>
</tr>
<tr>
<td>7.85</td>
<td>8.17</td>
<td></td>
<td></td>
<td>0.32*</td>
<td>0.28</td>
</tr>
<tr>
<td>7.85</td>
<td></td>
<td>8.27</td>
<td></td>
<td>0.42*</td>
<td>0.28</td>
</tr>
<tr>
<td></td>
<td>8.17</td>
<td>8.27</td>
<td></td>
<td>0.10</td>
<td>0.28</td>
</tr>
</tbody>
</table>

*Significant at .05 level
Table VI clearly indicates that the mean difference between pre test and post test, post test and first cessation values, and post test and second cessation values are 0.45, 0.32 and 0.42 respectively which are greater than the confidence interval value of 0.28 at .05 level of confidence.

The results of the study showed that there was a significant difference between pre test and post test, post test and first cessation values, and post test and second cessation values of power training group on speed.

Table VII
The scheffe’s test for the differences between paired means of combined training group with different tests on speed

<table>
<thead>
<tr>
<th>Pre Test</th>
<th>Post Test</th>
<th>First Cessation</th>
<th>Second Cessation</th>
<th>Mean Difference</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.34</td>
<td>7.42</td>
<td></td>
<td></td>
<td>0.92*</td>
<td>0.28</td>
</tr>
<tr>
<td>8.34</td>
<td>8.14</td>
<td></td>
<td></td>
<td>0.20</td>
<td>0.28</td>
</tr>
<tr>
<td>8.34</td>
<td>8.14</td>
<td>8.26</td>
<td></td>
<td>0.72*</td>
<td>0.28</td>
</tr>
<tr>
<td>7.42</td>
<td>8.14</td>
<td>8.26</td>
<td></td>
<td>0.84*</td>
<td>0.28</td>
</tr>
<tr>
<td>7.42</td>
<td>8.26</td>
<td>8.14</td>
<td></td>
<td>0.12</td>
<td>0.28</td>
</tr>
</tbody>
</table>

*Significant at .05 level

Table VII clearly indicates that the mean difference between pre test and post test, post test and first cessation values, and post test and second cessation values are 0.92, 0.72 and 0.84 respectively which are greater than the confidence interval value of 0.28 at .05 level of confidence.

The results of the study showed that there was a significant difference between pre test and post test, post test and first cessation values, and post test and second cessation values of combined training group on speed.

Table VIII
The scheffe’s test for the differences between paired means of complex training group with different tests on speed

<table>
<thead>
<tr>
<th>Pre Test</th>
<th>Post Test</th>
<th>First Cessation</th>
<th>Second Cessation</th>
<th>Mean Difference</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.38</td>
<td>7.63</td>
<td></td>
<td></td>
<td>0.75*</td>
<td>0.28</td>
</tr>
<tr>
<td>8.38</td>
<td>8.28</td>
<td></td>
<td></td>
<td>0.10</td>
<td>0.28</td>
</tr>
<tr>
<td>8.38</td>
<td></td>
<td>8.32</td>
<td></td>
<td>0.06</td>
<td>0.28</td>
</tr>
</tbody>
</table>
Table VIII clearly indicates that the mean difference between pre test and post test, post test and first cessation values, and post test and second cessation values are 0.75, 0.65 and 0.69 respectively which are greater than the confidence interval value of 0.28 at .05 level of confidence.

The results of the study showed that there was a significant difference between pre test and post test, post test and first cessation values, and post test and second cessation values of complex training group on speed.

### Variable II- Explosive Power

The mean and standard deviation values on explosive power of speed training, explosive power training, combined training, complex training and control groups at four different stages of tests have been analyzed and presented in Table IX.

<table>
<thead>
<tr>
<th></th>
<th>Pre Test</th>
<th>Post Test</th>
<th>First Cessation</th>
<th>Second Cessation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed Training</td>
<td>Mean</td>
<td>1.83</td>
<td>2.05</td>
<td>1.92</td>
</tr>
<tr>
<td></td>
<td>± SD</td>
<td>0.14</td>
<td>0.16</td>
<td>0.13</td>
</tr>
<tr>
<td>Power Training</td>
<td>Mean</td>
<td>1.81</td>
<td>2.02</td>
<td>1.93</td>
</tr>
<tr>
<td></td>
<td>± SD</td>
<td>0.06</td>
<td>0.06</td>
<td>0.09</td>
</tr>
<tr>
<td>Combined Training</td>
<td>Mean</td>
<td>1.86</td>
<td>2.30</td>
<td>1.94</td>
</tr>
<tr>
<td></td>
<td>± SD</td>
<td>0.19</td>
<td>0.22</td>
<td>0.13</td>
</tr>
<tr>
<td>Complex Training</td>
<td>Mean</td>
<td>1.90</td>
<td>2.22</td>
<td>2.01</td>
</tr>
<tr>
<td></td>
<td>± SD</td>
<td>0.13</td>
<td>0.12</td>
<td>0.11</td>
</tr>
<tr>
<td>Control Group</td>
<td>Mean</td>
<td>1.78</td>
<td>1.81</td>
<td>1.78</td>
</tr>
<tr>
<td></td>
<td>± SD</td>
<td>0.09</td>
<td>0.06</td>
<td>0.11</td>
</tr>
</tbody>
</table>
Mean scores of pre test, post test and two cessations among speed training, explosive power training, combined training, complex training and control groups

![Graph showing mean scores](image)

**Table X**

Two Factor Anova on Explosive Power of Speed Training, Explosive Power Training, Combined Training, Complex Training and Control Groups at Three Different Stages of Testing Periods

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>A factor (Groups)</td>
<td>1.375</td>
<td>4</td>
<td>0.34</td>
<td>5.67*</td>
</tr>
<tr>
<td>Error I</td>
<td>2.611</td>
<td>45</td>
<td>0.06</td>
<td></td>
</tr>
<tr>
<td>B factor (Tests)</td>
<td>1.733</td>
<td>3</td>
<td>0.58</td>
<td>58.00*</td>
</tr>
<tr>
<td>AB factor (Interaction)</td>
<td>0.655</td>
<td>12</td>
<td>0.05</td>
<td>5.00*</td>
</tr>
<tr>
<td>(Groups and Tests)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error II</td>
<td>1.290</td>
<td>135</td>
<td>0.010</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at .05 level

From the table X and the obtained F-ratio, Factor A (Groups) differ significantly. The result of the study indicates that there is significant difference among the paired means of Factor A (Groups) on Explosive power and also indicates that there is significant differences among the paired means of Factor B (Tests) on Explosive power are statistically significant (P<0.05).

From the table X, the obtained F value of Interaction- AxB (Groups x Different stages of Tests) show that there is significant difference existing among the paired means of interaction A x B...
The results of the study indicated that there was a significant difference in the interaction effect (between rows (Groups) and columns (tests)) on explosive power.

Table XI

The scheffe’s test for the differences between paired means of post test with different groups on explosive power

<table>
<thead>
<tr>
<th>Speed Training Group</th>
<th>Explosive Power Training Group</th>
<th>Combined Training Group</th>
<th>Complex Training Group</th>
<th>Control Group</th>
<th>Mean difference</th>
<th>Confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.05</td>
<td>2.02</td>
<td></td>
<td></td>
<td></td>
<td>0.03</td>
<td>0.14</td>
</tr>
<tr>
<td>2.05</td>
<td>2.31</td>
<td>2.22</td>
<td></td>
<td></td>
<td>0.26*</td>
<td>0.14</td>
</tr>
<tr>
<td>2.05</td>
<td>2.31</td>
<td>1.81</td>
<td></td>
<td></td>
<td>0.24*</td>
<td>0.14</td>
</tr>
<tr>
<td>2.02</td>
<td>2.31</td>
<td></td>
<td></td>
<td></td>
<td>0.29*</td>
<td>0.14</td>
</tr>
<tr>
<td>2.02</td>
<td>2.22</td>
<td></td>
<td></td>
<td></td>
<td>0.20*</td>
<td>0.14</td>
</tr>
<tr>
<td>2.02</td>
<td>1.81</td>
<td></td>
<td></td>
<td></td>
<td>0.21*</td>
<td>0.14</td>
</tr>
<tr>
<td>2.31</td>
<td>2.22</td>
<td></td>
<td></td>
<td></td>
<td>0.09</td>
<td>0.14</td>
</tr>
<tr>
<td>2.31</td>
<td>1.81</td>
<td></td>
<td></td>
<td></td>
<td>0.50*</td>
<td>0.14</td>
</tr>
<tr>
<td>2.22</td>
<td>1.81</td>
<td></td>
<td></td>
<td></td>
<td>0.41*</td>
<td>0.14</td>
</tr>
</tbody>
</table>

*Significant at .05 level.

Table XI shows that the mean difference between speed training and combined groups, speed training and complex groups, speed training and control groups, explosive power training and combined groups, explosive power training and complex groups, explosive power training and control groups, combined training and control groups, and complex training and control groups were 0.26, 0.17, 0.24, 0.29, 0.20, 0.21, 0.50 and 0.41 respectively. The values are greater than the confidence interval value 0.14, which shows significant difference at .05 level of confidence.

Table XII

The scheffe’s test for the differences between paired means of speed training group with different tests on explosive power

<table>
<thead>
<tr>
<th>Pre Test</th>
<th>Post Test</th>
<th>First Cessation</th>
<th>Second Cessation</th>
<th>Mean Difference</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.83</td>
<td>2.05</td>
<td></td>
<td></td>
<td>0.22*</td>
<td>0.13</td>
</tr>
<tr>
<td>1.83</td>
<td>1.92</td>
<td></td>
<td></td>
<td>0.09</td>
<td>0.13</td>
</tr>
<tr>
<td>1.83</td>
<td>1.89</td>
<td></td>
<td></td>
<td>0.06</td>
<td>0.13</td>
</tr>
<tr>
<td>2.05</td>
<td>1.92</td>
<td></td>
<td></td>
<td>0.13*</td>
<td>0.13</td>
</tr>
<tr>
<td>2.05</td>
<td>1.89</td>
<td></td>
<td></td>
<td>0.16*</td>
<td>0.13</td>
</tr>
</tbody>
</table>
Table XII clearly indicates that the mean difference between pre test and post test, post test and first cessation values, and post test and second cessation values are 0.22, 0.13 and 0.16 respectively which are greater than the confidence interval value of 0.13 at .05 level of confidence. The results of the study showed that there was a significant difference between pre test and post test, post test and first cessation values, and post test and second cessation values of speed training group on explosive power.

Table XIII

<table>
<thead>
<tr>
<th>Pre Test</th>
<th>Post Test</th>
<th>First Cessation</th>
<th>Second Cessation</th>
<th>Mean Difference</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.81</td>
<td>2.02</td>
<td></td>
<td></td>
<td>0.21*</td>
<td>0.13</td>
</tr>
<tr>
<td>1.81</td>
<td>1.93</td>
<td></td>
<td></td>
<td>0.12</td>
<td>0.13</td>
</tr>
<tr>
<td>1.81</td>
<td>1.83</td>
<td></td>
<td></td>
<td>0.02</td>
<td>0.13</td>
</tr>
<tr>
<td>2.02</td>
<td>1.93</td>
<td></td>
<td></td>
<td>0.09</td>
<td>0.13</td>
</tr>
<tr>
<td>2.02</td>
<td>1.83</td>
<td></td>
<td></td>
<td>0.19*</td>
<td>0.13</td>
</tr>
<tr>
<td>1.93</td>
<td>1.83</td>
<td></td>
<td></td>
<td>0.10</td>
<td>0.13</td>
</tr>
</tbody>
</table>

*Significant at .05 level

Table XIII clearly indicates that the mean difference between pre test and post test, and post test and second cessation values are 0.21 and 0.19 respectively which are greater than the confidence interval value of 0.13 at .05 level of confidence. The results of the study showed that there was a significant difference between pre test and post test, and post test and second cessation values of power training group on explosive power.

Table XIV

<table>
<thead>
<tr>
<th>Pre Test</th>
<th>Post Test</th>
<th>First Cessation</th>
<th>Second Cessation</th>
<th>Mean Difference</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.86</td>
<td>2.31</td>
<td></td>
<td></td>
<td>0.45*</td>
<td>0.13</td>
</tr>
<tr>
<td>1.86</td>
<td>1.94</td>
<td></td>
<td></td>
<td>0.08</td>
<td>0.13</td>
</tr>
<tr>
<td>1.86</td>
<td>1.91</td>
<td></td>
<td></td>
<td>0.05</td>
<td>0.13</td>
</tr>
<tr>
<td>2.31</td>
<td>1.94</td>
<td></td>
<td></td>
<td>0.37*</td>
<td>0.13</td>
</tr>
</tbody>
</table>

*Significant at .05 level
Table XIV clearly indicates that the mean difference between pre test and post test, post test and first cessation values, and post test and second cessation values are 0.45, 0.37 and 0.40 respectively which are greater than the confidence interval value of 0.13 at .05 level of confidence.

The results of the study showed that there was a significant difference between pre test and post test, post test and first cessation values, and post test and second cessation values of combined training group on explosive power.

Table XV

The scheffe’s test for the differences between paired means of complex training group with different tests on explosive power

<table>
<thead>
<tr>
<th>Pre Test</th>
<th>Post Test</th>
<th>First Cessation</th>
<th>Second Cessation</th>
<th>Mean Difference</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.90</td>
<td>2.22</td>
<td></td>
<td></td>
<td>0.32*</td>
<td>0.13</td>
</tr>
<tr>
<td>1.90</td>
<td>2.01</td>
<td></td>
<td></td>
<td>0.11</td>
<td>0.13</td>
</tr>
<tr>
<td>1.90</td>
<td>2.22</td>
<td>1.98</td>
<td></td>
<td>0.21*</td>
<td>0.13</td>
</tr>
<tr>
<td>2.22</td>
<td>2.01</td>
<td>1.98</td>
<td></td>
<td>0.24*</td>
<td>0.13</td>
</tr>
<tr>
<td>2.22</td>
<td>1.98</td>
<td>0.03</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at .05 level

Table XV clearly indicates that the mean difference between pre test and post test, post test and first cessation values, and post test and second cessation values are 0.32, 0.21 and 0.24 respectively which are greater than the confidence interval value of 0.13 at .05 level of confidence.

The results of the study showed that there was a significant difference between pre test and post test, post test and first cessation values, and post test and second cessation values of complex training group on explosive power.

DISCUSSION ON FINDINGS

1. The mean difference of speed variable among speed training group, power training group and complex training group were 0.31, 0.52, 0.43, 0.40, 0.83 and 0.62 respectively. The values are greater than the confidence interval value 0.31, which shows significant difference at .05 level of confidence.

2. The mean difference of explosive power variable among speed training group, and explosive power training group and complex training group were 0.26, 0.17, 0.24, 0.29, 0.20, 0.21, 0.50 and 0.41 respectively. The values are greater than the confidence interval value 0.14, which shows significant difference at .05 level of confidence.
CONCLUSION

The results of the study indicate that all the experimental groups namely speed training, explosive power training, combined training and complex training significantly improved in their performance as selected dependent variables namely speed and explosive power when compared to the control group. It is also found that the improvement caused by combined training was greater when compared to the complex training, speed training and explosive power training in all the selected dependent variables.

According to Kotzamanidis et al (2005) combined resistance and running–speed program provides better results than the conventional resistance training, regarding power performance of soccer players.

Harris et al (1996) suggested that when athletic performance variables requiring maximum strength, power and speed were considered, the combination training produced superior results.

Jenson et al (2003) suggested that to optimize jump performance the athletes should not perform jumps immediately following resistance training. It may be possible that beyond 4 minutes of recovery, performance could be enhanced.

Hence, it is concluded from the results of the study that systematically and scientifically designed combined training programme may be given due recognition and be implemented properly in the training programmes of all the disciplines in order to achieve maximum performance.

REFERENCES

4. Conroy R. “Plyometric training and its effects on Speed, Strength and Power of Inter Collegiate Athletes – Abstract, Ibid. 72

EFFECT OF CORE STRENGTH TRAINING, MOBILITY TRAINING AND COMBINED TRAINING ON PHYSICAL FITNESS VARIABLES AMONG COLLEGE WOMEN

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Department of Physical Education,
Avinashilingam University for Women, Coimbatore.

ABSTRACT
The present study is to find out the effect of core strength training, mobility training and combined training on physical fitness variables among college women. For this study the subjects were selected from the Alagappa College of arts and sciences, Karaikudi. Forty girl students of age group between 18 – 20 years were selected as subjects and they were divided into four equal groups namely control group, core strength training group, mobility training group and combined training group. The subjects were tested in order to find out cardio respiratory endurance, muscular strength endurance, flexibility and body composition. The Pre test scores and Post test Scores were Statistically Calculated by Analysis of Covariance. The level of confidence set for the analysis was 0.05 level of confidence. The study showed that the initial and final data of Experimental groups were greater than the Control group. It had been found that the mean gain achieved by core strength training group, mobility training group and combined training group were significant at 0.05 levels. Combined Training had higher mean differences in cardiovascular fitness to compare with Core Strength training group and Mobility Training group. In Cardio Vascular Endurance the obtained F ratio of 8.019 was greater than the required table F Value 2.87. The combined training group had higher mean differences than the other three groups. The obtained F ratio of 3.455 was greater than the required table value of 2.87 (3, 35).And the study was significant at 0.05 level of confidence. In Flexibility the obtained F ratio of 5.39 was greater than the table F Value 2.87. Combined Training had higher mean differences in Flexibility to compare with Core Strength training group and Mobility Training group. The obtained F ratio of 3.146 was greater than the required table value of 2.87 (3, 35).And the study was significant at 0.05 level of confidence.

Keywords: Core strength training, Mobility training, Cardiovascular Endurance, Muscular Strength Endurance, Flexibility & Body composition.

Ms.S.Archana Mani Malathi, Assistant Professor, Department of Physical Education, Avinashilingam University for Women, Coimbatore.

INTRODUCTION

The prime responsibility of every welfare state is the promotion of the physical fitness of its subjects as human resource is the very basic resources of any country. Physical fitness is the very basic foundation of most of the activities undertaken by an individual in his daily walk of life. Mathew (1968) states, “The primary aim of physical education is not to develop star athletes, winning team of expert performance, but a natural vitality with character values of physical fitness. It aims to develop youth into citizens; who have the capacity to enjoy with vigor and interest in life”. Physical fitness is the very basic foundation of most of the activities undertaken by an individual in his daily walk of life. If a person is physically fit he is an asset to the nation. The primary aim of physical education is not to develop star athletes, winning team of expert performance, but a natural vitality with character values of physical fitness. The main objective of sports training is to develop physical fitness level of the sportsperson. Physical fitness consists of mainly strength, speed, endurance, flexibility, and other coordinative abilities.
OBJECTIVES OF THE STUDY

The objective of the study is to find out the effect of core strength training, mobility training and combined training, and also to study the Physical Fitness standards and performance of college women students.

HYPOTHESIS

- It is hypothesized that the Core Strength training may improve the Development on Selected Physical Fitness Variables.
- It is further hypothesized that the Mobility Training may improve the Development on Selected Physical Fitness Variables.
- It is also hypothesized that the combined training of core strength training and mobility training improve the Development on Selected Physical Fitness Variables significantly.

EXPERIMENTAL DESIGN

The study was formulated as a random group design. The forty college women students of Alagappa Government Arts College were randomly assigned into four equal groups namely control group, core strength training group (Experimental group – I), mobility training group (Experimental group – II) and combined training group (Experimental group – III). The subjects were tested in order to find out cardio respiratory endurance, muscular strength endurance, flexibility and body composition. The data were collected from four groups before and after the experimental period. The test was statistically examined by Analysis of Covariance (ANCOVA) to find out significant differences. In all cases 0.05 was fixed as level of significance which was considered as appropriate.

Table I - MODE OF TRAINING PROGRAM

<table>
<thead>
<tr>
<th>Control group</th>
<th>Experimental group I</th>
<th>Experimental group II</th>
<th>Experimental Group III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Measurement</td>
<td>Initial Measurement</td>
<td>Initial Measurement</td>
<td>Initial Measurement</td>
</tr>
<tr>
<td>There is no Core strength training and Mobility training program. Normal activity</td>
<td>Core strength training</td>
<td>Mobility Training</td>
<td>Combined Training (Core strength training and Mobility training)</td>
</tr>
<tr>
<td>Final Measurement</td>
<td>Final Measurement</td>
<td>Final Measurement</td>
<td>Final Measurement</td>
</tr>
</tbody>
</table>

INDEPENDENT VARIABLE

- Core strength training
- Mobility training
- Combination of core strength and mobility training

DEPENDENT VARIABLE
Cardio Respiratory Endurance
Muscular strength endurance
Flexibility
Body composition

Table II - TEST SELECTION

<table>
<thead>
<tr>
<th>S. NO</th>
<th>VARIABLES</th>
<th>TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cardio respiratory endurance</td>
<td>Cooper 12 min run/walk test</td>
</tr>
<tr>
<td>2</td>
<td>Muscular strength endurance</td>
<td>Crunch sit up</td>
</tr>
<tr>
<td>3</td>
<td>Flexibility</td>
<td>Sit and reach test</td>
</tr>
<tr>
<td>4</td>
<td>Body composition</td>
<td>Body Composition Analyzer</td>
</tr>
</tbody>
</table>

Statistical Analysis

TABLE III

Computation of Analysis of covariance of Cardio Vascular Endurance for control group, Core strength training group, Mobility training group and combined training group (100 mts = 1 unit)

<table>
<thead>
<tr>
<th>Sources of Variance</th>
<th>Sum of square</th>
<th>df</th>
<th>Mean square</th>
<th>F ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>14.748</td>
<td>3</td>
<td>4.916</td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>21.472</td>
<td>35</td>
<td>0.613</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>36.22</td>
<td>38</td>
<td></td>
<td>8.019</td>
</tr>
</tbody>
</table>

Table (3, 35) = 2.87 at 0.05 level
### Table IV

Ordered Adjusted Mean and Differences between Means for Experimental Groups

<table>
<thead>
<tr>
<th>Experimental group I</th>
<th>Experimental Group II</th>
<th>Experimental Group III</th>
<th>Mean Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.6</td>
<td>10</td>
<td>7.6</td>
<td></td>
</tr>
<tr>
<td>17.6</td>
<td>16.4</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>16.4</td>
<td>6.4</td>
<td></td>
</tr>
</tbody>
</table>

Results of Cardio Vascular Endurance

The cardiovascular fitness was measured by 8 minute run-walk test of Control group was lower than the experimental groups. Experimental group III (Combined Training) had higher mean differences in Cardiovascular fitness to compare with Experimental group I (Core Strength training group) and Experimental group II (Mobility Training group). In Cardio Vascular Endurance the obtained F ratio of 8.019 was greater than the required table F Value 2.87. The Scheffe’s test may be used for testing the significant between paired adjusted means. However, the Scheffe’s test method can also be expressed as an F ratio, as Experimental Group I (7.27), Experimental Group II (5.43) and Experimental Group III (24.22). The difference between the means of experimental groups was significant.

CHART I
The chart I shows that the difference between the Pre and Post Test mean differences of control group was 0.2, experimental group I (Core strength training group) was 1.8, Experimental group II (Mobility training group) was 1.00, Experimental group III (Combined Training group) was 2.9. The Combined training group had higher mean differences than the other groups.

**DICUSION ON FINDINGS**

- The combined training group had higher mean differences than the other three groups. The obtained F ratio of 8.019 was greater than the required table value of 2.87 (3, 35). And the study was significant at 0.05 level of confidence.

- The combined training group had high mean value due to strengthen the core Region Muscles and increasing the quality of muscles by proper stretching.

**TABLE V**

Computation of Analysis of covariance of Muscular Strength Endurance For control group, Core strength training group, Mobility training group and combined training group (Scores in number)

<table>
<thead>
<tr>
<th>Sources of Variance</th>
<th>Sum of square</th>
<th>df</th>
<th>Mean square</th>
<th>F ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>13.839</td>
<td>3</td>
<td>4.6136</td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>46.793</td>
<td>35</td>
<td>1.335</td>
<td>3.455</td>
</tr>
<tr>
<td>Total</td>
<td>56.632</td>
<td>38</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table (3, 35) = 2.87 at 0.05 level
### TABLE VI

ORDERED ADJUSTED MEAN AND DIFFERENCES BETWEEN MEANS FOR EXPERIMENTAL GROUPS

<table>
<thead>
<tr>
<th>Experimental group I</th>
<th>Experimental Group II</th>
<th>Experimental Group III</th>
<th>Mean Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.4</td>
<td>16.7</td>
<td>22.6</td>
<td>1.7</td>
</tr>
<tr>
<td>18.4</td>
<td></td>
<td>22.6</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td>16.7</td>
<td></td>
<td>5.9</td>
</tr>
</tbody>
</table>

### RESULTS OF MUSCULAR STRENGTH ENDURANCE

The Muscular strength endurance was measured by Bend Knee Sit-ups test of Control group was lower than the experimental groups. Experimental group III (Combined Training) had higher mean differences in Muscular strength endurance to compare with Experimental group I (Core Strength training group) and Experimental group II (Mobility Training group). In Cardio Vascular Endurance the obtained F ratio of 3.455 was greater than the required table F Value 2.87. The Scheffé’s test may be used for testing the significant between paired adjusted means. However, the Scheffé’s test method can also be expressed as an F ratio, as Experimental Group I (7.57), Experimental Group II (4.54) and Experimental Group III (17.24). The difference between the means of experimental groups was significant.
The chart II shows that the difference between the Pre and Post Test mean differences of control group had no difference in scores, experimental group I (Core strength training group) was 4.8, Experimental group II (Mobility training group) was 3.1, Experimental group III (Combined Training group) 9.00. The Combined training group had higher mean differences than the other groups.

**DICUSION ON FINDINGS**

- The combined training group had higher mean differences than the other three groups. The obtained F ratio of 3.455 was greater than the required table value of 2.87 (3, 35). And the study was significant at 0.05 level of confidence.

- The combined training group had high mean value. Strength and flexibility were increases the ability of muscular systems of Trunk Region.

**TABLE III**

Computation of Analysis of covariance of Flexibility For control group, Core strength training group, Mobility training group and combined training group (Scores in Centimeters)
Ordered adjusted mean and differences between means for experimental groups

<table>
<thead>
<tr>
<th>Experimental group I</th>
<th>Experimental Group II</th>
<th>Experimental Group III</th>
<th>Mean Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.9</td>
<td>6.2</td>
<td>7.3</td>
<td>0.3</td>
</tr>
<tr>
<td>5.9</td>
<td></td>
<td>7.3</td>
<td>1.4</td>
</tr>
<tr>
<td>6.2</td>
<td></td>
<td>7.3</td>
<td>1.1</td>
</tr>
</tbody>
</table>

**RESULTS OF FLEXIBILITY**

The Flexibility was measured by Sit and reach test of Control group was lower than the experimental groups. Experimental group III (Combined Training) had higher mean differences in Flexibility to compare with Experimental group I (Core Strength training group) and Experimental group II (Mobility Training group). In Flexibility the obtained F ratio of 5.39 was greater than the required table F Value 2.87. The Scheffe’s test may be used for testing the significant between paired adjusted means. However, the Scheffe’s test method can also be expressed as an F ratio, as Experimental Group I (4.32), Experimental Group II (5.22) and Experimental Group III (7.32). The difference between the means of experimental groups was significant.
CHART -III

THE MEAN DIFFERENCES OF THE CONTROL GROUP AND EXPERIMENTAL GROUPS ON FLEXIBILITY

The chart III shows that the difference between the Pre and Post Test mean differences of control group had no difference in scores, experimental group I (Core strength training group) was 0.4, Experimental group II (Mobility training group) was 1.2, Experimental group III (Combined Training group) 1.3. The Combined training group had higher mean differences than the other groups.

DICUSION ON FINDINGS

- The combined training group had higher mean differences than the other three groups. The obtained F ratio of 5.39 was greater than the required table value of 2.87 (3, 35). And the study was significant at 0.05 level of confidence.

- The combined training group had high mean value. The flexibility and Strengthening of muscles throughout the limb’s entire range of motion helps in enhancing muscle tension and elasticity

TABLE IV

Computation of Analysis of covariance of Body Composition For control group, Core strength training group, Mobility training group and combined training group (Scores in Percentage)
RESULTS OF BODY COMPOSITION

The Body Composition was measured by Body Composition Analyzer of Control group was lower than the experimental groups. Experimental group III (Combined Training) had higher mean differences in Percentage of body fat to compare with Experimental group I (Core Strength training group) and Experimental group II (Mobility Training group). In Flexibility the obtained F ratio of 3.146 was greater than the required table F Value 2.87. The Scheffe’s test may be used for testing the significant between paired adjusted means. However, the Scheffe’s test method can also be expressed as an F ratio, as Experimental Group I (18.23), Experimental Group II (7.9) and Experimental Group III (5.32). The difference between the means of experimental groups was significant.

CHART- IV
The chart IV shows that the difference between the Pre and Post Test mean differences of control group was 0.4, experimental group I (Core strength training group) was 2.7, Experimental group II (Mobility training group) was 1.6, Experimental group III (Combined Training group) 5.5. The Combined training group had higher mean differences than the other groups.

**DICUSION ON FINDINGS**

- The combined training group had higher mean differences than the other three groups. The obtained F ratio of 3.146 was greater than the required table value of 2.87 (3, 35). And the study was significant at 0.05 level of confidence.
- The combined training group had high mean value. The flexibility and core strength training helps in reducing the excess of fat storage in the body. Mainly in hip region of women’s was greatly reduced by the proper combined training effects of core strength and flexibility.

**CONCLUSION**

- The cardiovascular fitness was measured by 8 minute run-walk test of Control group was lower than the experimental groups. Experimental group III (Combined Training) had higher mean differences in Cardiovascular fitness to compare with Experimental group I (Core Strength training group) and Experimental group II (Mobility Training group). In Cardiovascular Endurance the obtained F ratio of 8.019 was greater than the required table F Value 2.87 and it was significant at 0.05 level of confidence.
- The strength endurance was measured by sit up test of Control group was lower than the experimental groups. Experimental group III (Combined Training) had higher mean differences in strength endurance to compare with Experimental group I (Core Strength training group) and Experimental group II (Mobility Training group). In strength endurance the obtained F ratio of 3.455 was greater than the required table value of 2.87 (3, 35) and it was significant at 0.05 level of confidence.
The Flexibility was measured by Sit and Reach test of Control group was lower than the experimental groups. Experimental group III (Combined Training) had higher mean differences in Flexibility to compare with Experimental group I (Core Strength training group) and Experimental group II (Mobility Training group). In Flexibility the obtained F ratio of 5.39 was greater than the table F Value 2.87 and it was significant at 0.05 level of confidence.

The body composition was measured by body composition analyzer of Control group was lower than the experimental groups. Experimental group III (Combined Training) had higher mean differences in body composition to compare with Experimental group I (Core Strength training group) and Experimental group II (Mobility Training group). In body composition the obtained F ratio of 3.146 was greater than the required table value of 2.87 (3, 35) and it was significant at 0.05 level of confidence.

Core strength training group may be possible to increase in Physical Fitness of College Women Students due to the proper training of core Musculature.

Mobility Training group may be possible increase in Physical Fitness of College Women Students due to the Proper Flexibility training.

The Combined Training group had higher mean differences in the Physical fitness variables due to the combined training of Core Strength Training and Mobility Training.

REFERENCES


Dr. V. UMA** & Dr. S. CHIDAMBARA RAJA*, rajadi42@gmail.com

ABSTRACT

The purpose of the study was to find out the effect of yogic practices on selected body composition measures and total cholesterol among obese male children. To achieve this purpose, 20 obese children were randomly selected as subjects from various schools around Annamalainagar, Chidambaram. The age of the subjects were ranged from 14 to 18 years. The subjects were further classified at random into two equal groups of 10 subjects each, in which, group - I underwent yogic practices for six days per week for sixteen weeks and group - II acted as control who were not undergo any special activities other than daily routine activities. The selected criterion variables such as percentage of body fat, body mass index and total cholesterol were measured before and after the yogic practice period. The selected criterion variables were assessed by using Deurenberg et al formula, Quetlet index and Boehringer Mannheim kit method. The collected data were statistically analysed by using Analysis of Covariance (ANCOVA). From the results of the study it was found that there was a significant decrease in percentage of body fat, body mass index and total cholesterol after the yogic practice when compared with the control group. It was concluded from the result of the study, that yogic practice may reduce the percentage of body fat, body mass index and total cholesterol.

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** Director of Physical Education, A.D.M. College for Women, Nagapatnam

INTRODUCTION

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health, leading to reduced life expectancy and/or increased health problems. People are considered as obese when their body mass (BMI), a measurement obtained by dividing a person's weight in kilograms by the square of the person's height in meters, exceeds 30 kg/m$^2$. Obesity increases the likelihood of various diseases, particularly heart diseases, type 2 diabetes, obstructive sleep apnea, certain types of cancer, and osteoarthritis. Obesity is the most commonly caused by a combination of excessive food energy intake, lack of physical activity, and genetic susceptibility, although a few cases are caused primarily by genes, endocrine disorders, medications or psychiatric illness. Evidence to support the view that some obese people eat little yet gain weight due to a slow metabolism is limited; on average obese people have a greater energy expenditure than their thin counterparts due to the energy required to maintain an increased body mass.

Percent body fat is the percentage of fat your body contains. Exact body fat percentage cannot be precisely determined, but multiple methods are used to estimate it. These include: a formula that uses your weight in pounds and waist circumference, the use of calipers to measure skin fold thickness, or bioelectrical impedance calculation. Some body fat is required for overall health. It plays an important role in protecting internal organs, providing energy, and regulating hormones. Excess body fat is linked to an increased risk for diseases such as cancer, diabetes, and heart disease.
The healthy BMI range varies with the age and sex of the child. Obesity in children and adolescents is defined as a BMI greater than the 95th percentile. The reference data that these percentiles are based on is from 1963 to 1994 and thus has not been affected by the recent increases in rates of obesity. Childhood obesity has reached epidemic proportions in 21st century, with rising rates in both the developed and developing world. Rates of obesity in Canadian boys have increased from 11% in 1980s to over 30% in 1990s, while during this same time period rates increased from 4 to 14% in Brazilian children. As with obesity in adults, many different factors contribute to the rising rates of childhood obesity. Changing diet and decreasing physical activity are believed to be the two most important in causing the recent increase in the rates. Because childhood obesity often persists into adulthood and is associated with numerous chronic illnesses, children who are obese are often tested for hypertension, diabetes, hyperlipidemia, and fatty liver. Treatments used in children are primarily lifestyle interventions and behavioral techniques.

Cholesterol is also necessary for the normal permeability and function of cell membranes, the membranes that surround cells. Cholesterol is carried in the bloodstream as lipoproteins. Low-density lipoprotein (LDL) cholesterol is the “bad cholesterol” because elevated LDL levels are associated with an increased risk of coronary artery (heart) disease. Conversely, high-density lipoprotein (HDL) cholesterol is the “good” cholesterol since high HDL levels are associated with less coronary disease.

**METHODOLOGY**

The purpose of this study was to find out the effect of yogic practices on percentage of body fat, body mass index and total cholesterol among obese male children. To achieve the purpose of the present study, 20 obese male children with the BMI of 25% (WHO) or above and who were studying in various schools around Annamalainagar, Chidamaram, were randomly selected as subjects. The age of the subjects were ranged from 14 to 18 years (mean ± 0.5 years). All the subjects were residing at their home, so, the food habits were not same and not measured. The selected subjects were divided into two equal groups of ten subjects each. Group I considered as experimental group who underwent yogic practices programme for sixteen weeks, six days per week and Group II considered as control that did not undergo any training programme. The experimental group underwent yogic practices 6 days per week (Monday to Friday) for 16 weeks. The control group did not participate in any physical activity, either strenuous or recreational, apart from their day to day activities. The experimental group underwent yogic practice programme under the instruction and supervision of the investigator.

The data were collected on selected criterion variables such as percentage of body fat, body mass index and total cholesterol were assessed by using Deurenberg et al (Deurenberg, Weststrate and Seidell, March 1991) formula, Quetlet index (medical-dictionary.thefreedictionary.com) and Broheringer Mannheim kit at before and after the sixteen weeks of yogic practices as pre and post test. Analysis of covariance (ANCOVA) was applied to find out the significant difference if any between the experimental and control groups.

**Table – I**

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Group Name</th>
<th>Yogic Practice Group</th>
<th>Control Group</th>
<th>‘F’ Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of Body Fat (in Percentage)</td>
<td>Pre-test Mean ± S.D.</td>
<td>26.2521 ± 1.8236</td>
<td>27.6861 ± 1.893</td>
<td>2.991</td>
</tr>
<tr>
<td></td>
<td>Post-test Mean ± S.D.</td>
<td>23.8926 ± 1.5406</td>
<td>27.8121 ± 2.126</td>
<td>18.91*</td>
</tr>
<tr>
<td>Adj. Post-test Mean</td>
<td></td>
<td>24.561</td>
<td>27.299</td>
<td>32.351*</td>
</tr>
</tbody>
</table>

291
<table>
<thead>
<tr>
<th></th>
<th>Pre-test Mean ± S.D.</th>
<th>Post-test Mean ± S.D.</th>
<th>Adj. Post-test Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body Mass Index</strong></td>
<td>29.8682 ± 1.3317</td>
<td>27.3839 ± 0.8623</td>
<td>27.896</td>
</tr>
<tr>
<td>(kg/m²)</td>
<td></td>
<td>29.1816 ± 1.2628</td>
<td>29.531</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.1962</td>
<td>29.632*</td>
</tr>
<tr>
<td><strong>Total Cholesterol</strong></td>
<td>193.596 ± 6.186</td>
<td>191.67 ± 6.822</td>
<td>191.886</td>
</tr>
<tr>
<td>(mg/dl)</td>
<td></td>
<td>194.831 ± 5.616</td>
<td>194.551</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.863</td>
<td>21.267*</td>
</tr>
</tbody>
</table>

* Significant at 0.05 level of confidence. (The table values required for significance at 0.05 level of confidence for 1 and 18 & 1 and 17 are 4.41 and 4.45 respectively).

**RESULTS**

Table - I showed that that there was a significant decrease in percentage of body fat, body mass index and total cholesterol due to sixteen weeks of yogic practice programme. Further the results of the study showed there was a significant difference between yogic practice group and control group on percentage of body fat, body mass index and total cholesterol. However the alterations were in favour of experimental group.

**CONCLUSIONS**

1. The results of the study revealed that there was a significant reduction in percentage of body fat after the yogic practice period. This result is in line with that of the study earlier conducted by Pal et al (June 2011) and Shenbagavalli and Divya (2010) found that there was a significant reduction in percentage of body fat after the yogic practice. Ruhall, Bhandari and Chakravarti (2010) also found that there was a significant reduction in percentage of body fat after the pranayama practice.

2. The result of the study also shown that there was a significant reduction in body mass index (BMI) after the yogic practice period, when compared with the control group. The findings of Kumari et al (September 2011), Dhananjai et al (July 2011) and Chen et al (April 2009) also found that there was a significant decrease in body mass index after the yogic practice period. Ankad et al (April – June 2011) also found that there was a significant decrease in body mass index after the pranayama practice.

3. The result of the study shown that there was a significant decrease in total cholesterol after the yogic practice period, when compared with the control group. The findings of Acharya et al (2010) and Shete Sanjay, Kulkarni Duttatraya and Thakur Ghanshyam Singh (2012) also found that there was a significant decrease in serum cholesterol after the yogic practice period. Kasundra, Thumar and Mungra (2010) also found that there was a significant decrease in serum cholesterol after the pranayama practice.

4. The overall result of the study shown that there was a significant reduction in percentage of body fat, body mass index and total cholesterol after the experimental period. In this study, no attempt was taken to control the diet. But, in future, if the effort will be taken, the reduction in percentage of body fat, body mass index and total cholesterol will be higher.

Reference:
Retrieved from [http://weightloss.about.com/od/glossary/g/percentbodyfat.htm](http://weightloss.about.com/od/glossary/g/percentbodyfat.htm) on 6-8-2012.
FORMULAS:

Calculating the Percentage of Body Fat:

Child Body Fat % = (1.51 x BMI) - (0.70 x Age) - (3.6 x gender) + 1.4
Where as the gender: Male = 1, Female = 0. (Retrieved from http://www.halls.md/bmi/fat.htm on 15-08-2012).

Calculating Body Mass Index (BMI):

## List of Yogasanas

<table>
<thead>
<tr>
<th>Yogasana</th>
<th>Weeks</th>
<th>Duration</th>
<th>Maintaining Duration</th>
<th>Recovery in between Yogasanas</th>
<th>Repetitions</th>
<th>Frequency</th>
<th>Warming up and cooling down</th>
</tr>
</thead>
<tbody>
<tr>
<td>Padmasana</td>
<td>1-3 Weeks</td>
<td>20 min.</td>
<td>30 seconds</td>
<td>30 seconds</td>
<td>2</td>
<td>Monday, Tuesday</td>
<td>5 – 10 Minutes</td>
</tr>
<tr>
<td>Trikonasana</td>
<td></td>
<td></td>
<td>30 seconds</td>
<td>30 seconds</td>
<td></td>
<td>Tuesday</td>
<td></td>
</tr>
<tr>
<td>Dhanurasana</td>
<td></td>
<td></td>
<td>30 seconds</td>
<td>30 seconds</td>
<td></td>
<td>Wednesday</td>
<td></td>
</tr>
<tr>
<td>Shashangasana</td>
<td></td>
<td></td>
<td>1 minute</td>
<td>30 seconds</td>
<td></td>
<td>Thursday</td>
<td></td>
</tr>
<tr>
<td>Patchimosthasan</td>
<td></td>
<td></td>
<td>1 minute</td>
<td>30 seconds</td>
<td></td>
<td>Friday &amp; Saturday</td>
<td></td>
</tr>
<tr>
<td>Meditation–Omkar.</td>
<td></td>
<td></td>
<td>1 minutes</td>
<td>30 seconds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pranayama – Nadisuthi</td>
<td></td>
<td></td>
<td>1 minutes</td>
<td>30 seconds</td>
<td>1</td>
<td>Saturday</td>
<td></td>
</tr>
<tr>
<td>Shavasana</td>
<td></td>
<td></td>
<td>2 minutes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As in previous week</td>
<td>4 – 6 Weeks</td>
<td>40 min.</td>
<td>20 minutes</td>
<td></td>
<td>2</td>
<td>Monday, Tuesday</td>
<td>5 – 10 Minutes</td>
</tr>
<tr>
<td>Bhujangasana</td>
<td></td>
<td></td>
<td>1 minute</td>
<td>30 seconds</td>
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<td>Tuesday</td>
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<tr>
<td>Shalabasana</td>
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<td></td>
<td>1 minute</td>
<td>30 seconds</td>
<td></td>
<td>Wednesday</td>
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</tr>
<tr>
<td>Utkattasana</td>
<td></td>
<td></td>
<td>1 minute</td>
<td>30 seconds</td>
<td></td>
<td>Thursday</td>
<td></td>
</tr>
<tr>
<td>Gomukasana</td>
<td></td>
<td></td>
<td>1 minute</td>
<td>30 seconds</td>
<td></td>
<td>Friday &amp; Saturday</td>
<td></td>
</tr>
<tr>
<td>Meditation – Omkar.</td>
<td></td>
<td></td>
<td>1 minute</td>
<td>30 seconds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pranayama – Sitali.</td>
<td></td>
<td></td>
<td>1 minute</td>
<td>30 seconds</td>
<td></td>
<td>Saturday</td>
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</tr>
<tr>
<td>Shavasana</td>
<td></td>
<td></td>
<td>2 minutes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As in previous week</td>
<td>7-9 Weeks</td>
<td>66 min.</td>
<td>40 minutes</td>
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<td>3</td>
<td>Monday, Tuesday</td>
<td>5 – 10 Minutes</td>
</tr>
<tr>
<td>Sedhupandhasan</td>
<td></td>
<td></td>
<td>1 minutes</td>
<td>30 seconds</td>
<td></td>
<td>Tuesday</td>
<td></td>
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<tr>
<td>Matsyasana</td>
<td></td>
<td></td>
<td>1 minutes</td>
<td>30 seconds</td>
<td></td>
<td>Wednesday</td>
<td></td>
</tr>
<tr>
<td>Uttanasana</td>
<td></td>
<td></td>
<td>1 minute</td>
<td>30 seconds</td>
<td></td>
<td>Thursday</td>
<td></td>
</tr>
<tr>
<td>Meditation - Omkar</td>
<td></td>
<td></td>
<td>1 minutes</td>
<td>30 seconds</td>
<td></td>
<td>Friday &amp; Saturday</td>
<td></td>
</tr>
<tr>
<td>Pranayama – Bhastrika.</td>
<td></td>
<td></td>
<td>1 minute</td>
<td>1 minute</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise</td>
<td>Duration</td>
<td>Days</td>
<td>Notes</td>
<td></td>
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<tr>
<td>Shavasana</td>
<td>2 minutes</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As in previous week</td>
<td>66 minutes</td>
<td>Monday, Tuesday, Wednesday, Thursday, Friday &amp; Saturday</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Paschimottasana</td>
<td>1 minute 30 seconds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ushtrasana</td>
<td>1 minute 30 seconds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meditation – Omkar.</td>
<td>1 minute 30 seconds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pranayama – ujjayi.</td>
<td>1 minute 30 seconds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>2 minutes</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
A SURVEY OF PSYCHOLOGICAL SKILLS IN NATIONAL LEVEL KHO-KHO AND KABADDI PLAYERS

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Lakshmibai National College of Physical Education, Thiruvananthapuram, Kerala, India.
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ABSTRACT

The purpose of the study was assessing the psychological skills of national level Kho-Kho and Kabaddi players. Total 200 Kho-Kho players and Kabaddi players were selected from Kerala state as subjects for this study. They all are either national medallist or national participated players. The age groups of the subject were from 18-25 years and Michel J Mahoney’s psychological skills inventory (PSIS) was used in this study. The result shows Kho-Kho players have significantly higher level Psychological Skills (mean=95.57, SD=10.08) as compared to Kabaddi players (mean=92.05, SD=9.21). And in each sub variables it was different. Players have the same level of Anxiety, Mental Preparation, Team Emphasis and concentration. And in Confidence and Motivation Kho-Kho players
have significantly higher level as compared to Kabaddi players. Another thing I found that from the last 9yrs history Kerala Kho-Kho team is in first three positions in various national level competitions, most probably this may be the main reason that Kho-Kho players are high in Psychological Skills than Kabaddi players in Kerala. The aim of the study is to enable the players, coaches and physical educators to know the capacities and weakness of the players and thereby help them to improve further performance on related trait. And also for the notice of SAI and sports council for encouraging these type of Indian traditional sports (like provide scientific training, hostels facilities etc).

Key words: Anxiety, Mental Preparation, Team Emphasis, concentration

INTRODUCTION

In most competitions, however, players win or lose depending on how they (their opponents) perform that particular day. Physical ability being fairly equal, the winner is usually the athlete who has better mental skills consider fluctuations in our own day-to-day performance. How is it that on some days we can’t do anything wrong, whereas on other days we can’t do anything right, you know you haven’t lost your physical skills, it’s your mental skills that fluctuate. A player is psychologically fit for the game if he possesses the required perceptions, emotional stability, motivation intelligence and educability to accomplish the task. By creating tension, elevated heart rate, blood pressure and anxiety can become barrier to performance. No player is without anxiety but some are better able to adapt to stress of anxiety in their lives and these players are more psychologically fit for arduous work. Most Kabaddi and Kho-Kho players fatigue mentally before they fatigue physically, due to the fact that there mind is not in as good of shape as their bodies. The game of Kabaddi and Kho-Kho are typical Indian major games and played throughout the country especially in rural area. Both Kabaddi and Kho-Kho can be played in a small area and practically no equipment is necessary. Kho-Kho is an outdoor strenuous but healthy and interesting game. Kabaddi is an aggressive and heavy contact game. Compare to Kabaddi, Kho-Kho is less aggressive and light contact game. Kho-Kho and Kabaddi players are differing with each other in their skills, techniques and strategies. If the players have trouble in their personal lives, these problems are likely to slow up in their sports performance. The main skills involved in psychological skills are anxiety, concentration, confidence, mental preparation, motivation and team emphasis. These skills are closely interrelated in improvement of one skill helps the development of the other skill. The observed situations in games and sports during competition have really influenced in the line of thinking a psychological traits of players in all levels of competition in varying situations. The psychological skills differ from individuals to individuals and teams to teams his or her involvement in contact and non-contact team games and individual sports. The psychological skill development the Kho-Kho and Kabaddi players can achieve peak
In order to know the difference in psychological skills of national level Kho-Kho and Kabaddi players, the scholar made attempts to assess psychological skills of national level Kho-Kho and Kabaddi players.

**METHODOLOGY**

The present study was conducted on 200 female and male elite Kho-Kho and Kabaddi players from Kerala state. The age of the subjects ranged from 18 to 25 years. All the subjects for the study were either national medallist or national level participated players. Michel J Mahoney’s psychological skills inventory (PSIS) was used for the purpose of the study. Concentration, Anxiety, Confidence, Mental preparation, Motivation, Team emphasis were the variables of the study.

**RESULTS**

Table 1: Data and test of significance (t test) for the comparison of Kho-Kho and Kabaddi players based on Psychological Skills

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological skills</td>
<td>Kho-Kho</td>
<td>100</td>
<td>95.57</td>
<td>10.08</td>
<td>2.576</td>
<td>198</td>
<td>0.011*</td>
</tr>
<tr>
<td></td>
<td>Kabaddi</td>
<td>100</td>
<td>92.05</td>
<td>9.21</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*: significant at 5% level (p<0.05)

From Table 1, t test showed that there exist significant mean difference in the Psychological Skills level of Kho-Kho and Kabaddi players (t=2.576, P<0.05). The inference is that Kho-Kho players have significantly higher level Psychological Skills (mean=95.57, SD=10.08) as compared to Kabaddi players (mean=92.05, SD=9.21).

**Figure 1:** The comparative bar diagram of Kho-Kho and Kabaddi players based Psychological Skills.
Table 2: Data and test of significance (t test) for the comparison of Kho-Kho and Kabaddi players based on different variables of psychological skills

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation</td>
<td>Kho-Kho</td>
<td>100</td>
<td>16.57</td>
<td>3.48</td>
<td>1.978</td>
<td>198</td>
<td>0.049*</td>
</tr>
<tr>
<td></td>
<td>Kabaddi</td>
<td>100</td>
<td>15.64</td>
<td>3.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental preparation</td>
<td>Kho-Kho</td>
<td>100</td>
<td>13.29</td>
<td>3.01</td>
<td>0.393</td>
<td>198</td>
<td>0.695ns</td>
</tr>
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<td></td>
<td>Kabaddi</td>
<td>100</td>
<td>13.12</td>
<td>3.11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confidence</td>
<td>Kho-Kho</td>
<td>100</td>
<td>18.11</td>
<td>3.44</td>
<td>2.837</td>
<td>198</td>
<td>0.005**</td>
</tr>
<tr>
<td></td>
<td>Kabaddi</td>
<td>100</td>
<td>16.54</td>
<td>4.33</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concentration</td>
<td>Kho-Kho</td>
<td>100</td>
<td>12.08</td>
<td>3.04</td>
<td>0.98</td>
<td>198</td>
<td>0.302ns</td>
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<tr>
<td></td>
<td>Kabaddi</td>
<td>100</td>
<td>12.57</td>
<td>3.62</td>
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</tr>
<tr>
<td>Anxiety</td>
<td>Kho-Kho</td>
<td>100</td>
<td>19.27</td>
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<td>0.98</td>
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<td></td>
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<td>18.72</td>
<td>4.21</td>
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<tr>
<td>Team Emphasis</td>
<td>Kho-Kho</td>
<td>100</td>
<td>16.25</td>
<td>3.82</td>
<td>1.553</td>
<td>198</td>
<td>0.122ns</td>
</tr>
<tr>
<td></td>
<td>Kabaddi</td>
<td>100</td>
<td>15.46</td>
<td>3.34</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*: significant at 5% level (p<0.05), **: significant at 1% level (p<0.01), ns: not significant (P>0.05)

Result showed that there do not exist significant mean difference in the Anxiety and Concentration level of Kho-Kho and Kabaddi players (t=0.98, P>0.05). t test showed that there exist significant mean difference in the Confidence level of Kho-Kho and Kabaddi players (t=2.837, P<0.01). The inference is that Kho-Kho players have significantly higher level Confidence...
(mean=18.11, SD=3.44) as compared to Kabaddi players (mean=16.54, SD=4.33). There do not exist significant mean difference in the Mental preparation and Team Emphasis level of Kho-Kho and Kabaddi players i.e. (t=0.393, P>0.05) and (t=1.553, P>0.05). Table showed that there exist significant mean difference in the Motivation level of Kho-Kho and Kabaddi players (t=1.978, P<0.05). The inference is that Kho-Kho players have significantly higher level Motivation (mean=16.57, SD=3.48) as compared to Kabaddi players (mean=15.64, SD=3.15).

Figure 2: Comparative bar diagram of Kho-Kho and Kabaddi players based on different variables of psychological skills

CONCLUSION

Kho-Kho players have significantly higher level Psychological Skills as compared to Kabaddi players. And in each sub variables it was different. Players have the same level of Anxiety, Mental Preparation, Team Emphasis and concentration. And in Confidence and Motivation Kho-Kho players have significantly higher level as compared to Kabaddi players. The main reason for the difference is the achievement level of the players. In Kerala state, Kho-Kho players have more achievement level than Kabaddi players. The history of last 9 years Kerala Kho-Kho team always in the medal list of various national level competition. This may enhance their psychological skills.

REFERENCES

EFFECT OF 12 WEEKS PLYOMETRIC AND RESISTANCE TRAINING ON SPEED AND JUMPING PERFORMANCE AMONG URBAN BOYS OF HIGHER SECONDARY LEVEL

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arulmped@gmail.com

ABSTRACT

This study was designed to deal with the effect of 12 weeks plyometric and resistance training on speed and jumping performance among urban boys of higher secondary level. For this purpose the investigator selected randomly 45 subjects studying in standard XI and XII from Pondicherry state. The study was consisting of two experimental groups and one control group. Based on the data the groups where equated into three groups, that is group I,II, and III. Groups I control, II and III served as experimental groups and group I represented the control group. Polymetric exercise training for 12 weeks was assigned to group II, Resistance exercise training was administered to group III. However, the first group was designed as a control group. The control group I was permitted to attend to their daily physical activity programme. All the training programmes were scheduled for three days per week for a period of 12 weeks. The control group was not allowed to participate in the experimental treatment. To the selected subjects (N-45)as pre-test(initial) was conducted on the criterion measures. The data collected from the control group I, plyometric group II, resistance training group III, on the criterion measures that is speed and long jump performances was statistically analysed by the application of one way analysis covariance (ANACOVA).The result shows polymetric and resistance exercise training in changes in speed and changes in long jump performances.
INTRODUCTION

This study was designed to deal with the effect of 12 weeks plyometric and resistance training on speed and jumping performance among urban boys of higher secondary level. Plyometrics, training known as jump training or speed are exercises based around having muscles exert maximum force in as short a time as possible, with the goal of increasing both speed and power. This training focuses on learning to move from a muscle extension to a contraction in a rapid or "explosive" way. Strength training is a type of physical exercise specializing in the use of resistance to induce muscular contraction which builds the strength, anaerobic endurance, and size of skeletal muscles.

METHOD

The investigator selected randomly 45 subjects studying in standard XIth and XIIth from Pondicherry state. The study was formulated as parallel group design, consisting of two experimental groups and one control group. The groups where equated into three groups, groups I control, II and III served as experimental groups and group I represented the control group. Polymeric exercise training for 12 weeks was assigned to group II, Resistance exercise training was administered to group III. All the training programmes were scheduled for three days per week for a period of 12 weeks. The control group was not allowed to participate in the experimental treatment. To determine the effects of poly metric and resistance training exercise on higher secondary school boys following variables speed(50meter dash) and jumping performance(long jump) were selected for this study.

RESULTS OF THE STUDY

The data pertaining to the variables under study have been examined by analyzing the variables separately in order to determine the difference if any among the groups (control and experimental) and in different stages (pre and post). The data which are obtained from the subjects are analysed statistically by the application of analysis of co -variance (ANACOVA). Then they obtained ‘F’ ratio is tested at 0.5 and 0.01 level of significant.

<table>
<thead>
<tr>
<th>Control group</th>
<th>Experimental group I</th>
<th>Experimental group II</th>
<th>SOV</th>
<th>SS</th>
<th>MSS</th>
<th>df</th>
<th>‘F’ ratio</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test mean</td>
<td>7.51</td>
<td>7.47</td>
<td>7.48</td>
<td>B</td>
<td>0.01</td>
<td>0.006</td>
<td>2</td>
<td>0.51</td>
</tr>
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</table>
Results of analysis of covariance are presented in Table pretest and post test scores of speed. From the table it can be seen that the obtained ‘F’ value was 29.48 which was much greater than the required F value of 3.23 at 0.05 level of confidence.

<table>
<thead>
<tr>
<th>Experiment</th>
<th>Control</th>
<th>Experimental group I</th>
<th>Experimental group II</th>
<th>Mean difference</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD</td>
<td>0.36</td>
<td>0.32</td>
<td>0.36</td>
<td>W 5.22</td>
<td>0.125</td>
</tr>
<tr>
<td>Post test mean SD</td>
<td>7.51</td>
<td>7.28</td>
<td>7.34</td>
<td>W</td>
<td>0.43</td>
</tr>
<tr>
<td></td>
<td>0.37</td>
<td>0.32</td>
<td>0.40</td>
<td>W</td>
<td>5.74</td>
</tr>
<tr>
<td>Adjusted test mean</td>
<td>7.51</td>
<td>7.28</td>
<td>7.34</td>
<td>B</td>
<td>0.29</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>W</td>
<td>0.20</td>
</tr>
</tbody>
</table>

Scheffe’s table shows post-hoc method of testing the significant of the difference between the paired means following a significant analysis of covariance for plyometric training group, resistance training group and control group. The adjusted general speed on means in order of magnitude and the difference between this means for the control and two experimental groups are given in the table the mean difference between the control and plyometric training group was 0.23. In the comparison between resistance training group and control group were 0.17 and comparison between plyometric group and resistance group were 0.07. which was significant at 0.05 level confidences. This result shows that the plyometric group had a batter improvement when compared to the resistance group and control group. The mean result was shown on the graph.

Graph show mean different of control, plyometric and resistance group
TABLE II
ANALYSIS OF COVARIANCE PRE-TEST AND POST-TEST ON JUMPING

<table>
<thead>
<tr>
<th></th>
<th>Control group</th>
<th>Experimental group I</th>
<th>Experimental group II</th>
<th>SOV</th>
<th>SS</th>
<th>MSS</th>
<th>df</th>
<th>‘F’ ratio</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test mean</td>
<td>4.30</td>
<td>4.34</td>
<td>4.28</td>
<td>B</td>
<td>0.02</td>
<td>0.01</td>
<td>2</td>
<td>0.043</td>
<td>0.958</td>
</tr>
<tr>
<td>SD</td>
<td>0.51</td>
<td>0.55</td>
<td>0.53</td>
<td>W</td>
<td>12.08</td>
<td>0.28</td>
<td>42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post test mean</td>
<td>4.32</td>
<td>4.56</td>
<td>4.47</td>
<td>B</td>
<td>0.44</td>
<td>0.22</td>
<td>2</td>
<td>0.756</td>
<td>0.476</td>
</tr>
<tr>
<td>SD</td>
<td>0.52</td>
<td>0.58</td>
<td>0.51</td>
<td>W</td>
<td>12.42</td>
<td>0.29</td>
<td>42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted test mean</td>
<td>4.32</td>
<td>4.56</td>
<td>4.47</td>
<td>B</td>
<td>0.35</td>
<td>0.17</td>
<td>2</td>
<td>8.75*</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>W</td>
<td>0.82</td>
<td>0.02</td>
<td>42</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PERFORMANCE

Results of analysis of covariance are presented in Table pretest and post test scores of speed. From the table it can be seen that the obtained ‘F’ value was 8.75 which was much greater than the required F value of 3.23 at 0.05 level of confidence.

<table>
<thead>
<tr>
<th>Control group</th>
<th>Experimental group I</th>
<th>Experimental group II</th>
<th>Mean difference</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.32</td>
<td>4.56</td>
<td></td>
<td>0.24*</td>
<td>0.144</td>
</tr>
<tr>
<td>4.32</td>
<td>4.47</td>
<td></td>
<td>0.15*</td>
<td></td>
</tr>
<tr>
<td>4.56</td>
<td>4.47</td>
<td></td>
<td>0.09*</td>
<td></td>
</tr>
</tbody>
</table>
Scheffe’s table shows post-hoc method of testing the significant of the difference between the paired means following a significant analysis of covariance for plyometric training group, resistance training group and control group. The adjusted general speed on means in order of magnitude and the difference between this means for the control and two experimental groups are given in the table the mean difference between the control and plyometric training group was 0.24. In the comparison between resistance training group and control group were 0.15 and comparison between plyometric group and resistance group were 0.09. That was significant at 0.05 level confidences. This result shows that the plyometric group had a better improvement when compared to the resistance group and control group. The mean result was shown on the graph.

Graph show mean different of control, plyometric and resistance group

CONCLUSION AND RECOMMENDATIONS

Participation in twelve weeks of poly metric and resistance exercise training changes in speed. Participation in twelve weeks of poly metric and resistance exercise training resulted in changes in long jump performances. When compared to plyometric and resistance training group plyometric group was good comparably than the resistance training group. Similar studies may be undertaken with age’s group other than mentioned in the study. Similar studies may be undertaken with sex other than mentioned in this study. Similar longitude of studies may be undertaken by increasing the duration and intensity of training programme. The track and field athletes can get the advantage of this study for improving their maximum performance. Those sports personals like volley ball players, basket ball players and shuttle players can make use of this study. The result may be useful for the physical education teachers and coaches to get maximum outcome.
References


Turner, Amanda M.; Owings, Matt; Schwane, James A. Improvement in Running Economy After 6 Weeks of Plyometric Training.
EFFECTS OF YOGASANA AND AEROBIC EXERCISE ON SELECTED
PHYSIOLOGICAL AND BIO-CHEMICAL VARIABLES
AMONG MALE RURAL GRADUATES

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ABSTRACT

Aim: The purpose of the present study was to find out the effect of yogasana and aerobic exercise (brisk walking) on physical fitness and bio-chemical variables among male rural graduates. Methods: For this purpose, thirty male rural graduates around Chidambaram town, Cuddalore district, Tamilnadu studying various courses in Annamalai University, were selected as subjects. The age of the subjects were ranged from 18 to 23 years. They were divided into three equal groups, each group consisted of ten subjects, in which experimental group - I underwent yogasana practice, experimental group - II underwent aerobic exercise (brisk walking) and group - III acted as control that did not participate in any special activities apart from their regular curricular activities. The training period for the study was six days (Monday to Saturday) in a week for twelve weeks. Prior and after the experimental period, the subjects were tested on breath holding time, high density lipoprotein and total cholesterol. Breath holding time was assessed by holding the breath for maximum duration in seconds of the subject. High density lipoprotein and total cholesterol were tested after taking 5 ml of blood samples by venous puncture method, by using Boehringer Mannheim Kit Method. The Analysis of Covariance (ANCOVA) was applied to find out any significant difference between the experimental groups and control group on selected criterion variables. Results: The result of the study shows that the yogasana and aerobics exercise groups were decreased the total cholesterol and increased the high density lipoprotein and breath holding time significantly (P > .05). Conclusions: It
was concluded from the results of the study that yogasana and aerobic exercise (brisk walking) has bring positive changes in breath holding time, high density lipoprotein and cholesterol as compare to the control groups. And also it was concluded that yogasana practice group shows better changes in all variables when compared with physical exercise group and control group.

Key words: Yogasanas, Aerobics, Breath holding time, high density lipoprotein, total cholesterol, Boehringer Mannheim kit method, ANCOVA.

INTRODUCTION

Yoga is one of the most ancient cultural heritages of India. The word yoga in Sanskrit means “to unite”, and so yoga can be said to connote a unitive discipline. In this sense, it is an exercise in moral and mental cultivation that generates good health (arogya), contributes to longevity (chirayu), and the total intrinsic discipline culminates into positive and perennial happiness and peace.[1] Yoga is one of the orthodox systems of Indian philosophy. It was collated, coordinated and systematized by Patanjali in his classical work, the Yoga Sutras, which consists of 185 terse aphorisms. Yoga is a complete science of life that originated in India many thousands of years ago. It is the oldest system of personal development in the world, encompassing body, mind and spirit.[2]

Recent scientific studies of the effects of yoga and meditation on health validates its ability to improve virtually every aspect of our functioning—brain function, hormonal function, sleep, mood, balance, etc. More active practices followed by relaxing ones lead to deeper relaxation than relaxing practices alone, documented by research from Swami Vivekananda yoga research foundation near Bangalore city and possibility of neuroplasticity bringing about changes in the hypo-pituitary–pancreatic axis. [3] The improvement in the lipid levels after yoga could be due to increased hepatic lipase and lipoprotein lipase at cellular level, which affects the metabolism of lipoprotein and thus increase uptake of triglycerides by adipose tissues.[4,5] Direct stimulation of the pancreas by the postures can rejuvenate its capacity to produce insulin. [6] Regeneration of pancreatic beta cells could occur by yoga exercises that promote blood circulation in the region of the pancreas and yoga asanas that stimulate the meridian of pancreas also could assist in some diabetic patients.[7] Pranayama practices, stretches the lung tissue producing inhibitory signals from action of slowly adapting receptors and hyperpolarising currents. These inhibitory signals coming from cardiorespiratory region involving vagi are believed to synchronize neural elements in the brain leading to changes in the autonomic nervous system; and a resultant condition characterized by reduced metabolism and parasympathetic dominance.[8]

METHODOLOGY

Selection of Subjects: Thirty male rural graduates around Chidambaram town, Cuddalore district, Tamilnadu studying various courses in Annamalai University were selected as subjects. The age of the subjects were ranged from 18 to 23 years. Design: The selected subjects were divided into three equal groups, each group consisted of ten subjects, in which group - I (n=10) underwent yogasana practice, experimental group - II (n=10) underwent aerobic exercise and group - III (n=10)
acted as control, which did not participate in any special activities apart from their regular curricular activities. **Training Period:** Yogasana and aerobic exercise was conducted six days (Monday to Saturday) per week for twelve weeks. **Criterion Variables Selected:** The researcher consulted with the yoga experts and physical education professionals and selected the following variables as criterion variables: 1. breath holding time, 2. high density lipoprotein and 3. total cholesterol. **Testing tool and Procedure:** The breath holding time was assessed by asking the subject to hold the breathe for maximum duration after a deep inhalation and it was recorded in seconds, high density lipoprotein and total cholesterol were assessed by using the Boehringer Mannheim Kit method. For the purpose of collection of data the subjects were asked to report at early morning, one day prior and one day after experimental period, in fasting condition. 5 ml of blood was collected from each subject by venous puncture method and the blood thus collected was stored in small bottles for pre and post-test for measuring the high density lipoprotein and cholesterol.

Analysis of covariance (ANCOVA) was applied to find out the significant difference if any, among the experimental groups and control group on selected criterion variables separately. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as appropriate. After applying the analysis of covariance, the result of this study shows that there was a significant increase in breath holding time, decrease in total cholesterol and high density lipoprotein levels.

### RESULTS

The data collected on breath holding time, high density lipoprotein and cholesterol among yogasana practice group, aerobic exercise group and control group were analysed and presented in the Table

#### Table - I

**ANALYSIS OF COVARIANCE ON SELECTED CRITERION VARIABLES AMONG EXERCISE GROUPS AND CONTROL GROUP**

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Group Name</th>
<th>Yogasana Practice Group</th>
<th>Aerobic Exercise Group</th>
<th>Control Group</th>
<th>‘F’ Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breath Holding</td>
<td>Pre-test Mean ± S.D</td>
<td>34.53 ± 0.89</td>
<td>34.40 ± 1.01</td>
<td>33.20 ± 0.12</td>
<td>0.015</td>
</tr>
<tr>
<td>(in seconds)</td>
<td>Post-test Mean ± S.D.</td>
<td>36.33 ± 0.461</td>
<td>37.20 ± 0.73</td>
<td>31.86 ± 0.815</td>
<td>14.344*</td>
</tr>
<tr>
<td></td>
<td>Adj. Post-test Mean</td>
<td>36.519</td>
<td>37.897</td>
<td>32.861</td>
<td>21.374*</td>
</tr>
</tbody>
</table>
Table – I shows that pre and post test means ‘f’ ratio of yogasana practice group, aerobic exercise group and control group on breath holding time were 0.15 (p > 0.05) and 14.344 (p < 0.05). The adjusted post test mean ‘f’ ratio value of experimental groups and control group was 21.374 (p < 0.05), which was significant at 0.05 level of confidence. The pre and post test means ‘f’ ratio of yogasana practice group, aerobic exercise group and control group on high density lipoproteins were 0.323 (p > 0.05) and 30.80 (p < 0.05). The adjusted post test mean ‘f’ ratio value of experimental groups and control group was 42.952, which was significant at 0.05 level of confidence. The pre and post test means ‘f’ ratio of yogasana practice group, aerobic exercise group and control group on total cholesterol were 0.06 (p > 0.05) and 0.247 (p > 0.05). The adjusted post test mean ‘f’ ratio value of experimental groups and control group was 6.179, which was significant at 0.05 level of confidence.

Table - II
Scheffé S Test for the Difference between the Adjusted Post-Test Mean of Selected Criterion Variables

<table>
<thead>
<tr>
<th></th>
<th>Yogasana Practice Group</th>
<th>Aerobic Exercise Group</th>
<th>Control Group</th>
<th>Mean Difference</th>
<th>Confidence interval at .05 level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted Post-test Mean on Resting Pulse Rate</td>
<td>36.519</td>
<td>37.897</td>
<td></td>
<td>1.378</td>
<td>2.77578</td>
</tr>
</tbody>
</table>

*Significant .05 level of confidence. (The table values required for significance at .05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).
Table – II shows that the Scheffé S Test for the difference between adjusted post-test mean on resting pulse rate of yogasana practice group and control group (3.658) and aerobic exercise group and control group (5.03), which were significant at .05 level of confidence. There was a significant difference on high density lipoproteins between yogasana practice group and control group (4.91) and aerobic exercise group and control group (5.168) and also there was a significant difference on total cholesterol between yogasana practice group and control group (3.389) and aerobic exercise group and control group (4.651) which was significant at 0.05 level of confidence after the respective training programme.

CONCLUSIONS

The experimental groups such as, yogasana and aerobic exercise groups have achieved a significant improvement in selected criterion variables such as breath holding time, high density lipoprotein and total cholesterol when compared with the control group. It was also found that there was no significant difference was found between the yogasana practice group and aerobic exercise group on selected criterion variables.
REFERENCES:


Yurtkuran M, Alp A, Yurtkuran M, Dilek K. A modified yoga-based exercise program in hemodialysis patients: a randomized controlled study. Complement Ther Med. 2007; 15 (3): 164-

A COMPARATIVE STUDY OF CARDIOVASCULAR EFFICIENCY OF KABADDI AND KHO-KHO PLAYERS

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ABSTRACT

The purpose of the study was to compare the cardiovascular efficiency between the Kabaddi and Kho-Kho players. To achieve the purpose of the study, thirty Kabaddi players and thirty Kho-Kho players from Shri C.P.Degree College of Physical Education, Rajpipla, Gujarat were selected. The age of the subjects ranged from 18 to 22 years. The standardized cardiovascular tool devised by Harvard was used to test the cardiovascular efficiency. In order to find out the difference between the Kabaddi and Kho-Kho players the independent t-test was used. From the results it was observed that there was a significant difference between the Kabaddi and Kho-Kho players on cardiovascular efficiency.

Key words: Cardio-vascular efficiency, Harvard Step test.
INTRODUCTION

Sports is not only art or religion or moral idea but will all of these, it shares values, which are at least humanly high and highly human. In the world of sports, every participating individual and spectators keep an eye on the positioned athletes. The selectors at various levels generally consider the performance in the trial and qualifying competitions, whereas the physiological basis is ignored variably most of the time.

The present study concentrated on the various cardio-vascular efficiency variables of sports persons. The cardiovascular efficiency variable is very important consideration while selecting the Kabaddi and Kho-Kho players. Therefore the researcher decided to take up this study and stated as study compared the cardiovascular efficiency of of Kabaddi and Kho-Kho players.

Hypothesis

Cardiovascular Efficiency was measured by Harvard Step Test.

The hypothesis of study was that there will be no significant difference between Cardiovascular Efficiency of Kabaddi and Kho-Kho players.

SOURCES OF DATA

The source of data for the present study was thirty Kabaddi players and thirty Kho-Kho players from Shri C.P.Degree College of Physical Education, Rajpipla, Gujarat were selected. The age of the subjects ranged from 18 to 22 years. The male players who had participated at inter university and inter collegiate tournaments were considered for the study.

Procedure

The subjects for the study were the students of the investigators. They were the students of B.P.E and M.P.Ed courses of Shri C.P.Degree College of Physical Education, Rajpipla. The purpose of the present investigation was properly explained to them and a demonstration of the test items where shown, so that the subjects form a mental preparation for the test. They were asked to clarify their doubts by asking questions and their queries were solved.

For the present study, the mean value, standard deviation, t-test was applied to analyze the data, different steps in t-test was used in Graph pad software and final conclusion was drawn and it was also compared with the significant value at .05 level of confidence.
Table I
Comparison of Cardio-vascular efficiency between Male Kabaddi and Kho-Kho players.

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>D.f</th>
<th>S.E.D</th>
<th>t-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kabaddi Players</td>
<td>30</td>
<td>58.2</td>
<td>9.9</td>
<td>58</td>
<td>2.71</td>
<td>3.74</td>
</tr>
<tr>
<td>Kho-Kho Players</td>
<td>30</td>
<td>68.3</td>
<td>11.02</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant at 0.05 level

The table I represents the significant mean difference between the Male Kabaddi and Kho-Kho players in Cardiovascular Efficiency. The mean values of Kabaddi and Kho-kho players in cardiovascular efficiency was 58.2 and 68.3 respectively. The standard deviation of Kabaddi and Kho-Kho players was calculated as 9.9 and 11.02 respectively. The standard error was 2.71. The ‘t’-ratio was calculated as 3.74, which was tested at the level of significance at .05 level and the tabulated value of t=1.96, which showed significant difference in the mean values of Kabaddi and Kho-kho players in Cardiovascular efficiency, hence the hypothesis was rejected.

Conclusions and Recommendations

The findings of the study showed that the male Kho-Kho players were significantly better than the Kabaddi Players in Cardiovascular efficiency.

A similar study can be carried out for the players of different games and between male and female players of various games.

References:


**************************************************************************
A Comparative study of Explosive Power and Agility among Hand Ball Players and Basket Ball Players of Osmania University

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Dr.SANDEEP KUMAR

Physical Education Teacher
ABSTRACT:
Background: Explosive training generally results in very high power outputs, which is why they have a large effect on performance in activities and sports requiring high speed movements. Agility is the ability to change the body’s position efficiently, and requires the integration of isolated movement skills using a combination of balance, coordination, speed, reflexes, strength and endurance. The objective of study is to determine the explosive power and agility among handball players and basketball players of Osmania University. It is hypothesized there will be significant difference among both the players in explosive power and agility.

MATERIALS AND METHODS
The purpose of the present study to find out the difference in explosive power and agility among Handball and Basket ball players. The sample for the present study consists of 50 Male Handball and Basketball Players out of which 25 are handball players and 25 are basketball players. To assess the explosive power the standing broad jump test were used and for agility shuttle run is used.

RESULTS
This study shows that basketball players are having the good explosive strength and handball players are having the good agility.

DISCUSSION & CONCLUSION
Power training for basketball players means training with a medicine ball and performing such exercises like ballistic jump squats, which have shown to increase explosive power in the basketball. Handball exercises are designed to help improve your ability to strike the ball and return serves. While many children and young kids play handball with a large rubber ball, traditional handball is played at high speeds. Handball exercises are often performed to improve the agility. It is concluded that basketball players are having good explosive strength and handball players are having good agility.

Key words: explosive power, agility etc.

INTRODUCTION:
Explosive power drills are often used by athletes who need to generate a quick burst of maximal effort, such as movements required in football, track and field sports, court sports and even cycling. The types of exercises used to build this quick, explosive power are movements that are require a maximum or near maximum power output from the athlete in a short amount of time.

Explosive exercise training routines are one way to increase power output. The goal of explosive exercise training is to ultimately move heavy weights very quickly. But to get to that point safely, without risking injury, it’s important to start with light weights and slow controlled movements. Over a matter of training session (several weeks), but the weight lifted and speed at which it’s lifted will be increased.

Basketball speed and agility training focuses on short and quick drills that develop your reaction time and hand-eye coordination. Basketball speed and agility training ranges from footwork drills to full-
court sprints. According to Sport Fitness Advisor, speed and agility training teaches you how to change directions on the court without reducing speed and velocity. As a result, drills that improve speed and agility are often reserved for point guards, shooting guards and small forwards.

Handball is a great sport for getting your body fit and healthy through fast-paced exercise. Improving agility, flexibility and the body’s cardiovascular system, handball offers a fine workout. Here’s a quick introduction to its health benefits. Handball is a fast-flowing game. The aim is to throw the ball into the opponent’s goal as many times as possible within two 30-minute periods of play. The players work together, passing and dribbling the ball up the court in an attempt to score a goal. The fast pace of the game results in many shots being taken, and it is not unusual for more than 20 goals per side to be scored in game. The sport requires strength, speed and agility and has been compared to being a cross between football and basketball, although the players (other than the goalkeeper) are not permitted to kick the ball. Handball is often referred to as Olympic handball so as not to be confused with other completely different versions of ‘handball’ which involve the use of hitting a small ball with the hand in a walled court.

Purpose of the study:
The purpose of the present study to compare the explosive strength and agility among Handball and Basket Ball Players.

Methodology:
To find out the explosive strength and agility between Male Basketball and Male Handball Players. The sample for present study consists of 25 Male Basket Ball Players and 25 Male Hand Ball Players of Osmania University who has taken part in the O.U. Inter College sports and games during the year 2012-13.

Standing Broad Jump:
The Standing long jump, also called the Broad Jump, is a common and easy to administer test of explosive leg power. It is one of the fitness tests in the NFL Combine. The standing long jump was also once an event at the Olympic Games, and is also an event in Sports Hall competitions in the UK. Purpose: to measure the explosive power of the legs. Equipment required: tape measure to measure distance jumped, non-slip floor for takeoff, and soft landing area preferred. Commercial Long Jump Landing Mats are also available. The take off line should be clearly marked.

Procedure: The athlete stands behind a line marked on the ground with feet slightly apart. A two foot take-off and landing is used, with swinging of the arms and bending of the knees to provide forward drive. The subject attempts to jump as far as possible, landing on both feet without falling backwards. Three attempts are allowed.

Shuttle Run
Purpose: this is a test of speed and agility, which is important in many sports. Equipment required: wooden blocks, marker cones, measurement tape, stopwatch, non-slip surface. Procedure: This test requires the person to run back and forth between two parallel lines as fast as possible. Set up two lines of cones 30 feet apart or use line markings, and place two blocks of wood or a similar object behind one of the lines. Starting at the line opposite the blocks, on the signal
"Ready? Go!" the participant runs to the other line, picks up a block and returns to place it behind the starting line, then returns to pick up the second block, then runs with it back across the line.

scoring: Two or more trails may be performed, and the quickest time is recorded. Results are recorded to the nearest tenth of a second.

RESULTS

This study shows that basket ball players are having the good explosive strength and hand ball players are having the good agility.

<table>
<thead>
<tr>
<th>Test Items</th>
<th>GROUP</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBJ</td>
<td>Basket Ball Players</td>
<td>25</td>
<td>2.25</td>
<td>0.11</td>
<td>0.04</td>
<td>3.62</td>
<td>48.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Hand Ball Players</td>
<td>25</td>
<td>2.16</td>
<td>0.05</td>
<td>0.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shuttle Run</td>
<td>Basket Ball Players</td>
<td>25</td>
<td>15.49</td>
<td>1.20</td>
<td>0.37</td>
<td>2.53</td>
<td>48.00</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>Hand Ball Players</td>
<td>25</td>
<td>14.11</td>
<td>0.56</td>
<td>0.17</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Basket Ball Players Standing Broad Jump Mean is 2.25 and Hand Ball Players Standing Broad Jump mean is 2.16 in there is a difference of 0.09 between Basket Ball Players and Hand Ball Players. The Basket Ball Players are having good explosive Strength compare to Hand Ball Players. The Basket Ball Players Shuttle Run Mean is 15.49 and Hand Ball Players Shuttle run mean is 14.11 in there is a difference of 1.38 between Basket Ball Players and Hand Ball Players. The Hand Ball Players are having good agility compare to Basket Ball Players.

DISCUSSION

Power training for basketball players means training with a medicine ball and performing such exercises like ballistic jump squats, which have shown to increase explosive power in the basket ball. Hand ball exercises are designed to help improve your ability to strike the ball and return serves. While many children and young kids play hand ball with a large rubber ball, traditional hand ball is played at high speeds. Hand ball exercises are often performed to improve the agility.

Conclusion:
It is concluded that basket ball players are having good explosive strength and hand ball players are having good agility.

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ANALYTICAL STUDY ON PHYSICAL FITNESS AMONG BASKET BALL PLAYERS & HAND BALL PLAYERS OF WARANGAL

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INTRODUCTION

Physical fitness is a multifaceted continuum extending from birth to death, affected by physical activity. It ranges from optimal activities in all aspects of life through high and low levels of different physical fitness to serve disease and dysfunction. The ability to function efficiently and effectively is to enjoy leisure, to be healthy, to resist disease and to cope with emergency situations. Health related components of physical fitness include body composition, cardiovascular fitness, flexibility, muscular endurance and strength. Skill related components include agility, balance, coordination, power, reaction time and speed.

The relative importance of each of the components varies for each sport. Physical fitness is not only sport specific it may also be position specific, combined good health and physical development. The object of any program of physical fitness is to maximize any individual’s health, strength, endurance and skill relative to age, sex, body build and physiology. These ends can only be realized through conscientious regulation of exercise, rest, diet and periodic medical examinations. Exercise should be regular and vigorous, but begun slowly and only gradually increased in strenuousness. Popular exercise methods include jogging, cycling and the use of body-building machines. It is more important that periods of sleep be regular and restful than that they extend any fixed number of hours.

SIGNIFICANCE OF THE STUDY:
The study is to determine the physical fitness among the basket ball players and hand ball players of Warangal District.

METHODOLOGY:
The study under report focuses on physical fitness, basis of team game players, which is the order of the day in everlasting sports scenario. The study was formulated based on the simple random sampling. The samples were collected from the 50 Men basketball players and 50 Men Handball players in Warangal District in the age group of 18-22 years were considered. Physical fitness test was administrated on University players i.e. the speed (50m run) and endurance (Cooper Test - 12 minutes run/walk).

RESULTS AND DISCUSSIONS

The results pertaining to the study are present in the following,
Table – 1 Showing the Mean Values, SD, df, ‘t’ value and p-value between basket ball players and hand ball players of Warangal District in relation to their speed (50m run).

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Subjects</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>‘t’ ratio</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Basket ball Players</td>
<td>50</td>
<td>7.00</td>
<td>0.46</td>
<td>2.601</td>
<td>0.01</td>
</tr>
<tr>
<td>2.</td>
<td>Hand ball Players</td>
<td>50</td>
<td>6.11</td>
<td>0.34</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table – 2 Showing the Mean Values, SD, df, ‘t’ value and p-value between basket ball players and hand ball players of Warangal District in relation to their Endurance (cooper test).

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Subjects</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>‘t’ ratio</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Basket ball Players</td>
<td>50</td>
<td>2016</td>
<td>296.76</td>
<td>4.01</td>
<td>0.01</td>
</tr>
<tr>
<td>2.</td>
<td>Hand ball Players</td>
<td>50</td>
<td>2264</td>
<td>238.62</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CONCLUSION:**

The study under report has scientifically examined the various factors which influence the power game, especially the women physical fitness variables pertinent to speed and endurance. A trained individual is in a better state of physical fitness than the person who follows a sedentary, inactive life. When two persons, one trained and one untrained or approximately the same build are performing the same amount of moderate muscular work, evidence indicates that the trained individual has a lower oxygen consumption, lower pulse rate, larger stroke volume poor heartbeat, less in blood pressure, greater red and white blood cell counts, slower rate of breathing, lower rate of lactic acid formation, and a faster return to normal of blood pressure and heart rate.

The heart becomes more efficient and is able to circulate more blood while bearing less frequently. Furthermore, in work of a strenuous nature that cannot be performed for any great period of time the trained individuals has greater endurance, a capacity for higher oxygen consumption, and a faster return to normal of heart rate and blood pressure. Training results in a more efficient organism. Since a greater efficiency of heart action enables a larger flow of blood to reach the muscles and thus ensure an increased supply of fuel and oxygen, more work is performed at less cost; improvements in strength, power, neuromuscular coordination, and endurance occur, coordination and timing of movements as better, and an improved state of physical fitness results. Physical fitness is a multifaceted continuum extending from birth to death, affected by physical activity. It ranges from
optimal activities in all aspects of life through high and low levels of different physical fitness to serve disease and dysfunction.

Hence it is concluded that the physical fitness plays a vital role on the performance of the players. Physical activity can act as an antidote to some kinds of fatigue; youngsters will be harmed through sustained exercise – if they are fit, their physical endurance is great, and the exercise will be conductive to good health.

REFERENCES:-


CAUSES, PREVENTION AND MANAGEMENT OF SPORTS INJURIES

Mrs. V. Vijaya Kumari, Ph.D. Scholar, Mrs. V. Padmavathi, Ph.D Scholar
Prof. SYED. KAREEMULLA, Director of Phy. Edu. Dravidian University, Kuppam, A.P.

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INTRODUCTION

Participation in Sports and Physical activities has increased in recent years because of positive health and fitness effects. As more people participate in sports more injuries will also occur as a side effect. At present many different preventive methods are recommended and applied by sports participants. Certain injuries may even cause serious damages which are irreversible, and spoil the sports career of an athlete. Sometimes the damage may be so serious that it may cause Physical disability also.

PROPER TRAINING
Training is a systemic and organized procedure, by which people learn knowledge skill and ability for a definite purpose. Training improves, changes, moulds the individuals knowledge skill, behavior and attitude of an individual towards the requirements to perform an event/ to achieve a goal. Training gives confidence and enables the individuals to take right decisions at right time and action. The major outcome of training is learning.

The following are some basic steps to prevent sports injury

- Warm up properly before any physical activity.
- Alternate exercising different muscle groups and exercise every other day.
  - Cool down properly after exercise or sports.
  - Stretching exercises can improve the muscles' ability to contract and perform, reducing the risk for injury.
  - Shoe support may correct certain foot problems that can lead to injury.

**PREVENTING SPORTS INJURY**

Avoiding dehydration and overheating drink plenty of fluids:

Whatever sport you play, it is essential to maintain your fluid levels to avoid dehydration. If you become dehydrated you'll not be able to regulate your body temperature as effectively, which means that you'll risk overheating (hyperthermia). Dehydration will also adversely affect your performance, as your blood volume will be reduced and you'll be less able to deliver oxygen to your working muscles. Don’t rely on your thirst as an indicator of dehydration, but try to drink consistently before and during your sporting activity. Continuing to drink after you have finished will ensure that weight lost through fluid depletion is replaced. Remember that alcohol and any drinks containing caffeine can lead to increased dehydration.

Use sun protection: If you are outdoors, always remember to use adequate sun protection, and try to avoid scheduling activities between loam and 2 pm, the hottest part of the day.

Wear appropriate clothing: There is no benefit to exercising when you are dehydrated or have hyperthermia. So always wear appropriate clothing, which should be light and permits your sweat to evaporate freely. Sweat only cools you when it evaporates off your body. Conversely, don't deliberately wear excessive clothing that may cause you to overheat. If you do, you will lose even more body fluid unnecessarily, which can have an adverse effect and must be fully replaced. Sweating excessively does not help you to lose more fat, and in hot conditions the weight difference before and after a bout of exercise is mainly body fluid, all of which must be replaced for you to maintain a healthy state.
Warming up, cooling down: You can help to reduce the risk of a serious sporting injury by warming up before exercise and taking time to cool down after your activity. A warm up should consist of some gentle aerobic activity, such as cycling or jogging, to gradually warm your muscles. This should last for 5 to 15 minutes, depending on how strenuous your main exercise will be. It should also gradually increase in intensity until you have a slight sweat. Stretching as part of your warm up helps to promote blood flow to your muscles, increasing flexibility and reducing the chance of getting a new injury or aggravating an old one. Remember, though, to stretch only when your muscles are warm. Involve all the muscle groups you will be using in your activity.

A gentle cool-down period means you will experience less muscle stiffness and soreness. It also helps to remove waste products from muscles you have used during your activity, replacing them with nutrients and oxygen. A cool down normally consists of a few minutes of low intensity exercise, such as jogging or cycling, followed by some sustained stretching.

Progress gradually: Try not to overdo it when beginning a new activity: build on your fitness levels and set goals. Knowing your limits means you have less chance of sustaining a sporting injury a lack of fitness increases your chance of experiencing a pulled muscle or heat-related injury such as heat exhaustion. Attempting to do too much, when your body is not conditioned for it, will also increase your risk of an overuse injury. If you have a chronic illness, a family history of heart disease or are over 40 years old and have not exercised for some time, a check-up by your doctor prior to undertaking vigorous exercise is always advisable.

The right equipment: No matter which sport you play, the correct footwear is essential to absorb the impact of movement as well as provide adequate support for your ankles and feet. This is especially important in sports where knee and ankle injuries are common, such as netball and football. To help avoid injury, protective equipment such as knee and elbow pads, helmets, mouth guards, gloves or shin pads may be helpful in many contact sports or sports where there is a risk of impact with another player, the ground or a piece of equipment. Eye protection is particularly important when playing games such as squash.

Sports Management: Sports Management is the study of planning, supervising and organizing various sporting activities like international and domestic tournaments for Cricket, Football, Hockey, Golf and several other games. Sports Management Courses in India inculcates leadership qualities in an individual and helps him or her to coach, manage and train sportsmen coming from various fields of sporting.

Treating an injury: While broken bones and severe sporting injuries such as concussions should be treated immediately by a medical professional, less serious sprains and strains can initially be helped by the RICE method.
Sprains and Strains: A sprain is an injury to a ligament, one of the bands of tough, fibrous tissue that connects two or more bones at a joint and prevents excessive movement of the joint. An ankle sprain is the most common athletic injury. A strain is an injury to either a muscle or a tendon. A muscle is a tissue composed of bundles of specialized cells that, when stimulated by nerve messages contract and produce movement. A tendon is a tough, fibrous cord of tissue that connects muscle to bone. Muscles in any part of the body can be injured.

Repetitive Motion Injuries: Painful injuries such as stress fractures (a hairline fracture of the bone that has been subjected to repeated stress) and tendonitis (inflammation of a tendon) can occur from overuse of muscles and tendons. Some of these injuries don't always show up on x rays, but they do cause pain and discomfort. The injured area usually responds to rest, ice, compression, and elevation (RICE). Other treatments can include crutches, cast immobilization, and physical therapy.

Common injuries and locations: sprains, strains, bruises, fractures, scrapes, dislocations, cuts,

Growth Plate Injuries In some sports accidents and injuries, the growth plate may be injured. The growth plate is the area of developing tissues at the end of the long bones in growing children and adolescents. When growth is complete, sometime during adolescence, the growth plate is replaced by solid bone. The long bones in the body include:

- The long bones of the hand and fingers (metacarpals and phalanges)
- Both bones of the forearm (radius and ulna)
- The bone of the upper leg (femur)
- The lower leg bones (tibia and fibula)
  - The foot bones (metatarsals and phalanges).

If any of these areas become injured, it's important to seek professional help from an orthopedic surgeon, a doctor who specializes in bone injuries.

Sport-Specific Safety Information

Basketball

- Common injuries: to teeth, ankles, and knees. (Injury rates are higher in girls, especially for the anterior cruciate ligament or ACL, the wide ligament that limits rotation and forward movement of the shin bone.)
- Safest playing with: eye protection, elbow and knee pads, mouth guard, athletic supporters for males, proper shoes, water. If playing outdoors, wear sunscreen and, when possible, a hat.
- Injury prevention: strength training (particularly knees and shoulders), aerobics (exercises that develop the strength and endurance of heart and lungs), warm-up exercises, proper coaching, and use of safety equipment.

TRACK AND FIELD
● Common injuries: Stains, Sprains, Scrape from falls.
● Safest Plying with: Proper Shoes, Athletic Supporters for Males, Sunscreen, Water
● Injury Prevention: Proper Conditioning and Coaching.

Football

● Common injuries and locations: bruises, sprains, strains, pulled muscles, tears to soft tissues such as ligaments, broken bones, internal injuries (bruised or damaged organs), concussions, back injuries, sunburn. Knees and ankles are the most common injury sites.

● Safest playing with: helmet, mouth guard, shoulder pads, athletic supporters for males, chest rib pads, forearm, elbow, and thigh pads, shin guards, proper shoes, sunscreen, water.

● Injury prevention: proper use of safety equipment, warm-up exercises, proper coaching techniques and conditioning.

Gymnastics

● Common injuries: sprains and strains of soft tissues.

● Safest playing with: athletic supporters for males, safety harness, joint supports (such as neoprene wraps), water.

  ● Injury prevention: proper conditioning and Warm ups.

Safety Tips for All Sports

  ▪ Be in proper physical condition to play the sport.
  ▪ Follow the rules of the sport.
  ▪ Wear appropriate protective gear (for example, shin guards for soccer, a hard-shell helmet when facing a baseball or softball pitcher, a helmet and body padding for ice hockey).
  ▪ Know how to use athletic equipment.
  ▪ Always warm up before playing.
  ▪ Avoid playing when very tired or in pain.
  ▪ Get a preseason physical examination.
  ▪ Make sure adequate water or other liquids are available to maintain proper hydration.

CONCLUSION:

Proper technique and supervision can reduce the incidence of sports injuries in children. Balance and neuromuscular training can help prevent injury, more specifically in the lower body. One should also never neglect the obvious when it comes to preventing injuries. Ensuring that the athletes are wearing the correct protective gear and using the correct equipment will also greatly help reduce injuries. Follow all the above precautions and avoid the sports injurious.
EFFECT OF PHYSICAL FITNESS TRAINING PROGRAMME ON SELECTED CRICKET PLAYING ABILITY OF WOMEN CRICKETERS.

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tanvirmukadam32@gmail.com

ABSTRACT
The objective of the present study was to determine the effect of physical fitness training programme on cricket playing ability (Batting and Bowling) of women cricket players of Baroda Cricket Association. Thirty cricket players of Baroda Cricket Association were selected as subjects for the purpose of the study. To improve the physical fitness, the following physical fitness components were employed: Endurance, Speed, Strength, coordinative ability, and Agility. To measure the cricket playing ability, three experts of cricket were there who judged the players. The findings of the study revealed that physical fitness training had a positive effect on the playing ability of women cricketers.

**INTRODUCTION**

Due to the expansion of facilities, more and more people are taking to sports as a daily feature in their life. Cricket has become a very sophisticated technical game and has developed into a highly competitive sport which requires a high level of physical and psychological fitness. The development of modern cricket, especially one day cricket and twenty-twenty cricket is accompanied by evolving several new training methods. Coaches have been constantly employing different methods of training to improve the performance and to determine the superiority of one method to the other.

A cricket player with a high degree of motor fitness is able to cope better with the demand of the game, the onset of fatigue is the point at which skill standards drop, mental reactions become slower, these problems arise at low fitness level and by developing the fitness the player becomes better prepared to meet the demand of the game. Literature reveals that physical fitness training experiences not only contribute in physical fitness but also help in improving the cricketing abilities. Therefore the research scholar felt that it was necessary to conduct the study to find out the changes resulting after administering eight weeks physical fitness training programme in relation to cricket playing abilities of the women cricketers.

**METHODOLOGY**

30 female cricket match practice group of Baroda Cricket Association, Baroda were selected as subjects. The subjects were distributed into three groups, on the merits of their ranking namely Ex-1, Ex-2, and control group, each group consists of ten subjects.

Group Ex-1 was administered for speed, strength, and co-ordinative ability test. Group Ex-2 was administered for endurance, agility, and co-ordinative ability test. Control group was administered with no such type of tests except normal routine work-out.

The performance of bowling and batting ability in cricket of each selected subject was taken as the criterion on the basis of the execution of the skill evaluated on the following guidelines supplied to the expert judges in the table given below.

Table – 1
The subjects of the study were evenly distributed into 3 groups. There were 10 subjects in each group. One of the groups acted as a control group and the other two as experimental group. Pre-test values were taken by the three experts of cricket by judging the playing ability of cricket, before the training 8 week of physical fitness programme. After the completion of which, the experimental and the control groups were judged again by the game experts for the playing ability batting and bowling in cricket.

**ADMINISTRATION OF TEST**
In order to prepare training programme of Baroda Cricket Association group (Female) for improving cricket playing ability, (batting and bowling) the students were tested in the motor ability viz. endurance, speed, strength, agility and co-ordinative abilities by employing standard tests. After finding out the level of fitness through test the training schedule was prepared for eight weeks.

From the first week, the intensity of load and the duration of training increased gradually as follows-

<table>
<thead>
<tr>
<th>Week</th>
<th>Intensity (%) (min.)</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>50 to 60</td>
<td>30</td>
</tr>
<tr>
<td>2.</td>
<td>50 to 60</td>
<td>40</td>
</tr>
<tr>
<td>3.</td>
<td>60 to 70</td>
<td>45</td>
</tr>
<tr>
<td>4.</td>
<td>60 to 70</td>
<td>50</td>
</tr>
<tr>
<td>5.</td>
<td>70 to 80</td>
<td>50</td>
</tr>
<tr>
<td>6.</td>
<td>70 to 80</td>
<td>55</td>
</tr>
<tr>
<td>7.</td>
<td>80 to 90</td>
<td>60</td>
</tr>
<tr>
<td>8.</td>
<td>100 (all-out)</td>
<td>60</td>
</tr>
</tbody>
</table>

**FINDINGS**

The data related pre test and post test means of two experimental groups and a control is presented. It is evident from table 3 and 4 that there was a significant difference on the pre-test and post-test means of batting and bowling experimental group I as the obtained ‘t’ value for bowling (t=13.31) and batting (t=13.98) which was greater then the table value t=2.18 at 5% level of significance with 12 degree of freedom.

In case of experimental group II a significant result was obtained at the end of eight week training programme as obtained ‘t’ value of bowling (t=12.61) and batting (t=6.93) was greater than the table value t=2.18 at 5% level of significance with 12 degree of freedom.
Table-3

Pre-Test and post-test means of all the three groups after eight weeks of training (Batting)

<table>
<thead>
<tr>
<th>No. of subjects</th>
<th>Variables</th>
<th>Mean</th>
<th>DM</th>
<th>Mean</th>
<th>DM</th>
<th>‘t’ Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>pre</td>
<td>post</td>
<td>pre</td>
<td>post</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Experimental grp 1</td>
<td>18</td>
<td>35.71*</td>
<td>2.61</td>
<td>1.66</td>
<td>13.98*</td>
</tr>
<tr>
<td>10</td>
<td>Experimental grp 2</td>
<td>18</td>
<td>28.85*</td>
<td>2.39</td>
<td>2.99</td>
<td>6.93*</td>
</tr>
<tr>
<td>10</td>
<td>Control group</td>
<td>13.42</td>
<td>14</td>
<td>0.58</td>
<td>0.9</td>
<td>0.80</td>
</tr>
</tbody>
</table>

Table-4

Pre-Test and Post- Test means of all the three groups

After eight weeks of training (Bowling)

<table>
<thead>
<tr>
<th>Number Of Subjects</th>
<th>Variables</th>
<th>Mean</th>
<th>DM</th>
<th>Mean</th>
<th>DM</th>
<th>‘t’ Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>pre</td>
<td>post</td>
<td>pre</td>
<td>post</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Experimental Group1</td>
<td>18.25</td>
<td>32.85*</td>
<td>0.69</td>
<td>2.58</td>
<td>13.31*</td>
</tr>
<tr>
<td>10</td>
<td>Experimental group 2</td>
<td>14.85</td>
<td>26.57*</td>
<td>0.98</td>
<td>2.05</td>
<td>12.61*</td>
</tr>
<tr>
<td>10</td>
<td>Control Group</td>
<td>14.28</td>
<td>14.00</td>
<td>0.28</td>
<td>0.69</td>
<td>0.55</td>
</tr>
</tbody>
</table>
*Significant at 5% level of significance with 12 degrees of freedom.

In case of control group significant effect was evident as the obtained t value for batting (t=0.55) and bowling (t=0.80) was less than the table value t=2.18.

Since there were three groups the further subjected to one way analysis of variances (‘t’ ratio) in order to find out variation among the groups.

‘F’ Ratio

The obtain ‘f’ value required for the significance f=4.75 at 5% level of significance with (1,12)degree of freedom. Now we can also judge/verify the result by the principal of analysis of variance (‘f’ ratio), by applying this procedure we get the f ratio for the 1 experimental group for batting (f=195.45) and bowling (f=177.34) respectively, which is greater than the obtained tabulated value of f=4.75 at 5% level of significance at (1, 12) degree of freedom.

<table>
<thead>
<tr>
<th>Skill Test</th>
<th>Source of Variance</th>
<th>d.f</th>
<th>Sum of Square</th>
<th>Mean of Square</th>
<th>F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batting Ability Cricket</td>
<td>Between-Group</td>
<td>1</td>
<td>1098.28</td>
<td>1098.28</td>
<td>195.45</td>
</tr>
<tr>
<td></td>
<td>Within-Group</td>
<td>12</td>
<td>67.42</td>
<td>5.61</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>13</td>
<td>1165.70</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table-5
Analysis of Variance in Batting Ability in Cricket

<table>
<thead>
<tr>
<th>Skill Test</th>
<th>Source of Variance</th>
<th>d.f</th>
<th>Sum of Square</th>
<th>Mean of Square</th>
<th>F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batting Ability Cricket</td>
<td>Between-Group</td>
<td>1</td>
<td>412.63</td>
<td>412.63</td>
<td>48.16</td>
</tr>
<tr>
<td></td>
<td>Within-Group</td>
<td>12</td>
<td>102.79</td>
<td>8.56</td>
<td></td>
</tr>
<tr>
<td>Skill Test</td>
<td>Source of Variance</td>
<td>d.f</td>
<td>Sum of Square</td>
<td>Mean of Square</td>
<td>F Ratio</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------</td>
<td>-----</td>
<td>--------------</td>
<td>---------------</td>
<td>---------</td>
</tr>
<tr>
<td>Batting Ability Cricket</td>
<td>Between-Group</td>
<td>1</td>
<td>1.14</td>
<td>1.14</td>
<td>0.63</td>
</tr>
<tr>
<td></td>
<td>Within-Group</td>
<td>12</td>
<td>21.71</td>
<td>1.80</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>13</td>
<td>22.85</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table -7

Analysis of Variance in Batting Ability in Cricket

Control Group 2

<table>
<thead>
<tr>
<th>Skill Test</th>
<th>Source of Variance</th>
<th>d.f</th>
<th>Sum of Square</th>
<th>Mean of Square</th>
<th>F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batting Ability Cricket</td>
<td>Between-Group</td>
<td>1</td>
<td>743.14</td>
<td>743.14</td>
<td>177.34</td>
</tr>
<tr>
<td></td>
<td>Within-Group</td>
<td>12</td>
<td>50.28</td>
<td>4.19</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>13</td>
<td>793.42</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table -8

Analysis of Variance in Batting Ability in Cricket

Group-1

<table>
<thead>
<tr>
<th>Skill Test</th>
<th>Source of Variance</th>
<th>d.f</th>
<th>Sum of Square</th>
<th>Mean of Square</th>
<th>F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batting Ability Cricket</td>
<td>Between-Group</td>
<td>1</td>
<td>13</td>
<td>1.4</td>
<td>2.14</td>
</tr>
<tr>
<td></td>
<td>Within-Group</td>
<td>12</td>
<td>21.71</td>
<td>1.80</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>13</td>
<td>22.85</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table-10
Analysis of Variance in Batting Ability in Cricket

Control Group-2

<table>
<thead>
<tr>
<th>Skill Test</th>
<th>Source of Variance</th>
<th>d.f</th>
<th>Sum of Square</th>
<th>Mean of Square</th>
<th>F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batting Ability</td>
<td>Between-Group</td>
<td>1</td>
<td>0.28</td>
<td>0.28</td>
<td>0.29</td>
</tr>
<tr>
<td>Cricket</td>
<td>Within-Group</td>
<td>12</td>
<td>11.44</td>
<td>0.95</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>13</td>
<td>11.72</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Similarly for experiment group 2 ʻfʼ value for batting (f=48.16)and bowling (f=0.299),which is greater than the tabulated value of f=4.75 at 5% level of significance at (1,12) degree of freedom.

For control group the ʻfʼ value for batting (f=0.631) and for bowling (f=0.299)which is less than the tabulated value of f=4.75 at 5% level of significance at (1,12) degree of freedom. There was a significance variance among the groups.

DISCUSSION OF FINDING

An eight week training programme was administrated with 3 experimental groups namely Ex-1, Ex-2 and control group. The training was implemented weekly.

For comparison of pre-test and post-test means of experimental groups the training was implemented weekly. In case of comparison of pre-test means of experimental group I, a significant
result was obtained, as the obtained pre value for the bowling (t=13.31) and batting (t=13.98), was greater than the tabulated value oft=2.18 required to be significant at 5% level of confidence with 12 degree of freedom.

In case of experimental group 2 there was also a significance between pre test and post test and post test means as obtained t value for batting (t=6.93) and bowling (t=12.61), was greater than the obtained value of t=2.18.

In case of control group no significance was obtained in the pre test and post test mean as obtained t value for batting (t=0.80) and bowling (t=0.50), is less than the obtained t value t=2.18 at 5% the level of significance in pre test and post to find the fact that 8 week training programme was helpful to bring out the desired change in playing abilities (batting and bowling) of the subject.

**CONCLUSION**

With the limitations identified and on the basis of the result of the study, the conclusion drawn was that the training of physical components significantly improves the playing ability in cricket among the cricket players. The hypothesis stated earlier that there will be no significant effect of physical training is rejected.

**RECOMMENDATIONS**

On the basis of conclusion drawn the following recommendations have been made:

(i) Due emphasis should be given to improve the physical fitness of the cricket players through a training programme to enhance the playing ability.

(ii) The study may be repeated by employing subjects of the age level other than those employed in this study.

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IMPACT OF AQUA HATHA YOGA ON HEALTH RELATED PHYSICAL FITNESS
IN PHYSICALLY ACTIVE ADULT MEN

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ABSTRACT

The aim of this study was to outline an integrated approach to aqua hatha yoga (AHY). Thirty healthy, untrained male volunteers ranging in age from 18–21 years were studied to determine the effects of aqua hatha yoga practice on the health-related aspects of physical fitness, including muscular strength and endurance, flexibility, cardio respiratory fitness, and body mass index (BMI). Subjects were required to attend five classes per week for a total of 12 weeks. The subjects were evaluated before and after the 12-week training program. These findings indicate that regular aqua hatha yoga practice can result in improvements in the health-related components of physical fitness. It was observed that the mean gains from pre and post test were statistically significant showing that the twelve weeks of aqua hatha yoga training produced significant improvement in muscular strength (± 1.28, p<0.01), t’ Ratio (9.78, p<0.01), muscular endurance (±0.54, p<0.01), t’ Ratio (13.10, p<0.01), cardio respiratory endurance (±17.09, p<0.001), t’ Ratio (4.86, p<0.01), flexibility (±0.47, p<0.001), t’ Ratio (7.98, p<0.01), as well as BMI (±0.46, p<0.001) t’ Ratio (11.43, p<0.01)
INTRODUCTION

Yoga is an ancient Indian practice, first described in Vedic scriptures around 2500 B.C., which utilizes mental and physical exercises to attain Samadhi, or the union of the individual self with the infinite. (Lidell, 1983) According to the first comprehensive textual description of yoga, the Yoga Sutras, written in the third century B.C., yoga is the cessation of thought waves in the mind. (Dass, 1981) Hatha yoga, one of the many forms or paths of yoga, focuses on overall fitness through pranayamas (breath-control exercises), asanas (yoga postures), and chanda (meditation). Like other forms of yoga, hatha yoga is purported to quiet the mind and focus the concentration; however, of all the yoga traditions, the importance of physical fitness is emphasized most in hatha yoga. (Worthington, 1982., Zorn, 1968)

Hatha-Yoga is an exercise where physical movement—physical poses—breathing exercises and relaxation techniques are combined. Hatha-Yoga is a kind of Yoga, which focuses on physical activity through positions, which include balance, equilibrium and inclinations. These poses are retained during a certain period of time. Hence, person’s attention is focused on those muscles in which the individual is working on, as well as on his breathing (Riley, 2004) these poses increase flexibility, and activate blood circulation along the body, particularly in glands and internal organs. It has been found that the main effects of Hatha-Yoga are: reduction of stress and its symptomatology, as well as self-efficacy promotion (Michalsen, 2005) improvement of quality of life in aspects such as: vitality, energy, physical fitness, body pain and social functioning (Oken, 2006).

METHODS AND PROCEDURES

Subjects

Healthy, young subjects were selected to participate in this study. No incentives were offered other than the aqua hatha yoga classes and physiologic testing. Following approval of our institutional Review Committee, written informed consent was obtained from 30 male volunteers between the ages of 18–21 years. For subjects to be eligible to participate in the study, they had to be sedentary, having engaged in no regular physical activity, including yoga, prior to or during the training period. Subjects were instructed to abstain from all other forms of exercise while participating in the training program. Additionally, no subject had known heart disease or significant recent joint or muscular injury, as determined by written medical history.

Training

Yoga classes were offered two times per day, five times per week, from 6:00am-7:00am and 7:00–8:00 a.m., for 12 weeks. A certified yoga instructor led all classes. Each yoga session consisted of 5 minutes of pranayamas, (breath-control exercises), 5 minutes of dynamic warm-up exercises, 40 minutes of asanas, (yoga postures), and 10 minutes of relaxation in savasana (the corpse pose). The dynamic warm-up exercises consisted of walking around the swimming pool, joint range of motion exercises, and dynamic stretching. During the asanas, all participants were encouraged to stretch as fully as possible while not exceeding the limits of their comfort, paying attention to their breathing and trying to relax. No negative symptoms or injuries occurred during aquatic hatha yoga sessions. The aqua hatha yoga consisted of Navasana (Boat Pose), Tadasana (mountain pose), Utthita Hasta Padangusthasana (extended hand-to-big-toe pose), Salabhasana (locust pose), Halasana (plow pose), Paschi mothanasana, Danurasana (the bow pose). The asanas focused on the quality and ease of breath, isometric muscular contractions, flexibility, balance, and concentration. The pranayamas and warm-up protocols were practiced in their entirety, only a limited number of asanas were completed at each
aqua yoga session. Because our subjects were novice in the practice of aqua yoga thus only fundamental techniques were introduced in this study. Since many of the asanas are difficult to replicate in the water, subjects were encouraged to do all exercises as accurately as possible, but to maintain their concentration and breath control with comfortable positions at all times. The instructor provided aquatic-specific adaptations as needed along with demonstration and cuing to allow for the greatest participant success.

MEASUREMENT

Measurements were made during the weeks prior to and immediately following the 12-week training program. Measurements for muscular strength were collected using the modified push-up test, for muscular endurance the modified sit-up test was used; flexibility measurements were determined by using sit and reach test, cardio respiratory endurance was assessed by the 12 minute run and walk test, and body mass index by obtaining the height and weight of the participants. All measurements were taken one day prior to and one day following the training protocol.

Statistics

Data were statistically analyzed by paired t-tests, with results expressed as means±SEM. Significance was accepted at the P<0.01, and P<0.001 level.

RESULTS

This investigation indicates that 12 weeks of aqua hatha yoga practice can significantly improve health-related physical fitness.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Groups</th>
<th>Pre</th>
<th>Post</th>
<th>Change</th>
<th>‘t’ Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muscular Strength (nos)</td>
<td>AHYG</td>
<td>9.67 ± 0.98</td>
<td>13.54 ± 1.28**</td>
<td>3.87 ± 0.23</td>
<td>9.78**</td>
</tr>
<tr>
<td></td>
<td>CG</td>
<td>10.89 ± 1.03</td>
<td>11.10 ± 1.32</td>
<td>0.21 ± 0.34</td>
<td>1.18</td>
</tr>
<tr>
<td>Muscular Endurance (nos)</td>
<td>AHYG</td>
<td>18.11 ± 1.11</td>
<td>23.56 ±0.54**</td>
<td>5.45 ±0.24</td>
<td>13.10**</td>
</tr>
<tr>
<td></td>
<td>CG</td>
<td>20.05 ±0.83</td>
<td>20.10 ±0.78</td>
<td>0.05 ±0.25</td>
<td>0.76</td>
</tr>
<tr>
<td>Cardio Respiratory Endurance (kmts)</td>
<td>AHYG</td>
<td>1.28 ±28.89</td>
<td>1.45 ±17.09***</td>
<td>0.17 ±2.06</td>
<td>4.86**</td>
</tr>
<tr>
<td></td>
<td>CG</td>
<td>1.25 ±25.79</td>
<td>1.26 ±25.78</td>
<td>0.01 ±3.75</td>
<td>1.12</td>
</tr>
<tr>
<td>Flexibility (cms)</td>
<td>AHYG</td>
<td>17.32 ±0.89</td>
<td>22.54 ±0.47***</td>
<td>5.22 ±0.29</td>
<td>7.98**</td>
</tr>
<tr>
<td></td>
<td>CG</td>
<td>19.10 ±1.08</td>
<td>19.20 ±1.04</td>
<td>0.10 ±0.19</td>
<td>0.54</td>
</tr>
<tr>
<td></td>
<td>AHYG</td>
<td>CG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>------------</td>
<td>------------</td>
<td>------------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>BMI (%)</td>
<td>33.23 ±0.45</td>
<td>33.42 ±0.46</td>
<td>30.43 ±0.46</td>
<td>33.40 ±0.45</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.80 ±0.04</td>
<td>0.09 ±0.10</td>
<td>2.80 ±0.04</td>
<td>0.09 ±0.10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11.43**</td>
<td>1.09</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All data are means ± s.e. *P<0.05, **P<0.01, ***P<0.001 compared with baseline

Figure 1: Health Related Physical Fitness Variables in the AHY group before and after interventions.

Figure 2: Health Related Physical Fitness Variables in the control group before and after interventions.

CONCLUSION:
12 weeks of aqua hatha yoga practice can significantly improve health-related physical fitness in healthy, adult, male subjects. More specifically, aqua yoga training can increase muscular strength, muscular endurance, flexibility, and cardio respiratory endurance and improve body mass index.

REFERENCES:


EFFECT OF YOGIC PRACTICES ON SELECTED PHYSICAL AND PHYSIOLOGICAL VARIABLES OF INTERDISTRICT MEN FOOT BALL PLAYERS

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ABSTRACT

Yoga is a complete science of life that originated in India many thousands of years ago. Human beings are made up of three components: Body, Mind and Soul. The word “Yoga” is derived from the Sanskrit root “Yugi” meaning to bind, join, attach and yoke, to direct and concentrate one’s attention on, to use and apply. It also means union or Communion. It is true union of our will with the will of God. Yoga is a system of attaining perfect physical and mental health. “The body is the temple of the soul and to attain a harmony of mind, body and spirit, the body must be physically fit”. Patanjali enumerates these means as the eight limbs or stages of Yoga for the quest of the soul. They are: Yama (universal moral commandments); 2. Niyama (Self discipline); 3. Asana (posture); 4. Pranayama (control of the breath); 5. Pratyahara (emancipation of the mind); 6. Dharana (concentration); 7. Dhyana (meditation) and 8. Samadhi. There may be significant differences in the way the selected Physical variables respond to Yogic Practices. The study is limited in the following aspects and these limitations would be taken into consideration in the interpretation of the results. The purpose of the study was to find out whether there is any significant improvement on the efficiency of the Physical and Physiological variables through selected Yogic Practices. Speed, Agility, Muscular endurance, cardiovascular endurance, Pulse rate, resting respiratory rate, Vital capacity were selected as variables for this study. The data collected from the two groups on the selected physical and physiological variables were used for the statistical treatment to find out whether there was any significant difference between t-ratio. The level of significance was fixed at 0.05 levels.

Key words: yoga, Fitness, Physical, Physiological
**INTRODUCTION - YOGA**

Yoga is a complete science of life that originated in India many thousands of years ago. Human beings are made up of three components: Body, Mind and Soul. Corresponding to these are three needs that must be satisfied for a contented life. The Physical need and inner peace, when all three are present there is harmony.

Yoga has a complete message for humanity. It has a message for the human body, it has a message for the human mind, and it has also a message for the human soul. Intelligent and capable youth must come forth to carry this message to every individual not only in India, but also in every other part of the world”.

The Yogic Practices are for every part of the body, and they work not only on the body’s frame but also on the internal organs, glands, and nerves as well, keeping all systems in radiant health.

**WHAT IS YOGA**

The word “Yoga” is derived from the Sanskrit root “Yugi” meaning to bind, join, attach and yoke, to direct and concentrate one’s attention on, to use and apply. It also means union or Communion. It is true union of our will with the will of God. “It, thus, means”, Says, Mahadev Desai in his introduction to the Githa, according to Gandhi, the yoking of all the powers of the body, mind and soul of God; it means the discipline of the intellect, the mind, the emotions.

**MEANING AND IMPORTANCE OF YOGA**

Yoga is a system of attaining perfect physical and mental health. “The body is the temple of the soul and to attain a harmony of mind, body and spirit, the body must be physically fit”.

Yoga controls one’s senses resulting in an integrated personality. Positive changes in the life style of the people can be brought through yoga during the middle and old age group. Behaviors can also be molded properly leading to balanced personalities. It clearly reveals that there will be a sound mind only in a sound body. To keep our body in a good condition. Yogic exercises play an important role in the maintenance of the above systems. The practice of yoga not only develops the body but also produces the mental faculties, more over; the yogi acquires mastery over the involuntary muscles of his organism”.

**THE STAGES OF YOGA**

The right means are just as important as the end in view. Patanjali enumerates these means as the eight limbs or stages of Yoga for the quest of the soul. They are:
• Yama (universal moral commandments); 2. Niyama (Self purification by discipline); 3. Asana (posture); 4. Pranayama (rhythmic control of the breath); 5. Pratyahara (withdrawal and emancipation of the mind form the domination of the senses and exterior objects); 6. Dharana (concentration); 7. Dhyana (meditation) and 8. Samadhi (a state of super-consciousness brought about by profound meditation, in which Individual aspirant (sadhaka) becomes one with the object of his meditation-paramatma or the universal Spirit).

• Yoga devises ways and means of helping the body and mind to maintain their state of balance. Yoga eliminates Psycho – physical tensions. Organs are also favorably influenced. It helps soon in removal of accumulated toxins and the metabolic wastes from the body. Yoga develops résistance to disease, keeping the muscles, ligaments and joints flexible. It helps to prevent injury and long-term damage including arthritis.

Asanas are physical exercise enabling the body to be physically fit. These exercise in physical education play an important part in helping the people to maintain a slim and youthful body. Several tests and experiments have been conducted to know the values and importance of asanas. The most important point to realize before starting the practice of yoga in that, the asanas are not just simple exercises but sustain scientific pattern of postures.

**STATEMENT OF THE PROBLEM**

The purpose of the study was to find out whether there is any significant improvement on the efficiency of the Physical and Physiological variables through selected Yogic Practices

**HYPOTHESIS**

There may be significant differences in the way the selected Physical variables respond to Yogic Practices.

There may be significant differences in the way the selected Physiological variables respond to Yogic Practices

**LIMITATIONS**

The study is limited in the following aspects and these limitations would be taken into consideration in the interpretation of the results.

The possible variables such as air, temperature, atmospheric pressure, relative humidity etcetera during the testing periods, could not be controlled and their possible influence on the result of the study was not taken into consideration while interpreting the result.

**THE REVIEW OF RELATED LITERATURE STUDIES ON YOGIC PRACTICES**
Dhanaraj Studied the effect of yoga and the 5 BX fitness plan on selected physiological parameters. The results indicated an increase based on metabolic rate tidal volume in base site. T-4 thyroxin, hemoglobin, hematocrit, blood cell, PWE 130. Vital capacity, chest expansion, breathe holding time, and flexibility after state was also observed.

METHODOLOGY
SELECTION OF VARIABLES AND SUBJECTS

Speed, Agility, Muscular endurance, cardiovascular endurance, Pulse rate, resting respiratory rate, Vital capacity were selected as variables for this study.

The primary study was conducted on a total sample of 90 Men Football players drawn randomly from 18 to 25 years. The subjects were selected from Inter District Men Football Players in Andhra Pradesh.

YOGIC PRACTICES TRAINING PROGRAMME

The Yogasanas training is given on six days a week except on Sunday. The duration of the Yogasanas was 20 minutes during the first month, 30 minutes during the next month and 40 minutes during the last month.

STATISTICAL PROCEDURE

The data collected from the two groups on the selected physical and physiological variables were used for the statistical treatment to find out whether there was any significant difference between t-ratio. The level of significance was fixed at 0.05 levels.
CONSTRUCTION OF HEALTH RELATED PHYSICAL FITNESS NORMS FOR ADOLESCENT BOYS OF TRIPURA (NESI)

Sandip Saha* and Dr. V. Gopinath**

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ABSTRACT

In the present push-button era most of the adolescent are not participating in leisure activities and concentrate are on studies. Regular physical activity would be important for life’s quality even if it had no relationship to disease and longevity. Physical activity is a significant ingredient in the quality of life, because it increases energy and promotes, physical and mental well being in addition to conferring health benefits. Boys from various schools of various districts of Tripura North-Eastern state of India (N=3000) were selected as subjects at random. Their age ranged from 13 to 15 years (studying from 7th to 10th standard). Health Related Physical Fitness (Cardio-vascular endurance, Flexibility, Muscular strength, Muscular endurance and Body composition were measured by Cooper’s 12 min run/walk, Sit & reach test, number of Push-ups, number of Sit-ups in one minute and Measuring height & weight respectively). To construct the norms for the selected health related physical fitness test, means and standard deviation were computed by using SPSS statistical package. The calculated mean (X) and standard deviation (σ) was used to find out Hull scale. The results of the study show that the adolescent boys of Tripura state was differ on Health Related Physical Fitness.

Hence it was concluded that, age, geographical region, growth, social behaviour, food habits and level of physical activity may influence the health related physical fitness of adolescent boys.

Keywords: Tripura state, Adolescent, Health Related Physical Fitness, Norms.

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INTRODUCTION

Life styles affect people’s health with eating habits and regular physical activity being the two most influential factors (Panagiotakos et. al, 2004), irrespective of sex, age or country of residence (Yusuf et. al, 2004). Current study focuses school going adolescents are facing health hazard problems that leads to physical, physiological and psychological problems. Basic data among adolescent’s shows, they are not receiving adequate physical activities and capacity building to equip them for the
future. Studies need to conduct in India to highlight various areas of concern with respect to adolescent lifestyle (Sidra 2009).

PURPOSE OF THE STUDY

The study intended to construct the health related physical fitness (Cardio-vascular endurance, Flexibility, Muscular strength, Muscular endurance and Body composition) norms (Hull Scale) for the adolescent boys of Tripura (India-NES).

METHODOLOGY

To achieve this purpose (N= 3000) adolescent boys from schools of various districts of Tripura (North-Eastern states of India) were selected as subjects at random. Their age ranged from 13 to 15 years (studying from 7th to 10th standard). Health Related Physical Fitness (Cardio-vascular endurance, Flexibility, Muscular strength, Muscular endurance and Body composition were measured by Cooper’s 12 min run/walk, Sit & reach test, Push-ups, number of Sit-ups in one minute and Measuring height & weight respectively) (www.topendsports.com). To construct the norms for the selected health related physical fitness test, means and standard deviation were computed by using SPSS statistical package. After calculating the mean (X) and standard deviation (σ) the scores were converted into Hull scale (Proff. J. P. Verma 2009).
RESULT

Table- I

Norms for Health Related Physical Fitness of Adolescent Boy of Tripura State

<table>
<thead>
<tr>
<th>Score</th>
<th>Cardio-Vascular Endurance</th>
<th>Flexibility</th>
<th>Muscular Strength</th>
<th>Muscular Endurance</th>
<th>Body Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>13 yrs</td>
<td>14 yrs</td>
<td>15 yrs</td>
<td>13 yrs</td>
<td>14 yrs</td>
</tr>
<tr>
<td>100</td>
<td>3027.65</td>
<td>2865.97</td>
<td>3044.47</td>
<td>22.99</td>
<td>22.58</td>
</tr>
<tr>
<td>90</td>
<td>2825.40</td>
<td>2701.85</td>
<td>2842.50</td>
<td>19.90</td>
<td>19.49</td>
</tr>
<tr>
<td>80</td>
<td>2623.15</td>
<td>2537.73</td>
<td>2640.53</td>
<td>16.81</td>
<td>16.40</td>
</tr>
<tr>
<td>70</td>
<td>2420.90</td>
<td>2373.61</td>
<td>2438.56</td>
<td>13.72</td>
<td>13.31</td>
</tr>
<tr>
<td>60</td>
<td>2218.65</td>
<td>2209.49</td>
<td>2236.59</td>
<td>10.63</td>
<td>10.22</td>
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<tr>
<td>50</td>
<td>2016.40</td>
<td>2045.37</td>
<td>2034.62</td>
<td>7.54</td>
<td>7.13</td>
</tr>
<tr>
<td>30</td>
<td>1611.19</td>
<td>1717.13</td>
<td>1630.68</td>
<td>1.36</td>
<td>1.00</td>
</tr>
<tr>
<td>20</td>
<td>1409.65</td>
<td>1553.01</td>
<td>1428.71</td>
<td>-1.73</td>
<td>-2.09</td>
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<td>---</td>
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<td>---</td>
</tr>
<tr>
<td>10</td>
<td>1207.40</td>
<td>1388.89</td>
<td>1226.74</td>
<td>-4.82</td>
<td>-5.18</td>
</tr>
<tr>
<td>0</td>
<td>1005.15</td>
<td>1224.77</td>
<td>1024.77</td>
<td>-7.91</td>
<td>-8.22</td>
</tr>
<tr>
<td>Mean</td>
<td>2016.40</td>
<td>2045.37</td>
<td>2034.62</td>
<td>7.54</td>
<td>7.13</td>
</tr>
<tr>
<td>S.D.</td>
<td>288.94</td>
<td>234.47</td>
<td>288.53</td>
<td>4.42</td>
<td>4.35</td>
</tr>
</tbody>
</table>
From the result it was clear that, the norms scores of health related physical fitness of adolescent boys of Tripura State was irrelevant in nature. The 100th percentiles of 13 years, 14 years and 15 years on Cardio Vascular Endurance are not having a serious of increase. In case of flexibility it was decreased when age advances. Muscular strength and endurance indicates irrelevant information. However the body composition shows an increase from 13 years to 14 years and the same was not observed between 14 years and 15 years. It may due to growth and development phenomenon of the adolescent boys and the curriculum border of the boys.

DISCUSSION

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (World Health Organization’s (WHO) definition of Health).

Health related fitness is all about psychology, personal health and how physical activity influences us as a person. This is important for anyone who wants to live a physically active lifestyle to support a higher quality of life. Exercise can be a structured process of physical activity such as going to the gym, taking cardio classes and lifting weights. Or, can also be anything from walking to the park to intensive cardio workouts. Health related fitness is made up of 5 core components which are by-products of exercise and physical activity (www.lifestyle-for-healthy-living.com/health-related-fitness.html).

Cardio-respiratory endurance: The ability of the blood vessels, heart and lungs to take in, transport and utilize oxygen. This is a critically important component of fitness and decreases the risk of cardiovascular diseases.

Body composition: The amount of fat versus lean mass (bone, muscle, connective tissue and fluids) while some fat essential for insulation and providing energy, too much fat can cause serious health problems.

Muscular strength: The maximum amount of force a muscle or muscle group can exert.

Muscular endurance: The length of time a muscle or muscle group can exert force prior to fatigue.

Flexibility: The ability to move joints through a full range of motion without undue strain is essential for efficient execution of man everyday tasks (Hockey 1973).

CONCLUSION

- The norms of the health related physical fitness should be introduced as a benchmark for the promotion of boys from lower class to higher class.
- A serious attention will be required to promote health related physical fitness of adolescent boys.
- The school education system and public health department should work together to promote the health related physical fitness of adolescent boys of Tripura state.
- Periodical evaluation should be executed and the remedial program may be organized to improve the health related physical fitness status of adolescent boys.
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************************************************************
A COMPARATIVE STUDY OF PHYSICAL FITNESS AMONG GIRLS
HOCKEY PLAYERS OF SPORTS AUTHORITY OF ANDHRA PRADESH
AND SPORTS AUTHORITY OF INDIA.
INTRODUCTION:
Fitness is the term, which is widely used in the present day health conscious society. The people have realized the importance of fitness in day to day routines and also in achieving sports excellence. Fitness denotes a person status of physique in relation to its physical achievements. The latest scientific evidence also edict the fact that for internal or physiological soundness physical fitness is necessary. Modern physical educators divided the factor of fitness into skill related and Health related physical fitness. It is also an undesirable fact, that the health related physical fitness, which is main concern for physical educationists, is depended on the skill related physical fitness of an individual. It is also a high concern for a coach to develop various skills and for this the sportsperson's skill related physical fitness should be upgraded and developed.

THE MEANING OF "PHYSICAL FITNESS":
Physical fitness refers to the capacity of an athlete to meet the varied physical demands of their sport without reducing the athlete to a fatigued state. The components of physical fitness are: Strength, Endurance, Speed, Flexibility and Co-ordination.

DESIGN OF THE STUDY:
TOOLS USED: 1). 30 meters sprint: Standard Electronic Stop Watch
2). 10x6m shuttle run Standard Electronic Stop Watch
3). Bent & reach Measuring tape (inches / centimeters), 2 ft stool
4). 2.4 km run Standard Electronic Stop Watch

SAMPLE OF THE STUDY:

For this study 15 Girls from Sports Authority of Andhrapradesh and 15 Girls from Sports Authority of India were selected as the subjects. All the players were Specialized in Hockey and undergoing training at the different centers in Andhrapradesh.

TABLE SHOWING THE SIGNIFICANCE OF THE COMPARISON OF PHYSICAL COMPONENTS OF GIRLS HOCKEY PLAYERS OF SPORTS AUTHORITY OF ANDHRA PRADESH AND SPORTS AUTHORITY OF INDIA.

<table>
<thead>
<tr>
<th>Motor Components</th>
<th>Subjects</th>
<th>No. of Players</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 Mtrs sprint</td>
<td>S.A.A.P.GIRLS</td>
<td>15</td>
<td>5.1293</td>
<td>0.2085</td>
<td>5.385E-02</td>
</tr>
<tr>
<td></td>
<td>S.A.I GIRLS</td>
<td>15</td>
<td>5.2533</td>
<td>0.2437</td>
<td>6.292E-02</td>
</tr>
</tbody>
</table>
The above table indicates that the comparison of all variables viz. 30 metres sprint, 10x6 meters Shuttle run, Bent and Reach and 2.4 km run in respect of Girls Hockey players of Sports Authority of Andhra Pradesh and Sports Authority of India.

The calculated value of Mean and Standard deviation on the above variable shows in (1st variable, 30 meters sprint) 5.1293 and 5.2533 respectively in respect of Girls Hockey players of Sports Authority of Andhra Pradesh and Sports Authority of India.

There is a little variation in the Mean value, as Sports Authority of Andhra Pradesh girls have less than Sports Authority of India girls and this can be interpreted that in this variable Sports Authority of Andhra Pradesh girls are better than Sports Authority of India girls.

The calculated value of Mean and Standard deviation on the above variable shows in (2nd variable, 10x6 meters Shuttle run) 16.7673 and 16.5347 respectively in respect of Girls Hockey players of Sports Authority of Andhra Pradesh and Sports Authority of India.

There is a little variation in the Mean value as Sports Authority of Andhra Pradesh girls have higher than Sports Authority of India girls and this can be attributed
that in this variable Sports Authority of Andhra Pradesh girls are not better than Sports Authority of India girls.

The calculated value of Mean and Standard deviation on the above variables shows in (3rd variable, Bent and Reach) 15.6667 and 12.0667 respectively in respect of Girls Hockey players of Sports Authority of Andhra Pradesh and Sports Authority of India.

There is a little variation in the Mean value as Sports Authority of Andhra Pradesh girls have higher than Sports Authority of India girls and this can be explained that in this variable Sports Authority of Andhra Pradesh girls are better than Sports Authority of India girls.

The calculated value of Mean and Standard deviation on the above variables shows in (4th variable, 2.4 km run) 11.1280 and 12.2733 respectively in respect of Girls Hockey players of Sports Authority of Andhra Pradesh and Sports Authority of India.

There is a little variation in the Mean value as Sports Authority of Andhra Pradesh girls have less than Sports Authority of India girls and this can be explained that in this variable Sports Authority of Andhra Pradesh girls are better than Sports Authority of India girls.

CONCLUSIONS :

Based on the results of the above study the investigator has drawn the following conclusions:

1. Sports Authority of Andhra Pradesh Girls Hockey players have better average performance than Sports Authority of India Hockey players in speed. This speaks that 30 meters sprint is speed event, which comes under sprinting distance. Hence Sports Authority of Andhra Pradesh Girls Hockey players are already having good speed can cover 30 meters spring in less time compared to Sports Authority of India Hockey players. The reason is that Sports Authority of Andhra Pradesh training schedule includes mostly activities like strength training, explosive strength training and speed training.

2. Sports Authority of Andhra Pradesh Girls Hockey players are not having better average performance than Sports Authority of India Hockey players in 10x6mt shuttle run. This speaks that Sports Authority of Andhra Pradesh Hockey players are not having good speed and agility. To improve speed and agility Sports Authority of India Girls Hockey players play the games which improves the agility like the kho-kho, handball, basketball, Football, volleyball etc.
3. The average performance of Girls Hockey players of Sports Authority of Andhra Pradesh and Sports Authority of India are almost equal and there is no significant variation in Bent and Reach component. This speaks like that both are having good flexibility. To improve the flexibility in the body their training schedule includes stretching i.e. both individual and partner stretching, individual flexibility and partner flexibility.

4. The average performance of Sports Authority of Andhra Pradesh Girls Hockey players are higher than Sports Authority of India Hockey players in endurance.

To find out whether there is any significant difference among Girls Hockey players of Sports Authority of Andhra Pradesh and Sports Authority of India t-ratio was tabulated.

The calculated value of t-ratio was higher than the table value required at 0.05 level of confidence.

The results of the study when compared with physical fitness of both the groups shows that both are not equal in physical fitness.

This speaks that Girls Hockey players of Sports Authority of Andhra Pradesh and Sports Authority of India does regularly two practice sessions in the morning and evening with each of two to three hour duration daily. Their training schedule includes to improve speed, strength, endurance, agility etc for achieving the high level of sports performance.

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USE OF INFORMATION TECHNOLOGY IN PHYSICAL EDUCATION AND SPORTS

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ABSTRACT

Physical education, PE or P.E. is commonly known in many Commonwealth countries as physical training, PT), is an educational course related to the physique of the human body, taken during primary and secondary education that encourages psychomotor learning in a play or movement exploration which is set out for promoting health.

Physical education trends have developed recently to incorporate a greater variety of activities besides typical sports. Students should be introduced to activities like bowling, walking/hiking, or frisbee at an early age to develop good activity habits that will carry over into adulthood. Some teachers have even begun to incorporate stress-reduction techniques such as yoga, deep-breathing and tai chi. Tai chi is an ancient martial arts form focused on slow meditative movements is a relaxation activity with many benefits for students. Instructional technology is one of many tools that can enhance the presentation of content and convey information to students. It is, however, merely a tool, which physical educators should use only in conjunction with effective instruction. The Internet, “podcasts”(Apple, 2009) and “wikis” (Leuf & Cunningham, 2001) can provide a wealth of information to students, allowing them to receive instruction through portable media devices.

The emergence and use of technology in this century is a significant development affecting the teaching and learning of physical education and sport. Education is faced with a new dimension dominated by e-learning. For physical educators, this trend is also reflected by the necessity to improve their teaching and methodology. The modern alternative is the use of technology meant to increase accessibility to information and teaching process effectiveness. This paper highlights the use of modern technology in physical education and sports. The use of technology for teaching and learning has be summarized, in the
following aspects: computer-motion analysis, internet, video analysis/conferencing, chatting, the devices used for promoting technology, and challenges. It is concluded that technology use enormously improve teaching and learning of physical education and sports.

KEYWORDS:

Physical Education (P.E.), Teaching and learning.

INTRODUCTION

Appropriate Use of Instructional Technology in PE

This is a key consideration for designing and implementing instruction. Teachers now face a generation of students who have never known life without a computer, video game console, cellular phone or Internet access; and that is changing the scope of education dramatically.

The rapid development of technology over the past two decades has provided many new and creative ways for educators to present instructional materials effectively. Until recently, those advancements have focused on desktop technology, which limited their use in physical education. But wireless technology, computer projection systems and physical activity monitoring devices are moving technology into school gymnasiums. The recent development of active gaming or “exergaming” – using video games that incorporate physical activity (Thompson, 2008) – is adding yet another dimension.

BACKGROUND

Technology has become an important part of work and home environments throughout the country, and that’s apparent among the youth population. In a recent study of families with children between ages 6 and 13, the average family home had four televisions, 99% had a DVD player and/or VCR, 88% had a video game console and 85% had a computer. More than half of the families studied also had Internet access, providing children with exposure to a wealth of information never before imagined.

Currently, children entering first grade are estimated to spend an average of 51 minutes per day playing video games and 14 minutes per day using computers, in addition to 172 minutes every day viewing television. By the time children reach age 12, their average “screen time” has increased to 109 minutes of video gaming and 79 minutes of computer usage (Hersey & Jordan, 2007). Although this high volume of use has been named a contributing factor to childhood obesity (Crespo, et al., 2001; Gortmaker, et al., 1996; Robinson, 1999), it also indicates that, when children enter school, they are accustomed to and familiar with technology as one of the primary tools for receiving information

STATEMENT OF OBJECTIVES

Objectives

- to provide opportunities for all in the use of Information Technology in Teacher Education
• to enable physical educators use these resources coupled with careful monitoring
• to provide students with instruction concerning Websites content validity
• to develop the skills for evaluating the accuracy of electronic information
• to ensure that students understand the difference between sources that have put procedures into place for monitoring content validity and directing students to obtain correct information
• to explain on how to use a variety of emerging technologies

PRESENTATION

The introduction or emerging of digital technologies in Physical Education does not seek to replace physical activity; it aims to help explore physical activity. Technology becomes like any other tool in the PE teachers toolkit, useful for whenever the situation demands it, never just for the sake of it. Technology such as projection systems, smart boards and wireless transmission (WiFi and Bluetooth) allow for the display and transfer of information far beyond the traditional chalkboard. Teachers can enhance physical education instruction by using those tools, provided that set-up and/or implementation doesn’t reduce student activity time.

Teachers should use these tools to enhance instruction only if the data provided are accurate for the grade level to which they are to be applied. Before developing and using hybrid online courses in physical education, teachers should have adequate professional pedagogical knowledge for delivering content in the online environment, and their course design should contain interactive communication versus stand-alone content.

Appropriate practice in physical education should include activities aligned to student learning expectations and that fit students’ developmental levels, and content aligned to standards. Using technology for technology’s sake might not provide relevant instruction experiences for students, since technology is not the curriculum but rather a tool or device to supplement instruction.

Technology tools and exergames can provide objective data on activity levels and creative methods for individuals to engage in physical activity. Studies have indicated that active gaming can promote higher levels of energy expenditure compared to seated video games, as well as increasing heart rate and oxygen consumption (Graves, Ridgers & Stratton, 2008; Lannigham-Foster, et al., 2006).

Pedometers, accelerometers and heart rate monitors also can be valuable tools, providing objective and accurate activity monitoring (Crouter, Schneider & Bassett, 2005; Eston, Rowlands & Ingledew, 1998; Schneider, Crouter, Lukajic & Bassett, 2003; Tudor-Locke & Myers, 2001).

Online learning in Physical Education in Physical Education using hydbrid or blended models (Kachel, Henry & Keller, 2005; Oblender, 2002) can provide valuable web-based supplemental content through online assignments, readings, chatrooms and exams, completed with face-to-face activity-based sessions (National Association for Sport and Physical Education, 2007). All of these technology tools, however, have inappropriate as well as appropriate applications in relation to effective instructions and facilitating student learning.
THE USE OF INSTRUCTIONAL TECHNOLOGY IN PHYSICAL EDUCATION IS DESIGNED TO SUPPLEMENT FOR EFFECTIVE INSTRUCTION

With the infusion of technology into our lives, turning physical education classes into video arcades or health clubs remains a primary concern. When used in physical education, exergaming can provide a gateway toward exposing students to new types of lifetime physical activities and can foster enjoyable physical activity experiences.

Exergames can serve as a means for providing physical activity options to students and as a supplement to physical fitness instruction to support curricular objectives. Merely placing active games, treadmills, ellipticals or other pieces of technology or equipment in gymnasiums and having students participate with minimal instructor interaction or integration of content objectives creates opportunities that resemble recreation more closely than physical education.

Online courses should offer the type of interactive student/teacher exchange that occurs in the face-to-face classroom, through use of blogging, chats, and/or e-mails. Course-delivery technology is designed to supplement the teacher’s instruction, not serve as the mode for all instruction.

Physical educators, therefore, must include instructional components when using technology to develop fitness. Providing instruction on recommended levels of physical activity applicable to student’s age, including journaling activities and providing assessment of outcomes should form an integrated component of technology use.

Using technology to manage student data can provide valuable information to the teacher, parent and student regarding student progress toward program standards and objectives. Desktop programs such as Microsoft Excel, and Web and CD-ROM software can allow for the collection of data using hand-held computers, with the ability to transfer results to desktop systems quickly. Those technologies can help physical educators determine assessment performance quickly and easily through calculation formulas, and allows them to create and customize individualized fitness plans, as well as offering many other uses.

CONTENT ANALYSIS

Implementing technology appropriately into physical education can enhance teaching and learning and contribute to providing a quality physical education program. Technology can aid in content presentation and can help students becoming physically educated individuals who have the knowledge, skills and confidence to enjoy a lifetime of physical activity (National Association for Sport and Physical Education, 2004, 2009a, 2009b, 2009c).

Planning and preparing effectively in advance of lesson presentation is necessary to ensure that these valuable tools become an integrated part of the lesson with minimal transition time and manage. Physical educators must consider which types of physical activity monitoring devices are suitable for students’ developmental levels.
PHYSICAL EDUCATION & TECHNOLOGY?

Motion-analysis software and digital video make student performance evaluation easier, thereby enhancing teacher, peer and individual assessment. Digital Video can be a powerful medium for Motivation. One of the simplest and most powerful ways you can use Digital Video within your classroom is to create a dedicated."VIDEO Team.”. The job of the video team on a lesson by lesson rotation is to film and record physical activity within practical sessions. The video team are then responsible for editing and compiling the footage into a two-minute montage that can be played back in the following week.

Simulation sports are by no means a replacement for actual physical activity, but they sure do provide valuable insight and discussion into the multitude of reasons they are not. With good activities and teaching surrounding the game play, students can come away with an excellent understanding of the major concepts, by replacing completely static theory lessons with a more active and explorative approach.

PRACTICAL USE OF TECHNOLOGY IN THE TEACHING AND LEARNING OF PHYSICAL EDUCATION

Technology is a double-edged sword. Computers, for example, contribute to sedentary leisure-time behaviors (e.g., playing sedentary computer games). The use of technology in the learning process of physical education may not be a goal of its own but it is a tool with which to reach objectives.

The following are the uses of technology in learning physical education.

Computer

Computer is an electronic devise that has the capacity to store, retrieve and process both qualitative and Quantitative information fast and accurately. Computers-we used to produce documents, lesson plans, to convert scores management. It also involves video units PC heart rate monitor, remedy heart rate monitor and educational software. Computer also aid learning experiences when they are used for motion analysis.

Internet
Physical education teachers share experiences with other professionals via the internet which are integrated into teaching lessons. Students explore new knowledge as they surf the web for assignments, chat with fellow students and play games online. The internet can be used to maximize the effectiveness their learning process of physical education.

Chat

Chat allows fellow physical educators to simultaneously communicate publicly on your website, internet, extranet. Colleagues gather together to intimate groups and discuss issues related to physical educations. They could gather in large online events to interact with expert’s celebrities, instructors, coaches and teachers can assess chat groups on particular academic issues in physical education and sports.

Video Conferencing

It allows two or more people at different locations to see and hear each other at the sometime. The communication technology offers new possibilities for sport colleges, libraries including formal instruction to share strategies for coaching sport skills. The digital camera use in the instructive educative process allows a quick verification of students’ placement and posture, being at the same time a very good mean to stress body segment positions when performing sonic motor elements. These are the potentials used to enhance teaching and learning of physical education. Newer technologies and approaches being used to promote physical activity include global positioning system (GPS), geographic information systems (GIS), interactive video games, and persuasive technology. Also, experts suggest that Internet-based physical activity interventions should be used by clinicians to promote and change exercise behavior (Marcus, Ciccolo, and Sciamanna 2009).

Many pieces of technology, such as heart rate monitors, pedometers and active games, have the ability to track performance, allowing students to document and monitor their progress. However, physical educators must consider the reliability and validity of such devices when selecting the technologies to use. Here are some practical suggestions on the use of various devices which promote physical activity:

1. Flip Video Camera: The first and most essential tool for a Physical Education teacher. No other camera is as simple to record video footage, making it a snap to film and analyse sporting techniques and game play.

2. MP3 Player/Recorder: With the abundance of MP3 players today you can be sure to be able to buy an excellent player full of features for a small price. One of the ways it can be utilized within a classroom is to create podcasts or recordings of our own teaching that can be loaded onto the MP3 player for review at a later stage. This also allows us to complete theoretical course content during a casual walk or ride across the road.
3. Mobile Phones: Regardless of people’s perceptions of mobile phones being time-wasters, they are without a doubt the single most must-have item of today and why shouldn’t they be? Today’s mobiles are like the Swiss army knives of the 1800Ps, with every modern piece of equipment you could ever need. It is now impossible to find a phone that is simply “just a phone”.
   a. Calendar: Have your students use the phone’s calendar as a diary for recording important dates and information. Never again will you hear the excuse that they didn’t realise an assessment was due.
   b. Clock/Stopwatch: Use the inbuilt stopwatch and alarm to help organize and time training sessions. In this example, students move from passive participants within a session to the role of trainers, as they are forced to organise the session
   c. SMS: Use this feature and a service such as www.smsexpress.com.au to send bulk messages to more than one phone from your laptop. Easily allows for instant communication with a large group or class. Makes late minute changes to the sports draw of outdoor education camp easy to communicate. Use it as an alternative to paper and pen during a sports session or camp and have students answer questions based on their participation.
   d. Camera/Video Camera: Use them within all practical sessions as a way to film and analyse performance instantly. Most phones even come with video editing software, that allows students to edit their own footage

4. TubeChop.com: With the absolute plethora of videos on YouTube, it is a must for physical Education teachers. The great thing about TubeChop is that it allows teachers to select a certain section from a YouTube video and share only that section.

5. YouTube.com or Vimeo.com: Have your students teach a sport or physical skill and film it with a Flip Video camera for uploading to YouTube. Sit back and watch as people from around the world watch and comment on the video.

6. Google Docs-Spreadsheet: Share a Google Docs spreadsheet to all your students, with simple formulas to work out and graph averages. Have each member of your class have a copy of the spreadsheet loaded on their computer screen. Complete a step test, and record heart rates pre, post and every minute after, for 5 minutes. Results are collated instantly from all computers within the room and displayed in one graph. This gives students a way to visualise their changes in heart rate activity in comparison with their peers

7. Skype: Undoubtedly, Skype can be number one tool within a Physical Education classroom. Use Skype to make free phone and video calls to other Skype members all around the world. Connect your students to the textbook author in order to engage in a face-to-face chat worlds apart. It will be
interesting to have your students teach a game to another group of students from across the world. All it takes is an internet connection and a webcam and you can be linked up in no time.

8. Posterous.com: Is a simplest way to make an online digital portfolio of your sporting performance that can be reviewed and analysed over time. Simply film or record the desired skill and send the video file within an email to post@posterous.com. This will turn your email into its very own unique website where the video can be watched online. Have a new video or document you would like to include? Simply send a new email to post@posterous.com.

9. Nintendo Wii: With the influx of video games now requiring physical movement to play, why not introduce them into the curriculum. Have your students wear heart rate monitors while participating within a simulation sport game on the Nintendo Wii, then compare and contrast this to the .”real.” sport for excellent discussion about how intensity affects heart rate.

10. Nintendo Wii Remote Control: Attach a single Nintendo Wii remote control to your computer via Bluetooth (Instructions here http://tinyurl.com/csslwy). This will allow you to utilise the inbuilt accelerometer within the control in order to track the movements and forces applied to the control as it is manipulated in space. Take it one step further and place it inside a dodge ball to record the forces applied to a throw within a game. All forces are displayed in a real time graph on your laptop for on-the-fly analysis. These graphs can then be utilised to prompt excellent discussion about acceleration around an axis.

11. iPod Nike Sensor: Have students bring their iPods to class or buy a class set. Students then attach a Nike Sensor to their shoe which communicates and records their physical activity. Student’s records are then sent to their own website, where they can view and track their training progress and compete against others from all over the world.

12. Pedometers: The Pedometer application will help you lose weight and stay healthy, as it tracks your steps, distance travelled, and calories burned – all conveniently from your iPhone or iPod touch. Pedometers can be used to measure the physical activity of your student. Take it the next step and compare the results with staff members and you can have a rich discussion on the most active subjects and how occupations have differing physical demands.

13. Geocaching: Geocaching is the free high-tech treasure hunt where you use your GPS receiver to find caches hidden by other players. It’s a great way to be outdoors, enjoy the environment and the revel in the thrill of the hunt.

How to use in your Physical Education/Outdoor Ed classroom?
1. Have your students race to find a series of Geocaches around your town that require them to work as a team to solve puzzles in order to receive the next geocache coordinate.

2. Complete an active revision session for an exam by hiding questions at geocaches around your school. Students then have to track them down and answer to move to the next cache. This is a really engaging and active way to revise, that gets your students out of the classroom.

14. Calorie Counter Pro: Use this application to keep your food intake in check. The application contains a database of over 300,000 foods, making it possible to monitor everything you eat. Have your students use it to audit the school canteen and come up with a selection of healthy alternatives.

15. MotionTraxx: MotionTraxx is an application which provides workout music inspired to boost your energy, add fun, and help pace your movements. The non-stop workout mixes are designed for running, cycling, cardio, power walking, and interval training. It could be easily used within discussions of extrinsic factors that assist in motivation for physical activity.

All of these tools and activities can be used in hand in hand.

**CHALLENGES OF TECHNOLOGY USING PHYSICAL EDUCATION**

Although technology has attractive potentials for improving teaching of physical education, it also has challenges especially in developing nations of the world. Physical educations are not technology compliant. Nowadays, it is uncommon to see physical education computers in classroom and on sport playground. These could be either ignorance of technology use or affordability of technology devices. Students also should be well-versed in using the devices, to prevent an increase in management time and a reduction in student activity levels. To manage student data effectively, it’s important that the teacher spend time using the technology before introducing it into the classroom, and provide effective instruction to students about how to use the technology. That will help ensure that the technology doesn’t interfere with achieving lesson objectives.

Similarly most educational institution in India is not providing enough funds for equipping schools with technology devices. Technology devices are becoming more and more mobile and affordable and this could eventually turn into a reality making the study of human movement in physical education a reality. Other challenges include the availability of regular power supply, staff training and development on technology softwares; assessing softwares and packages for teachers. Other challenges include crashing of computers corruption of files.
CONCLUSION

Physical education essentially requires the performing physical activity. This is associated with the development of motor skill. Physical education within the school system requires time, facility space and interactive lesson plans. Technology provides access to information, compresses information, motivate learners, and connect learners to teachers and teacher to the colleagues. There are nowadays many available technological innovations that could be inserted into the physical education lesson. The visual physical education lesson is essentially based on the connected learning environment which uses technology that are networked in structure. Physical education should avail themselves of these technology opportunities to make their lesson more real and dynamic.

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Patrick Fine
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Cheryl Richardson, NASPE Liaison

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COMBATTING ACUTE ANKLE IN SPORTS AND GAMES:
ABSTRACT

The Ligamentous injuries around the ankle joint are among the most common sporting injuries especially in jumping sports (e.g., Football, Basketball, Volleyball, Athletics etc.). They are not always well managed. Associated injuries are frequently not diagnosed and the rehabilitation of ligamentous injuries is often inadequate leading to a high rate of recurrence.

INTRODUCTION

Functional Anatomy

Ankle contains three joints. The talocrural or ankle joint is a hinge joint formed between the inferior surface of the tibia and the superior surface of the talus. The medial and lateral malleoli provide additional articulations and stability to the ankle joint. The movements at the ankle joint are plantarflexion and dorsiflexion.

The inferior tibiofibular joint, the articulation of the distal parts of the fibula and tibia. The inferior tibiofibular joint is supported by the tibiofibular ligaments or syndesmosis. A small amount of rotation is present at this joint. The subtalar joint between the talus and calcaneus is divided into an anterior and posterior articulation separated by the sinus tarsi. The main roles of the subtalar joint are to provide shock absorption, to permit the foot to adjust to uneven ground and to allow the foot to remain flat on the ground when the leg is at an angle to the surface.

The ligaments of the ankle joint are shown in Figure 1. The lateral ligament consists of three parts: the anterior talofibular ligament (ATFL) which passes as a flat band from the tip of the fibula anteriorly to the lateral talar neck; the calcaneofibular ligament (CFL), which is a cord-like structure directed somewhat posteriorly; and the posterior talofibular ligament (PTFL), which runs posteriorly from the fibula to the talus. The medial or deltoid ligament of the ankle (not shown) is a strong, fan shaped ligament extending from the medial malleolus anteriorly to the navicular and talus, inferiorly to the calcaneus and posteriorly to the talus.
Clinical Perspective

Inversion injuries are far more common than eversion injuries due to the relative instability of the lateral joint and weakness of the lateral ligaments compared to the medial ligament. Eversion injuries are seen occasionally. The strong medial ligament requires a greater force to be injured, therefore, these sprains usually take longer to rehabilitate. Ankle injuries are listed in Table 1.

<table>
<thead>
<tr>
<th>Table 1: Ankle acute injuries</th>
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<tbody>
<tr>
<td><strong>Common</strong></td>
</tr>
<tr>
<td>• Ligament Sprain</td>
</tr>
<tr>
<td>o lateral ligaments</td>
</tr>
<tr>
<td><strong>Less Common</strong></td>
</tr>
<tr>
<td>• Ligament Injuries</td>
</tr>
<tr>
<td>o medial ligament</td>
</tr>
<tr>
<td>o AITFL sprain</td>
</tr>
<tr>
<td>• Peroneal Dislocation</td>
</tr>
<tr>
<td>• Fractures</td>
</tr>
<tr>
<td>o lateral / medial / posterior malleolus</td>
</tr>
<tr>
<td>o tibial plafond</td>
</tr>
<tr>
<td>o base of the 5th metatarsal</td>
</tr>
<tr>
<td>o anterior process of calcaneus</td>
</tr>
</tbody>
</table>
The most important component of the assessment of ligamentous injuries is to determine the degree, if any, of instability present in the joint. This will determine the management of the injury. A comprehensive rehabilitation program is required in athletes with ligamentous injuries of the ankle if they are to return to their sport with full functional capacity and avoid recurrence of the injury.

Occasionally, other structures are damaged in addition to the ligaments. If these are not recognized and treated, prolonged pain and disability may result. These include fractures around the ankle joint, osteochondral fractures of the dome of the talus and dislocation of the peroneal tendons.

**HISTORY**

The mechanism of onset is an important clue to the diagnosis. An inversion injury suggests lateral ligament damage, an eversion injury medial ligament damage. The presence of a compressive component indicates the possibility of osteochondral injury. At the time of the injury, the athlete may have heard a snap or tear. Unlike the significance of a 'snap' or 'pop' in an acute knee injury, this sensation is not of diagnostic significance. The location of pain will give an indication as to the ligaments injured. The most common site is over the anterolateral aspect of the ankle involving the ATFL. Occasionally in severe injuries, both medial and lateral ligamentous structures will be damaged. Most ankle joint injuries are accompanied by swelling. The site of the swelling may give an indication of the location of the pathology, but the degree of swelling is usually, but not always a reliable indication of severity.

The degree of disability, both immediately following the injury and subsequently, is an important indicator of the severity of the injury. The initial management, the use of the RICE regimen and the duration of restricted weight bearing after the injury should all be noted. A previous history of ankle injury and an assessment of the quality of the post-injury rehabilitation programme should be obtained. Subsequent use of protective tape and braces should be noted.

**EXAMINATION**
Examination of the ankle requires assessment of the degree of instability present and the grading of the ligamentous injury. Examination should detect functional disability such as loss of range of motion, reduced strength and reduced proprioception. For illustration of clinical examination the reader is directed to Clinical Sports Medicine.

INVESTIGATIONS

X-ray including A-P, lateral and at least one oblique view should be performed after ankle sprains in situations where instability is present or when acute bony tenderness is present on the malleoli or the medial or lateral dome of the talus. X rays of the ankle joint must include the base of the 5th metatarsal to exclude associated fracture.

An osteochondral fracture may not be apparent on initial X-ray. If significant pain and disability are present despite appropriate treatment 4 - 6 weeks after an apparent 'routine' ankle sprain, specialist sports physician or orthopedic surgeon referral is indicated. A radioisotopic bone scan may be performed to exclude an osteochondral fracture.

Lateral Ligament Injuries

Lateral ligament injuries occur in activities involving rapid changes in direction, especially on uneven surfaces. They are also seen when contact with another competitor's feet causes imbalance in jumping or landing. They are one of the most common injuries seen in basketball, volleyball, netball and most football codes.

In the typical inversion and plantarflexion injury, the three parts of the lateral ligament are usually damaged in order depending on the severity of the strain. The ATFL is the first ligament damaged, followed by the CFL and finally the PTFL. Complete tear of all three ligaments results in a dislocation of the ankle joint and is frequently associated with a fracture.

In the assessment of lateral ligament injuries, each of the three components of the ligament must be examined and the overall degree of instability determined. Lateral ligament injuries are divided into three grades. Grade I corresponds to a minor tear with pain produced by stressing the ligament, but no laxity. Grade II injuries are painful on stressing the ligament and show some degree of laxity on examination, but have a firm end point. Grade III injuries show gross laxity without a discernible endpoint. Grading of these injuries gives a guide to prognosis and helps determine the rate of rehabilitation.

The usual mechanism of lateral ligament injury is inversion and plantarflexion. This may be accompanied by an audible snap, crack or tear. Depending on the severity of the injury, the athlete may have been able to continue activity immediately or have been forced to rest. Swelling usually appears soon after the injury, although occasionally it may be delayed some hours.

Treatment of lateral ligament injuries
The management of lateral ligament injuries of all three grades follows the same principles.

**Initial Management**

The initial management of lateral ligament injuries requires the RICE regimen. This is probably the single most important factor in treatment, particularly with Grade I and Grade II injuries. Many of the problems resulting from ankle sprains are due to the presence of blood and edema in and around the joint. This restricts the range of motion of the joint and can act as an irritant causing excessive synovial reaction. As well as ice, compression and elevation, it is important for the injured athlete to avoid factors which will promote blood flow and swelling, e.g. hot showers, heat rubs, alcohol, excessive weight bearing.

**Reduction Of Pain And Swelling**

Pain and swelling can be reduced with the use of electrotherapeutic modalities, e.g., TENS, interferential, magnetic field therapy. Analgesics may be required. Gentle soft tissue therapy and mobilization after the first 48 hours also may help to reduce pain. By reducing pain and swelling, muscle inhibition around the joint is minimized enabling range of motion exercises to be performed.

**Restoration of Full Range of Motion**

The patient may be non weight bearing on crutches for the first 24 hours, but should then commence partial weight bearing in normal heel-toe gait. It will be necessary from this stage to protect the damaged joint with strapping or bracing. This will allow partial and ultimately full weight bearing without danger of aggravating the injury. Accessory and physiological mobilization of the ankle, subtalar and midtarsal joints should be commenced early in the rehabilitation process. As soon as pain allows, active range of motion exercises, e.g. stationary cycling, can be commenced.

**Muscle Conditioning**

Strengthening exercises should be commenced as soon as pain allows. Active exercises should be performed initially with gradually increasing resistance. Exercises should include plantar and dorsiflexion, inversion and eversion. Eversion strength is particularly important in the prevention of future lateral ligament injuries. Weight bearing exercises should be commenced as soon as possible.

**Restoration Of Normal Proprioception**

Proprioception is invariably impaired after ankle ligament injuries. Proprioceptive retraining exercises can be commenced early in the rehabilitation stage and should be gradually progressed from balancing on one leg to the use of the rockerboard or minitramp and ultimately to functional activities while balancing.

**Functional Exercises**
Functional exercises, e.g., jumping, hopping, twisting, figure-of-eight running, should be commenced when the athlete is pain-free, has full range of motion and adequate muscle strength and proprioception.

**Return to Sport**

Return to sport is permitted when functional exercises can be performed without pain during or after activity. While performing rehabilitation activities and upon return to sport, added ankle protection is required. This can be provided either with taping or bracing. As both seem equally effective, the choice of taping or bracing should be made on the grounds of patient preference, cost, availability and expertise in tape application.

Any athlete who has had a significant lateral ligament injury should have protective taping or bracing for all future sporting activities. There are a number of methods to protect against inversion injuries. The three main methods of tape application are stirrups, heel lock and the figure-of-six. Usually at least two of these methods are used.

Braces have the advantage of ease of fitting and adjustment, lack of skin irritation and reduced cost compared to taping over a lengthy period. There are a number of different ankle braces available. The lace-up brace is an effective ankle brace.

**Treatment of Grade III Injuries**

Treatment of grade III ankle injuries requires initial conservative management over a 6 week period. If the patient continues to make good progress and is able to perform sporting activity with the aid of taping or bracing and without persistent problems during or following activity, surgery may not be required. If however, despite appropriate rehabilitation and protection, the patient complains of recurrent episodes of instability or persistent pain, then surgical reconstruction of the lateral ligament, using one of the peroneal tendons or a fibular periosteal flap, is recommended. Following surgery, it is extremely important to undertake a comprehensive rehabilitation programme to restore full joint range of motion, strength and proprioception.

The indications for use of nonsteroidal anti-inflammatory drugs in ankle injuries is unclear. The majority of practitioners tend to prescribe these drugs in all cases of lateral ligament sprains although evidence of their efficacy in this condition is not convincing. However, it may be appropriate to commence medication 2-3 days following injury because of the risk of developing synovitis on resumption of weight bearing.

**Medial Ligament Injuries**

Medial ligament injuries do not occur as frequently as lateral ligament injuries because the deltoid ligament requires considerable force to be damaged. Occasionally they may be seen in conjunction with a lateral ligament injury. Medial ligament injuries may occur with fracture of the medial malleolus, talar
dome or damage to articular surfaces. Medial ligament sprains should be treated in the same manner as lateral ligament sprains, although return to activity may be prolonged.

**Pott's Fracture**

A fracture affecting one or more of the malleoli (lateral, medial, posterior) is known as a Pott's fracture. It can be difficult to distinguish clinically between a fracture and a moderate to severe ligament sprain. Both conditions may result from inversion injuries, with severe pain and varying degrees of swelling and disability.

The management of these fractures involves restoration of the normal relationship between the superior surface of the talus and the ankle mortise (inferior margins of tibia and fibula). If this relationship has been disrupted, internal fixation is required.

Isolated spiral fractures of the lateral malleolus (without medial ligament instability) and posterior malleolar fractures involving less than 25% of the articular surface are very stable. These fractures can be treated symptomatically with immobilization and crutches in the early stages for pain relief only.

Lateral malleolar fractures associated with medial instability, hairline medial malleolar fractures or larger undisplaced posterior malleolar fractures are potentially unstable, but may be treated conservatively. This involves a below knee cast extending to include the metatarsal heads. A walking heel may be applied after swelling has subsided (3-5 days). The cast should be worn for 6 weeks.

Displaced medial malleolar, large posterior malleolar, bimalleolar or trimalleolar fractures, or any displaced fracture which involves the ankle mortise, should be internally fixed. A comprehensive rehabilitation program should be undertaken following surgical fixation or removal of cast. The aims of the rehabilitation program are to restore full range of motion, strengthen the surrounding muscles and improve proprioception.

**Persistent Pain After Ankle Sprain: the "Difficult Ankle"**

In most cases of ligament sprain, the patient progresses satisfactorily through the rehabilitation process with reduction in pain and swelling and improvement in function. However, there is a significant group of patients who do not progress well and complain of persistent pain, swelling and impaired function without any indication of improvement 3-6 weeks after their injury. In these cases, it is important to consider the presence of one of the conditions listed in Table 2.

<table>
<thead>
<tr>
<th>Table 2: Causes of persistent ankle pain following acute injury.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Inadequate rehabilitation</td>
</tr>
<tr>
<td>• Osteochondral fracture of the dome of the talus</td>
</tr>
<tr>
<td>• Chronic synovitis of the ankle joint</td>
</tr>
</tbody>
</table>
An ankle ligament injury which is inadequately rehabilitated may present with persistent pain and loss of function. This usually occurs with increased activity levels. The common problems associated with inadequate rehabilitation are a loss of range of motion in the ankle joint (especially dorsiflexion), weakness of the peroneal muscles and impaired proprioception. Management involves restoration of full dorsiflexion by mobilization of the ankle joint, a programme of strengthening exercises for the peroneal muscles and proprioceptive exercises.

If rehabilitation has been appropriate and symptoms persist, it is necessary to consider the presence of other pathology. Symptoms of intra-articular pathology include clicking, locking and joint swelling. Examination may reveal effusion, bony tenderness or swelling at the sinus tarsi or peroneal tendons. The ankle should be re-assessed for evidence of chronic ligamentous instability.

Osteochondral Fractures of the Talar Dome

Osteochondral fractures of the dome of the talus which occur in association with ankle sprains are commonly overlooked. These fractures may occur when there is a compressive component to the inversion injury, especially with landing from a jump. The dome of the talus is compressed by the tibial plafond causing damage of the osteochondral surface. The fractures occur most commonly in the superomedial and the superolateral corners of the talus.

CONCLUDING

If large, these fractures may be recognized at the time of injury. The fracture site will be tender and may be evident on X-ray. Usually the fracture is not detected initially and the patient presents some time later complaining of an unremitting ache in the ankle, despite appropriate treatment for a ankle sprain. The patient often presents with a history of progressing well following a sprain, but then developing...
symptoms of increasing pain and swelling, stiffness and perhaps catching or locking as activity is increased.

Therefore, if the extensive sports and games injury related researches along with the innovative medical treatments and therapies go hand in hand, can definitely come out with better and well preparedness to cope up with these kind of injuries in future hopefully…

REFERENCES


IMPACT OF MODERATE VELOCITY RESISTANCE TRAINING ON EXPLOSIVE STRENGTH AMONG ADOLESCENTS

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ABSTRACT

The purpose of the study was to find out the impact of moderate velocity resistance training on explosive strength among adolescent boys. To achieve this purpose of the study, thirty adolescent boys (n = 30) were selected at random. The age of the youth boys was ranging between 16 and 18 years. The selected subjects were divided into two equal groups of fifteen each (n = 15) and allotted to moderate velocity resistance training group and the control group. The training group was treated with systematic high resistance training three sessions in a week for twelve weeks. The strength parameter of explosive strength was measured prior to and immediately after the training period. Vertical jump test was used to measure the explosive strength. The collected data were analyzed statistically through analysis of covariance (ANCOVA). The level of confidence was fixed at 0.05. The results of the study show that the moderate velocity resistance training group has a positive effect to develop the quality of explosive strength (p ≤ 0.05) among the adolescent boys as compared to the control group.

Key words: explosive strength, moderate velocity, resistance training, adolescents.

INTRODUCTION
Physical exercise is extremely important for maintaining physical fitness, including healthy weight; building and maintaining healthy bones, muscles, and joints; promoting physiological well-being; and strengthening the immune system. To improve or maintain a desired level of physical fitness, there is a need to constantly administer an adequate training intensity while exercising. Different training modalities are used for the development of different features of physical fitness, as each sports person requires a different type and level of physical composure.

Resistance training is any exercise that causes the muscles to contract against an external resistance with the expectation of increases in strength, tone, mass, and/or endurance. The external resistance can be dumbbells, rubber exercise tubing, your own body weight, bricks, bottles of water, or any other object that causes the muscles to contract (Weil, 2014).

Muscular strength is a significant factor for success in competitive sports. This type of strength is directly related to the qualities of explosive strength and the elastic power of active muscles (Rammer, 2000). Explosive strength is the ability of the neuromuscular system to overcome resistance with high speed of contraction where the skeletal lever system accepts and expels at a high velocity viz. a coordination of motor units, reflexes, elastic component and contractile component of the muscle (Bean, 1997).

**METHODOLOGY**

To achieve this purpose of the study, thirty adolescent boys were randomly selected from the Cuddalore District of Tamil Nadu State and their age was ranged between 16 and 18 years. The selected subjects were divided into two different groups of fifteen each and were named as a moderate velocity training group and the control group. The training group treated with systematic, planned moderate velocity resistance training for twelve weeks duration with three sessions per week. The control group didn’t do any special training programs apart from their regular activities. Vertical jump test was used to measure the explosive strength. The pre and post test data were collected and it analyzed by using analysis of covariance (ANCOVA). The level of significance was fixed at 0.05.

Training Procedure: The experimental group moderate velocity resistance group was treated with systematic training for three sessions in a week for twelve weeks. Monday, Wednesday and the Friday were given the training to the experimental group (60-70% only). The control group didn’t do any training protocol in the selected duration. The training plan, volume, intensity, duration and the repetitions are fixed with the help of experts.

**RESULTS AND DISCUSSION**

<table>
<thead>
<tr>
<th>Test</th>
<th>Experimental Group</th>
<th>Control Group</th>
<th>SOV</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
</table>

Table I

ANALYSIS OF COVARIANCE ON EXPLOSIVE STRENGTH OF HIGH VELOCITY RESISTANCE TRAINING GROUPS AND THE CONTROL GROUP
Table I, shows that the pre test means of the moderate velocity resistance group and the control groups are 31.93 and 31.0 respectively. The obtained $F$ ratio of 0.61 for the pre test mean is less than the table value 4.20 for df 1 and 28 required for significance at 0.05 level. The post tests mean of the high velocity resistance group and control groups are 36.27 and 30.60 respectively. The obtained $F$ ratio of 33.63 for post test mean is higher than the table value 4.20 for df 1 and 28 required for significance at 0.05 level. The adjusted post test mean high velocity resistance group and control groups are 36.33 and 30.54 respectively. The obtained $F$ ratio of 33.86 for adjusted post test mean is higher than the required table value 4.21 for df 1 and 27 required for significant at 0.05 level. The result of the study indicated that, there was a significant difference between the adjusted post test mean of moderate velocity resistance training group and the control group on explosive. The pre, post and adjusted post test mean values of moderate velocity resistance training group and the control group on explosive strength is graphically represented in the figure 1.
Figure 1: The pre, post and adjusted post test mean values of experimental group and control group on explosive strength

The result of the study indicated that, there was a significant difference between the moderate velocity resistance training group and the control group on explosive strength. The moderate velocity resistance training has highly influenced the explosive strength of the selected subjects. Delecluse (1995) examined the study of the influence of the moderate resistance and moderate velocity training in sprint performance and concluded positively for the improvement of explosive strength among the college boy students. Millet (2002) also found to be the improvement in strength parameters due to resistance training and also positively supporting the present study. The development explosive strength as result is supported by the findings of Dodd & Alvar (2007) and Myer & Wall (2006).

CONCLUSION

The result of the present study indicates that the moderate velocity resistance training group have significant improvement in explosive strength as compared to control group. It is also concluded that the moderate velocity resistance training protocol is one of the best training methods for improving the quality of explosive strength.

REFERENCES

ABSTRACT

The purpose of the study is an experimental research which is concluded with the purpose to see the efficiency of selected plyometric exercise in improving triple jump performance. To achieve this purpose...
of the study under 17 age, twenty boys (n=20) of International Indian School, Dammam, Saudi Arabia were randomly selected as subject by the based on simple random lottery method of sampling and they were divided into two equal groups. One was experimental group and second was control group. This research was based on pre-test and post-test equivalent group design. Each group consisted of 10 subjects. Group 1 (n1=10) underwent plyometric training for three days a week for eight weeks. Group 2 (n2=10) acted control who did not participate in any specific training programme. In case of post test of standing triple jump, the mean scores of control and experimental group were 9.5774 (SD 1.04203) and 8.9074 (SD .66497) respectively. Whereas, the mean difference was .6700 and ‘t’ value of post was 2.599 which was significant (p<0.05). The analysis of covariance (‘t’) was used to find out significant differences between groups on each selected criterion variable separately. The result of the study revealed a significant improvement in posttest compared to pretest. Therefore, the plyometric training can be used to improve triple jump performance.

INTRODUCTION

Speed and strength are integral components of fitness found in varying degrees in ritually all athletic movements. Simply put the combination of speed and strength is power. For many years coaches and athletes have sought to improve power in order to enhance performance. Throughout this century and no doubt long before, jumping, bounding and hopping exercises have been used in various ways to enhance athletic performance. In recent years this distinct method of training for power or explosiveness has been termed plyometrics. Whatever the origins of the word the term is used to describe the method of training which seeks to enhance the explosive reaction of the individual through powerful muscular contractions as a result of rapid eccentric contractions.

METHODOLOGY

The present study is an experimental research which is concluded with the purpose to see the efficiency of selected plyometric exercise in improving triple jump performance. The selection of the subject was based on simple random lottery method of sampling. School students selected were under 17 age groups of International Indian School, Dammam, Saudi Arabia. A sample of 20 subjects (Boys) was selected with the help of simple random lottery method. In this study subjects were divided into two groups. One was experimental group and second was control group. Each group consisted of 10 subjects. This research was based on pre-test and post-test equivalent group design. Before the training
program a pre-test for both the groups was held. Eight week training program was given to experimental group. The control group did not get the training but they had participated in other physical activities. After the eight week training program the post-test was held for both the groups. The analysis of covariance (‘t’) was used to find out significant differences between groups on each selected criterion variable separately. The result of the study revealed a significant improvement in posttest compared to pretest. Therefore, the plyometric training can be used to improve triple jump performance.

The design of the experiment has been planned in three phases.

1. Phase - I : Pretest

2. Phase - II : Training and

3. Phase - III : Post Test

Pre - Test (Phase - I)

All the subjects of experimental and control groups were exposed to standing Triple jump to record the pre test data. Before the test all the necessary instruction regarding the performance of Standing Triple jump were given to the subject.

Training (Phase - II)

After the completion of pre test, all the subject were exposed to two month (8 weeks) training of selected plyometric training for 60 minutes, three days in a week. The subjects of control group were not allowed to participate in plyometric training. In fact, both the groups (experimental and control) participated in their regular activities as per the school schedule.

The subjects were given trial of all the selected plyometric exercises on the first day of training. It was observed that all of them could perform the plyometric exercise upto the mark of the investigator.

Plyometric exercises for experimental group:

- Continuous two footed jumps going forwards for distances
- Single-leg tuck jumps in place
- Continuous single-leg jumps going forward (hops)
- Continuous alternate single leg jumps going forward (step/bounds)
- Two footed jumps going from box top to box top (20cm boxes)
- Continuous two footed forward jumps, into vertical tuck jumps
- Continuous hop/step combination jumps
- Two footed medium height hurdle jumps
Post -Test (Phase -III)

Lastly, when the training period of six weeks was over, the post-test on plyometrics was conducted for all the subjects of both the groups.

Statistical Procedure

The collected data were processed by using Standard ‘t’ test by using SPSS to know whether the means of both groups statistically differ from each other.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Mean Difference</th>
<th>‘t’</th>
<th>Sig (2 tailed)</th>
<th>remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control group Pre Test</td>
<td>10</td>
<td>9.4957</td>
<td>1.01126</td>
<td></td>
<td>1.146</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental group Pre Test</td>
<td>10</td>
<td>9.2143</td>
<td>.60227</td>
<td>.2813</td>
<td>1.146</td>
<td>.259</td>
<td>p&gt;0.05</td>
</tr>
<tr>
<td>Control group Post Test</td>
<td>10</td>
<td>9.5774</td>
<td>1.04203</td>
<td></td>
<td>2.599</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental group Post Test</td>
<td>10</td>
<td>8.9074</td>
<td>.66497</td>
<td>.6700</td>
<td>2.599</td>
<td>.013</td>
<td>p&lt;0.05</td>
</tr>
</tbody>
</table>

* Significant at 0.05 level.

RESULTS

It is seen from the above table, in case of pre test of speed, (standing Triple jump) the mean score of control and experimental group were 9.4957 (SD 1.01126) and 9.2143 (SD .60227) respectively, whereas the mean difference was .2813 and ‘t’ values of pre test was 1.146 which were not significant (p>0.05). It reflects that the mean score of pre test of plyometric was 1.146 which were not significant group did not differ significantly. This indicates that the pre-test means of Plyometric training group and control group in standing triple jump were more or less similar.
But in case of post test of Standing triple jump, the mean scores of control and experimental group were 9.5774 (SD 1.04203) and 8.9074 (SD .66497) respectively, whereas, the mean difference was .6700 and the ‘t’ values of post test was 2.599 which was significant (p<0.05). It reflects that the mean score of post test of speed of control group and experimental group was differ significantly.

**DISCUSSION**

Plyometric exercise does not promise for the positive results by easy and short cut way. It does not promise quick fixes for all the problems but it leads to positive results if followed in systematic manner.

The result of the investigation supports the above statement. In case of explosive power, plyometric played a significant role for students. Result shows that plyometric exercises were effective in improvement speed of school children in dammam. In this hypothesis that “There is no significant difference in mean score of plyometric exercise of control and experimental group” is rejected.

**CONCLUSION**

The conclusion of this experimental study is that plyometrics exercise improves explosive ability of school going boys.

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Sport Coach [http://www.brianmac.demon.co.uk/plymo.htm](http://www.brianmac.demon.co.uk/plymo.htm)
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   Ph d Scholar- ANU GUNTUR

## INTRODUCTION

Soccer requires peak physical conditioning of its players to be played at the highest level. The only way to achieve this level of conditioning is training specifically for soccer and the amount of running done in a match.

Interval training is a type of physical training that involves bursts of high-intensity work interspersed with periods of low-intensity work. The high-intensity periods are typically at or close to near-maximum exertion, while the recovery periods may involve either complete rest or activity of lower intensity.

Circuit training is a form of conditioning combining resistance training and high-intensity aerobics.

1. The ultimate aim of research in physical education is to help the physical education and sports professionals to train their sports persons based on the new concepts in improving their performances.
2. The study would add knowledge in the area of interval, circuit and combined training.
3. The results of the study may provide the standards of the football players in various selected physical fitness and performance parameters.
4. The conclusions of this study will pave a way to train football players with interval, circuit and combined training.
5. This study might motivate other professionals and scholars to take up similar studies.

## METHODOLOGY

For the present study, 60 football players studying in the junior colleges of Andhra Pradesh were randomly selected as subjects during the academic year 2013-2014. The selected subjects were divided into three experimental groups and a control group with fifteen subjects (n=15) in each group. Experimental group I (ITG=15) underwent interval training, Group II (CTG=15) underwent circuit training, Group III (COMG=15) underwent combined training and Group IV served as control group (CG=15). All subjects were informed about the nature of the study and their consent was obtained to co-operate till the end of the experiment and testing period. Pilot study groups and experimental groups (namely, ITG, CTG and COMG) were trained-up in which three modes of training were given independently with separate subjects in each group. The subjects were free to withdraw their consent in case they felt any discomfort during the period of their participation, but there were no dropouts. A qualified physician examined the subjects medically and declared them fit for the study.

The variables were selected after considering the feasibility and availability of proper techniques and instruments. In this experimental study, three experimental (IGT, CTG, and COMG) groups with different loads of training were given while one group was kept as control group to assess the difference.
Criterion Variables

Dependent Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Speed</th>
<th>Agility</th>
<th>Explosive Power</th>
<th>Balance</th>
<th>Co-ordination</th>
<th>Cardio-respiratory endurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Fitness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td>Kicking</td>
<td>Dribbling</td>
<td>Passing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variables</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Independent Variables

The following training methods were selected as independent variables.

1. Interval training
2. Circuit training
3. Combined interval and circuit training.

Selection of Tests

<table>
<thead>
<tr>
<th>Variables</th>
<th>Test</th>
<th>Unit of Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td>50 meters dash</td>
<td>In Seconds</td>
</tr>
<tr>
<td>Agility</td>
<td>30’ shuttle run</td>
<td>In Seconds</td>
</tr>
<tr>
<td>Explosive Power</td>
<td>Sargent vertical jump</td>
<td>In Centimeters</td>
</tr>
<tr>
<td>Balance</td>
<td>Stroke stand</td>
<td>In Seconds</td>
</tr>
<tr>
<td>Co-ordination</td>
<td>Alternate Hand Wall Toss Test</td>
<td>In Number of Catches in 30 Seconds</td>
</tr>
<tr>
<td>Cardio-respiratory endurance</td>
<td>9minutes run/walk</td>
<td>In Meters</td>
</tr>
<tr>
<td>Kicking</td>
<td>Mor. Christian Skill Test</td>
<td>In Meters</td>
</tr>
<tr>
<td>Dribbling</td>
<td>Punt for distance</td>
<td>In Seconds</td>
</tr>
<tr>
<td>Passing</td>
<td>Mor. Christian Skill Test</td>
<td>In Points</td>
</tr>
</tbody>
</table>

Training Programme

389
During the training period, the experimental groups underwent their respective training programmes three days per week on alternate days for twelve weeks in addition to their regular physical education activities. Experimental Group I (ITG) underwent interval training and Group II (CTG) underwent circuit training and group III (COMG) underwent combination of interval and circuit training. Before the commencement of the experimentation and at the middle of the training period (after fifth week), the investigator recorded the target heart rate for interval training, 1RM tests for circuit and target heart rate and 1RM for combined training subjects.

Collection of Data

The data on selected dependent variables for pre-tests and post-tests were collected two days before and after the training programme respectively.

Experimental Design

The experimental design used for this study was pre-test and post-test random group design involving sixty subjects, who were divided at random into four groups of fifteen each.

Statistical Techniques Used

'F' ratio for adjusted post-test was found to be significant, Scheffe's test was used as post-hoc test to determine which of the paired means differed significantly. In all cases the criterion for statistical significance was set at 0.05 level of confidence (P<0.05).

RESULTS OF THE STUDY

The results of the study revealed that there existed significant difference among the football players of experimental groups such as interval training, circuit training and combined interval and circuit training and control group on physical fitness variables such as speed, agility, explosive power, balance, coordination and cardio respiratory endurance and performance variables such as dribbling, kicking and passing.

When compared with interval training and circuit training group, circuit training group performed better on physical fitness variables such as speed, agility, explosive power, balance, and coordination and performance variables such as kicking and passing than that of interval training group.

When compared with interval training and circuit training group, interval training group performed better on physical fitness variable cardio respiratory endurance and performance variable dribbling than that of circuit training group.

CONCLUSIONS

From the results of the present research work, the following conclusions were drawn.

There was significant difference among the football players of experimental groups such as interval training, circuit training and combined interval and circuit training groups and control group on physical fitness variables such as speed, agility, explosive power, balance, coordination and cardio respiratory endurance and performance variables such as dribbling, kicking and passing. The result of the present study showed that the interval training, circuit training and combined interval and circuit training groups performed better on physical fitness variables such as speed, agility, explosive power, balance, coordination and cardio respiratory endurance and performance variables such as dribbling, kicking and passing than the control group.
REFERENCES

Books

Journals
MORPHOLOGICAL, NUTRITIONAL AND HEALTH RELATED PHYSICAL FITNESS STATUS OF SLUM AREA SCHOOL STUDENTS IN HYDERABAD CITY

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ABSTRACT

The explosion of growth of human population and modern industrialization jeopardizes the homeostasis of healthy life and peaceful living. Public health has become a burning problem among the world wide nation.

Malnutrition is a major concern for slum area school students. Physical, Social, and Environmental factors contribute to nutritional problems and often lead to less successful
treatment outcomes and higher mortality rates. An evaluation of slum area school students based programs found 67-88 % of the students to be at moderate to high risk of malnutrition. Slum area children are especially vulnerable to nutritional problems. Due to the lack of proper balanced diet, the students who are residing in slum areas are not able to focus their attention towards the sports and games.

A large number of students were gathered (394) to analyze their results on nutritional status, anthropometric status and the result on health related physical variables. The students participated were from very poor economical background. Some of the parents of these children did not have employment.15% of the students admitted that they never had breakfast and 3.12% of them get lunch, however 99.14% get dinner.

The result of this study is although nutritional status plays important role for enhancing growth and development a very poor nutritional status was seen among slum area children, which might have affected the selected attributes of their growth and development ( CD = 0.15, P > 0.05, C.D = 0.16, P > 0.05, C.D = 0.19, P > 0.05).

**INTRODUCTION**

Due to Industrialization and urbanisation the people are migrating to District Head Quarters and cities in search of work. The most unwanted consequences of urbanisation is increasers in slum population having large number setting down on relatively smaller land. Thus slums increase the burden of already scare resources and overall urban infrastructure. Their living large pollution residing in a smaller area with no or very limited amenities is undesirable.

If this is the scenario of health of common people in India then what will be the health status as well as Nutritional, Morphological & Physical fitness of the children living in slum areas, this indicates that gravity of Nutritional, Morphological & Physical condition of the children living in slum area in Hyderabad city.

**METHODOLOGY**

Since it is a descriptive research a large number of male students (n=394) age random from 10 -12 years, our gathered to get reliable results.

This study was restricted to the school students of slum area located in Hyderabad City. The number of students of 10 years, if yes, and twelve years were 58, 19 and 215 respectively and the sampling distribution has been presented in following table

| S S' Distribution in Sampling |
Subject Age | No. of Subjects (Ss)
--- | ---
10 Years | 58
11 Years | 119
12 Years | 217
Total | 394

Variables Selected & Tools Used

On the basis of several research reports available so far, following variables have been selected.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Tools Used</th>
<th>Criterion Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Stadio Meter</td>
<td>Cm (nearest to 0.05 cm)</td>
</tr>
<tr>
<td>Weight</td>
<td>Weighing machine</td>
<td>Kg. (nearest to ½ Kg.)</td>
</tr>
<tr>
<td>Abdominal Muscle</td>
<td>Sit ups</td>
<td>No/Min. (nearest 1 count)</td>
</tr>
<tr>
<td>Strength</td>
<td>Cureton’s box</td>
<td>Cm (nearest 0.05 cm)</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Fat monitor</td>
<td>% (nearest to 0.05)</td>
</tr>
<tr>
<td>Body fat</td>
<td>Questionnaire</td>
<td>Points</td>
</tr>
<tr>
<td>Nutritional status</td>
<td>Questionnaire</td>
<td>Points</td>
</tr>
</tbody>
</table>

RESULT & DISCUSSION

A) Result on Anthropometric status:
No Significant difference in Body height was evident between the students of 10 years, 11 years and 12 years (CD=0.15, P>0.05, CD=0.16, P>0.05, CD=0.19, P>0.05)

- Significant difference in Body weight was evident between the students of 10 and 11 years (CD = 0.36, P> 0.05) and 11 & 12 years students of 10 and 11 years (CD=0.36, P>0.05) No Significant difference in Body height was evident between the students of 10 years & 12 years (CD = 0.12, P>0.05)

B) Result on Health related physical fitness variables:

- Significant difference in Abdominal muscles strength was evident between the students of 10 years, 11 years (CD=0.28, P>0.05) and 11 & 12 years (CD = 0.26, P>0.05) No significant difference in Abdominal muscles strength was evident between the students of 10 years & 12 Years (CD=0.10, P>0.05)

- No Significant difference in Flexibility was evident between the students of 10 years & 11 years (CD=0.13, P>0.05) 11 years & 12 years (CD=0.15, P>0.05) and 10 years & 12 years (CD=0.12,P>0.05)

- No Significant difference in Body Fat was evident between the students of 10 years & 11 years (CD=0.11, P>0.05) 11 years & 12 years (CD=0.09, P>0.05) and 10 years and 12 years (CD=0.14, P.0.05).

Results on nutritional status:

- the parents economics structure was very low. It is amazing to note that 4.34% of the parents do not have employment.
- 11.30% of the students reported the never take breakfast and 2.32% sometimes get lunch, however 99.04% get dinner.
- Majority of them (79.22%) live with simple food just to fill the stomach only and there is no consideration of nutritional value.
- Water intake was found very less that depends upon their nature of feeling thirsty.
- 69.72% of the Slum areas students admit that due to financial limitations in the family, they are not getting good food, whereas 31.28% or not aware of the same.
- 99.48% of parents are not aware of role on nutritious food for their children’s growth and development.
- 99.24% of the parents opined that they are habituated to stay in such polluted area of the slum area in Anantapur Town and they are comfortable with such environment, however 9.76% do not feel to stay in the slum areas, but there is no way.
- 96.53% of the parents admit that their children have even they too mostly suffer from various health problems.
CONCLUSION

The result of this study helps to warrants following conclusions.

- Age wise normal growth in body height and Wight was not evident among the slum areas children.
- According to the growing stage, development in health related physical fitness was found improper.
- Although nutritional status plays important role for enhancing growth and development a very poor nutritional status was seen among the slum areas children, which might have affected the selected attributes of their growth and development.

References

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- American Health and Nutritional Status, Berry and nude (2012, pp. 156-159) estimate necessity for growth and development of children’.
- Advantages of Nutritional values of sports persons in American and Sidney slums-criticized by
- Edward Simpson and Thomas Untraker of New Zealand of 1964 and Jobbs 1999 pp. 45-51 referred as nutrition and growth and development of rural and urban areas nutritional emerges.
ABSTRACT

The study might help to understand the effect of selected weight training exercises in relation to vertical jump ability among basketball players in the execution of skills. The main objective of the study is to determine the effect of selected weight training exercise on vertical jump in Hyderabad basketball players. It was hypothesized that one selected weight training exercise might have significant effect on the performances of vertical jump among the Hyderabad basketball players. To know the significant different between control and experimental group, 60 Hyderabad basketball players were selected and six week training was given to experimental group. The conclusions were drawn based on the results obtained from this investigation. The scheduled of selected weight training exercises was found to be a suitable one to improve the vertical jumping ability. The initial and final mean values of performers of vertical jump of experimental group are 33.63 and 38.90 respectively which indicates the improvement in the vertical jumping performances. The initial and final values of the vertical jumping performances of the control group are 33.63 and 34.00 respectively which indicates the result is not as significant as that of experimental group.

INTRODUCTION

The use of weight training exercises to assist sportsmen of various games and sports gained considerable popularity and proved success in recent years. Basketball, like other games, in most modern sports of competition demands that the participant possesses many complex skills as well as other supermen physical capacities. Thus, basketball has become one of the most inborn and so their acquisition depends upon methods of scientific principals relating to both body function and human motion. Because of this improvement, skills are largely depends upon scientific research and careful experimentation of exercises land training sessions.
Day to day life needs graceful movements of the body segment in human beings and much more in basketball players. The efficiency of the human body depends upon many factions. Physical fitness is an important factor that determines the performance levels of an individual.

In almost any discussion of weight training the name of Hoffman looms large who had written a large number of articles for public use. The only study of scientific relative to the effects of weight training found in the literature was by “churi”.

Statement of the Study: The study might help to understand the effect of selected weight training exercises in relation to vertical jump ability among basketball players in the execution of skills.

Significances of the study: The study might help to understand the effects of selected weight training exercises in relation to vertical jumping ability among the Hyderabad basketball players in the execution of skills.

Objective: The study is to determine the effect of selected weight training exercise on vertical jump in Hyderabad basketball players.

Hypothesis: It was hypothesized that one selected weight training exercise might have significant effect on the performances of vertical jump among the Hyderabad basketball players.

**METHODOLOGY**

The purpose of this study was to find out the effect of selected weight training on vertical jump in basketball players. The study consists of sixty male basketball players selected. The initial vertical jumping ability was taken from sixty players by sergeant jump test method. The subjects were divided in to two equal groups of thirty each. The experimental group was given selected weight training exercises for a period of six weeks and the control group was not given any experimental treatment. However, they were having their routine physical activities. After six weeks training the sample were underwent experimental test. The data, thus, collected was analyzed statistically to estimate the effect of selected weight training exercises in vertical jump on basketball players.
RESULTS AND DISCUSSION

Table-I
Mean values, Mean Differences and ‘t’ value of the control group

<table>
<thead>
<tr>
<th>SL.NO</th>
<th>TEST</th>
<th>MEAN</th>
<th>D.M</th>
<th>‘T’ VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>INITIAL</td>
<td>33.63</td>
<td>0.37</td>
<td>0.329</td>
</tr>
<tr>
<td>2.</td>
<td>FINAL</td>
<td>34.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Discussions on Table I: The above table shows the initial and final mean values of the vertical jumping performance of control group are 33.63 and 34.00 respectively. The calculated ‘t’ value (0.329) which is not significant as per the table value (2.000) at 0.05 level for control group.

Data regarding the initial and final mean values of the vertical jumping performances of experimental group are presented in Table II.

Table-II
Mean Values, Mean Differences and the ‘t’ values of the Experiment Group

<table>
<thead>
<tr>
<th>SL.NO</th>
<th>TEST</th>
<th>MEAN</th>
<th>D.M</th>
<th>‘T’ VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>INITIAL</td>
<td>33.63</td>
<td>5.27</td>
<td>4.6</td>
</tr>
<tr>
<td>2</td>
<td>FINAL</td>
<td>38.90</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Discussions on Table II: The initial and final mean values of the vertical jumping performers of the experimental group were 33.63 and 38.90 respectively. The calculated ‘t’
value (4.600) which is significant as per the table value (2.000) at 0.05 level for experimental group.

CONCLUSIONS

The investigator has drawn the following conclusions based on the results obtained from this investigation

1. The scheduled of selected weight training exercises was found to be a suitable one to improve the vertical jumping ability.
2. The initial and final mean values of performers of vertical jump of experimental group are 33.63 and 38.90 respectively which indicates the improvement in the vertical jumping performances.
3. The initial and final values of the vertical jumping performances of the control group are 33.63 and 34.00 respectively which indicates the result is not as significant as that of experimental group.

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Bank bushmen, "Analysis of the speed height of overhead flat volley service", Completed Research In Health, Physical Education and Recreation. 1964, 6:98


STANDARDISATION OF NORMS IN JUNIOR HANDBALL PLAYERS IN TELANGANA STATE – A STUDY

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Dr. B. Sunil Kumar
Associate Professor, University College of Physical Education, Osmania University, Hyderabad

M. Suresh
Research Scholar, University College of Physical Education, Osmania University, Hyderabad

ABSTRACT

The sport is a carrier, which encourages coaching of various sports and games along with rules and regulations governed by them and also it prepares the trainees to take active part in competitive sports. For this study, purposive random sampling method was used. Therefore, 200 Handball players are the total sample of study whose age groups are 16 to 18 years of Boys. The results of the study are: (i) When the score for Vertical Jump of the Handball players is 27 then the player gets 5 points, whereas when the score for Vertical Jump is 43 then the player gets 50 points and when the player record a score of 65 points he gets 99 points. (ii) When the score for Chin-Ups of the Handball players is 5 then the player gets 5 points, whereas when the score for Chin-Ups is 9 then the player gets 50 points and when the player record a score of 12 points he gets 99 points. The results of the present study helped to warrant the following conclusion. (i) The Performance variable for a Handball player are Muscular Endurance, Speed, Agility, Explosive Power, Passing & recovering the ball while moving, Performance skill of basic defensive movement of the Handball players, Ball handling & controlled dribbling while the body is in motion, The skill of rapid shooting from specified positions & to some extent, the agility & ball handling
potentials of the player. (ii) The present Scenario of Handball in India despite it being India’s National Game is very disappointing. Handball lags far behind cricket and other games in the popularity stakes. When Indian sportspersons are rapidly proving themselves at the world stage, India's Handball fortune is plummeting to an abyss in the international arena. With success being far and few between, Handball is losing out to other popular sports that have brought India international success.

INTRODUCTION

A sport is an integral part of the society that has an important and valuable effect on many spheres of social life. Similarly, the whole social pattern of a society may be reflected in its sports. Sports, unlike the other activities, are not an end product. It is undertaken essential for its own. If we want to know why, that the primarily play for fun, enjoyment or satisfaction. The sport is a carrier, which encourages coaching of various sports and games along with rules and regulations governed by them and also it prepares the trainees to take active part in competitive sports.

OBJECTIVE

Keeping in view of the need, background and purpose of the study, investigator has listed the following major objectives. (i) To identify the performance variables of 16 to 18 age group talented Handball players; (ii) To construct physical fitness norms of Handball players 16 to 18 age group from Telangana State.

SAMPLING

A sample survey involves the selection of a subject of the population, called a sample, to be measured. The researcher attempts to generalize from the sample observations to the population from which the sample was selected. For this study, purposive random sampling method was used. Therefore, 200 Handball players are the total sample of study. The players were selected by using purposive random sampling method. Their age groups are 16 to 18 years of Boys.

Tools Used for Data Collection: For this study JCR Physical Fitness Test (i) Vertical Jump Test; (ii) Chin-ups Test. (iii) Shuttle Run Test, (iv) Skill Test.

Procedure of the Study: The detailed procedure of above stages has been explicitly presented as follows:
Identification and Composition of dimension-wise Test Items: The investigator, on the basis of several research reports, has considered four major dimensions with a view to discriminate talented players for composing a standard State level Handball team.

The test-items were further confirmed to be included for the testing, after a deep study of various related literature and related study and after taking opinions of various experts in the area of Physical Education and Sports and considering the long-standing professional experience of the present investigator.

Of all the above mentioned various tests the Physical fitness tests, skill tests which were used for assessment and team selection as studies have proven their importance in prediction of handball playing ability, height and weight were recorded for information and further research purpose, it was not considered as a selection criterion as handball player. Psychological factor is also not included in the final test result as it has its own norms. Percentiles were tested on the sample so as to know the entire profile of handball players, for further researches and studies.

**ANALYSIS AND INTERPRETATION OF THE DATA**

Scoring of the Data: A total of 5 tests were conducted on 200 subjects. The scoring of the selected physical fitness tests and other tests is presented in the table.

| 1. Vertical jump | dentimetres |
| 2. Shuttle run | seconds |
| 3. Chin-Ups | number |
| 4. Passing | points |

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Statistics</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N Valid</td>
<td>200</td>
</tr>
<tr>
<td>2</td>
<td>Mean</td>
<td>42.7</td>
</tr>
<tr>
<td>3</td>
<td>Median</td>
<td>43</td>
</tr>
<tr>
<td>4</td>
<td>Mode</td>
<td>34</td>
</tr>
<tr>
<td>5</td>
<td>Std. Deviation</td>
<td>10.14</td>
</tr>
</tbody>
</table>
Table No 2: The Descriptive Statistics of Chin-Ups

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Statistics</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>N Valid</td>
<td>200</td>
</tr>
<tr>
<td>2.</td>
<td>Mean</td>
<td>8.56</td>
</tr>
<tr>
<td>3.</td>
<td>Median</td>
<td>9</td>
</tr>
<tr>
<td>4.</td>
<td>Mode</td>
<td>8</td>
</tr>
<tr>
<td>5.</td>
<td>Std. Deviation</td>
<td>1.74</td>
</tr>
</tbody>
</table>

Table No.3: The Descriptive Statistics and Speed Shot Shooting

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Statistics</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>N Valid</td>
<td>200</td>
</tr>
<tr>
<td>2.</td>
<td>Mean</td>
<td>20.62</td>
</tr>
<tr>
<td>3.</td>
<td>Median</td>
<td>21</td>
</tr>
<tr>
<td>4.</td>
<td>Mode</td>
<td>21</td>
</tr>
<tr>
<td>5.</td>
<td>Std. Deviation</td>
<td>4.04</td>
</tr>
</tbody>
</table>

Observation & Interpretation: Above table shows the statistical values and histogram of Speed Shot Shooting. The mean of Speed Shot Shooting was found to be 20.62, median was found to be 21 & Std. Deviation was found to be 4.04. This was found to be 0.02 & the value found to be 0.1. From the table 5 it is clear that the is 0.02 and 0.1. So from the above scores of and it is known that the scores are normal.

Table No.4: The Descriptive Statistics of Passing
Observe the statistical values and histogram of Passing. The mean of Passing was found to be 65.17, median was found to be 65, and Std. Deviation was found to be 7.29. The was found to be 0.15 & the value found to be 0.7. From the table, it is clear that the scores are normal.

### RESULTS OF THE STUDY

- When the score for Vertical Jump of the Handball players is 27 then the player gets 5 points, where as when the score for Vertical Jump is 43 then the player gets 50 points and when the player record a score of 65 points he gets 99 points.

- When the score for Chin-Ups of the Handball players is 5 then the player gets 5 points, where as when the score for Chin-Ups is 9 then the player gets 50 points and when the player record a score of 12 points he gets 99 points.

### CONCLUSION

Within limitation, the results of the present study helped to warrant the following conclusion.
The Performance variable for a Handball player are Muscular Endurance, Speed, Agility, Explosive Power, Passing & recovering the ball while moving, Performance skill of basic defensive movement of the Handball players, Ball handling & controlled dribbling while the body is in motion, The skill of rapid shooting from specified positions & to some extent, the agility & ball handling potentials of the player.

The present Scenario of Handball in India despite it being India’s National Game is very disappointing. Handball lags far behind cricket and other games in the popularity stakes. When Indian sportspersons are rapidly proving themselves at the world stage, India's Handball fortune is plummeting to an abyss in the international arena. With success being far and few between, Handball is losing out to other popular sports that have brought India international success.
ANALYSIS OF SELECTED PSYCHOLOGICAL SKILLS OF MALE AND FEMALE PARTICIPANTS IN DIFFERENT SPORT DOMAINS

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2 Vice-Principal, University College of Physical Education & Sports Sciences, Acharya Nagarjuna University, Guntur, Andhra Pradesh, India

ABSTRACT

This investigation was purported to analyze the selected psychological skills of male and female participants in different sport domains. For this reason, 320 sportsperson from different sport domains (individual and team sports) were selected as subjects from Guntur district, Andhra Pradesh, India. These subjects were in the age group of 18 to 21 years, and they were tested for their level of achievement motivation and competitive anxiety using standardized instruments. The data collected were subjected to statistical analysis by means of Two-way ANOVA, and simple effect test. The confidence interval was fixed at p < 0.05 in all cases. The research findings imply that difference in gender and participation in different sport domains contributes to the variation in developmental process on achievement motivation and anxiety.

INTRODUCTION

Every human being is born with specific physical and psychological strengths and weaknesses, yet the skills are learned and developed through day to day endeavours. Irrespective of the sport in
question, an athlete’s success or failure is dependent on a combination of physical and mental abilities (Nideffer, 1976). Psychological, social and physical development process project powerful influences on sport participation, defined broadly as engagement, learning, and performance in sports. Sport experiences often foster citizenship, social success, positive peer relationships, leadership skills, and a sense of initiative in participants.

The highly desirable benefits of a physically active lifestyle are mastery of motor and sport-specific skills that contribute to competence in lifelong physical activities, attaining social and psychological life skills (e.g., interpersonal skills, resistance skills), and improving developmental outcomes such as confidence, self-regulation, character, motivation, and perseverance (Weiss, 2008).

Developmental sport psychology is the term for the area of study focused on determining the role of sport participation experiences in developing psychological, social, and physical competencies. The acquisition of sport skill expertise is both a product of development and a process for development, meaning that psychological development affects sport skill acquisition and that the sport skill acquisition process results in psychological changes.

Youth sport participants themselves give many specific reasons or motives for sports participation, and typically have higher perceptions of competence and control than those who drop out. Competence motivation theory suggests that mastery behaviour in activities such as sport is predicted by one’s perceptions of ability and sense of control over performance situations. Achievement goal theory shows that behaviour is often predicted by children’s perceptions of their abilities and their goal perspectives, meaning their views on what it means to be successful in sport.

Contemporary thinking views stress as a dynamic relationship between athletes and their practice and competition environment. Specifically, performers appraise the demands to cope with these demands. Inherent within this approach is the perspective that performers will encounter many different demands that tax their resources and it is the athletes’ perceived ability to cope with these that form the process of stress. If athletes feel that they cannot cope with the demands then they are then likely to experience different levels of competition anxiety.

Elite athletes repeatedly have to perform under high pressure, and it is therefore not surprising that psychological characteristics often distinguish those successful at the highest standard from their less successful counterparts (Morris, 2000). Early research evidence already supported an association between psychological characteristics and sports performance (Morgan & Pollock, 1977; Morgan, 1979; May et al., 1985). Further research evolved with an emphasis in identifying psychological skills relevant to sport (Meyers et al., 1996). Yet, it is not self-evident that the relation between psychological skills and performance level is similar for different types of sports or for males and females.

The conceptualization of sport structure plays a vital role in the modification of psychological skills. Furthermore, gender differences play a prominent role in the enhancement of psychological skills of athletes participating in different sports. Thereby, the analysis of psychological skills of male and female athletes participating in different sports is necessitated to understand the gender difference and
nature of activity in developing the psychological skills. The main aim of this investigation was to analyze the selected psychological skills (achievement motivation and competitive anxiety) of male and female participants in different sport domains.

**METHODOLOGY**

In this study, 320 sportsperson from different sport domains (individual and team sports) were selected as subjects from Guntur district, Andhra Pradesh, India. The subjects selected in the domain of individual sports consist of 74 male and 58 female sportsperson, whereas, 105 male and 83 female sportsperson considered as subjects from that of team sports. The subjects selected were position holders in the district level tournament in respective sports. The age of the subjects were ranged between 18 and 21 years. The participants in athletics, badminton, table tennis, tennis, power lifting, and weight lifting were considered to be as subjects categorized as individual sports in this study, while the basketball, cricket, football, handball, hockey, kabaddi, khokho, and volleyball players were considered as subjects belonging to team sports. These sports of different domains were chosen considering the popularity and achievement of the sportsperson in State level tournaments.

The selected subjects were tested for their level of achievement motivation and competitive anxiety using standardized instruments. The data collected were subjected to statistical analysis by means of Two-way ANOVA, and simple effect test. The confidence interval was fixed at p < 0.05 in all cases.

**Results**

The data on achievement motivation and competitive anxiety were analysed for statistical significant gender difference and the influence of participating in individual and team sports. And all those results were tabulated in tables from 1 through 6.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Sports Domain</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Individual Sports</td>
<td>26.689</td>
<td>3.420</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>Team Sports</td>
<td>24.962</td>
<td>3.905</td>
<td>105</td>
</tr>
<tr>
<td>Female</td>
<td>Individual Sports</td>
<td>25.431</td>
<td>3.550</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>Team Sports</td>
<td>27.289</td>
<td>2.878</td>
<td>83</td>
</tr>
</tbody>
</table>
It is obvious from Table-1 that female has more achievement motivation than their counterpart irrespective of their sports. Furthermore, it is observed that participants in individual sports are highly motivated to achieve compared to those engaged team sports.

The data on achievement motivation have been analyzed by two-way analysis of variance to determine the gender difference and the influence of participation in different sports domains, and the obtained results are presented in Table-2.

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>21.843</td>
<td>1</td>
<td>21.843</td>
<td>1.799</td>
<td>.181</td>
</tr>
<tr>
<td>Sports Domain</td>
<td>.327</td>
<td>1</td>
<td>.327</td>
<td>.027</td>
<td>.870</td>
</tr>
<tr>
<td>Gender * Sports Domain</td>
<td>245.670</td>
<td>1</td>
<td>245.670</td>
<td>20.232</td>
<td>.000</td>
</tr>
<tr>
<td>Error</td>
<td>3836.983</td>
<td>316</td>
<td>12.142</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is observed from Table-2 that the achievement motivation between gender (male and female) irrespective of sports domain is \( F(1, 316) = 1.799, (p = 0.181) \), which indicates that no significant differences exist between male and female irrespective of sports domain (individual and team sports) on achievement motivation. Moreover, the achievement motivation between sports domain (individual and team sports) irrespective of gender is \( F(1, 316) = 0.027, (p = 0.870) \), which indicates that no significant differences exist between individual and team sports irrespective of gender on achievement motivation.

But, the obtained \( F(1, 316) = 20.232, (p < 0.05) \) value for the two-way interaction of gender (male and female) and sports domain (individual and team sports), reveals a significant difference on achievement motivation. It establishes the existences of significant differences in the two way interaction effect on achievement motivation. Since, the interaction effect is significant, the simple effect test has been applied as follow up test and it is presented in Table-3.

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F ratio</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender and Individual Sports</td>
<td>51.470</td>
<td>1</td>
<td>51.470</td>
<td>4.239</td>
<td>.040</td>
</tr>
<tr>
<td>Gender and Team Sports</td>
<td>251.071</td>
<td>1</td>
<td>251.071</td>
<td>20.677</td>
<td>.000</td>
</tr>
<tr>
<td>Sports Domain and Male</td>
<td>129.508</td>
<td>1</td>
<td>129.508</td>
<td>10.666</td>
<td>.001</td>
</tr>
</tbody>
</table>
Table-3 reveals that statistically significant difference on achievement motivation exists between male and female sportsperson participating in individual sports, as the obtained $F(1, 316) = 4.239$, ($p < 0.05$). Likewise, considerable difference on achievement motivation between male and female sportsperson participating in team sports is observed, as the obtained $F(1, 316) = 20.677$, ($p < 0.05$). It also shows that there is a statistically significant difference on achievement motivation between individual and team male sportspersons as the $F(1, 316) = 10.666$, ($p < 0.05$), per se, considerable difference on achievement motivation exists between individual and team female sportspersons as the $F(1, 316) = 9.708$, ($p < 0.05$).

Table – 4: Mean and Standard Deviation on Anxiety among Sportsperson of different Sports Domain

<table>
<thead>
<tr>
<th>Gender</th>
<th>Sports Domain</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Individual</td>
<td>19.649</td>
<td>3.677</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>Team Sports</td>
<td>20.391</td>
<td>2.669</td>
<td>105</td>
</tr>
<tr>
<td>Female</td>
<td>Individual</td>
<td>15.862</td>
<td>3.247</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>Team Sports</td>
<td>18.349</td>
<td>2.662</td>
<td>83</td>
</tr>
</tbody>
</table>

It is obvious from Table-4 that male are more anxious than female irrespective of their sports. Furthermore, it is observed that participants in team sports are highly anxious compared to those play individual sports.

The data on anxiety have been analyzed by two-way analysis of variance to determine the gender difference and the influence of participation in different sports domains, and the obtained results are presented in Table-5.

Table – 5: Two-way Analysis of Variance on Anxiety

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>649.028</td>
<td>1</td>
<td>649.028</td>
<td>70.488</td>
<td>.000</td>
</tr>
<tr>
<td>Sports Domain</td>
<td>199.275</td>
<td>1</td>
<td>199.275</td>
<td>21.642</td>
<td>.000</td>
</tr>
<tr>
<td>Gender * Sports Domain</td>
<td>58.226</td>
<td>1</td>
<td>58.226</td>
<td>6.324</td>
<td>.012</td>
</tr>
</tbody>
</table>
It is observed from Table-5 that the anxiety between gender (*male and female*) irrespective of sports domain is $F(1, 316) = 70.488$, $(p < 0.05)$, which indicates that significant differences exist between male and female irrespective of sports domain (*individual and team sports*) on anxiety. It also shows that the anxiety between sports domain (*individual and team sports*) irrespective of gender is $F(1, 316) = 21.642$, $(p < 0.05)$, which indicates that significant differences exist between individual and team sports irrespective of gender on anxiety. Furthermore, the obtained $F(1, 316) = 6.324$, $(p = 0.012)$ value for the two-way interaction of gender (*male and female*) and sports domain (*individual and team sports*), reveals a significant difference on anxiety.

A finding of the study establishes the existences of significant differences in the two way interaction effect on anxiety. Since, the interaction effect is significant, the simple effect test has been applied as follow up test and it is presented in Table-6.

Table – 6: The Simple Effect Test on Anxiety among Sportsperson of different Sports Domain

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F ratio</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender and Individual Sports</td>
<td>466.208</td>
<td>1</td>
<td>466.208</td>
<td>50.633</td>
</tr>
<tr>
<td>Gender and Team Sports</td>
<td>193.121</td>
<td>1</td>
<td>193.121</td>
<td>20.974</td>
</tr>
<tr>
<td>Sports Domain and Male</td>
<td>23.888</td>
<td>1</td>
<td>23.888</td>
<td>2.594</td>
</tr>
<tr>
<td>Sports Domain and Female</td>
<td>211.229</td>
<td>1</td>
<td>211.229</td>
<td>22.941</td>
</tr>
<tr>
<td>Error</td>
<td>2909.619</td>
<td>316</td>
<td>9.208</td>
<td></td>
</tr>
</tbody>
</table>

Table-6 shows that there is a statistically significant difference on anxiety between male and female sportsperson participating in individual sports, as the obtained $F(1, 316) = 50.633$, $(p < 0.05)$. Per se, considerable difference on anxiety between male and female sportsperson participating in team sports is noticed, as the obtained $F(1, 316) = 20.974$, $(p < 0.05)$. However, it also demonstrates that statistically significant difference on anxiety didn’t exist between individual and team male sportspersons as the $F(1, 316) = 2.594$, $(p = 0.108)$, whereas, considerable difference on anxiety exists between individual and team female sportspersons as the $F(1, 316) = 22.941$, $(p < 0.05)$.

CONCLUSION

The research findings of this study imply that difference in gender and participation in different sport domains contributes to the variation in developmental process on achievement motivation and anxiety.

REFERENCES


A COMPARATIVE STUDY OF STRENGTH AMONG SHOT PUT THROWERS AND HAMMER THROWERS OF OSMANIA UNIVERSITY

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ABSTRACT:
The Discus Throw and Shot Put are thrown within a circle. Throwing Events Primarily depend upon strength, power and speed. The purpose of the present study to find out the Strength among shot put throwers and Hammer Throwers of Hyderabad. The sample for the present study consists of 20 Male shot put throwers and 20 Male Discus Throwers of Hyderabad District Between the age group of 16-20 Years. To assess the Strength Test Shotput back throw were given to Discus Throwers and Shot put Throwers. This study shows that shot-putter are having more strength than discus throwers. Most shot putters are relatively strong and sturdily built. Their workouts include various weight training exercises to develop the strength compare to the Discus Throwers.

INTRODUCTION:
In Athletics the throwing events comprise of javelin throw, discus throw, hammer throw and shotput. The differences between the four disciplines includes the type of implement that is thrown and the run-up or pattern of movement prior to the throw.

Javelin Throw:
A Javelin is a long spear like implement. The thrower runs down a runway prior to releasing the implement. To record a legal throw in javelin the thrower must ensure the tip of the javelin contacts the ground first.

Discus Throw:
A discus is a circular implement, which when thrown should spin while in the air and is released from the throwers hand with a straight arm.
Shot Put:
A shot put is a spherical lead implement which must be thrown from a position close and tight into the neck of the thrower to record a legal throw.

Hammer:
A Hammer is similar to a shotput but has a wire extending from it to a handle, by which it is rotated in a circular motion before being released.

Discus, Shot Put and Hammer Throw are all thrown from within a circle rather than from a runway. All the throwing events rely on strength, power and speed for performance.

The shot put is a track and field event involving "throwing"/"putting" (throwing in a pushing motion) a heavy spherical object —the shot—as far as possible. The shot put competition for men has been a part of the modern Olympics since their revival in 1896, women's competition began in 1948. The discus throw is an event in track-and-field athletics, in which an athlete throws a heavy disc—called a discus—in an attempt to mark a farther distance than his or her competitors. It is an ancient sport, as evidenced by the fifth-century-B.C. Myron statue, Discobolus. Although not part of the modern pentathlon, it was one of the events of the ancient pentathlon, which can be dated at least to 708 BC.

The discus throw is the subject of a number of well-known ancient Greek statues and Roman copies such as the Discobolus and Discophoros.

Discus throwers have been selected as a main motif in numerous collectors' coins. One of the recent samples is the €10 Greek Discus commemorative coin, minted in 2003 to commemorate the 2004 Summer Olympics. On the obverse of the coin a modern athlete is seen in the foreground in a half-turned position, while in the background an ancient discus thrower has been captured in a lively bending motion, with the discus high above his head, creating a vivid representation of the sport.

METHODOLOGY:

The sample for the present study consists of 20 Male shot put throwers and 20 Male Discus Throwers between the age group of 16-20 Years and participated in the Hyderabad District Athletics Championships, District Schools and Junior Colleges Athletics Meet and O.U.Inter College Athletics Meets.

To assess the Strength the Shot-put back throw were conducted on Shot put Throwers and Discus Throwers.

Shot Put Back Throw:
This test involves throwing an 8 pound shot put for maximum distance. The Back Throw Test is one of the tests used in the International Physical Fitness Test.

aim: This test measures core body strength and total body power and strength.

equipment required: 8 lb shot put, tape measure, clear open area for testing.

procedure: The athlete starts with his back to the throwing area, with their heels at the start line, and the shot cradled in both hands between the knees. The subject bends forward and downward before throwing the shot backwards over their head in a two-handed throwing action (optimally at about 45 degrees). Several practices may be required to get the best trajectory for maximum distance.

Scoring: Measurement is made from the starting line to the point of impact of the shot put with the ground. The measurement is recorded in meters and centimetres. The best result of two trials is recorded.
RESULTS AND DISCUSSION:
This study shows that Shot putters are having better strength compare to the Discus Throwers.

Table-I
Mean values and Independent Samples Test of shot put back throw between Shot Putters and Discus Throwers

<table>
<thead>
<tr>
<th>Variables</th>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>P - Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shot Put Back Throw</td>
<td>Shot Put Throwers</td>
<td>13.14</td>
<td>1.26</td>
<td>1.22</td>
<td>0.231</td>
</tr>
<tr>
<td></td>
<td>Discus Throwers</td>
<td>13.06</td>
<td>1.22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level

In Table –I the Mean Values of Pre Test of shot Put Throwers in Shotput Back Throw is 13.14 and Discus Throwers is 13. The Standard Deviation of Shotputters is 1.26 and Discus throwers are is 1.22 and t is 1.22 and P-Value is 0.231.

CONCLUSION:
1. It is concluded that shotputters are having better strength than Discus throwers.
2. It is concluded that there will be shotputters requires more strength to throw the shot spherical lead implement compare to the discus throw which is circular implement.
3. Weight training exercises plays a major role for improvement of physical fitness and performance in the the shot put throwers and discus Throwers.

RECOMMENDATIONS:
1. Similar studies can be conducted on other throwing events in Athletics among girls also
2. This study also helps the physical educators and coaches to improve their training regime to excel in shotput.

REFERENCES:
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TECHNOLOGY IN SPORTS STUDY ON DECISION MAKING IN SPORT USING TECHNOLOGY

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ABSTRACT

In sports, decision taking aspect for umpires is an important issue. As a human an Umpire has to handle the pressure, need to make big calls. The major part is to manage the use of resource available in effective manner for the final verdict. Besides making decisions about legality of delivery, appeals for wickets and general conduct of the game in a legal manner, the umpire also keeps a record of the deliveries and announces the completion of an over in the game of the Cricket. The purpose of this study is to provides comparative analysis of various technology in sports as well as it also present the different decision making aspect for different sports. Technologies like Hawk-Eye, Hot-Spot, Snickometer Goal line Technology etc.

Key words: Hawk-eye, Goal line technology, Hotspot, Snikometer, UDRS.

INTRODUCTION

In Cricket
A Snickometer, commonly known as Snicko, is used in televising cricket to graphically analyse sound and video, and show whether a fine noise, or snick, occurs as ball passes bat. It was invented by English computer scientist Allan Plaskett in the mid-1990s.\(^1\)

The Snickometer is used in a slow motion display to detect whether the ball did touch the bat, even slightly to determine if it was out.

Hot Spot is the best available technology to establish the contact between the ball and the bat or pad. This technology was founded by French scientist Nicholas Bion and later developed by other companies in Paris.\(^2\) The Australian Nine Networks bought and adopted this technology. This technology is now offered by BBG Sports, an Australian company responsible for Snickometer in conjunction with Sky Sports.

This technology was first used in the first Ashes Test match at the Gabba on 23 November 2006.\(^3\) The first usage of Hot Spot in the decision-making process in cricket was in 2009 in South Africa.

Hawk-Eye is a complex computer system used officially in numerous sports such as cricket, tennis, Gaelic football, hurling, and association football, to visually track the trajectory of the ball and display a record of its statistically most likely path as a moving image.\(^4\)

Hawk-Eye was developed in the United Kingdom by Dr. Paul Hawkins. The system was originally implemented in 2001 for television purposes in cricket.

The Third umpire (or TV Umpire) is an off-field umpire who makes the final decision in questions referred to him by the two on-field umpires. Television replays are available to the third umpire to assist him in coming to a decision. An on-field umpire can, at his own discretion, use a radio link to refer any close decision concerning dismissals (catches, runouts, or stumpings) or boundaries to the third umpire.

The third umpire was conceptualized by former Sri Lankan Test cricketer, and current cricket writer Mahinda Wijesinghe and debuted in Test cricket in November 1992 at Kingsmead, Durban for the South Africa vs. India series.

The third umpire may also be called upon if the on-field umpire cannot decide which batsman is out (i.e. they end up at the same end). An example of this was the Third Test between New Zealand and the West Indies in 2006.\(^5\)

Decision Review System (DRS) allows captains of teams to challenge an umpire’s on-field decision during a match. Each captain is given two unsuccessful reviews during each innings. It was brought into International cricket in 2009, for the first Test between New Zealand and Pakistan in Dunedin.

The DRS requires the use of two different broadcasting camera’s in order to determine whether a decision is upheld or overturned. They are:\(^6\)\(^7\)\(^8\)

- Hawk
- Hot Spot
The Umpire Decision Review System (abbreviated as UDRS or DRS) is a technology-based system used in the sport of cricket. The system was first introduced in Test cricket, for the sole purpose of reviewing controversial decisions made by the on-field umpires in the case of whether or not a batsman had been dismissed. The system was first tested in an India v Sri Lanka game in 2008. The system was officially launched by the International Cricket Council on 24 November 2009[9][10][11] during the first Test match between New Zealand and Pakistan at the University Oval in Dunedin. It was first used in One Day Internationals in January 2011, during England's tour of Australia. [12]

In Tennis

In late 2005 Hawk-Eye was tested by the International Tennis Federation (ITF) in New York City and was passed for professional use. Hawk-Eye reported that the New York tests involved 80 shots being measured by the ITF's high speed camera, a device similar to MacCAM. An instance when the tennis ball was shown as "Out", but the accompanying word was "In". This was explained to be an error in the way the tennis ball was shown on the graphical display as a circle, rather than as an ellipse.

In Football

On 3 March 2012, Hawk-Eye and another system, GoalRef were approved by the IFAB On 2 June 2012[13], the system was tested during a friendly between Belgium and host England in Wembley. During these tests the results of the systems won't be used for the game; the referee won't be informed about the calls from Hawk-Eye. On 5 July 2012 FIFA approved of this technology along with GoalRef to be part of the new goal line technology system.

On 11 April 2013, Hawk-Eye was approved for use in the Premier League 2013-14 football season is officially called the “Goal Decision System,” and it was used for the first time in a game between Liverpool and Stoke City at Anfield on 17 August 2013.[14][15][16] It will use seven cameras per goal to analyse whether or not the ball has crossed the line.[17]

In Snooker

At the World Snooker Championship 2007, the BBC used Hawk-Eye for the first time in its television coverage to show player views, particularly in the incidents of potential snookers.[18] It has also been used to demonstrate intended shots by players when the actual shot has gone awry. It is now used by the BBC at every World Championship, as well as some other major tournaments.

METHOD

In Snikometer

The Snickometer is often used in a slow motion television replay by the third umpire to detect if the cricket ball touched the cricket bat on the way through to the wicketkeeper. The TV Umpire will listen and view the shape of the recorded soundwave. If there is a sound of leather on willow, which is usually a
short sharp sound in synchrony with the ball passing the bat, then the ball has touched the bat. Other sounds such as the ball hitting the batsman’s pads, or the bat hitting the pitch, and so on, tend to have a fatter shape on the sound waveform.

If, in the umpire’s opinion, this is the case, and the ball was a legal delivery that was caught before touching the ground, then the batsman is given out by the umpire. The umpire does not have the benefit of the Snickometer, and must instead rely on his senses of sight and hearing, as well as his judgement. When the Umpire DRS (Decision Review System) was introduced to Test Cricket, Snicko was not considered accurate enough, and so another edge detecting tool Hot Spot was introduced.

Hotspot

Hot Spot uses two infra-red cameras positioned at either end of the ground. These cameras sense and measure heat from friction generated by a collision, such as ball on pad, ball on bat, ball on ground or ball on glove. Using a subtraction technique a series of black-and-white negative frames is generated into a computer, precisely localising the ball’s point of contact.

In Hawk eye

All Hawk-Eye systems are based on the principles of triangulation using the visual images and timing data provided by a number of high-speed video cameras located at different locations and angles around the area of play. For tennis there are ten cameras. The system rapidly processes the video feeds by a high-speed camera and ball tracker.

In Third umpire

In the case of a run out or stumping, a batsman may be declared "out" if the wicket is ‘put down’. Whenever a TV umpire decision is signalled by an on-field umpire. The TV umpire gets access to Instant Replay to make his decision. The instant replays are also available for the TV/Internet viewers. However, the live crowd does not get to witness it. Because in most of the cases, TV umpire decisions end up in a tight gap between out and not out. Live crowd will make their decision on the replay shown. However, the TV umpire is required to follow guidelines which may turn the decision to the other side. This could lead to major problems among the crowd and disrupt the gameplay.

In UDRS

A challenge is always used in situations that did or may result in a dismissal: for example, to determine if the ball is a legal catch (making contact with the batsman’s bat or glove and not touching the ground before being held by a fielder) or if a delivery made the criteria for a leg before wicket dismissal (hitting the ground in line or on the off side and hitting the batsman in line with a path that would have hit the wicket). The TV Umpire then reports to the on-field umpire whether his analysis supports the original call, contradicts the call, or is inconclusive. The on-field umpire then makes the final decision: either re-
signalling a call that is standing or revoking a call that is being reversed and then making the corrected signal. Each team can initiate referrals up to the limit on unsuccessful reviews.

Under the DRS rule only clearly incorrect decisions are reversed; if the TV Umpire's analysis is within established margins of error or is otherwise inconclusive, the on-field umpire's original call stands.

In CRICKET

Its major use in cricket broadcasting is in analyzing leg before wicket decisions, where the likely path of the ball can be projected forward, through the batsman's legs, to see if it would have hit the stumps. Consultation of the third umpire, for conventional slow motion or Hawk-Eye, on leg before wicket decisions, is currently sanctioned in international cricket even though doubts remain about its accuracy in cricket.[21] The Hawk-eye referral for LBW decision is based on three criteria:

- Where the ball pitched
- The location of impact with the leg of the batsman
- The projected path of the ball past the batsman

In all three cases, marginal calls result in the on-field call being maintained.

In TENNIS

All Hawk-Eye systems are based on the principles of triangulation using the visual images and timing data provided by a number of high-speed video cameras located at different locations and angles around the area of play.[20] For tennis there are ten cameras. The system rapidly processes the video feeds by a high-speed camera and ball tracker. A data store contains a predefined model of the playing area and includes data on the rules of the game.

In each frame sent from each camera, the system identifies the group of pixels which corresponds to the image of the ball. It then calculates for each frame the 3D position of the ball by comparing its position on at least two of the physically separate cameras at the same instant in time. A succession of frames builds up a record of the path along which the ball has travelled. It also "predicts" the future flight path of the ball and where it will interact with any of the playing area features already programmed into the database. The system can also interpret these interactions to decide infringements of the rules of the game.[20]

The system generates a graphic image of the ball path and playing area, which means that information can be provided to judges, television viewers or coaching staff in near real time.

The pure tracking system is combined with a backend database and archiving capabilities so that it is possible to extract and analyze trends and statistics about individual players, games, ball-to-ball comparisons, etc.

In FOOTBALL

CAMERA TECHNOLOGY
Hawk-Eye install 7 cameras per goal, the most common location is on the roof of the stadium, however there is a great deal of flexibility in the camera position.

VISION PROCESSING

The images from each of the cameras are processed to find the ball within the image and also identify areas which are definitely NOT the ball. The system is able to find the ball if only a small part of the ball is visible in the image. The system can work with any pattern and specific vision processing techniques are used to identify each ball. The system is unaffected by mud on the ball or any adverse weather conditions.

GOAL ALERT

Control software combines the information from all cameras and is able to track the ball within the goal area. As soon as the system detects that the ball has crossed the goal line, it instantaneously sends a signal to the official’s watch. The watch has been developed exclusively for Hawk Eye by industry leaders Adeunis. It is technically possible to also provide a “near miss” signal to the watches so the referee also receives a positive confirmation that the ball did not cross the line in a close incident.

REALIABILITY AND ACCURACY

The system is able to locate the ball even if it is only found in 2 of the 7 cameras. There has never been a goal line incident where the ball would not have been seen by any of the Hawk-Eye cameras. The system is millimeter accurate, which ensures that no broadcast replays could disprove the decision. The system accuracy is not affected by any variances in the painting of the goal line or if the posts not are not perfectly vertical.

DEFINITIVE REPLAY

Hawk-Eye utilises a dedicated high speed camera capable of removing the players from the image, to ensure the ball is fully visible. This provides the definitive replay for broadcast and digital media.
In SNOOKER

It has also been used to demonstrate intended shots by players when the actual shot has gone awry. It is now used by the BBC at every World Championship, as well as some other major tournaments. The BBC uses the system sporadically, for instance in the 2009 Masters at Wembley the Hawk-Eye was at most used once or twice per frame.

RESULTS & DISCUSSION

In CRICKET

Hot spot's success rate is found to be 90–95%. New cameras were used in Border-Gavaskar series in 2011–12 for viewers, which were vastly superior to those that had been part of the DRS in the past. [22]

Karl Liebenberg and Cyril Mitchley were TV umpires in this match. Sachin Tendulkar became the first batsman to be dismissed (run out) by using television replays in the second day of the Test scoring 11.[22]

When a not-out LBW decision is evaluated, and if the replay demonstrates the ball has made impact more than 2.5 m away from the wickets, various additional criteria apply to account for the uncertainty of the ball's potential direction after pitching. For example, if the ball pitches more than 2.5 m from the wicket and travels less than 40 cm before hitting the batsman, then any not-out decision given by the on-field umpire stands. It has also been decided that if the batsman is more than 3.5 m from the wicket, then not-out decisions will stand. The only picture in which an LBW decision will be reversed in favour of the bowler is if the batsman is 2.5–3.5 m away from the wicket and the ball travels more than 40 cm after pitching before hitting the batsman.

In TENNIS

Paul Hawkins, managing director of Hawk-Eye technology, says the line-calling system has gone through more than 1,000 tests. "We've gotten every single one of the tests correct," he said. Hawkins said that Hawk-Eye's margin of error averaged about 3.6 millimeters (0.14 inches) and that the system was around 99.9 percent accurate.

The International Tennis Federation tested Hawk-Eye's accuracy in nearly 800 separate trials before introducing the system at major tournaments. According to the ITF criteria, any electronic line-calling system must be able to judge a ball in or out within 5 millimeters [23] (0.20 inches) Incorrect calls are allowed, so long as they are not more than 10 millimeters (0.40 inches) off. Collins and Evans said that while what Hawk-Eye achieves is remarkable, its use in tennis needs to be refined.

During ITF testing in 2006 Hawk-Eye passed a number of stringent parameters, meaning that it would be the first electronic line calling system to be officially accredited. Results showed the system to have a mean error of only 3.6mm when compared to a high speed camera located on the playing surface.
Since then, testing of the system is an on-going process at all events prior to main draw competition, including tests conducted outdoors, encompassing situations that take the following factors into consideration:

- Wind (and therefore camera wobble)
- Bright sunlight at different times of the day
- Shadows covering part or the majority of the court
- Dark or overcast conditions
- Artificial floodlights

Although the accuracy of the existing system has been proven to meet the ITF rules and regulations, the company is constantly developing and refining the system to raise the bar further still. Equally Hawk-Eye listens to feedback from customers and officials to ensure that Hawk-Eye remains the very best in the market in accuracy, reliability, speed and from a broadcast point of view.

Although prior to the use of Hawkeye, players have maintained that they instinctively know when a ball is in or out, the evidence so far has not been conclusive. Of the player challenges that have been made, subsequent rulings by Hawkeye have shown that they are only correct about 46% of the time.

In FOOTBALL

According to FIFA president Sepp Blatter, "We did different tests at the Under-17 World Cup in Peru but the evidence wasn't clear so we will carry out trials in junior competitions in 2007". However, those trials did not materialise and by 2008, Blatter had rejected the system outright, describing the technology as 'only 95% accurate'.

In a recent poll of 48 captains in the UEFA Europa League, 90% of respondents said that they wanted goal-line technology introduced.

In Snooker

the Hawk-Eye was at most used once or twice per frame. the Hawk-Eye is never used in snooker to assist referees' decisions.

CONCLUSIONS

The concept of Hawk-Eye was born in 1999 as the brainchild of Professor Paul Hawkins, who devised a way of using specially placed cameras to improve the accuracy of decision-making by match officials in sport. First used as a broadcast tool to analyze decisions in cricket, Hawk-Eye has since modernised sports broadcasting, officiating and coaching across a variety of sports.
Hawk-Eye technology is installed in more than 230 stadiums worldwide and is involved in over 100 events each year, including the Cricket World Cup, the Olympic Games, and all four tennis grand slams.

Hawkeye is very accurate in measuring the actual path of a ball, when it comes to predicting the future path of the ball, such as in LBW decisions, it is not as clear. If the ball is heading to the pitch, there's no way Hawk-eye can tell if a delivery is going to skid a bit more than normal or hit a crack, bit of grass, or worn patch of the pitch. The predicted path of the ball is based on the average and expected pathway.

Hawk-Eye is almost certainly going to be correct more often than a human lines-person, but it can't be perfect, and indeed the makers only claim it is accurate to 5 mm (that was in 2008 – it may be more accurate now with the development of faster frame rate cameras). There have been a couple of high profile cases where Hawk-Eye appears to have got it wrong in tennis, most notably in 2007 when Nadal could identify a mark on the court where he claimed the ball landed (out) that Hawk-Eye reported was good.

If Hawk-Eye could provide a measure of uncertainty around its prediction, it wouldn't make its decision any more controversial, argues the article. The results could aid the umpire, even if the margin of error for the technology is reported and explained. They suggest the use of bails in cricket as another aid to turning the often quick and hard-to-observe live game into a binary "in" versus "out" decision. For example, a ball could roll slowly and hit the stumps, but not dislodge the bails, and this would be just "the luck of the game".

A close call on Hawk-Eye, which is likely to be more accurate than a human observer but not completely infallible, is a similar enhancement to an umpire's decision making. The paper concludes that Hawk-Eye should be used as technology oriented decision based and that, if used with a little more nuance, it could provide added enjoyment of the games involved and public understanding of technology, its uses and its limitations. What do you think? Do you want a simple binary decision in your sports, or would you rather know the accuracy of Hawk-Eye's output?

"It should be used like a spell-checker on your computer," Collins said. "It's not right all the time, but it's a useful adviser."

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ANALYTICAL STUDY ON PHYSICAL FITNESS OF KABADDI PLAYERS & KHO-KHO PLAYERS IN OSMANIA UNIVERSITY

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INTRODUCTION

Physical fitness is a multifaceted continuum extending from birth to death, affected by physical activity. It ranges from optimal activities in all aspects of life through high and low levels of different physical fitness to serve disease and dysfunction. The ability to function efficiently and effectively is to enjoy leisure, to be healthy, to resist disease and to cope with emergency situations. Health related components of physical fitness include body composition, cardiovascular fitness, flexibility, muscular endurance and strength. Skill related components include agility, balance, coordination, power, reaction time and speed.

The relative importance of each of the components varies for each sport. Physical fitness is not only sport specific it may also be position specific, combined good health and physical development. The object of any program of physical fitness is to maximize any individual’s health, strength, endurance and skill relative to age, sex, body build and physiology.

SIGNIFICANCE OF THE STUDY:
The study is to determine the physical fitness of the kabaddi players and kho-kho players of Osmania University.

HYPOTHESES

4. There may not be any significant difference between kabaddi players and women hand ball players of Osmania University in relation to their speed (50M run).

5. There may not be any significant difference between kabaddi players and women hand ball players of Osmania University in relation to their endurance (Cooper Test - 12 minutes run/walk).

SAMPLE OF THE STUDY:
The study was formulated based on the simple random sampling. The samples were collected from the 50 Kabaddi players and 50 Kh0 -Kho players in the age group of 18 – 22years from Osmania University.

SHOWING THE SAMPLE OF THE STUDY

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Category of the subjects</th>
<th>Number of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kabaddi players</td>
<td>50</td>
</tr>
<tr>
<td>2.</td>
<td>Kho- Kho players</td>
<td>50</td>
</tr>
</tbody>
</table>
TOOLS USED:

The present study under investigation selected the following physical fitness test performed are

- Physical Fitness
  - Speed (50M Run), Endurance (Cooper Test 12 Minute Run / walk).

DATA COLLECTION PROCEDURE:

The study under report focuses the physical fitness, basis of team game players, which is the order of the day in everlasting sports scenario. The study was formulated based on the simple random sampling. The samples were collected from the 50 Kabbadi players and 50 Kho-Kho players in Osmania University in the age group of 18-22 years were considered. Physical fitness test was administrated on Osmania University players i.e. the speed (50m run) and endurance (Cooper Test - 12 minutes run/walk).

Results and Discussions

The results pertaining to the study are present in the following,

Table – 1 Showing the Mean Values, SD, df, ‘t’ value and p-value between kabaddi players and Kho – Kho players of Osmania University Players in relation to their speed (50m run).

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Subjects</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>‘t’ ratio</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kabaddi Players</td>
<td>50</td>
<td>7.00</td>
<td>0.46</td>
<td>2.601</td>
<td>0.01</td>
</tr>
<tr>
<td>2.</td>
<td>Kho-Kho Players</td>
<td>50</td>
<td>6.11</td>
<td>0.34</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table – 2 Showing the Mean Values, SD, df, ‘t’ value and p-value between kabaddi players and Kho - Kho players of Osmania University Players in relation to their Endurance (cooper test).

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Subjects</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>‘t’ ratio</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kabaddi Players</td>
<td>50</td>
<td>2016</td>
<td>296.76</td>
<td>4.01</td>
<td>0.01</td>
</tr>
</tbody>
</table>
CONCLUSION:

The study under report has scientifically examined the various factors which influence the power game, especially the physical fitness variables pertinent to speed and endurance. A trained individual is in a better state of physical fitness than the person who follows a sedentary, inactive life. When two persons, one trained and one untrained or approximately the same build are performing the same amount of moderate muscular work, evidence indicates that the trained individual has a lower oxygen consumption, lower pulse rate, larger stroke volume poor heartbeat, less in blood pressure, greater red and white blood cell counts, slower rate of breathing, lower rate of lactic acid formation, and a faster return to normal of blood pressure and heart rate.

Since a greater efficiency of heart action enables a larger flow of blood to reach the muscles and thus ensure an increased supply of fuel and oxygen, more work is performed at less cost; improvements in strength, power, neuromuscular coordination, and endurance occur, coordination and timing of movements as better, and an improved state of physical fitness results. Physical fitness is a multifaceted continuum extending from birth to death, affected by physical activity. It ranges from optimal activities in all aspects of life through high and low levels of different physical fitness to serve disease and dysfunction.

Hence it is concluded that the physical fitness plays a vital role on the performance of the players. Physical activity can act as an antidote to some kinds of fatigue; youngsters will be harmed through sustained exercise – if they are fit, their physical endurance is great, and the exercise will be conductive to good health.

REFERENCES:-


A STUDY ON SPEED, AGILITY AND ENDURANCE AMONG THE BASKETBALL AND KORFBALL PLAYERS OF OSMANIA UNIVERSITY, HYDERABAD.

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ABSTRACT:

The Purpose of the present study was to find out the level of speed, agility and endurance of the Basketball and Korfball players of Osmania University. For the present study 30 male korfball and 30 Basketball players between the age group of 19 to 20 Yrs have been taken for the study. For this study 50 meter run is used to collect the data of speed, Shuttle Run for agility and 600 M Run for Endurance. The study shows that the Basketball Players are having good level of speed, Endurance compare to Korf Ball players and Korf Ball Players are having the good agility. It is recommended that Basketball and Korfball must be given good training for the improvement of the Speed, agility and Endurance.

Key words: Speed, Agility, Endurance, Basketball and Korfball.

INTRODUCTION

Speed:
Speed is a key component of Physical fitness which is very important for Basketball and Korfball players for giving the high level performance in competition. Speed is the performance pre requisite to do motor actions under given conditions in minimum time. Speed is the quickness of movement of a limb, whether this legs of a runner or the arms of the shot putter. Speed is an integral part of every sport and can be expressed as a one of, or combination of, the following: maximum speed, elastic strength and speed endurance.

Agility: In general, agility is defined as "the ability of a system to rapidly respond to change by adapting its initial stable configuration". In sports, agility is often defined in terms of an individual sport, due to it being an integration of many components each used differently (specific to all sorts
of different sports). Sheppard and Young (2006) defined agility as "a rapid whole body movement with change of velocity or direction in response to a stimulus."

Endurance: Endurance is the ability of an organism to exert itself and remain active for a long period of time, as well as its ability to resist, withstand, recover from, and have immunity to trauma, wounds, or fatigue. In humans, it is usually used in aerobic or anaerobic exercise. Endurance may also refer to an ability to keep going through a tough situation involving hardship, stress, etc.

**Aim:** To find out the level of the Speed, agility and Endurance of the Basketball and Korfball players of Osmania University.

**PROCEDURE OF DATA COLLECTION:**

50 meter run is used to collect the data of speed, Shuttle Run for agility and 600 M Run for Endurance.

**RESULTS AND DISCUSSION:**

<table>
<thead>
<tr>
<th>Test Items</th>
<th>GROUP</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 Meter run</td>
<td>Basketball</td>
<td>30</td>
<td>8.01</td>
<td>0.23</td>
<td>0.07</td>
<td>-1.80</td>
<td>58.00</td>
<td>0.09</td>
</tr>
<tr>
<td></td>
<td>Korfball</td>
<td>30</td>
<td>8.29</td>
<td>0.45</td>
<td>0.14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>600 Meter</td>
<td>Basketball</td>
<td>30</td>
<td>1.64</td>
<td>0.19</td>
<td>0.06</td>
<td>-0.36</td>
<td>58.00</td>
<td>0.72</td>
</tr>
</tbody>
</table>
In 50 M Run the Basket Ball players speed is 8.01 and Korf Ball Players speed is 8.29 there is a difference of 0.28 in speed. The Basket Ball Players are having the good speed. In 600 M Run the Basket Ball Players Mean is 1.64 and Korf Ball Players Mean is 1.68 there is 0.40 and Basket Ball Players are having the good endurance. In Agility the Basket Ball Players is 15.48 and Korf Ball Players is 14.10 there is a difference of 1.38. The Korf Ball Players are good in agility.

Conclusion:

It’s been concluded that the Basketball Players are having good level of speed, and Endurance compare to Korfball players and Korfball players are having the good agility.

Recommendations:

It is recommended that the Basketball and Korfball players must be given good training for the Speed, agility and endurance for the improvement of the performance.

References:

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A COMPARATIVE STUDY OF SPEED IN CROUCH START AND STANDING START AMONG SPRINTERS OF HYDERABAD

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Osmania University, Hyderabad, India
Prof.P.Venkat Reddy
Dean, Faculty of Education, Osmania University, Hyderabad

ABSTRACT:

Background: The crouching start is where when the gun shooter says "On your Mark" you stand in front of your line and you bend down and put your hands right under the line never above or you will get disqualified. Then when they say "Get set" You lean forward and put your butt in the air (not to much and not to little).. Then once the gun shoots you take off. There are three types of sprint starts: Bunch or Bullet start, Medium start, Elongated start. The Standing start is used in the races of longer distance 800m.

Materials and Methods: The purpose of the present study to find out the speed in crouch start and standing start among sprinters of Osmania University in India. The sample for the present study consists of 32 Male sprinters of Osmania University. The 50 M Run is used to assess the speed in Standing Start and Crouch Start. The Standing Start Run for 32 sprinters and the Crouch Start with the starting blocks in medium start position is conducted by the Qualified Technical Officials in 50 M Run to assess the speed.

Results: The results of the study shows that in crouch start timing is faster than the standing start timing in 50 M Run.

Discussion & Conclusion: Sprint starts are very commonly used in athletics in sprints. The standing start is used by beginner athletes before they progress to the crouch start, while competitive athletes use the block start that allows them to apply force and thus aids in push off that can be transferred into horizontal velocity which can give the sprinters the speed compare to the standing start.

INTRODUCTION:
Sprints are short running events in athletics and track and field. Races over short distances are among the oldest running competitions. The first 13 editions of the Ancient Olympic Games featured only one event—the stadion race, which was a race from one end of the stadium to the other. There are three sprinting events which are currently held at the Summer Olympics and outdoor World Championships: the 100 metres, 200 metres, and 400 metres.

Starting Blocks are used for all competition sprint (up to and including 400 m) and relay events (first leg only, up to 4x400 m). The starting blocks consist of two adjustable footplates attached to a rigid frame. Races commence with the firing of the starter's gun. The starting commands are "On your marks" and "Set". Once all athletes are in the set position, the starter's gun is fired, officially starting the race. For the 100 m, all competitors are lined up side-by-side. For the 200 m, 300 m and 400 m, which involve curves, runners are staggered for the start.

In the rare event that there are technical issues with a start, a green card is shown to all the athletes. The green card carries no penalty. If an athlete is unhappy with track conditions after the "on your marks" command is given, the athlete must raise a hand before the "set" command and provide the Start referee with a reason. It is then up to the Start referee to decide if the reason is valid. In the event that the Start referee deems the reason invalid, a yellow card (warning) is issued to that particular athlete. In the event that the athlete is already on a warning the athlete is disqualified.

Crouch Start:

Sprint starts are very commonly used in athletics ranging from sprints to a number of middle and long distance events. The two main variations are the standing and the crouch start which are used for middle or long distance events and sprints respectively. The crouching start is where when the gun shooter says "On your Mark" you stand in front of your line and you bend down and put your hands right under the line never above or you will get disqualified. Then when they say "Get set" You lean forward and put your butt in the air (not to much and not to little).

There are three types of sprint starts:

- Bunch or Bullet start - The toes of the rear foot are approximately level with the heel of the front foot and both feet are placed well back from the starting line.
- Medium start - the knee of the rear leg is placed opposite a point in the front half of the front foot.
- Elongated start - the knee of the rear leg is level with or slightly behind the heel of the front foot.

Standing Start:

The standing Start is used in the event more than 400 Meters. The standing start is used by beginner athletes before they progress to the crouch start, while competitive athletes use the block start that allows them to apply force and thus aids in push off that can be transferred into horizontal velocity.
In the standing start the athlete stands rather upright with one foot behind the other. Body leans slightly forward on the ‘set’ position and drives off the front foot, on which the body weight is distributed, on the ‘go’ command. The torso is approximately at a 45° at triple extension. In the crouch start the athlete assumes the initial position. On set the knees leave the ground, the hips rise upwards and the body leans slightly forwards with the head looking downwards. On the go the athlete drives forwards into acceleration. At triple extension the torso is leaned forwards more than in the standing start.

MATERIALS AND METHODS:
The purpose of the present study to find out the speed in crouch start and standing start among sprinters of Osmania University in India. The sample for the present study consists of 32 Male sprinters of Osmania University. The 50 M Run is used to assess the speed in Standing Start and Crouch Start.

50 Meters Run:
Sprint or speed tests can be performed over varying distances, depending on the factors being tested and the relevance to the sport. The 50 Meter Sprint is part of the International, and their protocol is listed here.

**purpose:** The aim of this test is to determine acceleration and speed.

**equipment required:** measuring tape or marked track, stopwatch, cone markers, flat and clear surface of at least 70 meters.

**procedure:** The test involves running a single maximum sprint over 50 meters, with the time recorded. A thorough warm up should be given, including some practice starts and accelerations. Start from a stationary standing position (hands cannot touch the ground), with one foot in front of the other. The front foot must be behind the starting line. Once the subject is ready and motionless, the starter gives the instructions "set" then "go.". The tester should provide hints for maximizing speed (such as keeping low, driving hard with the arms and legs) and the participant should be encouraged to not slow down before crossing the finish line.

**results:** Two trials are allowed, and the best time is recorded to the nearest 2 decimal places. The timing starts from the first movement (if using a stopwatch) or when the timing system is triggered, and finishes when the chest crosses the finish line and/or the finishing timing gate is triggered.

The Standing Start Run for 32 sprinters and on next day same 32 sprinters the Crouch Start with the starting blocks in medium start position is conducted by the Qualified Technical Officials in 50 M Run to assess the speed.

Results and Discussion:
The results of the study shows that in crouch start timing is faster than the standing start timing in 50 M Run. The Table No.1 showing the Mean, S.D, Standard Error, t-ratio of Sprinters in Standing Start and Sprinters in Crouch Start in 50 Meters Run.

Table No.1

<table>
<thead>
<tr>
<th>Results of 50 M</th>
<th>N</th>
<th>Mean</th>
<th>Std.</th>
<th>Std. Error</th>
<th>t</th>
<th>df</th>
<th>Sig. (2- )</th>
</tr>
</thead>
</table>

438
The Sprinters standing start mean performance in 30 M Run is 6.87 and Standard Deviation is 0.48 and Sprinters Crouch Start mean performance in 50 M Run is 6.55 and Standard Deviation is 0.23. The sprinters in crouch start are having the better speed i.e. 6.55 compare the sprinters in standing start is 6.87 there is a difference 0.32. The t-value is 2.25.

Conclusions:

It is concluded that Crouch Start is having better speed and advantage in Sprints compare to the Standing Start.

Recommendations:

It is recommended that similar studies can be conducted in hurdles and relays in athletics.

References:
Wikipedia Sprints, Top end Sports

A COMPARATIVE STUDY OF ACHIEVEMENT MOTIVATION AMONG ATHLETES AND FOOT BALL PLAYERS OF OSMANIA UNIVERSITY

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Research Scholar, Nagpur University
SRIKANTHCHANTI2001@YAHOO.COM

ABSTRACT:

Achievement Motivation defined as the need to perform well or the striving the success as the need to perform well or the striving for success and evidenced by persistence and effort to achieve high performance in sports. Motivation is based on your emotions and achievement related goals. Achievement Motivation is the desire to excel at task. The purpose of the study is to find out the level of achievement motivation among Athletes and Foot Ball Players of Osmania University. The sample for the study consists of 50 Athletes and 50 Foot Ball Players those who have participated in the Inter College Tournaments of Osmania University during the year 2012-13. The Standardized Dr.B.N.Mukharji Achievement Motivation scale were used for the study. It was found the Athletes are having more
Achievement Motivation than Foot Ball Players because the Athletes required compulsory Motivation to achieve excel in Performance. It is concluded that Individual Sports persons like Athletes set goals and aims to give level best performance to win the Competition, where as the Foot Ball Players depend upon their group to give the high level of performance. It is recommended that achievement motivation is compulsory for all sports persons to achieve high excellence in sports. The Coaches must prepare all the sports persons with high level of motivation to excel in sports and games.

Key words:
Achievement motivation, athletes, foot ball players etc.

INTRODUCTION:

Achievement Motivation defined as the need to perform well or the striving the success as the need to perform well or the striving for success and evidenced by persistence and effort to achieve high performance in sports. Motivation is based on your emotions and achievement related goals. Achievement Motivation is the desire to excel at task.

Sport Psychology is the scientific study of people and their behaviors in sport. The role of a sport psychologist is to recognize how participation in sport exercise and physical activity enhances a persons development. Beginning, in the 1970, Sport psychology became a part of the curriculum on university campuses. Today, sport and exercise psychologists have begun to research and provide information in the ways that psychological well being and vigorous physical activity are related.

Modern day sports are very demanding. It requires for the sportsmen and athletes a like to perform to the very best of their abilities and beyond. Individual sport activities such as wrestling and gymnastics, have shown to elicit higher anxiety levels than competitive team sport activities such as soft ball and basket ball. Achievement Motivation defined as the need to perform well or the striving for success and evidenced by persistence and effort in the face of difficulties. Achievement Motivation is regarded as central human motivation. Achievement Motivation form to be the basic for good life. People who are oriented towards achievement in general, enjoy life and feel in control, being motivated keeps people dynamic and gives them self respect. They set moderately difficult but easily achievable targets, which help them, achieve their objectives. They do not set up extremely difficult or extreme easy targets by motivated people prefer to work on a problem rather than leaving the outcome to chance. It is also seen that achievement motivated sports persons seem to be more concerned with their personal achievement rather the rewards of success.

Athletics is an exclusive collection of sporting events that involve competitive running, jumping, throwing, and walking. The most common types of athletics competitions are track and field, road running, cross country running, and race walking. The simplicity of the competitions, and the lack of a need for expensive equipment, makes athletics one of the most commonly competed sports in the world. Athletics is mostly an individual sport, with the exception of relay races and competitions which combine athletes' performances for a team score, such as cross country.
Football refers to a number of sports that involve, to varying degrees, kicking a ball with the foot to score a goal. The most popular of these sports worldwide is association football, more commonly known as just "football" or "soccer". Unqualified, the word football applies to whichever form of football is the most popular in the regional context in which the word appears, including association football, as well as American football, Australian rules football, Canadian football, Gaelic football, rugby league, rugby union and other related games.

**METHOD:**

The purpose of the study is to find out the level of achievement motivation among Athletes and Foot Ball Players of Osmania University. The sample for the study consists of 50 Male Athletes and 50 Male Foot Ball Players those who have participated in the Inter College Tournaments of Osmania University during the year 2012-13. The Standardized Dr.B.N.Mukharji Achievement Motivation scale were used for the study.

The Questionnaire were administered in small groups during the Osmania University Inter College Sports and Games for the year 2012-2013 during the Coaching Camps conducted for the Athletics and Foot Ball.

**Result:**

Table No.1

<table>
<thead>
<tr>
<th>Sports Persons</th>
<th>Mean</th>
<th>S.D.</th>
<th>N</th>
<th>DF</th>
<th>‘t’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletes</td>
<td>32.12</td>
<td>5.92</td>
<td>50</td>
<td>0.98</td>
<td></td>
</tr>
<tr>
<td>Foot Ball Players</td>
<td>39.28</td>
<td>7.90</td>
<td>50</td>
<td></td>
<td>8.14**</td>
</tr>
</tbody>
</table>

The results in Table No.1 Shows that Athletes are more Achievement than Foot Ball Players must have more achievement motivation to excel in sports. The Decision must be made by Athletes persons is final for his performance. Whereas in Team Game like foot ball there will be group effort among all players and their achievement motivation differs from each sports persons to sports persons. It was found the Athletes are having more Achievement Motivation than Foot Ball Players because the Athletes required compulsory Motivation to achieve excel in Performance.

**CONCLUSION:**

It is concluded that Individual Sports persons like Athletes set goals and aims to give level best performance to win the Competition, where as the Foot Ball Players depend upon their group to give the high level of performance.

It is recommended that achievement motivation is compulsory for all sports persons to achieve high excellence in sports. The Coaches must prepare all the sports persons with high level of motivation to excel in sports and games.
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EFFECT OF PLYOMETRIC TRAINING FOR DEVELOPMENT OF SHOULDER STRENGTH AND SPEED AMONG BOXERS OF OSMANIA UNIVERSITY

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ABSTRACT:
Plyometric exercises are a vital component for Boxers for obtaining the maximal strength, speed and force during the Boxing event and should be included in any conditioning program of Boxers. The purpose of the present study to find out the effect of plyometric exercises for the development of Shoulder strength and speed among Boxers. The sample for the present study consists of 20 Male Boxers of Hyderabad out of which 10 are experimental group and 10 are controlled group. Plyometric exercises such as hopping, bounding, depth jumps, tuck jumps, Push ups etc were given to experimental group on alternate days i.e. three sessions per week and controlled group were given the general training for six weeks. Pre Test and Post Test were conducted in Pull ups to measure the shoulder strength and 30 M Run to measure the speed among experimental group and controlled group. This study shows that due to the plyometric training there is a improvement of experimental group in the Shoulder strength and Speed and controlled group is decreased in performance of shoulder strength and speed. Boxing is all about explosive power. Explosive power is a combination of speed, muscular endurance and muscular strength, all of which can be developed through plyometric exercises. It is concluded that due to plyometric exercises there will be improvement in shoulder strength and speed among Boxers.

Key Words: plyometric exercises, maximal strength, speed etc.
INTRODUCTION:
Plyometric exercises are a vital component for Boxers for obtaining the maximal strength, speed, and force during the Boxing event and should be included in any conditioning program of Boxers. Successful Boxers are athletic, technically sound and tactical savvy in the ring. Spending long hours in the gym makes you more technical and tactical. With an effective workout routine and the right training, your coordination, quickness, and explosiveness should improve through Plyometric training.

Plyometric train your nervous system to trigger quick, powerful muscle contractions, workouts include high intensity exercises that emphasize short bursts of energy. Boxing is a sport that requires explosive and powerful movements for an athlete to succeed. Plyometrics mimics the physical demands of a fight and will train your body to move more quickly and explosively. When completing plyometric exercises, they must be done in short bursts at the highest intensity possible, then take a brief rest before moving to the next set or exercise.

Boxing is about moving fast and hitting hard. These are movements that require explosive power in the muscles as opposed to exerting power over a lengthy period of time. Boxers can build these muscles by focusing on plyometric exercises that build the fast-twitch muscle fibers needed for rapid, explosive power. A plyometric training routine incorporating exercises that build functional power for use in punching and boxing movements will help you to get more out of your workout.

Boxing is the pugilism, prize fighting, the sweet science is a combat sport in which two people engage in a contest of strength, speed, reflexes, endurance, and will by throwing punches with gloved hands against each other.

Fitness is a very important in the success of a boxer. Boxers need excellent levels stamina, speed, agility and power. In order to improve as a boxer, you should be testing and monitoring your fitness levels and adjusting your training so you can fully reach your potential.

Method: The purpose of the present study to find out the effect of plyometric exercises for the development of Shoulder strength and speed among Boxers. The sample for the present study consists of 20 Male Boxers of Hyderabad out of which 10 are experimental group and 10 are controlled group. Plyometric exercises
such as Push ups, Medicine Ball Throws, Hopping, Bounding, Tuck Jumps, Box Jumps etc were given to experimental group on alternate days i.e. three sessions per week and controlled group were given the general training for six weeks. Pre Test and Post Test were conducted in Pull ups to measure the shoulder strength and 30 M Run to measure the speed among experimental group and controlled group.

RESULT:
This study shows that due to the plyometric training there is an improvement of experimental group in the Shoulder strength and Speed and controlled group is decreased in performance of shoulder strength and speed due to the general training.

Table I: Mean values and Independent Samples Test of 30 M run test between experimental and control groups

<table>
<thead>
<tr>
<th>Variables</th>
<th>Group</th>
<th>Pre Test Mean</th>
<th>Post Test Mean</th>
<th>t</th>
<th>P - Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 M Run Test</td>
<td>Experimental</td>
<td>4.52</td>
<td>4.23</td>
<td>2.58</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>4.65</td>
<td>4.73</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Experimental Group of 30 M Run Men is 4.52 in Pre Test and Controlled Group mean is 4.65 in Pre Test there is a difference of 1.13 in Pre Test. The Experimental Group Mean is 4.23 in Post Test and Controlled Group mean is 4.73, the Experimental Group mean in Post Test in 30 M Run is decreased from 4.52 to 4.23 there is a improvement of 0.29 from Pre Test to Post and Control Group Mean is post test is 4.73 there is a increase of 4.65 to 4.73 from Pre Test to Post, the performance is come down to 0.08 in the controlled group. Due to the Plyometric Training the Experimental group has improved a lot.

Table II: Mean values and Independent Samples Test of Pull Ups test between experimental and control groups

<table>
<thead>
<tr>
<th>Variables</th>
<th>Group</th>
<th>Pre Test Mean</th>
<th>Post Test Mean</th>
<th>t</th>
<th>P - Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pull ups</td>
<td>Experimental</td>
<td>10.00</td>
<td>12.50</td>
<td>6.19</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>10.10</td>
<td>9.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Experimental Group of Pullups in Pre Test is 10.00 and Controlled Group mean is 10.10 in Pre Test there is a difference of 0.10 in Pre Test. The Experimental Group Mean in Pull Ups Test is 12.50 in Post Test and Controlled Group mean is 9.00, the Experimental Group mean in Post Test in Pullups Test is improved from Pre Test 10.00 to Post Test 12.50 and Control Group Mean is post test is 9.00 there is a decrease in the performance from 10.10 to 9.00. The Experimental Group has improved due to Plyometric exercises in Pull ups Test and Controlled Group is decreased due to general training.

Conclusion:
Boxing is all about explosive power. Explosive power is a combination of speed, muscular endurance and muscular strength, all of which can be developed through plyometric exercises. It is concluded that due to plyometric exercises there will be improvement in shoulder strength and speed among Boxers.

Recommendations:
Similar Studies can be conducted on Women Boxers and other sports and games.

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EFFECT OF VARIED DURATION OF AQUA AEROBIC DANCE ON CARDIO VASCULAR FITNESS AMONG SOFTBALL PLAYERS

By

SYED ASIFUDDIN*     Prof. Y. KISHORE**

ABSTRACT

Introduction: Aqua Aerobic exercise is the foundation of any fitness programme. It improves and to sustain the cardio respiratory system, which is the key to the vitality of the entire body. These exercises help in sending a rich supply of oxygen through the blood to the muscles so that muscles can then produce energy. The American College of Sports Medicine (ACSM) defines aerobic exercise as "any activity that uses large muscle groups, can be maintained continuously, and is rhythmic in nature." The cardiovascular system supports muscular work by delivering oxygen and nutrients to and carbon dioxide and other metabolic wastes away from the muscles. Improvements in cardiovascular efficiency enable you to perform more demanding physical activities longer and with less fatigue.

Method: A group of 60 male and female soft ball players of Osmania University were selected for this study. The age of the subjects was between 17-20 years. The participants were segregated into three groups, namely A (n=20), B(n=20), C(n=20). The A group was given 30 minutes of aqua aerobic training. The B group was given 20 minutes of aqua aerobic training and C group was considered as control group. To measure cardiovascular endurance
12 minutes run was administered since this is a valid measure for the subjects who are in the age group of 17-20 years. The samples used in this study were procured from Osmania University Sports Student, Hyderabad and analyzed at Ultra Diagnostic Centre, Secunderabad, which were supplied by well known manufacturers catering to research laboratories and hence the results were considered accurate and reliable. The training which was employed was slow continuous method, Fast continuous method and Fartlek method. The data obtained during two stages (that is pre-test and post-test after, twelve weeks of experimental treatment) of aerobic exercise program from experimental group 'A' and group 'B' subjects were statistically analysed and applied T test. The comparison between two experimental and one control group were statistically analyzed and using F test, correlation and Analysis of Variance (ANOVA).

Results and Discussion: The analyzing data had shows the calculated t-value in respect of experimental group of aqua aerobic 20 minutes is (t=3.157) and experimental group of 30 minutes is 3.488 and there are highly significant at 0.01 level of significance and indicating that the levels among these two experimental groups differ significantly with respect to glucose among Osmania University Sports Student children. This is because of the endurance factor among athletes. Conclusion: The mean, standard deviation and t-value of pre- and post-tests of glucose regard to control group and experimental 20 minutes group and experimental 30 minutes group show highly significant difference. This indicates that the experimental 30 minutes (t=3.488) was highly significant than the experimental 20 minutes (t=3.157) of glucose among Osmania University Sports Students.

Key words: cardio-vascular endurance, Aerobics, softball, Aqua fitness

INTRODUCTION

Aqua Aerobic exercise is the foundation of any fitness program. It improves and to sustain the cardio respiratory system, which is the key to the vitality of the entire body. These exercises help in sending a rich supply of oxygen through the blood to the muscles so that muscles can then produce energy. The American College of Sports Medicine (ACSM) defines aerobic exercise as "any activity that uses large
muscle groups, can be maintained continuously, and is rhythmic in nature." The cardiovascular system supports muscular work by delivering oxygen and nutrients to and carbon dioxide and other metabolic wastes away from the muscles. Improvements in cardiovascular efficiency enable you to perform more demanding physical activities longer and with less fatigue. It is a type of exercise that overloads the heart and lungs and causes them to work harder than at rest. The important idea behind aerobic exercise today, is to get up and get moving. There are more activities than ever to choose from, whether it is a new activity or an old one. Find something you enjoy doing that keeps your heart rate elevated for a continuous time period and get moving to a healthier life.

Benefits of Aqua Aerobic Exercise: Increased maximal oxygen consumption (VO2 max), Improvement in cardiovascular / cardiorespiratory function (heart and lungs), Increased maximal cardiac output (amount of blood pumped every minute), Increased maximal stroke volume (amount of blood pumped with each beat), Increased blood volume and ability to carry oxygen, Reduced workload on the heart (myocardial oxygen consumption) for any given submaximal exercise intensity, Increased blood supply to muscles and ability to use oxygen, Lower heart rate and blood pressure at any level of submaximal exercise, Increased threshold for lactic acid accumulation, Lower resting systolic and diastolic blood pressure in people with high blood pressure, Increased HDL Cholesterol (the good cholesterol), Decreased blood triglycerides, Reduced body fat and improved weight control.

Aerobic exercise is performed between submaximal speed, 130 to 150 heart beats per minute, whereby they may be carried out for considerable time, so that the heart may be engaged in pumping blood at a faster rate continuously over the period of exercise, For achieving benefits of aerobic exercise the heart rate has to be raised and retained much higher than the usual heart rate for a period of 20 to 30 minutes in water.

Regular exercise, even of moderate intensity, would raise the amount of cholesterol, carrying proteins in the blood. These are high-density lipoproteins in the blood, which are believed to function like arterial drain, removing cholesterol from blood vessels and helping to excrete it- Exercise may also lower to an extent the total cholesterol levels. Exercise can help to reduce the amount of triglycerides another artery damaging type of blood fat.

The cardiovascular system supports muscular work by delivering oxygen and nutrients to and carbon dioxide and other metabolic wastes away from the muscles. Improvements in cardiovascular efficiency
enable you to perform more demanding physical activities longer and with less fatigue. The cardiovascular and respiratory responses to exercise is conveniently represented by either as a function of absolute work intensity or relative work intensity expressed as a percentage of maximal capacity and also as a systematic metabolic demand measured as total body oxygen uptake. This frame of reference is developed from the observation that for an exercise with a given muscle group, individuals variation of heart rate and arterial pressure is minimised when these variables are plotted as functions of relative work intensity. Thus, the relative absolute workload has been regarded as a determinant of heart rate, arterial pressure and cardiac output. In general, even today, most of the coaches consider heart rate as the basis for assessing load /intensity during training. However, this approach may not hold good, as the athletes with similar heart rates during training may receive different workouts based on their body weight. The individual's heart rate variation depends mainly on the training adaptability and fitness level of an athlete. But in India, the quantification of training intensity/workload at every phase is not taken into consideration and many physiological studies reflect the improvement in performance but not in relation to the quantum of training. A properly designed programme, primarily aerobic in nature, will remove one risk factor - physical in activity. Additionally, aerobic exercise may have a healthful effect on other risk factors as well.

METHOD

A group of 60 male and female soft ball players of Osmania University were selected for this study. The age of the subjects was between 17-20 years. The participants were segregated into three groups, namely A (n=20), B(n=20), C(n=20). The A group was given 30 minutes of aqua aerobic training. The B group was given 20 minutes of aqua aerobic training and C group was considered as control group. To measure cardiovascular endurance 12 minutes run was administered since this is a valid measure for the subjects who are in the age group of 17-20 years. The samples used in this study were procured from Osmania University Sports Student, Hyderabad and analyzed at Ultra Diagnostic Centre, Secunderabad, which were supplied by well known manufacturers catering to research laboratories and hence the results were considered accurate and reliable. The training which was employed was slow continuous method, Fast continuous method and Fartlek method. The data obtained during two stages (that is pre-test and post-test after, twelve weeks of experimental treatment) of aerobic exercise program from experimental group 'A' and group 'B' subjects were statistically analysed and applied T test. The comparison between
two experimental and one control group were statistically analyzed and using F test, correlation and Analysis of Variance (ANOVA).

RESULTS AND DISCUSSION

The below table showing the Mean, Standard Deviation and t-value of Pre- and Post-tests of Glucose among Osmania University Sports Students.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
<th>Df</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>66.1683</td>
<td>5.94592</td>
<td>19</td>
<td>0.415</td>
<td>NS</td>
</tr>
<tr>
<td>Post-test</td>
<td>66.3350</td>
<td>6.56120</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental 20 minutes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>61.3333</td>
<td>10.42433</td>
<td>19</td>
<td>3.157</td>
<td>0.001</td>
</tr>
<tr>
<td>Post-test</td>
<td>68.7333</td>
<td>6.57470</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental 30 minutes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>67.0000</td>
<td>3.22490</td>
<td>19</td>
<td>3.488</td>
<td>0.000</td>
</tr>
<tr>
<td>Post-test</td>
<td>71.1250</td>
<td>4.12235</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The analyzing data had shows the calculated t-value in respect of experimental group of aqua aerobic 20 minutes is (t=3.157) and experimental group of 30 minutes is 3.488 and there are highly significant at 0.01 level of significance and indicating that the levels among these two experimental groups differ significantly with respect to glucose among Osmania University Sports Student children. This is because of the endurance factor among athletes.

CONCLUSION

The mean, standard deviation and t-value of pre- and post-tests of glucose regard to control group and experimental 20 minutes group and experimental 30 minutes group show highly significant difference. This indicates that the experimental 30 minutes (t=3.488) was highly significant than the experimental 20 minutes (t=3.157) of glucose among Osmania University Sports Students.

REFERENCES

IMPORTANCE OF PRANYAM AND ITS BENEFITS

Presented By-Tushar Shukla And Garima Bajaj
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ABSTRACT

Buddhism begins with the premise that the mind is the primary source of human joy and misery, and is central to the understanding of the natural world as a whole. Thus, the mind and consciousness itself are primary subjects of introspective investigation. Buddhist contemplatives have formulated sophisticated theories of the origins and nature of consciousness and its active role in nature, though their inquiries never produced anything akin to an empirical study of the brain. They did, however, develop rigorous techniques for examining and probing the mind first-hand. The initial problem in this endeavor was to train the attention so that it could be a more reliable and precise instrument of observation. The types of attentional training Buddhists have devised are known as Samatha, a serene attentional state in which the hindrances of excitation and laxity have been thoroughly calmed (Wallace, 1999).

The practice of insight meditation is based upon the Great Discourse on the Foundations of Mindfulness (Maha Satipatthana Sutta), which includes the contemplation of the body, the contemplation of the feelings, the contemplation of the mind, and the contemplation of the mental objects. Mindfulness meditation program includes an introduction to the practices of breathing meditation, eating meditation, walking meditation, and mindful yoga. Its primary goal is to identify and reduce patients suffering, both physical and emotional pain, developing detached observation and awareness of the contents of consciousness. It also has the potential for transforming the ways in which we respond to life events and for relapse prevention in affective disorders.

Key words: Pranyam, consciousness, Training, Mindfulness

INTRODUCTION

Pranayama has the capacity of freeing the mind from untruthfulness, ignorance and all other painful and unpleasant experiences of the body and mind; and when the mind becomes clean it becomes easy for the Sadhaka to concentrate on the desired object and it becomes possible for him to progress further in the direction of Dhyana and Samadhi.

By Yog asanas, we remove the distortions and disabilities of the physical body and bring it into discipline. However Pranayama influences the subtle and the physical bodies in a greater measure than Yogsanas do and that too in a perceptible manner. In the human body, lungs, heart and brain hold very important positions and they depend on each other heavily for their health.

Physically, Pranayam appears to be a systematic exercise of respiration, which makes the lungs stronger, improves blood circulation, makes the man healthier and bestows upon him the boon of a long life.
Physiology teaches us that the air (Prana) we breathe in fills our lungs, spreads in the entire body, providing it with essential form the body, take them to the heart and then to the lungs, which throws the useless material like carbon dioxide out of the body through the act of exhalation. If this action of the respiratory system is done regularly and efficiently, lungs become stronger and blood becomes pure.

However, most of the people do not have the habit of breathing deeply with the result that only one-fourth part of the lungs is brought into action and 75 percent remains idle. Like the honeycomb, lungs are made of about 73 million cells, comparable to a sponge in their making. On normal breathing, to which we all are accustomed, only about 20 million pores in the lungs get oxygen, whereas remaining 53 million pores remain deprived of the benefit, with the result that they get contaminated by several diseases like tuberculosis, respiratory diseases and several ailments like coughing, bronchitis etc.

In this way, the inefficient functioning of the lungs affects the process of blood purification. Heart weakens because of this with a constant possibility of untimely death. It is for this reason that the importance of Pranayama has come to be recognised, for a healthy long life. Several diseases can be averted by regular practice of Pranayama. Hence, it is obvious that the knowledge of the science of Pranayama and its regular practice enables a man to lead a healthy and long life. It is for this reason that in several Hindu religious rites, Pranayama is found to have been introduced as an essential element.

Mental disturbances like excitement, anxiety, fear, anger, disappointment, lust for sex (lasciviousness) and other mental perversions can be calmed down by regular practice of Pranayama. Besides, Pranayama practice improves the functions of the brain cells with the result that memory and the faculty of discrimination and observation improves, making it easy for the Sadhaka to perform concentration and meditation.

Another benefit of Pranayama is that by its regular practice, habit of deep breathing is developed which results in several health benefits. It is said that the nature determines our life span on the basis of the number of respirations we do. Man gets the next birth in accordance with his karmas (deeds) done in the present life.

Our karmas (deeds) result in the formation of certain tendencies, which determine the nature of our next birth either as humans or as animals of various categories. A man, who regularly performs Pranayama, is required to take lesser number of breaths and therefore lives longer.

Some rules for Pranayama

- Select a clean and peaceful place for doing Pranayama. If possible, choose a place near a clean pond or river.
- As there is a lot of pollution in the cities, some kind of incense can be lit like Guggulu and purified butter, to create a clean environment at that place, igniting a lamp with purified butter only, can also serve the purpose.
- Sit either in any of the Asanas, viz. Padmasana, Sidhasana or Vajrasana, which ever you find convenient. The sheet or cloth (cotton or wool etc.) on which you sit must be a non-conductor of electricity.
- Breathe only through the nose, because by doing so the air which you take in, is filtered. During daytime when you are not sitting for the performance of Pranayama make it a habit to do respire only through nose and not through mouth. Nasal respiration keeps the temperature of the Nadis
(Vessels) – ‘Ida’, Pingala and ‘susmana’ even. It also prevents foreign and harmful objects from getting into lungs.

- Like ‘Yog’, Pranayama should also be performed four or five hours after taking food. In the morning Pranayama should be done after finishing daily routine acts like cleansing mouth, emptying of bowels etc., it should also be done before Yoga. In the beginning Pranayama should be done for five or ten minutes gradually the time may be increased up to about 1/2 or 1 hour. Maintain a specific number of repetitions and do not variate. Maintain a specific rhythm. If it is not possible to clean the bowels by morning, at night take some mild laxative like terminalia chebula (Indian Hardaya) or any other mild laxative (a non habit forming medicinal herb having a laxative effect). Kapala-bhati Pranayama, if done regularly for a few days will help in curing constipation.

- Keep your mind calm and composed. However, Pranayama can also calm down the disturbed mind and keep one happy.

- Methods of Pranayama may be varied according to the seasons and your own physical make up and mental attitude. Keep this in mind and modulate the method accordingly. Some Pranayama increase the body temperature, whereas, some bring it down. Some Pranayama maintain the temperature at the normal level.

- If you feel fatigued in the course of doing Pranayama, rest for sometime and then begin deep breathing, which will remove the fatigue.

- Pregnant women, hungry persons, persons suffering from fever and those who are lustful having no control on their passions should not do Pranayama. If you are sick, keep in mind the instructions to be followed by sick persons while during Pranayama.

- For prolonged exercises of Pranayama, observance of celibacy is necessary. Besides, food should be simple not containing irritating spices. It should be ‘Sattvika’ – (Plain and simple, non-spicy food). Use of cow’s milk, ghee (clarified butter), fruits and green vegetables can be said to be ideal food. Moderation also is a good rule to observe.

- Do not strain yourself while doing ‘Kumbhak’ i.e. retaining the breathed air inside or keeping the air out after exhaling (Breathing in is called ‘puraka’, retaining the breathed air in is called ‘Kumbhak’ and exhaling the air is called ‘Recak’).

- Pranayama does not mean just breathing in, keeping the breathed air in and exhaling it. It also means establishing control on the entire breathing process, and maintaining mental equilibrium, and concentration of mind.

- It is beneficial to chant the mantra (a group of words that carry vibrations and energy) Om (the first cosmic soundless sound), aloud and repeat the same several times before doing Pranayama. Even recital of sacred songs in the praise of almighty God or recital of some sacred hymns may be beneficial. This will calm your mind and make you fit for Pranayama, because a peaceful mind is very essential while doing Pranayama. Mental or loud recitation of Gayatri Mantra (considered as one of the greatest mantra, used in meditation and also for chanting) or any other sacred hymn brings spiritual benefits to the Sadhaka.

See that while doing Pranayama, none of your organs such as mouth, eyes, nose, etc. feels any strain and it should be done gradually without any undue stress or strain. All the organs of the body should be kept in normal condition. While doing Pranayama sit in an erect posture. Keep your spine and neck straight. This is essential for reaping the full benefit of Pranayama.

- If possible Pranayama should be done after your usual morning functions like cleansing of mouth, evacuation of bowels, bathing etc. However, if it becomes necessary for you to take bath after Pranayama, keep an interval of about 15 to 20 minutes between Pranayama and bathing. For
acquiring proficiency in Pranayama do not depend on books or what is done and preached by others. Seek the guidance of an expert and do Pranayama under his direct supervision.

Different treatise advocating or dealing with the subject of Pranayama describe several methods and each of them has its own importance. However, it is not possible for most people to do all these exercises daily. Hence, with the blessings of our teachers and in view of our experience, we have evolved seven methods of Pranayama , which incorporate into themselves, almost all the peculiarities of Pranayama rendering them scientific and useful from a spiritual point of view. All these seven types of Pranayama can be done, as a routine and in a time bound programme of about 20 minutes. The person who does these exercises daily and regularly can attain following:

- All the three Doshas (Humors) - Vata , pitta and Kapha get adjusted in proper proportion and abnormalities in them are removed.
- Digestive system improves and diseases pertaining to digestive organs are cured.
- Diseases pertaining to lungs, heart and brain are also cured.
- Obesity, Diabetes, Cholesterol, Constipation, Flatulence, Acidity, Respiratory troubles, Allergy, Migraine, High blood pressure, diseases pertaining to kidneys, sexual disorders of males and females etc. are also cured.
- Resistance against diseases is stepped up. Immunity develops.
- Hereditary diseases like diabetes and heart disease are can be avoided.
- Falling of hair or its premature graying, appearance of wrinkles on face or other parts of the body at young age, diminution of eye sight, forgetfulness, etc. are relieved and process of aging is retarded.
- Face becomes bright, luminous and calm.
- Energy Chakra are cleansed and enables the practitioner to awaken the Kundalini.
- Mind becomes stable and tranquil. A sense of contentment and enthusiasm or zeal develops. Conditions like depression are relieved.
- Performance of yogic exercises like meditation will be easy.
- All the diseases of the physical and etheric bodies will be cured. Freedom from negative and harmful mental conditions like anger, lasciviousness, greed for money, arrogance etc. will be achieved.
- All the physical and mental disorders and abnormalities are cured and toxins eradicated from the body. Freedom from negative thinking is achieved and the mind develops the habit of positive and constructive thinking.

benefits which are briefly described as under:

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A PROSPECTIVE STUDY ON PHYSICAL TRAINING AND ITS INCIDENCE ON BIOCHEMICAL PROFILE OF TYPE II DIABETIC WOMEN.

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ABSTRACT.

The present study sought to explore the effect of 8 weeks of physical training on treadmill for 30 min among the selected 60 type II diabetic (T2D) women. The subjects falling in the age group of 28-45 years with fasting blood sugar levels above 150mg/dl and elevated lipid values were preferred. Amongst the 60 subjects, 20 were opted as the control group (GP I) and the remaining 40 as experimental Group (GP II). The subjects were recommended to take tailored diet as per their ideal body weight. Results revealed that the experimental group (GP II) showed significant reduction in Body Mass Index (BMI), Fasting Blood Sugar (FBS), Total Cholesterol (TC), Low Density Lipoprotein (LDL) and body fat and significant increase in High Density Lipoprotein (HDL).

Keywords : Treadmill, BMI, FBS, Lipid profile.

INTRODUCTION
Type II Diabetes is a global public health crisis affecting everyone with no age bar. Physical training is an effective non pharmacological treatment in the prevention of T2D. A large number of studies have shown that habitual physical activity reduces the risk of coronary heart disease, stroke, colon cancer and mortality from all causes(1,2). Intervention trials have demonstrated that in subjects with impaired glucose tolerance, diet plus exercise programs reduces the risk of developing diabetes by 60%(3,4).

Exercise reduces blood glucose through an increase of insulin-dependent and insulin-independent glucose transport to working muscles. Exercise increases the translocation of glucose transporter 4 (GLUT 4) to the surface of muscle cells. In T2D subjects, physical training increases insulin stimulated non-oxidative glucose disposal, presumably activating glycogen synthesis. Thus, the present study emphasizes attention on importance of physical activity and diet in reducing weight, improving blood glucose and lipid profile values in T2D subjects.

MATERIALS AND METHODS

The study was carried on 60 T2D subjects ranging around 28 to 45 years in age. They were on constant medication with oral hypoglycemic drugs and free from hypertension and other cardiac ailments. Subjects with a BMI (>25), body fat(>30%), disturbed FBG(150 - 175mg/dl) and disturbed lipid profile LDL (150 -170mg/dl), TC (225 -275mg/dl) and HDL(30 - 55mg/dl).

The selected subjects were divided into 2 groups. Group I constituted of 20 diabetics as control group and the leftover 40 subjects as experimental group, group II. For a period of 8 weeks both the groups were recommended to take tailored diet as per their ideal body weight. Group II subjects were advised to undergo exercise on treadmill for a duration of 30 mins daily.

BMI, FBG, Lipid profile and body fat percentage of all the 60 subjects were measured before and after the study using standard techniques.

RESULTS AND DISCUSSION

Physical training programme strived to be important regimen in treating type II diabetes. It is used safely as an adjunct to diet to achieve weight loss, reduce glucose levels and improve insulin sensitivity in female obese NIDDM subjects.
Table 1: Information regarding the subject’s age, physical work, and dietary pattern collected.

<table>
<thead>
<tr>
<th>Details</th>
<th>% age of respondents (N= 60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age wise distribution in years</td>
<td></td>
</tr>
<tr>
<td>28-30</td>
<td>8</td>
</tr>
<tr>
<td>31-35</td>
<td>21</td>
</tr>
<tr>
<td>36-40</td>
<td>24</td>
</tr>
<tr>
<td>41-45</td>
<td>7</td>
</tr>
<tr>
<td>Nature of Physical work</td>
<td></td>
</tr>
<tr>
<td>Sedentary</td>
<td>47</td>
</tr>
<tr>
<td>Moderate</td>
<td>13</td>
</tr>
<tr>
<td>Heavy</td>
<td>Nil</td>
</tr>
<tr>
<td>Dietary Pattern</td>
<td></td>
</tr>
<tr>
<td>Non Vegetarian</td>
<td>55</td>
</tr>
<tr>
<td>Vegetarian</td>
<td>5</td>
</tr>
</tbody>
</table>

A significant decrease in weight, BMI and body fat values was noticed in group II subjects who followed modified diet and treadmill exercise for 30 min for 2 weeks.

Table 2: Effect of diet control and physical training on weight, BMI and body fat of diabetic patients

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There was a significant decrease in fasting blood glucose in the experimental group after the study period.

Table 3: Effect of diet control and physical training on Blood Glucose Levels (mg/dl)

<table>
<thead>
<tr>
<th>Group</th>
<th>Initial Mean ±SD</th>
<th>Final Mean ±SD</th>
<th>Change</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (Kg)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group - I</td>
<td>70.06 (±) 5.01</td>
<td>67.31 (±) 4.40</td>
<td>2.75</td>
<td>2.69*</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Group - II</td>
<td>63.30 (±) 6.48</td>
<td>58.10 (±) 5.08</td>
<td>5.2</td>
<td>3.30*</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>BMI (Kg/M2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group - I</td>
<td>29.94 (±) 3.77</td>
<td>28.78 (±) 3.35</td>
<td>1.16</td>
<td>3.49*</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Group - II</td>
<td>31.29 (±) 3.43</td>
<td>27.36 (±) 3.69</td>
<td>3.93</td>
<td>5.72*</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Body Fat %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group - I</td>
<td>36.01 (±) 2.85</td>
<td>33.60 (±) 2.73</td>
<td>2.41</td>
<td>11.34*</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Group - II</td>
<td>40.18 (±) 3.41</td>
<td>32.92 (±) 4.52</td>
<td>7.26</td>
<td>14.82*</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>
The total cholesterol and LDL levels also confirmed significant reduction at 1% level in the experimental group. Similarly, HDL levels also showed significant increase at 1% level in the experimental group.

### Table 4: Effect of diet control and physical training on Lipid profile (mg/dl)

<table>
<thead>
<tr>
<th>Group</th>
<th>Initial Mean ±SD</th>
<th>Final Mean ±SD</th>
<th>Change</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting Blood Glucose (mg/dl)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group - I</td>
<td>167.13 ±5.06</td>
<td>154.67 ±5.53</td>
<td>12.46</td>
<td>8.72*</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Group - II</td>
<td>163.48 ±4.30</td>
<td>113.72 ±5.94</td>
<td>49.73</td>
<td>26.31*</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

The total cholesterol and LDL levels also confirmed significant reduction at 1% level in the experimental group. Similarly, HDL levels also showed significant increase at 1% level in the experimental group.
The present study concluded that T2D women treated with modified diet and physical training exhibited reduction in weight, BMI, FBG, Lipid profile and body fat. The HDL levels were also increased significantly. Thus, physical training along with diet can be a promising approach to the primary prevention of T2D and must be implicated as a daily ambulatory practice.

REFERENCES

A STUDY OF SELECTED FITNESS VARIABLES BETWEEN TEAM GAMES AND INDIVIDUAL GAMES

By
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Mr. Ameenuddin
Physical Director, International school, Jeddah, Saudi Arabia

ABSTRACT

The purpose of this study was to find out the significant differences of selected physical fitness variables among team games and individual games among college males

Method: A group of (n=60) college sportsmen were selected randomly from the colleges of Osmania University, India. The subjects were segregated in two groups namely team games and individual games. Group-A (Team games subjects =30) and Group-B (Individual games subjects: N=30), the age group of the participants were between 19-24 years. The selected physical fitness test considered for this study was flexibility (sit & reach test), muscular endurance (sit-up test for 30 sec), speed (50 M.sprint), power (standing long jump) and cardio-vascular endurance (12 min run & walk test). To compare the mean differences between the two groups, mean, S.D and t-tests were computed by means of Statistica Software.

Results and Discussion: An analyzing of the data reveals that the mean, standard deviation with regard to flexibility of team games subjects were (19.4, 6.1) and whereas for individual games subjects shows mean, standard deviation were (25.0, 4.3). With regard to strength endurance for team games and individual games the mean and standard deviation were (16.4, 3.7) and (19.2, 5.5) respectively. The data speaks an interesting results regard to sprinting performance for team games and individual games with mean and standard deviation were (7.7, 0.8) and (8.5, 1.09) respectively. The data for standing long

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jump for both the groups i.e. team games and individual games shows mean and standard deviation were (175, 24) and (184, 24) respectively. Team games and individual games with regard to 12 min run and walk had shows the mean and standard deviation were (1467, 201) and (1419, 219) respectively.

CONCLUSION:

It is concluded that the both groups differ significantly. It is concluded that individual games participants had significantly higher flexibility and muscular endurance. Moreover the team games group had shows greater performance with regard to power, sprinting performance and cardiovascular endurance compare to their counter part i.e. individual games participants.

Keywords: Fitness, Athletes, Training, Power

INTRODUCTION

Success of any sports and games depends on many factors, but training is the one of the most vital factor. Training with diverse methods has been commonly used to improve physical fitness and related standards of performance of athletes. Superior level of fitness is very important feature for sports men performance. Sport training is extensive, continuous, and organized process or physical and mental hard work, to achieve high level of performance in tournaments at various levels by making the best use of the principles derived from the sports sciences (Singh Hardayal, 1993). Fitness is a state of pleasure that comprises sports and health-related components. Athletes experience various types of
training to improve their performance and physical fitness. Sports men beings basically by the nature are competitive and determined for excellence in sports performance. Training means a systematic and scientific schedule of conditioning exercises and physical activities planned to improve the physical fitness and skills of players (Fox, 1984). Sports performance of an athlete’s in any event mostly depends on physical fitness level. Physical fitness comprises the following five motor abilities namely muscular strength, agility, power, speed, and cardiovascular endurance. This is evident that the sports performance of sportsmen in various sports and games depends on huge extent on fitness abilities, as athletes aged, needs lot of high level of fitness to continue their performance. The training schedule is designed to improve the skills and to increase the energy capacity of an athlete for a particular sport or game. Therefore training is essential for the development of physical fitness components (William & et.al, 1976). Sport training is a long, continuous, and systematic process or physical and mental hard work, to attain high level of performance in competitions or various levels by making the best use of the principals derived from other sports sciences (Hardayal Singh, 1993). Flexibility is the ability to achieve an extended range of motion without being impeded by excess tissue, i.e. fat or muscle (e.g. executing a leg split). Every individual needs some flexibility in order to perform activities in day to day life. Research suggests that flexibility is useful in preventing some type of muscle sprain, low back pain, (cady,L.D, 1979). Speed is the ability to perform rapidly successive movements over a short period of time in a given direction (Singh, 1991). Muscular endurance is the ability of the muscle group to perform repeated contraction i.e. isotonic, iso-kinetic, or eccentric against a load or sustain a contraction isometric for an extended period of time (Fox, 1989). The training exercise which increases the efficiency of the aerobic energy producing system and can improves respiratory endurance (Wilmore & et.al, 1999).

The purpose of this study was to find out the significant differences of selected physical fitness variables among team games and individual games among college males.

MATERIAL AND METHOD

For this study a group of 60 sportspersons were selected randomly from the colleges of Osmania University, Hyderbad, India. The subjects were segregated in two groups namely team games and individual games. Group-A (Team games subjects =30) and Group-B (Individual games subjects: N=30), age group between 19-24 years. The selected physical fitness test considered for this study was flexibility (sit & reach test), muscular endurance (sit-ups for 30 sec), speed (50 M.sprint), power
(standing long jump) and cardio-vascular endurance (12 min run & walk test). To compare the mean differences between the two groups, mean, S.D and t-tests were computed by means of Statistica Software.

Table-1

<table>
<thead>
<tr>
<th>Team games</th>
<th>N=30</th>
<th>Individual games Group-B</th>
<th>N=30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group-A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net ball players</td>
<td>10</td>
<td>Badminton players</td>
<td>10</td>
</tr>
<tr>
<td>Foot ball players</td>
<td>10</td>
<td>Table tennis players</td>
<td>10</td>
</tr>
<tr>
<td>Volley ball players</td>
<td>10</td>
<td>Squash players</td>
<td>10</td>
</tr>
</tbody>
</table>

The table-1 shows the clear picture regards to the selected team game and individual game subjects details. It shows that team games consists of Net ball players (N=10), football players (N=10), and volley ball players (N=10). Individual games comprises badminton players (N=10), table tennis players (N=10), Squash players (N=10).

Table-2

<table>
<thead>
<tr>
<th>Sl.no</th>
<th>Fitness Variables</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Flexibility</td>
<td>Sit &amp; reach test</td>
</tr>
<tr>
<td>2</td>
<td>Muscular endurance</td>
<td>Sit-ups (30 sec)</td>
</tr>
<tr>
<td>3</td>
<td>Speed</td>
<td>50 M.sprint</td>
</tr>
<tr>
<td>4</td>
<td>Power</td>
<td>Standing long jump</td>
</tr>
<tr>
<td>5</td>
<td>Cardio-vascular endurance</td>
<td>12 min run &amp; walk</td>
</tr>
</tbody>
</table>
The table-2 shows the details regarding to the test items considered for this study, flexibility (sit and reach test), strength endurance (push-up test 30 sec), speed (50 M, Sprint), power (standing long jump) and cardio-vascular endurance (12 min run & walk test).

RESULTS AND DISCUSSION

Table- 3 shows the results of analyzing data.

Table-3

<table>
<thead>
<tr>
<th>Test Items</th>
<th>Team game N=30</th>
<th>Individual game N=30</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S.D</td>
<td>Mean</td>
</tr>
<tr>
<td>Sit &amp; reach test</td>
<td>19.50</td>
<td>6.20</td>
<td>24.50</td>
</tr>
<tr>
<td>Push-ups test (30 sec)</td>
<td>16.40</td>
<td>3.73</td>
<td>19.23</td>
</tr>
</tbody>
</table>
The analyzing of data reveals that the mean, standard deviation with regard to flexibility (sit & reach test) of Individual games subjects were (19.50, 6.20) and whereas for individual games subjects shows mean, standard deviation were (24.50, 4.31). With regard to muscular endurance for both the groups the mean and standard deviation were (16.40, 3.73) and (19.23, 5.46) respectively. The data speaks an interesting results regard to sprinting performance with mean and standard deviation were (7.65, 0.76) and (8.47, 0.99) respectively. The data for standing long jump for both the groups shows mean and standard deviation were (174.7, 23.9) and (184.0, 24.1) respectively. Regards to 12 min run and walk the data shows picture for team games and individual games with mean and standard deviation were (1466.7, 200.6) and (1418.4, 218.4) respectively.

**DISCUSSION**

The analyzing of data reveals significant differences among both the groups. Both the groups differ significantly with regard to flexibility, and individual game participants group shows greater performance this is because of the nature and skills of their game which effects on the performance relate to flexibility. The variables of physical fitness like muscular strength, speed, Muscular endurance, flexibility and a variety of coordinative abilities are important for technique and tactical competency stated by (Mal, 1982). Both the groups differ significantly with regard to strength endurance, further more it shows that the individual game participants had shows greater performance. In respective demand of the game, each component of the physical fitness is necessary and important and should be developed as a result. Different body types have different level of fitness, which may change from day to day, place to place and time to time. Team game subjects had shows superior sprinting performance compare to their counter part, this apart it reveals that the team game subjects are having better sprinting performance due to their demand of skills develop in their training schedule and also during
the play. The individual game subjects are mostly emphasizing on strength, power, strength endurance, and cardio-vascular endurance as their nature of game demands. Lastly with regard to power and cardio-vascular endurance performance both the groups differ significantly, and the team game participants had shown greater performance.

CONCLUSION

It is concluded that both the groups differ significantly with regard to flexibility (sit & reach test), and individual game participants group shows greater performance. Both the groups differ significantly with regard to strength endurance, further more it shows that the individual game subjects had shows greater performance. Sprinting performance shows that the team game participants had superior performance compare to their counter part. Lastly with regard to power and cardio-vascular endurance performance both the groups differ significantly, and the team game participants had shown greater performance.

Acknowledgement

The Authors thank the authorities of King Fahd University of Petroleum & Minerals, Saudi Arabia and Osmania University and the subjects for their help in the completion of this study.

REFERENCES


EFFECT OF PLYOMETRIC TRAINING ON VITAL CAPACITY
AMONG FEMALE HOCKEY PLAYERS

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² Associate Professor, Dept. of Physical Education, Pondicherry University, Pondicherry, India.
ABSTRACT

The purpose of the study was to find out the effect of plyometric training on vital capacity among female hockey players. To achieve the purpose of the present study, thirty female hockey players from PKR Women College of Arts and Science and Gopi Arts and Science College, Erode, Tamilnadu, India were selected as subjects at random and their ages ranged from 18 to 21 years. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (n=30) were randomly assigned to two groups as plyometric training group (PTG) and control group (CG) in an equivalent manner. The plyometric training group participated for a period of eight weeks for alternate three days in a week and the post-tests were taken. To find out the difference between the two groups, analysis of variance (ANOVA) was used. The result reveals that the plyometric training group showed better improvement on vital capacity than the control group owing to the effects of plyometric training.

Key Words: Plyometric, Hockey, vital capacity, ANOVA.

INTRODUCTION

Plyometrics have their roots in Europe, where it was initially termed as jump training. During the early 1970s the interest in jump training has increased in East European athletes materialized as powers on the world sport arena. The Eastern countries begin to produce superior athletes in track and field, gymnastics and weight lifting which give rise to practicing this training method. The ability to apply force rapidly with speed strength is the major goal of plyometric training. The speed strength ability is known as power. For an exercise to be truly plyometric, it must be a movement proceeded by an eccentric concentration. This stimulates the proprioceptors sensitive to rapid stretch simultaneously loading the serial elastic components. Some amount of flexibility is important before beginning the plyometric training program. Plyometrics should not be considered an end in itself, but as part of an overall program.

The term Plyometrics is defined as exercises that enable muscle to reach maximum strength in a short time as possible. Plyometric training is a specific training for the development of explosive power. Plyometrics training is similar to any other form of resistance training. Plyometric can be done with the lower body, trunk and upper body. Before the successful plyometric training programme the athlete should develop a minimum level of physical strength. It is a training method in a complete training programme to improve the relationship between maximum strength and explosive power. Plyometrics is an excellent way for conditioning athletes to increase and develop their jumping, sprinting and explosive power.

METHODOLOGY

To achieve the purpose of the study, thirty female hockey players from Erode district were selected as subjects at random and their age ranged from 18 to 21 years. The subjects (n=30) were randomly assigned to two groups as plyometric training group (PTG) and control group (CG) with fifteen subjects in each. The plyometric training group participated for a period of eight weeks for three days in a
week alternatively from 4 to 5 pm and the pre and post-tests was conducted and the collected data was analyzed by ANOVA to find out the difference between the two groups.

**RESULTS AND DISCUSSION**

The detailed procedure of analysis of data and interpretation are given below,

**TABLE-I**

**ANALYSIS OF VARIANCE FOR CONTROL GROUP AND PLYOMETRIC TRAINING GROUP ON VITAL CAPACITY**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Test</th>
<th>CG</th>
<th>EG</th>
<th>SOV</th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean squares</th>
<th>‘F’ ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vital capacity</td>
<td>Pre test</td>
<td>2.6067</td>
<td>2.6287</td>
<td>B:</td>
<td>0.004</td>
<td>1</td>
<td>0.004</td>
<td>0.576</td>
</tr>
<tr>
<td></td>
<td>S.D</td>
<td>0.09240</td>
<td>0.06368</td>
<td>W:</td>
<td>0.176</td>
<td>28</td>
<td>0.006</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post test</td>
<td>2.6113</td>
<td>2.6713</td>
<td>B:</td>
<td>0.027</td>
<td>1</td>
<td>0.027</td>
<td>4.943*</td>
</tr>
<tr>
<td></td>
<td>S.D</td>
<td>0.08280</td>
<td>0.6379</td>
<td>W:</td>
<td>0.153</td>
<td>28</td>
<td>0.005</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level.

Required table value at 0.05 level of significance for 1 & 28 degrees of freedom = 4.19

From the above Table is found that the f ratio for the pre-test mean on vital capacity is 0.576. There is no significant difference between the two groups, since the calculated ‘f’ value is less than the required table value 4.19. For the post test mean on vital capacity the f value is 4.943 which is found to be significant since, the calculated ‘f’ value is greater than the required value 4.19 at 0.05 level of significance.
DISCUSSIONS AND CONCLUSIONS

The results of vital capacity between pre and post (8 weeks) test has been found significantly better in experimental group when compared to control group. The result reveals that the plyometric training group showed better improvement on vital capacity due to the effect of plyometric training than the control group.

REFERENCES


EFFECT OF YOGA PRACTICES ON BLOOD PRESSURE AND URIC ACID AMONG MALE DIABETIC PATIENTS

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Email: tpraba_t@yahoo.com

ABSTRACT

The purpose of the present study was to find out the effect of yoga practices on blood pressure and uric acid among male diabetic patients. For this purpose, thirty male diabetic patients around Annamalainagar, Chidambaram, Cuddalore District, Tamilnadu in the age group of 35 – 40 years were selected. They were divided into two equal groups, each group consisted of fifteen subjects, in which group – I underwent yoga practices and group – II acted as control that did not participate in any special activities apart from their regular day-to-day activities. The training period for this study was six days in a week for twelve weeks. Prior to and after the
training period the subjects were tested on blood pressure (systolic and diastolic) and uric acid. Blood pressure was measured by using sphygmomanometer and after taking 5 ml of blood samples by venous puncture method, by using urikase method to analyze blood uric acid. The Analysis of Covariance (ANCOVA) was used to find out any significant difference between the pre-test mean and post-test means and significant difference that was exists between the yoga practice group and control group on selected criterion variables. It was concluded from the results of the study that yoga practice has decreased the blood pressure (both systolic and diastolic) significantly (P > .05). The result of the study also shows that there was a significant reduction in uric acid after the yoga practices (P > .05). It was also found that there was a significant difference was occurred between the yoga practice group and control group on blood pressure and uric acid level.

Key words: yoga practice, diabetic patients, blood pressure, uric acid, ANCOVA

INTRODUCTION
Yoga is one of the most ancient cultural heritage of India. The word yoga in Sanskrit means “to unite”, and so yoga can be said to connote a unitive discipline.[1] Yoga is a complete science of life that originated in India many thousands of years ago.[2] Yoga is an exact science. It is a perfect, practical system of self-culture. It is the discipline of the mind, senses and the physical body.[3]

Diabetes mellitus: Better known just as “diabetes” -- a chronic disease associated with abnormally high levels of the sugar glucose in the blood.[4] Diabetes mellitus is a group of metabolic diseases characterized by high blood sugar (glucose) levels, that result from defects in insulin secretion, or action, or both. Elevated levels of uric acid (hyperglycemia) lead to spillage of glucose into the urine, hence the term sweet urine. Normally, uric acid levels are tightly controlled by insulin, a hormone produced by the pancreas. Insulin lowers the uric acid level. [5]

Yoga Asanas for Curing diabetes are Ardha Chandrasana, Bhujangasana, Salabhasana, Poorna Salabhasana, Dhanurasana and Ustrasana. These postures bring stimulation to the pancreas, as they exercise the erector spinae, latissimus dorsi, obliques, deep intertransversarii and posterior abdominal wall. Also, most of these postures cause the internal viscera to stretch, bringing stimulation to the pancreas and other glands and organs that otherwise receive no stimulation.[6]

Blood pressure (BP) is a force exerted by circulating blood on the walls of blood vessels, and is one of the principal vital signs. During each heartbeat, BP varies between a maximum (systolic) and a minimum (diastolic) pressure.[7]

METHODS
To achieve the purpose of the study 30 male diabetic patients living around Annamalainagar, Chidambaram, Cuddalore District, Tamilnadu were selected as subjects and their age ranged between 35 and 40 years. They were divided into two equal groups, such as, Group - I underwent yoga practices (n = 15) and Group - II acted as control (n = 15), which did not undergo any special exercises apart from their day-to-day activities. The yoga practice period for the present study was six days (Monday to Saturday) per week for twelve weeks. Self regulation in diet was followed and a regular interrogation about the subjects’ diet was followed. For every training programme
there would be a change in various structure and systems in human body. So, the researcher consulted with the yoga experts, selected the following variables as criterion variables: 1. Blood pressure and 2. Uric acid. The blood pressure was assessed by administering sphygmomanometer and uric acid was measured by using the uricase method. For the purpose of collection of data the subjects were asked to report at early morning, one day prior and one day after the yoga practice for both the groups (experimental group and control group), in fasting condition. Blood pressure (both systolic and diastolic) was assessed by using the sphygmomanometer and 5 ml of blood was collected from each subject by venous puncture method and the blood thus collected was stored in small bottles for pre and post-test.

**RESULTS AND DISCUSSION**

The data collected prior to and after the yoga practice period on blood pressure and uric acid on yoga practice group and control group were analysed and presented in the following Table – I

*Table – I*

*Analysis of Covariance and ‘F’ ratio for Systolic and Diastolic Blood Pressure and Uric acid for Yoga Practice Group and Control Group*

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Group Name</th>
<th>Yoga Practice Group</th>
<th>Control Group</th>
<th>‘F’ Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic Blood Pressure (mmHg)</td>
<td>Pre-test Mean ± S.D</td>
<td>136.33 ± 5.996</td>
<td>136.60 ± 5.717</td>
<td>0.016</td>
</tr>
<tr>
<td></td>
<td>Post-test Mean ± S.D</td>
<td>133.87 ± 5.975</td>
<td>138.13 ± 4.853</td>
<td>4.609*</td>
</tr>
<tr>
<td></td>
<td>Adj. Post-test Mean</td>
<td>133.985</td>
<td>138.15</td>
<td>43.836*</td>
</tr>
<tr>
<td>Diastolic Blood Pressure (mmHg)</td>
<td>Pre-test Mean ± S.D</td>
<td>90.60 ± 3.641</td>
<td>90.53 ± 3.420</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>Post-test Mean ± S.D</td>
<td>88.13 ± 3.720</td>
<td>91.00 ± 3.094</td>
<td>5.266*</td>
</tr>
<tr>
<td></td>
<td>Adj. Post-test Mean</td>
<td>88.104</td>
<td>91.029</td>
<td>28.033*</td>
</tr>
<tr>
<td>Uric acid (in mg/dl)</td>
<td>Pre-test Mean ± S.D</td>
<td>5.74 ± 0.823</td>
<td>5.55 ± 0.2631</td>
<td>0.886</td>
</tr>
<tr>
<td></td>
<td>Post-test Mean ± S.D</td>
<td>5.115 ± 0.732</td>
<td>5.613 ± 0.443</td>
<td>8.963*</td>
</tr>
<tr>
<td></td>
<td>Adj. Post-test Mean</td>
<td>5.003</td>
<td>5.536</td>
<td>25.867*</td>
</tr>
</tbody>
</table>

* Significant at .05 level of confidence. (The table values required for significance at .05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).
The analysis of covariance (ANCOVA) was used to find out the significant difference if any, among the experimental group and control group on selected criterion variables separately. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as an appropriate.

After applying the analysis of covariance, the result of this study showed that there was a significant decrease in systolic and diastolic blood pressure for the yoga practice group and also there was a significant decrease in the uric acid after the experimental period. Further, comparing the adjusted post-test means of the criterion variables, such as the systolic blood pressure (F-ratio – 43.836 p > 0.05) and diastolic blood pressure (F-ratio – 28.033 p > .05) the yoga practice group was significantly decreased and in uric acid level, there was a significant decrease (F – ratio – 25.867 p > 0.05) after the yoga practices. The results of the study also shown that there was a significant difference in blood pressure (both systolic and diastolic) and uric acid level between the yoga practice group and control group.

CONCLUSIONS

1. It was concluded the results of the study that there was a significant decrease in systolic and diastolic blood pressure (Pramanik, March 2009 [8] and Bharshankar et al, 2003 [9]) and also in uric acid level (Diuwaldo J. Dugarte [10] Malhotra et al, December 2005[11] and Amita et al, 2009[12]) among diabetes patients after the twelve weeks of yoga practice.
2. It was also concluded from the results of the present study that there was a significant difference was occurred between the yoga practices group and control group on blood pressure and in the uric acid level also.

The following asanas were given:

Yogasanas: Suryanamaskar, Padmasana, Trikonasana, Dhanurasana, Ardhamatsyendrasana, Vajrasana, Yoga Mudra, Pavan Muktasana, Sarvangasana, Halasana, Matsyasana

Pranayama: Nadi Shodhan, Bhramari, Bhasrika, Moola Bandha and Uddiyan Bandha

REFERENCE:


RELATIONSHIP OF THE ANTHROPOMETRIC AND PHYSICAL CHARACTERISTICS OF GYMNASTS TO TABLE VAULT PERFORMANCE.

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ABSTRACT

Objectives: To investigate the relationship of selected physical fitness, anthropometric variables and body composition to performance of Table vault in artistic gymnastics” of those qualified compulsory exercise in 46th Junior National Gymnastic Championship held at Manipur from 15th to 19th February 2006. Method: 60 male gymnasts performance were assessed on all the six apparatus participated in Junior National gymnastics Championship. The article is presented to bring out the result of Table Vault performance of the gymnasts. Out of 124 gymnasts (total number of gymnasts participated) only 60 Gymnasts was taken in this study those who had qualified from compulsory Vault to optional Vault in the championship. Ten Physical fitness variables and ten Anthropometric Variables were selected for this
study. The percentage of body fat was assessed using a measuring device such as Harpenden Skinfold Caliper at four standardized sites (biceps, triceps, subscapula and suprailliac). The four measures were then summed and converted to body fat percentage using the Durnin and Womersley table. Height, Weight, Leg Length, Arm Length, Sitting height, Arm Span Thigh girth were assessed using standard tools for the study. Statistical Technique used: A Spearman’s correlation test was used to find out the relationship of physical characteristics with table vault performance. Result: The first and foremost variable to predict the Table vault compulsory of the gymnasts was Arm girth with the correlation coefficient (CC) of .582 with the contribution of 32.7%, followed by Thigh girth with the CC of .625 and contribution of 36.9%, Arm span with the CC of .661 and contribution of 40.7%, Dynamic balance with the CC of .697 and contribution of 44.8% and Weight with the CC of .729 and contribution of 48.7%. The foremost variable to predict the Table vault optional of the gymnasts was Abdominal Strength with the CC of .585 with the contribution of 33.1%, followed by Leg power with the CC of .686 and contribution of 45.2%, Speed with the CC of .744 and contribution of 52.9%, and Hip flexibility with the CC of .800 and contribution of 61.3%. Conclusion: The Five (5) variables best predicted performance of gymnasts in Table vault event-compulsory. They are Arm girth, Thigh girth, Arm span, Dynamic balance and Weight. In table vault optional, 4 variables best predicted performance of gymnasts. They are abdominal strength, Leg power, Running Speed, and Hip flexibility.

Keywords: relationship, physical characteristics, table vault.

INTRODUCTION

Artistic gymnastics is an art of performing various types of exercise and feats of skills on different kinds of apparatus. Men artistic gymnastics consists of Floor Exercise, Parallel Bars, Pommel Horse, Roman Rings, Table Vault and Horizontal Bar. The traditional "horse" was replaced by a new vaulting "table" in artistic gymnastics competitions in 2001. Physical parameters of vaults are made a significant contribution in the analysis and interpreting of the vault phases for male gymnasts. This work identified mechanical variables that rule the successful performance of a table vault performance presented what factors contribute to a successful vault; some factors are independent while others are under the control of the gymnast. During vaulting table contact, the gymnast interact with the vaulting table to further refine the post flight linear and angular momentum requirements to achieve the vault’s desired distance, height and rotations. To enable the gymnast to land safely and without additional steps or a fall, landing with the correct body angle increases the chances of “sticking” the landing.
Prassas (2002) schematically presented what factors contribute to a successful vault; some factors are independent while others are under the control of the gymnast. Generally, the gymnast builds up kinetic energy during a sprint and that energy is partitioned into linear and angular momenta during the springboard phase.

**METHOD**

The investigator has selected male gymnastic players participated from 16 States of India in Junior National Championship. Out of 124 gymnasts (total number of gymnasts participated) only 60 Gymnasts was taken into consideration those who had qualified some compulsory exercise to optional exercises. All the gymnasts shown great interest and well cooperated during the course of conducting various tests related to the study. Also coaches and judges helped the researcher while giving the required information. Before enrolling in the study, the subjects were informed of experimental procedures. Ten Physical fitness variables like, muscular endurance, Leg Power, Abdominal strength, static balance, Dynamic balance, Ankle flexibility, Hip flexibility, Shoulder flexibility and Trunk flexibility were selected for this study. The percentage of body fat was calculated using a measuring device such Harpenden Skinfold Caliper (Harpenden, UK) at four standardized sites (biceps, triceps, subscapula and suprailliac). The four measures were then summed and converted to body fat percentage using the Durnin and Womersley table.

Anthropometric Variables: Height, Weight, Leg Length, Arm Length, Sitting height, Arm Span, Thigh girth were used for the study.

All anthropometric measurements were performed before the competition itself. Weight and height were measured among participants in an upright position, wearing light clothing and bare foot. The size of the subjects was measured using a stadiometer, to the nearest centimeter. Subjects were also weighed on scales Seca (alpha model 770). The percentage of body fat was calculated using a measuring device such Harpenden Skinfold Caliper (Harpenden, UK) at four standardized sites (biceps, triceps, subscapula and suprailliac). The four measures were then summed and converted to body fat percentage using the Durnin and Womersley table. Thigh girth was measured using flexible measuring tape and recorded in centimeters.

Physical Fitness Test for selected Variables
Abdominal strength was measured by using sit-up test maximum in number. Running speed were assessed by conducting 50 mts dash and Dynamic balance assessed by conducting Bass test of Dynamic balance and recorded the balance in seconds. Hip flexibility assessed by split-test measured in centimeters and leg power was assessed by conducting standing broad jump and distance recorded in centimeters.

RESULT

The data collected have been analyzed under descriptive statistic and stepwise multiple regressions and the result obtained have been interpreted along with graphical representations.

The performance was taken as major dependent variable and other variables like, physical fitness, body structure and body composition variables as independent variables. In each analysis major predictors through various steps, contribution percentages, result of regression ANOVA, beta coefficients are presented. This can be possible only through a definite understanding of fitness components, body structure and body composition and their relationship to the complex movements mechanics and performance. Hence, it is logical to assume that physical fitness, body structure and body composition has got a definite relationship with the performance in any sports discipline, especially in gymnastics. The inter-relationship of each of these variables is success in sports can be regarded as proven fact of the study.

STATISTICAL METHODS APPLIED

Following statistical methods were employed in the present study to analyze the data

1. Descriptive statistics
2. Regression-Stepwise multiple
3. SPSS statistical package was used for analysis and interpretation of data

A: Table Vault Compulsory As per the competitions norms the gymnasts was to perform a single Vault - handspring pike as a compulsory element for qualification. During vaulting table contact, the gymnast interact with the vaulting table to further refine the post flight linear and angular momentum
requirements to achieve the vault’s desired distance, height and pike position with execution of element with perfect landing.

<table>
<thead>
<tr>
<th>Model</th>
<th>Variables Entered</th>
<th>R</th>
<th>R²</th>
<th>Adjusted R²</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Arm girth</td>
<td>.582</td>
<td>.339</td>
<td>.327</td>
<td>2.1816</td>
</tr>
<tr>
<td>2</td>
<td>Thigh girth</td>
<td>.625</td>
<td>.391</td>
<td>.369</td>
<td>2.1126</td>
</tr>
<tr>
<td>3</td>
<td>Arm span</td>
<td>.661</td>
<td>.437</td>
<td>.407</td>
<td>2.0476</td>
</tr>
<tr>
<td>4</td>
<td>Dynamic balance</td>
<td>.697</td>
<td>.485</td>
<td>.448</td>
<td>1.9764</td>
</tr>
<tr>
<td>5</td>
<td>Weight</td>
<td>.729</td>
<td>.531</td>
<td>.487</td>
<td>1.9043</td>
</tr>
</tbody>
</table>

Out of 21 variables entered, only 5 variables best predicted performance of gymnasts. They Variables Entered and Removed in the Stepwise Multiple Regression Analysis are Arm girth, Thigh girth, Arm span, Dynamic balance and Weight. The first and foremost variable to predict the Table vault compulsory of the gymnasts was Arm girth with the correlation coefficient of .582 with the contribution of 32.7%, followed by Thigh girth with the correlation coefficient of .625 and contribution of 36.9%, Arm span with the correlation coefficient of .661 and contribution of 40.7%, Dynamic balance with the correlation coefficient of .697 and contribution of 44.8% and Weight with the correlation coefficient of .729 and contribution of 48.7% Rest of the contribution for the performance was unaccounted for. Remaining 16 variables did not predict the performance of the gymnasts on Table Vault compulsory element.
Extent of Contribution by Predictor Variables for Table Vault-Compulsory

AG = Arm Girth; TG = Thigh Girth; AS = Arm Span; DB = Dynamic Balance and WT = Weight

Table Vault Optional

The successful performance of a table vault performance presented what factors contribute to a successful Optional vault performance.

<table>
<thead>
<tr>
<th>Model</th>
<th>Variables Entered</th>
<th>R</th>
<th>R²</th>
<th>Adjusted R²</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Abdominal Strength</td>
<td>.585</td>
<td>.343</td>
<td>.331</td>
<td>.4345</td>
</tr>
<tr>
<td>2</td>
<td>Leg Power</td>
<td>.686</td>
<td>.471</td>
<td>.452</td>
<td>.3932</td>
</tr>
<tr>
<td>3</td>
<td>Running Speed</td>
<td>.744</td>
<td>.553</td>
<td>.529</td>
<td>.3646</td>
</tr>
<tr>
<td>4</td>
<td>Hip flexibility</td>
<td>.800</td>
<td>.639</td>
<td>.613</td>
<td>.3305</td>
</tr>
</tbody>
</table>
Variables Entered and Removed in the Stepwise Multiple Regression Analysis

Out of 21 variables entered, only 4 variables best predicted performance of gymnasts. They are abdominal strength, Leg power, Running Speed, and Hip flexibility. The first and foremost variable to predict the Table vault optional of the gymnasts was Abdominal Strength with the correlation coefficient of .585 with the contribution of 33.1%, followed by Leg power with the correlation coefficient of .686 and contribution of 45.2%, Speed with the correlation coefficient of .744 and contribution of 52.9%, and Hip flexibility with the correlation coefficient of .800 and contribution of 61.3% Rest of the contribution for the performance was unaccounted for. Remaining 17 variables did not predict the performance of the gymnasts on Table Vault optional element.

Extent of Contribution by Predictor Variables for Table Vault-Optional

SU= Sit Ups, SB = Static Balance; SP= Speed and HF = Hip Flexibility
Descriptive statistics for artistic gymnastics performance in various apparatus and in total-compulsory and optional

**DISCUSSION**
The aim of this research is to study the Relationship of the anthropometric and physical characteristics of gymnasts to Table Vault performance in National championship held at Manipur during 2006.

We evaluated anthropometric parameters, muscle strength, flexibility, and body composition levels in National gymnastics championship held at Manipur during 2006.

Especially in compulsory exercises 124 subjects participated, and only 60 subjects qualified for optional exercises, this mean value for those in their 60s may provide a useful database for evaluating anthropometric and physical fitness parameters to best predict of gymnastics performance. On the impact of variables applied to the prediction of the initial rating of the treated criterion variable. Prediction of system variables explained (R) .582 of 32.7%, followed by Thigh girth with the correlation coefficient of .625 and contribution of 36.9%, Arm span with the correlation coefficient of .661 and contribution of 40.7%, of the common variability with the criterion, while the connectivity of the entire prediction system of variables in Table Vault compulsory event.

Prediction of system variables explained (R) of .585 with the contribution of 33.1%, followed by Leg power with the correlation coefficient of .686 and contribution of 45.2%, Speed with the correlation coefficient of .744 and contribution of 52.9%, and Hip flexibility with the correlation coefficient of .800 and contribution of 61.3% Rest of the contribution for the performance was unaccounted for. Remaining 17 variables did not predict the performance of the gymnasts.

CONCLUSION

Within the limitation of the present study and on the basis of the findings, the following conclusions have been drawn. The Five (5) variables best predicted performance of gymnasts in Table vault event-compulsory. They are Arm girth, Thigh girth, Arm span, Dynamic balance and Weight. In table vault optional, 4 variables best predicted performance of gymnasts. They are Abdominal strength, Leg power, Running Speed, and Hip flexibility.

ACKNOWLEDGMENTS

The authors thank all subjects for their voluntary participation in this study. The authors wish to express their sincere gratitude to all the participants for their cooperation. This study did not involve any financial external support.

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ABSTRACT

Yoga is way of life or science of right living and integrated system of education for body, mind and soul. (Dhanraj 1974). This art of right living was perfected and practiced in Indian thousand of years ago but, since Yoga deals Universal truths, it works on all aspects of the person physical. Mental, emotional, and spiritual. The aim if this study was to acarch out the effect of practicing yoga on speed, strength, feasibility, agility and endurance. For this study sixty subjects was elected with the Random eampling method. All the subjects were selected having age range 32 to 35 years. The group was divided into tow group one experimental and other control group. The three months yoga exercise given to the experiential group and other results achieved that the experimental group has significantly better (P< 0.01, P> 0.05) in flexibility the physical efficiency of players and thus it help to keep the body fit.

KEY WORDS: yoga, fitness, sports student and yogic asana.

Education aim is all round development of students for physical & mental development we usually adopt different methods. But to the mind of investigator, our Indian system of Yoga asanas may help to neutralize these stresses, fatigue and low performance etc. is the best if we read the literature on Yoga exercises, we will find that Indian method of Yogic exercises give equal importance of physical health.

Yoga is a technique / system of holistic development of human personality. This technique when properly utilized will enhance sports performance of person who has interests of yoga. i.e. yogic asanas is included in the schedule of conditioning as well as in ‘warm up’ procedures by many clinc athletics. Besides a few research studies have brought about specific out comes of asanas for effect of yoga asanas an physical and psychological fitness in relation to sports performance.

Indian system of yoga asanas may help to neutralize these stresses, fatigue and low performance etc. is the best.
Statement of the Problem:

The study focuses on the “Effect of Yoga Asanas on the Efficiency of Players.

OBJECTIVES OF THE STUDY:-

1. The find out the effect of Yoga Asanas on the efficiency of the veterans students.

Significance of the Study:-

Utility of Yoga for the promotion of sports may be useful from the following points of view:-

Applications of Yogic exercises have a considerable scope in the promotion of sports. Promotion of sports depends on basic motor fitness factors, specific sports skills and psychological factors. Physical fitness is must for any good performance in sports. Maintenance of physical fitness during participation period and in off-season is necessary for every sportsmen. This can be achieved excellently by the yoga routine excises. Yoga exercise deal with vital organs of the body on which health depends.

Event sports involves vigorous movements, vigorous movements shorten muscles and makes them susceptible to pulls and strains. it is be noted that a person involves himself in intensive on vigorous activates the more he need to stretch. In sports like running, the muscles most commonly injured by pulls and strains are the hamstring and the calf muscles. Athletics competing in running sports should regularly practices stretching is the most important injury preventive in sports, Asanas are safety zone for such type of injury.
It is accepted by the trainers that warming up are necessary not to avoid injuries but also to improve the performance in sports. The key a good warming up is to increases the pace of the workout so gradually that the muscles can adjust to the increased pace and remain free from injury. The steady stretching asanas proper such a back ground. The method and procedure have been explained to compare the physical characteristics of the 32 to 35 years age group of players consisting of tow groups, Methods are used to see the effects of selected yogic asanas on physical and psychological fitness of these players.

Experimental:

The process of Experimental passed through following procedure.

The data was collected for various test of physical fitness betterment. The test was conducted with the help of physical education teacher. Coaches and students school. The sample of 60 students were divided in two group 30 players were divided into tow groups players cach. On group was exercise. The test was conducted on tow occasions. Once before the training of yoga asana and second after appropriate degree of training asanas. After the completion of three months training the performance of control and experimental group were compared on all the tests.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of Group</th>
<th>No. of Students</th>
<th>Exercise Given</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Experimental</td>
<td>40</td>
<td>Asanas</td>
</tr>
<tr>
<td>2.</td>
<td>Control</td>
<td>40</td>
<td>Nil</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>80</td>
<td></td>
</tr>
</tbody>
</table>

DESIGN:

In the present study, a group of one hundred twenty school level players were selected from Murthal Govt. School. The age group between 32 to 35 years these one hundred twentyVeterans players were equally divided in two groups. Each group consisted of sixty disabled players(Students).
Selection of Variables:-

To compare the groups, the variables have been selected keeping in view their significance in regard of their performance. The variable belong to two areas.

Physical Fitness Variables:-

(a) Strength
(b) Agility
(c) Speed
(d) Endurance
(e) Flexibility

Selections of (Yoga asana) Training Exercise

1. Padmasan
2. Paschimottanasan
3. Utrasan
4. Sarvangasan
5. Halasana
6. Chakkerasana
7. Bhujang asana
8. Supt-Vijrasana
9. Matseyanderasana
10. Dhanurasana
11. Karanpira Asana
12. Vrikshasana
13. Gharudasana
14. Makarasana
15. Shavasana

Tools Used:-

Keeping in view of research criteria of availability, suitability, reliability, and validity of following tests were used to collect the data.
To test the physical fitness, AAIIPER youth fitness test Battery was used. The following Criterion measures were used:

1. Pull-up
2. Standing Broad Jump
3. Shuttle Run
4. 50 Yard Dash
5. 600 Yard Run-walk
6. Bend and Reach test (by Johnson and Garcia)

ANALYSIS AND INTRODUCTION

The nature of the problem and objectives of the study researcher to use mean (M), Standard Deviation (S.D) and t-test to calculate the comparative effectiveness of Yoga asanas on experimental and control groups. The hypothesis were tested by calculating the significant difference at 0.05 and 0.01 level of confidence.

The results of pre and post test conditions of experimental and control group have been presented the table no.1&2.

EXPERIMENTAL PRE & POST GROUP RESULTS (N= 80=40+40)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Variables</th>
<th>Mean</th>
<th>S.D.</th>
<th>Mean</th>
<th>S.D.</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pull Up</td>
<td>7.28</td>
<td>0.64</td>
<td>11.33</td>
<td>0.77</td>
<td>4.23**</td>
</tr>
<tr>
<td>2.</td>
<td>Standing Broad Jump</td>
<td>12.62</td>
<td>0.63</td>
<td>14.26</td>
<td>0.73</td>
<td>2.25**</td>
</tr>
<tr>
<td>S.No.</td>
<td>Variables</td>
<td>Mean</td>
<td>S.D.</td>
<td>Mean</td>
<td>S.D.</td>
<td>Mean</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>1.</td>
<td>Pull Ups</td>
<td>07.96</td>
<td>01.94</td>
<td>08.87</td>
<td>03.52</td>
<td>03.22**</td>
</tr>
<tr>
<td>2.</td>
<td>Standing Broad Jump</td>
<td>11.26</td>
<td>03.96</td>
<td>12.47</td>
<td>03.57</td>
<td>0.39</td>
</tr>
<tr>
<td>3.</td>
<td>50 Yard Dash</td>
<td>08.68</td>
<td>01.08</td>
<td>09.54</td>
<td>01.04</td>
<td>0.29</td>
</tr>
<tr>
<td>4.</td>
<td>Shuttle Run Test</td>
<td>12.05</td>
<td>0.95</td>
<td>12.66</td>
<td>01.57</td>
<td>0.56</td>
</tr>
<tr>
<td>5.</td>
<td>600 Yard Dash</td>
<td>02.53</td>
<td>03.67</td>
<td>02.58</td>
<td>0.48</td>
<td>0.68</td>
</tr>
<tr>
<td>6.</td>
<td>Bend and Reach Test</td>
<td>0.84</td>
<td>0.65</td>
<td>0.89</td>
<td>0.87</td>
<td>0.98</td>
</tr>
</tbody>
</table>

\[t = 2.02 \text{ is significant at .05 level (*)}\]

\[t - 2.71 \text{ is significant at .01 level (**)}\]

**Table No. 2**

CONTORL PRE & POST GROUP RESULTS (N = 60 = 30+30)

This Chapter presents analysis and interpretation of data and results obtained through the pertinent statistical analysis. The data has no utility unless they are analyzed and interpreted by statistical techniques. Analysis of data means, Mathematical treatment of the tabulated material in order to
determine inherent facts and to draw comprisal information’s. it involves braking up of complex factors into similar part and putting them a new arrangement for the purpose of investigation.

So the present study shows that regular practice of Yoga ananas affect significantly the physical psychological fitness components of sports persons and thus help in the improvement of their sports performance memory power and study habits also. From the results, we can conclude that the practice of yoga asanas is of great importance for the players, coaches and sports scientists and many others related to sports and physical education. It may play a very important role:

1. To develop physical fitness for the players.
2. To maintain physical fitness in off – season period.
3. Prevention, treatment and rehabilitation after injuries. Experimental evidence shows that Yogic practices helps to improve the physical fitness significantly.
4. 

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INCLUDE PHYSICAL EDUCATION SUBJECT AS ONE OF THE OPTIONALS IN CIVIL SERVICE EXAMINATION

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ABSTRACT

In India nearly one hundred and twenty million population and we are very eager to win a gold medal in Olympics or in International arena. But when it happens the dream.. When it will come true..Every Indian has to think of these words..To stand beside the leading countries in sports who are winning…… why it is happening..where we are doing the mistakes „who will come and save the sports industry in India…to became one of the top sporting countries in the world… so there are millions of questions arises in every sports lover and sports mans brain , who are associated with sports ..So we cannot express our views in words. it is highly impossible, to say one are two reasons. There are so many drawbacks

Key words : Arena, Olympics, sports

INTRODUCTION;

INDIA is a Country Nearly one hundred and twenty million people in population and we are very eager to win a gold medal in Olympics or in International arena. But when it happens the dream,. When it will come true..Every Indian has to think of these words..To stand beside the leading countries in sports who are winning….. why it is happening..where we are doing the mistakes „who will come and save the sports industry in India…to became one of the top sporting countries in the world… so there are millions of questions arises in every sports lover and sports mans brain , who are associated with sports ..So we cannot express our views in words. it is highly impossible, to say one are two reasons. There are so many drawbacks regarding this topic..Personally my opinion is to give at most importance
to sports and games and for the subject of physical education. My sincere appeal is to introduce the physical education subject as one of the optionals in civil services examination. There are nearly 25 subjects as options, why not this subject? Can only a civil servant rule the country in various departments. If it is, here is the department to look after this matter. They suggest us how to implement the various schemes to almost at ground level players in the village level so that the sports and games schemes will give an enhancement to the interesting players who are very strong to bring a medal for the nation.

Civil services examination In civil services examination the selected candidate for IAS will see the administration of all departments the candidate who is selected for IPS will administer the police service the candidate selected for IRS will pursue revenue services of India the candidate selected for IFS will perform his duty in Indian forest service e.t.c., like that ISS (Indian Sports Service) department should be implemented in civil services examinations to look after the various policies, various schemes in the department of sports in India.

Indian sports services Include ISS (Indian Sports Service) like IAS, IPS, IRS, there should be an ISS because there are nearly 25 subjects in civil services examination optional so that it will help the nation in preparing new sports scheme, new sports policies to crate infrastructure facilities like play grounds stadiums merit scholarships and to provide advanced technology to improve the performance level of Indian teams catch the young talents in India from ground level.

Change of attitude The thinking of parents attitude will be changed when we introduce the option of sports in civil services examinations so Indian nation government should think of the future of sports industry for better development of sports and games in India.

Parents are thinking of education to their children’s they want to see their child as a doctor, engineer, or a lawyer e.t.c but they don’t want to see their child as a sportsman. If you add this subject (Physical Education) as optional subject in civil services exams atleast some percent of people will send their children to stadiums to play.

Construct stadiums but not hospitals There is a great saying that “Prevention is better than cure” today there was lot of awareness regarding health. If we pass towards stadium for an hour a day will help to not move to hospital. People they may go for waking when sickness arises or if the doctor may suggest to go for waking for fitness if government gives privilege to sports this type of ill health will reduce even the people will go to the stadiums with their children.

Conclusion Indian nation should think once regarding this topic there is need of this subject for introduction in civil services examination it will help not only to win the medals but also keeps the nation fit and healthy so my personal humble request to the Indian union government to implement and give much importance to the physical education subject for the development of sports industry in India.
IMPACT OF EXERCISE ON THE MANAGEMENT OF TYPE-2 DIABETES

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ABSTRACT

Introduction

Diabetes is considered to be the world's leading disease. According to the International Diabetes Foundation, 366 million people worldwide are diabetic and this is expected to rise 552 million by 2030. Proper physical exercise, good environment and proper food habits can overcome the diabetic problems. The purpose of this study is to summarize and critically evaluate different factors that help in the treatment of type-2 diabetes.

Method

A systematic literature review, from January 2000 up to July 2014, searched articles indexed in the Medline, Pubmed, Science direct, Springer link, Proquest, Thomson-gate, academic one file and web of science databases, published in English language. Terms combined in a Boolean search were “exercise”, “health” ”diabetes” and “glycemic control”. Risk of bias was assessed using the Cochrane criteria.

Results and Discussion

Out of 36 English written articles, 7 studies met the inclusion criteria. Physical activity improves blood glucose control and can prevent or delay type-2 diabetes, along with positively affecting lipids, blood pressure, cardiovascular events, mortality, and quality of life. Their results suggested favourable effects of aerobic exercises with calorie rich diet in reducing weight, C-peptide and fasting blood glucose levels in addition of improving insulin resistance and glycosilated hemoglobin.
Conclusion

Although physical activity is a key element in the prevention and management of type-2 diabetes, many with this chronic disease do not become or remain regularly active. Few studies available on the subject lacks methodological quality preventing definitive conclusions about the efficacy of exercises in the treatment of type 2 diabetes mellitus. There is a need of large randomized clinical trials to prove the effectiveness and more research papers written in English in order to disseminate and expand the potential benefit of type of exercise to overcome type-2 diabetes.

Keywords: Exercise; Physical activity; Health; Type-2 diabetes.

INTRODUCTION

Diabetes is considered to be the world's leading disease. It is getting prevalent day by day due to change in our daily food habits and environment. According to the International Diabetes Foundation, 366 million people worldwide are diabetic and this is expected to rise to 552 million by 2030 [1]. Proper physical exercise, good environment and proper food habits can overcome the diabetic problems. As diabetes is of major concern in both the developed and developing world, increasing research is being undertaken in different sectors including research institutions, universities and private companies. Several drugs that affect different targets are approved for the treatment of diabetes. However, the use of current antidiabetic agents, such as metformin, sulphonylureas, thiazolidinedione and incretinmimetics, are often limited by their potential to induce significant adverse effects. It is very difficult to attain the control at the late stage of diabetes if with the multiple drug regimen.

Almost 60 million U.S. residents also have pre-diabetes, people with glucose levels above the normal range, thus greatly increasing their risk for type 2 diabetes (2). However, in general life time risk suggests that one in three Americans born in 2000 or later will develop diabetes, but in highrisk ethnic populations, closer to 50% may develop it (3). However with respect to Indian scenario, India leads the world with largest number of diabetic patients, hence called “Diabetic capital of world” (4). Almost 905 patients are considered to be type-2 diabetic. More than 30% million people have been diagnosed with diabetes in India. The International Diabetes Federation (IDF) estimates the total number of people in India with diabetes to be around 50.8 million in 2010, rising to 87.0 million by 2030 (4).
In this article we are using the term physical activity which in turn means "bodily movement produced by the contraction of skeletal muscle that substantially increases energy expenditure". This physical activity can be relates to the exercise which is part of the physical activity in our day to day routine (6). There is certain different type of exercises which are done with sudden physical activities with the intention of developing the physical fitness by means of cardiovascular, strength, breathing exercises with the expenditure of energy or shedding of body calories (7). The intent is to recognise the types of physical activities done which leads to lowering of the high blood glucose levels. Also these physical movements may have a positive effect on physical fitness, morbidity, and mortality in individuals with type-2 diabetes (8).

Figure. 1: Prevalence of diabetes in India
Figure. 2: Report of diabetes using WHO criteria by the Chennai urban rural epidemiology study (CURES)

<table>
<thead>
<tr>
<th>S.No</th>
<th>city</th>
<th>% prevalence increase</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1989-1995</td>
<td>13.5</td>
<td>8.3-11.6</td>
</tr>
<tr>
<td>2</td>
<td>1995-2000</td>
<td>16.3</td>
<td>11.6-13.5</td>
</tr>
<tr>
<td>3</td>
<td>2000-2004</td>
<td>6</td>
<td>13.5-14.3</td>
</tr>
</tbody>
</table>

METHODS

Data sources

The Medline, Pubmed, Science direct, Springer link, Proquest, Thomson-gate, academic onefile and web of science databases electronic databases were systematically searched for articles published on Qigong and diabetes from January 1992 to December 2010, using various combinations of key words: “exercise”, “health” “diabetes” and “glycemic control”. Bibliographic search also included short communications, editorials, original articles and review articles in English. A review of the bibliographic references of all articles found was performed with the purpose of expanding the search.

Study criteria and data selection

The desired and major outcomes which include benefits and adverse effects of the types of exercise and diet in the treatment of T2DM isolated or associated to other therapies. Abstracts, reviews, articles, short communications, published in any language other than english were excluded from the study. All the
studies with their extraction and data were validated separated by three different reviewers and expresses in defined criteria.

Risk of bias
Disagreements between the three reviewers were resolved through discussion and, if necessary, by debating with the second author. There was no disagreement between the three assessments. All the criteria were discussed and assessed according to Conchrane classification. Risk of bias was assessed according to Cochrane classification in three criteria: the benefits and harms of interventions used in healthcare, how well a diagnostic test performs in diagnosing and detecting a particular disease, withdrawals and allocation concealment.

Results and discussion
Thirty six articles were identified in the bibliographic search (Fig. 1). Ten of these were found in PUBMED, 7 in MEDLINE, 10 in SCIENCE DIRECT, 4 in SPRINGERLINK, 2 in WEB OF SCIENCE, 3 in ACADEMIC ONEFILE. Thus, of a total number of 36 articles, only 7 met the inclusion criteria and were fully read and included in the present systematic study [14–18]. The systematic flow chart showing the search criteria is shown in figure 1. The seven selected studies are summarized in Table 1.
Diagnosis of diabetes

Currently, the American Diabetes Association (ADA) recommends the use of any of the following four criteria for diagnosing diabetes: 1) glycated haemoglobin (A1C) value of 6.5% or higher, 2) fasting plasma glucose $\geq 126$ mg/dl (7.0 mmol/l), 3) 2-h plasma glucose $\geq 200$ mg/dl (11.1 mmol/l) during an oral glucose tolerance test using 75 g of glucose. 4) classic symptoms of hyperglycemia (e.g., polyuria, polydipsia, and unexplained weight loss) or hyperglycemic crisis with a random plasma glucose of 200 mg/dl (11.1 mmol/l) or higher.

In the absence of unequivocal hyperglycemia, the first three criteria should be confirmed by
repeat testing (4). Prediabetes is diagnosed with an A1C of 5.7–6.4%, fasting plasma glucose of 100–125 mg/dl (5.6–6.9 mmol/l; i.e., impaired fasting glucose [IFG]), or 2-h postload glucose of 140–199 mg/dl (7.8–11.0 mmol/l; i.e., impaired glucose tolerance [IGT]) (9).

The ultimate goal of the treatment of type-2 diabetes is to achieve and maintain optimal blood glucose levels, lipid, and blood pressure (BP) levels to prevent or delay chronic complications of diabetes. Many people used to do exercises program, losing weight, take certain medicines to reduce weight. In severe case person has to take insulin shots to reduce blood glucose levels (10). Diet plan and exercise are the key playes for the management and prevention of the type-2 diabetes. Physical activity help to reduce the associated glucose, lipid, BP control abnormalities, as well as aid in weight loss and maintenance. When medications are used to control type-2 diabetes, patients should bring changes in their lifestyle improvements and food habit which should be ideal to reduce glucose levels and body weight (11).

Table 1: Summary of English written studies with impact of exercise in the treatment of type 2 diabetes.

<table>
<thead>
<tr>
<th>Study no.</th>
<th>Author (year)</th>
<th>Study outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study-1</td>
<td>Leigh Ann Leung et al, 2014</td>
<td>Over 35% of persons with a new diagnosis of diabetes initiated moderate or vigorous exercise in the year following their diagnosis. Among individuals with fewer health risk factors at baseline, those newly-diagnosed with diabetes were more likely to begin exercise than those without diabetes.</td>
</tr>
<tr>
<td>Study-2</td>
<td>Marcos Dantas Moraes Freire et al, 2013</td>
<td>There is a need of large randomized clinical trials to prove the effectiveness of this modality of therapy in order to disseminate and expand the potential benefit of this therapy in the management of T2DM.</td>
</tr>
<tr>
<td>Study-3</td>
<td>Christina Voulgari et al, 2013</td>
<td>Exercise improves cardiac autonomic function in obesity and diabetes</td>
</tr>
<tr>
<td>Study-4</td>
<td>Nathan Y. et al, 2009</td>
<td>Exercise in an effective lifestyle management technique for the prevention of type 2 diabetes and for the management of both type 1 diabetes and type 2 diabetes.</td>
</tr>
<tr>
<td>Study-5</td>
<td>RONALD J. SIGAL et al</td>
<td>Dose of insulin and secretagogues can be reduced before sessions of physical activity, extra carbohydrate can be consumed before or</td>
</tr>
</tbody>
</table>

508
<table>
<thead>
<tr>
<th>Study</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study-6</td>
<td>American Diabetes association, 2002</td>
</tr>
<tr>
<td></td>
<td>careful medical history and physical examination should focus on the</td>
</tr>
<tr>
<td></td>
<td>symptoms and signs of disease affecting the heart and blood vessels,</td>
</tr>
<tr>
<td></td>
<td>eyes, kidneys, and nervous system.</td>
</tr>
<tr>
<td>Study-7</td>
<td>Richard A et al., 2001</td>
</tr>
<tr>
<td></td>
<td>Sensible resistance training involves precise controlled movements</td>
</tr>
<tr>
<td></td>
<td>for each major muscle group and does not require the use of very heavy</td>
</tr>
<tr>
<td></td>
<td>resistance. Along with brief prescriptive steady-state aerobic exercise,</td>
</tr>
<tr>
<td></td>
<td>resistance training should be a central component of public health</td>
</tr>
<tr>
<td></td>
<td>promotion programs.</td>
</tr>
</tbody>
</table>

**Conclusion**

In conclusion, we summarize that exercise leads to the contraction of the body muscles which mainly depends upon the coordination of sympathetic nervous system. Increase uptake of blood glucose is usually maintained by glucose production via liver glycogenolysis and gluconeogenesis and certain fatty acid metabolism. There are several factors which affect but duration of the physical activity is the rate limiting step for this. Generally, free fatty acids are the main source of the energy but certain exercises which make a shift from fatty acids to glucose and glycogenolysis are considered to be the effective. Although physical activity is a key element in the prevention and management of type-2 diabetes, many with this chronic disease do not become or remain regularly active. Few studies available on the subject lacks methodological quality preventing definitive conclusions about the efficacy of exercises in the treatment of type 2 diabetes mellitus. There is a need of large randomized clinical trials to prove the effectiveness of exercise to overcome type-2 diabetes.

**References**


THE FREQUENCY OF MAXIMUM STRENGTH TRAINING PER WEEK FOR IMPROVING THE SPEED ABILITY OF THE AGE GROUP UNDER 16 MALE ATHLETES

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ABSTRACT

The purpose of the study was to determine the frequency of maximum strength training per week for improving the speed ability of the age group under 16 male athletes. Total of 60 male athletes
with the age of 14 to 16 years were selected as subjects for this study. Subjects were divided into three groups as group A, Group B and Group C. Group A is experimented and restricted to 1 time of maximum strength training per week. Group B is experimented and restricted to 2 times of maximum strength training per week. Group C is control group. Training was given to whole body related to maximum strength for 8 weeks frequently. The study was restricted to selected physical fitness variable speed. Speed was tested by using 80mtr dash and measured by a standard Stop watch to prior and after training period. Results showed that both Group A (1 time of maximum strength training per week) and Group B (Two times of maximum strength training per week) improved almost all similar speediness effectively. There was no significant difference between Group A and Group B related to frequency of maximum strength training per week. But there was a difference in both Group A and Group B related to improvement of speed after the training period when comparing to Group C. There was no significant difference in Group C (control group) to prior and after experimental period related to improvement of Speed.

Key words: Maximum strength training, Frequency of Training per week, Speed, 80 mtr dash, under 16 male athletes

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THE FREQUENCY OF MAXIMUM STRENGTH TRAINING PER WEEK FOR IMPROVING THE SPEED ABILITY OF THE AGE GROUP UNDER 16 MALE ATHLETES

Govindarao Itraju, Ph.D. Scholar, Department of Physical Education and Sports, Pondicherry University, Pondicherry, India
INTRODUCTION:

Many sports use strength training as part of their training regimen notably football, wrestling, Track & Field and hockey. Strength training for other sports and physical activity is becoming increasingly popular.

The main object of maximum strength training is to increase the highest level of force an athlete can generate. The sprinter requires significant muscle mass and bulk where as maximal strength is an important fitness component. Training for maximal strength is not the same as training for increased muscle size known as hypertrophy training. Maximum strength weight training programs are the only form of training that activates a large number of fast twitch motor units and improves muscle synchronization between the agonists and antagonists—so antagonists don’t oppose the movement. So with all these benefits of maximum strength must need to a sprinter to develop his speed progressively for a long time. Maximum strength can be done with mostly weight training.

OBJECTIVES:

The purpose of the study was to identify the frequency of maximum strength training per week for improving the speed ability of the age group under 16 male athletes.

METHODOLOGY:

Selection of Subjects: The subjects were randomly assigned to each of the three groups. Group A and Group B were experimental groups. Group C is Control group. Each group consisted of 20 subjects. The average age of the subjects was fifteen years. All the subjects were of fairly well developed physique as well as all of them had been participated in sports training regularly for the last two years. Each subject had clocked between 12-12.5 sec in 100 mtr.

Selection of Variables: Here speed was selected as a dependent variable and maximum strength training was selected as an independent variable for this study.
Test Administration: All three groups' subjects were tested for 80 mtr dash prior training and after training period by measuring their performances with a standard stop watch.

RESULTS & DISCUSSION OF THE STUDY:

To find out the difference in each group due to application of different training menu, Analysis of Covariance was applied.

The following table shows that F-ratio obtained for three groups in 80 mtr speed.

Table: Analysis of Covariance of Group A, B and C (80mtr Speed)

<table>
<thead>
<tr>
<th>Test</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
<th>df</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test</td>
<td>9.953</td>
<td>9.932</td>
<td>9.912</td>
<td>B</td>
<td>2</td>
<td>0.212</td>
<td>0.850</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>W</td>
<td>57</td>
<td>7.252</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.108</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.127</td>
<td></td>
</tr>
<tr>
<td>Post-Test</td>
<td>9.823</td>
<td>9.822</td>
<td>9.885</td>
<td>B</td>
<td>2</td>
<td>0.152</td>
<td>0.575</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>W</td>
<td>57</td>
<td>7.534</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.076</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.132</td>
<td></td>
</tr>
</tbody>
</table>
Adjusted post mean | 9.888 | 9.877 | 9.898 | B 2 | 0.048 | 0.0242 | 1.466
--- | --- | --- | --- | --- | --- | --- | ---
W 56 | 0.924 | 0.0165 | | | | |
Table value for significance at 0.05 with df 2 and 57 is 3.16

It is evident from above table that pre tests means of groups A, B and C in 80 mtrs speed test are 9.953, 9.932, 9.912 respectively which resulted an F ratio of 0.850 which was found to be insignificant at 0.05 level. The post test means of 9.823, 9.822, and 9.885 for the three groups A, B, C respectively with an F-ratio of 0.575 also showed insignificant difference at 0.05 level.

The adjusted final means of group A, B and C were 9.888, 9.877, 9.898 respectively and were found to be insignificant with an F-value of 1.466 at the table value 3.16. But there was a difference in Group A and Group B related to improvement of speed between prior and after training period when comparing with control group.

The details of 80 mtr Speed performances of three groups were presented graphically in the following figure.
Fig. Mean value of pre & post test data in 80 mtr speed

CONCLUSIONS:

1. Training program A and B were found to be effective in improving the speed performance.
2. Both training programs A and B also were be effected almost all similarly to improve the speed performance for under 16 male athletes.
3. Control group is ineffective to improve speed.
4. Therefore this study clearly indicated that we can go for 1 time maximum strength training per week is enough for under 16 male athletes instead of 2 times maximum strength training per week by reducing the athlete’s training stress.

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Effects of Three Different Low-Volume Strength-Training Programs on performance of university Male Soccer Players.

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2. Dr. Y. Gopi Krishna Professor of Physical Education, JNTU College of Engineering, Sultanpur. 
Sarvesh.gantala@gmail.com

ABSTRACT : 

Traditional modalities to improve strength include resistance training and plyometric exercises with movement patterns as close as possible to specific football skills, aiming to warrant the highest degree of transference between strength gains and soccer technical skills. In the present study, the short-term effects of three different in-season low-volume strength-training programs on strength, sprint, agility, and vertical jump performance of soccer players were tested. Fifty-seven adult male soccer players were invited to participate in the study. The participants were university students engaged in different local soccer clubs. Data are presented as mean±SD, unless otherwise noted, or relative change after the
intervention. Comparisons between groups in post-intervention performances in all tests were calculated by ANOVA, using the baseline value as the covariate to correct for any difference in groups at baseline. The training-related changes in 1RM, concentric and eccentric strength are presented. All training groups increased 1-RM squat, knee extension, and plantar flexion strength compared with the CG (p<0.001). Soccer-specific plyometric skills can thereby be included into low-volume resistance training sessions, as a mean to warrant transference between the strength gains and technical skills. Given the small effect sizes observed in the current study it should be noted that the sample size might be statistically too small to detect differences between all training regiments. In soccer the time available for in-season ancillary strength training might be reduced to the “minimum possible volume”. In the present study we observed that combining high-load strength training with soccer-specific movements might be an effective strategy to improve strength and speed.

INTRODUCTION

During a typical soccer game, players perform 150–250 brief intense actions including changes in activity every 3–5 s 30–40 sprints 30–40 tackles and jumps decelerations kicks and dribbles. Soccer is becoming increasingly more athletic hence the contribution of strength, power, and their derivatives (acceleration, sprinting, and jumping) might be beneficial in many game situations. Therefore, conditioning coaches feel the need to include ancillary strength-training sessions as part of routine football training programs.

Traditional modalities to improve strength include resistance training and plyometric exercises with movement patterns as close as possible to specific football skills, aiming to warrant the highest degree of transference between strength gains and soccer technical skills. For this purpose, conditioning coaches often refer to the complex training method, which combines weight lifting of heavy-loads with plyometric exercises, set for set, in the same workout. The rational underlying this method is the theory of a post-activation potentiation of the neuromuscular system, i.e. a phenomenon induced by a voluntary conditioning contraction, typically performed at maximal or near-maximal intensities, that may increase peak force and the rate of force development during subsequent twitch contractions.

In soccer, many studies have shown that strength training combining weight lifting and plyometric exercises results in significant improvements in match-related physical abilities. Not with standing soccer is a team sport so that the largest proportion of training practice is devoted to field-based conditioning drills to ensure the players preparedness for specific demands of the match play. This is a major issue during the competitive period when players might have little time for ancillary strength training. Conditioning coaches might thereby feel the need to rationalize the time and volume devoted to strength-training programs, as a strategy to guarantee that players accomplish with the prescribed training regimens.

In the present study, the short-term effects of three different in-season low-volume strength-training programs on strength, sprint, agility, and vertical jump performance of soccer players were tested. It was
examined whether adding plyometric-skill exercises to a program with high-load weight training could be advantageous, compared to basic resistance training or plyometric training only.

MATERIAL AND METHODS

Participants

Fifty-seven adult male soccer players were invited to participate in the study. The participants were university students engaged in different local soccer clubs. All players were informed about the protocol, and signed an informed consent form before the investigation. The Scientific Board from the Faculty of Sport, University of Porto approved the design of the study. The players were then randomly assigned to 4 groups: resistance-training group (RT, n=12), plyometric-training group (PT, n=12), complex-training group (CT, n=12), and control group (CG; n=21). The groups were similar (p>0.05) in age (CG: 20.7±1.0 yrs; RT: 20.3±0.9 yrs; PT: 20.0±0.6 yrs; CT: 19.9±0.5 yrs), body mass (CG: 71.4±2.1 kg; RT: 72.8±1.8 kg; PT: 71.6±2.3 kg; CT: 72.2±1.1 kg), and body height (CG: 178±5 cm; RT: 176±5 cm; PT: 176±5 cm; CT: 180±7 cm). Furthermore, during pre-training, no statistical differences between the groups were observed with regard to any of the tests performed.

MEASURES

All participants accomplished a 3-day testing set; the players were evaluated within 1 week, in different days interspersed by at least 48h. Primarily, the players were evaluated in one repetition maximum (1-RM) in the squat, knee extension, and plantar flexion exercises, aiming to determine maximal strength and to further prescribe the training workload. On the following day, the players were evaluated for isokinetic strength. The last day of testing was devoted to measure the squat jump (SJ) and countermovement jump (CMJ), 5- and 20-m sprinting, and agility performance. The first evaluation was carried out before the start of the intervention programs, and the second after 9 weeks of training.

The determination of 1-RM was conducted according to the procedures suggested by Kraemer and Fry (1995). The evaluations were carried out after a 1-week familiarization period, in which participants learned the exercise execution techniques. The participants were always kept under surveillance of one member of the research team.

Isokinetic assessment (Biodex, System IV, USA) included bilateral measurements of knee extensors (quadriceps, Q) and flexors (hamstrings, H). Measurements were preceded by a 5-min warm-up on a cycle ergometer and a specific sub-maximal protocol on the dynamometer in order to familiarize the participants with the isokinetic device and test procedure. Participants were tested in the seated position with the back inclined at 85° using stabilisation straps at the trunk, abdomen and thigh to prevent inadequate joint movements. The arms were held comfortably across the chest. The axis of the dynamometer lever arm was aligned with the distal point of the lateral femoral condyle. A range of knee motion of 90° (0°=full extension) was provided both for the concentric and the eccentric tests and the
gravity correction procedure was employed. The testing protocol consisted of concentric actions of both quadriceps (Q) and hamstrings (H) at 60º/s (3 repetitions). Afterwards, the hamstring muscles were tested in the eccentric mode at 60º/s (3 repetitions). Testing sets were separated by a 1-min rest interval. During the test, oral and visual feedback was given. The concentric H:Q peak torque ratio (conventional H/Q ratio) and the eccentric hamstrings: concentric quadriceps peak torque ratio (functional H/Q ratio) were calculated.

In the SJ, participants performed a maximal vertical jump with hands on the waist, starting from an angle of 90º at the knee; in the CMJ, the participants performed a maximal vertical jump starting from a standing position, with arm swing not allowed. All jumps were performed on a jump mat (Digitime 1000, Digitest, Finland). Participants performed 2 trials in each jump type, and the best result was used in further analysis.

Sprint and agility performance were evaluated outdoors, in an artificial turf ground, using photoelectric cells (Speed Trap II, Brower Timing Systems, USA). Sprint evaluation was accomplished through a flat sprint test that was carried out in a straight 20-m line. The times were measured through 3 pairs of photoelectric cells positioned at the starting line, at 5 and 20 m. The lower (fastest) time of 2 trials for each test was retained for analysis. Agility was evaluated by the T-test, as described by The subject began with both feet 30 cm behind the starting line (A). The player sprinted forward 10 m to point B and touched a marker (cone) with the right hand, then sprinted 5 m to the left and touched another marker (C) with the left hand, then sprinted 10 m to the right and touched a third marker (D) with the right hand, and finally sprinted back to point B and touched the marker with the left hand, after which he turned 90º, and returned to the starting point A running passed the finishing line. The photoelectric cells were placed at the starting/finishing line (A) to record the elapsed time. Players were instructed to run as fast as possible. The fastest time of two trials was retained for analysis.

PROCEDURES

The 9-week in-season strength training intervention programs was conducted in 3 experimental groups with two training sessions per week. Additionally, all groups performed their routine soccer training, based on technical and tactical drills, and small-sided games. The training programs were adapted. After a 10-min warm-up with light jogging or cycling, the resistance-training group (RT) performed high-load weight training, the plyometric-training group (PT) performed plyometric training without weight-bearing exercises, and the complex-training group (CT) performed high-load weight training followed by plyometric exercises, set by set. The exercises for each of the training groups were as described. The control group performed the routine soccer training only.

Contents of resistance training (RT), plyometric training (PT), and complex training (CT) sessions
The training sessions lasted 15–20 min (including the warm-up), and were organized in 3 stations. The players performed 1 set in each station. Training volume (i.e., total number of sets x repetitions in each set) was unaltered during the training period for all groups, but for RT and CT the load of the weight-bearing exercises was increased by 5% from 1-RM each 3 weeks. All training sessions were supervised by one of the investigators during the entire training period. None of the players had accomplished any strength-training regimen prior to the study. Therefore, two familiarization training sessions to the strength training programs were granted, as to optimize exercise execution, prevent possible injuries, and attenuate the learning effect.

STATISTICAL ANALYSES

Data are presented as mean±SD, unless otherwise noted, or relative change after the intervention. Comparisons between groups in post-intervention performances in all tests were calculated by ANOVA, using the baseline value as the covariate to correct for any difference in groups at baseline. When significant differences were found, Bonferroni post hoc comparisons were used to identify between-group differences. Effect sizes were classified according to Hopkins as trivial (d < 0.2), small (0.2 < d < 0.6) moderate (0.6 < d < 1.2), large (1.2 < d < 2.0), very large (2.0 < d < 4.0), nearly perfect (d > 4.0), and perfect (d = infinite). The level of statistical significance was set at p<0.05.

RESULTS

Strength

The training-related changes in 1RM, concentric and eccentric strength are presented. All training groups increased 1-RM squat, knee extension, and plantar flexion strength compared with the CG (p<0.001).

Pre- to post-intervention changes in strength profiles (1RM and peak torque) of soccer players performing resistance-training (RT), plyometric-training (PT), and complex-training (CT), as well as a control group (CG). Values are presented as mean±

The RT increased concentric peak torque of the knee extensor muscles in the dominant limb compared to the CG and PT [RT (13.7%) vs. CG (1.2%) and PT (−2.2%); p<0.01], with intermediate values for the CT (11.7%). No significant changes were observed for the non-dominant limb (p=0.064). The RT also increased concentric peak torque of the knee flexor muscles on the dominant limb compared with the CG (9.9% vs. 0.1%; p=0.010); intermediate values were observed for the PT and CT (4.6 and 4.3%, respectively). No significant changes were observed for the non-dominant limb (p=0.318).

The RT and CT elevated by 8.6% and 7.4%, respectively, eccentric peak torque of the knee flexor muscles on the dominant limb (CG, 1.4%; PT, 0.5%), but post-intervention differences were not significant between groups (p=0.077). On the non-dominant limb, CT increased eccentric peak torque comparing with CG and PT [CT (11.7%) vs. CG (−0.7%) and PT (1.4%); p<0.05], with intermediate
values for RT (5.1%). The conventional and functional H/Q ratios were not affected over the training period in any of the training groups (p>0.05).

**SPEED, AGILITY AND JUMPING PERFORMANCE**

Enhancements in 20-m sprint performance were significantly different between all training groups and the CG (CG, 3.21±0.13 vs. 3.17±0.12 s; RT, 3.19±0.18 vs. 3.02±0.16 s; PT, 3.19±0.09 vs. 3.04±0.10 s; CT, 3.25±0.09 vs. 3.05±0.07 s; F=8.375; p<0.001; η²=0.344). No significant post-intervention differences were observed in 5-m sprint performance (F=1.784; p=0.163; η²=0.100), nor in the agility test (F=1.958; p=0.132; η²=0.103).

Changes in 5- and 20-m sprint in the control group (CG, n=21), resistance training (RT, n=12), plyometric training (PT, n=12), and complex training (CT, n=12) groups after 9 weeks of training.

Over the training period, no changes were observed between groups in SJ (F=1.519; p=0.222; η²=0.087), and CMJ (F=0.823; p=0.488; η²=0.049) performances.

**DISCUSSION**

In the present study, university male soccer players performed low-volume strength training sessions twice a week throughout 9 weeks. The training sessions comprised one set of three exercises. Given the low volume of training, the magnitude of strength enhancements observed in the present study was rather unforeseen; all training regimens were effective in improving muscle strength and 20-m sprint performance. The results also indicated that complex training might be effective in developing eccentric strength. However, no significant differences were observed between the three training modalities in maximal strength, sprint, agility and jump performances over the training period.

An increase in maximal strength is usually associated with improvements in relative strength and in power-related abilities. In the present study, changes in 1-RM squat, plantar flexion, and knee extension were significant in all trained groups. The results were already expected for the RT and CT, but such improvements in maximal strength were actually surprising within the PT. The positive increments in lower-extremity maximal strength might be related with improvements in neuromuscular function (e.g. increased neural drive to the agonist muscles; changes in muscle activation strategies) that are likely to occur in response to plyometric training. Notwithstanding, players were only performing one set for each plyometric exercise drill; this is a very low-volume plyometric training compared to previous studies.

The RT also improved peak torque of the knee extensor muscles. In soccer, the quadriceps muscle group is important for jumping and ball kicking. Therefore, the results of the present study highlight that heavy-loaded squat and knee extensor exercises—emphasizing maximal mobilization of force in the concentric action—should be integrated as part of ancillary conditioning programs for soccer players. Nonetheless,
taking into account the importance of hamstring strengthening for reducing the risk of injury in soccer players a limitation of the current strength training programs would be the lack of exercises focusing specifically on the hamstrings. However, the RT increased concentric peak torque of the hamstrings on the dominant limb; whereas the CT improved eccentric peak torque of the knee flexor muscles on the non-dominant limb, although none of the weight-bearing exercises performed by the RT and PT focused on the posterior muscles of the thigh. Studies investigating the effectiveness of hamstring strength training programs that combine plyometric drills with concentric and eccentric resistance training exercises are thereby needed.

It should be noted that, in soccer, the gains in muscular strength should not compromise speed of movement. In fact, the ultimate goal of strength training is to increase muscle strength so that acceleration and speed in soccer-specific skills, such as turning, sprinting and changing direction, may be enhanced. In the present study, no significant changes were observed between the training groups and controls in agility and jump performances. However, players from all training groups improved 20-m sprint performance; this has been previously observed with other strength training programs. Given that sprint performance is determined by acceleration and maximal velocity, the results of the present study suggest that college soccer players might benefit from strength training as a strategy to develop speed of movement.

**CONCLUSIONS**

Soccer-specific plyometric skills can thereby be included into low-volume resistance training sessions, as a mean to warrant transference between the strength gains and technical skills. Given the small effect sizes observed in the current study, it should be noted that the sample size might be statistically too small to detect differences between all training regiments. No significant short-term differences were observed between the CT and RT over the training period. Also, the changes in strength and sprint performance observed due to plyometric training were rather unforeseen, given the very low-volume of training. In soccer, the time available for in-season ancillary strength training might be reduced to the “minimum possible volume”. Conditioning coaches need to optimise strength-training programs, by using the best strategies to warrant transference between strength enhancements and match-specific technical skills. In the present study, we observed that combining high-load strength training with soccer-specific movements might be an effective strategy to improve strength and speed. Additionally, conditioning coaches should take into account that during the competitive season low-volume strength training sessions might grant performance-enhancing effects in college soccer players.

**REFERENCES**


COMPARATIVE STUDY OF COMPETITION ANXIETY BETWEEN MEN AND WOMEN BASKET BALL PLAYERS

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ABSTRACT

Historically, the coaching of athletes has largely emphasized the development of technical ability and physical fitness to the neglect of critical physiological factor. Psychological principal have been flowed, but in a haphazard, rather adhoc way. This in part is a reflection of tradition. Although it is widely appreciated that mental and emotional states can make the different between winning and losing. The role of psychology in sports has largely seen restricted to prematch advice and instruction. This is like to be of little value. Indeed for player who are already highly activated or psyched up’ the rousing pre-match pep talk is almost to be counterproductive and result in deterioration in performance. The Statement of purpose is to study was to find out the anxiety differentials between men and women basket ball players. it was hypothesized that there will be significant difference in anxiety level between
men and women players

The significant of the study lie in the fact that if the anxiety differentials of men and women players is determined statistically, than the trainers and coaches in the field of physical education and sports would be benefited to a great extent by giving some relaxation training to players to minimize the anxiety level, if it would affect the performance. The different anxiety scores would help the coaches the players on the basis of level of anxiety. The results showed that there were no significant different between the men and women players on anxiety level. These results may be due to same level of competition frequency in men and women players at inter-collegiate tournaments. It may be due to good experience of these players to cope up the anxiety. This result may be due to small size of the sample selected. Used of additional physical and physiological measures for getting data on anxiety level may help in the discussion. There were no significant different in anxiety level among men and women players. I concluded that the result of this study is because of the maturity level of the players as both the group exposed to a equal of anxiety in competition situation.

Key words: Anxiety, competition, Players, performance

References


INTRODUCTION
Historically, the coaching of athletes has largely emphasized the development of technical ability and physical fitness to the neglect of critical psychological factors. Psychological principles have been followed, but in a haphazard, rather ad hoc way. This in part is a reflection of tradition. Although it is widely appreciated that mental and emotional states can make the difference between winning and losing. The role of psychology in sports has largely been seen restricted to prematch advice and instruction. This is likely to be of little value. Indeed, for a player who is already highly activated or psyched up, the rousing prematch pep talk is almost to be counterproductive and result in a deterioration in performance. The demand of competition are such that the psychological preparation of sports people needs to be carried out over a prolonged period of time to be effective.

Bucher and Dvest (1982) says that “psychology as a behavioral science has made its contribution for improving sports performance. Its has helped coaches to coach more efficiently and athletes to perform more proficiently.” This psychological aspect on sports is gaining much attention among sports administrators. A rapidly growing area of interest in sports psychology is the same as stress management, procedures such as biofeedback and relaxation training to enhance athletes performance by reducing.

Kamelesh (1983), says psychology is the science of the activities of an individual in relation to the environment. The activity of the soul or the mind in other words is the internal behavior is manifested through the physical or the outer for thinking and doing are points on the same stretch and are inseparable for struggle for survival.

The psychology can help the sports excellence by the sportsman. Role of psychology in selection, training materials and rehabilitation would definitely help in achieving sports excellence. The emphasis has been laid on pointing out that psychology and sports coverage at the point and excellence in sports can be optimally obtained by developing appropriate strategies.

In recent years the understanding and implementation of real relationship between the “psycho” and “soma” in various discipline, a new avenue has been opened for physical educationists to devise suitable physical education programmes to prevent and cure those disorders that appears to results from disturbances in the relationship between the “psyche” and “soma” which are usually called psychosomatic disorders. In those disorders anxiety appears to be the root cause which may results from any of the several psychological disorder like hate, envy and conflict. This anxiety is manifested in different forms and in varying degrees of intensity affecting the behavioral patterns of individuals.
ANXIETY

Anxiety chosen for the study is a psychological factor, which differs arousal in that encompasses some degree of activation and an unpleasant emotional state. This term anxiety is used to describe the combination of intensity of behavior and direction effect, or emotion. The direction of effect, a characteristic of anxiety is negative in that it describes subjective feeling that are unpleasant.

Importance of anxiety

Anxiety play an important role in the acquisition of motor skill as well as anxiety can either enhance or inhibit performance.

Anxiety is considered a psychological manifestation involving all dimensions of athletes such as physiological behavior and psychological processes.

A moderate level of anxiety sums best for the acquisition and performance of motor skill level of anxiety either too high or too low tend or inhibit learning and performance.

“Axiety is uneasiness and feeling or foreboding is after when a person is about embarking or hazardous venture it is after accompanied by a strong derive to excel.”

Marten(1977) defined competitive trait anxiety as a tendency to perceive situation and respond with feeling of apprehension or tension on the other hand the anxiety reaction triggered by a particular competitive situation is called competitive state anxiety.

Sports competition anxiety
A tendency to perceive competitive situations as threatening and to respond to these situations with feeling of apprehension or tension is sports competition anxiety – Marten’s

Cognitive anxiety

Cognitive anxiety state is closely related with worry, a mental process, pervasive in our society. Morris et al.,(1981) defined cognitive anxiety state as negative explanation and cognitive about oneself, the situation at hand and potential consequences.

Somatic anxiety

Somatic anxiety state refers to psychological and affective element of the anxiety experiences that develop directly from autonomic arousal. Somatic anxiety state is reflected in such response as rapid hear rate, shortness of breadth, clumsy hands, butterflies in the stomach and tense muscles.

Statement of the problem

The purpose of the study was to find out the anxiety differentials between men and women basket ball players.

Hypothesis

It was hypothesized that there will be significant difference in anxiety level between men and women players.
Significance of study

The significant of the study lie in the fact that if the anxiety differentials of men and women players is determined statistically, than the trainers and coaches in the field of physical education and sports would be benefited to a great extent by giving some relaxation training to players to minimize the anxiety level, if it would affect the performance. The different anxiety scores would help the coaches the players on the basis of level of anxiety.

Methodology

To achieve this purpose 30 men inter collegiate basket ball players and 30 women inter-collegiate basket ball players were selected from inter-collegiate tournament organized by o.u in the year 2013-14.age limit of subject were 16 to 20years.

TOOLS USED

Sports competition anxiety test (scat) questionnaire prepared by Rainer martens was used in the study. This questionnaire of a series of fifteen statement in which the individual must respond by answering either “hardly ever” or “sometimes” or “often”. Which include 5 spurious items, 8 positive items , 2 negative items.

PROCEDURE FOR COLLECTING DATA
Collected data from the subjects at inter collegiate basketball tournaments organized by o.u. I have selected. The purpose of the study was clearly explained and necessary instruction regarding the method of answering the statement in the questionnaire were given.

STATISTICAL TECHNIQUE

To compare the anxiety level of men and women basketball players the ‘t’ ratio as stated by clarke and Clarke was used to test for the difference between the group means. The 0.05 level of significance was used to test for differences between the group mean. And standard deviation

RESULTS AND DISCUSSION

The present study consist of variables (independent variable) that are men and women basketball players. Anxiety was selected as (dependent variable) for this study.

RESULTS

The results obtained were given statistical treatment using ‘t’ the obtained results are presented in Table- I.
SHOWING COMPARISON OF ANXIETY BETWEEN MEN AND WOMEN BASKETBALL PLAYERS

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>S.D</th>
<th>MD</th>
<th>‘t’ ratio</th>
<th>Required ‘t’ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEN</td>
<td>17.9</td>
<td>2.87</td>
<td>0.1</td>
<td>0.14</td>
<td>2.00</td>
</tr>
<tr>
<td>WOMEN</td>
<td>17.3</td>
<td>2.37</td>
<td>0.1</td>
<td>0.14</td>
<td>2.00</td>
</tr>
</tbody>
</table>

Table I shows that the obtained ‘t’ ratio for anxiety for anxiety level between the individual sports and team sports was 0.14. It was lesser than required table value of 2.00, which has found to be insignificant. Hence the hypothesis was rejected.

DISCUSSION ON FINDINGS

The results showed that there were no significant different between the men and women players on anxiety level.

This results may be due to same level of competition frequency in men and women players at intercollegiate tournaments. It may be due to good experience of these players to cope up the anxiety.

This result may be due to small size of the sample selected. Used of additional physical and physiological measures for getting data on anxiety level may help in the discussion.

CONCLUSION

There were no significant different in anxiety level among men and women players.
I concluded that the result of this study is because of the maturity level of the players as both the group exposed to a equal of anxiety in competition situation.

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AN ANALYSIS OF PSYCHOMETRIC TECHNIQUE ON SERVICE SKILLS

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ABSTRACT

The purpose of the study was to analyse the VMBR technique on women Badminton and volleyball players. To achieve this purpose, 31 women Badminton players and 31 volleyball players were selected from SRM University, Chennai, Tamilnadu, India. The components of VMBR technique include Relaxation Training, Visualization or Mental Imagery, and Performance of the skill in a stimulated Stressful environment. The dependent variables selected for this study was tested by French Short Service Test for badminton and brumbach test for volleyball players. All the subjects were tested prior to and immediately after the training period on the selected dependent variables. The
data obtained from the pre and post test were statistically analyzed with dependent \( t \)-test. The level of confidence was fixed at 0.05 levels. The results of the study showed that there was a significant improvement on selected dependent variables of VMBR among the Badminton players and Volleyball players.

Key Words: VMBR Technique, French Short Service Test

INTRODUCTION

Popular all over the world, Badminton sports have two to four opposing players with rackets; they rally a ball or shuttlecock on a defined playing surface. Volleyball is a team sport in which two teams of six players are separated by a net. Each team tries to score points by grounding a ball on the other team's court under organized rules. Sports skill test are designed to measure the basic.

Although both physical and mental fitness is very important for many sports, it is skill that really defines how good someone is at their sport. Usually skill elements are removed from fitness test so that the pure fitness component is tested; although in some sport specific tests you have combined skill, techniques and fitness involved making it more relevant to the sport. It is assumed at this point that a scientific, objective test with statistical validation is the product desired. Although the basic steps for test development in motor performance are somewhat universal in nature, the approach to these steps may vary. Therefore, several ideas can be applied to the problem. The purpose of the study was to impact of VMBR technique on service skills of women badminton players and volleyball players.

METHODOLOGY

The purpose of this study was to assess the service skill level of Badminton and volleyball players. In order to achieve this purpose the skill test items were designed by the investigators, after analysing the various factors. These skill test items were French Short Service Test and Brumbach Volleyball Service Test. The above said test items were administered to thirty SRM university volleyball...
team players and badminton players team as subjects and trails were conducted before and after orientation programme.

Data pertaining to the study were collected by administering the selected test items. Prior to collect data the coaches, managers and myself as a in charge of the teams were requested for the same before administering the tests, the subjects were briefed about the purpose of the study and details of all the tests were explained to them. Demonstrations of each skill test were given by the trained helpers. Subjects were also given sufficient number of trials to enable them to become absolutely familiar with the tests. To ensure uniform testing conditions, the subject were tested in the morning and evening sessions after warming-up during practice sessions, prior to the competition. Sufficient time was given in between the tests, so that the subjects could show their best performance.

TEST ADMINISTRATION

French Short Service test

Test Objective: To measure the ability to serve accurately with a low and short placement (degree of serving skill should be developed before the test is administered)

Age level: Junior high through college age.

Equipment: badminton racket, shuttles, rope to stretch above net, floor marking tape.

Validity: when tournament ranking were used as a criterion, a coefficient of .66 was reported.

Reliability: For college women, coefficients of .51 to .89 were reported.

Administration and Directions:

A rope is stretched 20 inches directly above and parallel to the net. A series of 2inch lines in the form of arcs are placed at distances of 22, 30, 38, and 46 inches from midpoint of the intersection of the centre line and the short service line of the right service court. Each measurement includes the width of the 2 inch lines. The test performer may stand anywhere in the right service area. Diagonally opposite the target. Twenty legal serves (may be two groups of ten) are attempted at the target .to earn points the serve must pass between the rope net and land somewhere in the proper service court area for net and land somewhere in the proper service court area for doubles play.

SCORING:
The scorer stands in a position (centre of left service court facing the target) to determine if the shuttle passes between the rope and the net and to determine the point value of each serve. A score is awarded to any legal serve that passes between the rope and net and lands in the proper service court for doubles play. A score of 0 is recorded for any shuttle that does not pass between the rope and the net. The awarded points (5, 4, 3, 2, and 1) are based on the placement of the shuttle. Shuttles that land on a target line are awarded the point value of the higher area. If a shuttle hits the rope, the trial is not counted. Illegal serves may be repeated. The test score is the sum of the twenty serves.

2. BRUMBACH VOLLEYBALL SERVICE TEST

Test Objective: To measure the ability to serve the volleyball low and deep into opponent court.

Age level: Junior high through college age.

Equipment: Volleyballs, volleyball net, rope, tall standards, floor tape and tape measurement.

Validity and Reliability: not reported.

Administration and Direction: A rope is placed 4 feet above the net, and markings are placed on the floor. The test performer stands behind the rear end line and attempts to serve the ball between the net the rope so that it lands deep into the backcourt on the opposite. Two sets of six trails are administered (total of twelve).

Scoring: A serve that passes between the net and the rope receive the higher value for the target area in which it lands. Serve going over the rope receive the lesser value for the target areas. Serves that hit the rope are repeated. Foot faults, serves landing outside the target area are given a 0 score. The test score is the sum of the best trails.
<table>
<thead>
<tr>
<th></th>
<th>Badminton service test</th>
<th>Volleyball Service test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before orientation</td>
<td>After orientation</td>
</tr>
<tr>
<td>N</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>EX</td>
<td>336</td>
<td>436</td>
</tr>
<tr>
<td>EX²</td>
<td>22644</td>
<td>38052</td>
</tr>
<tr>
<td>SS</td>
<td>64.8</td>
<td>32.8</td>
</tr>
</tbody>
</table>

**TABLE**

ANALYSIS OF VARIANCE BADMINTON SERVICE TEST AND VOLLEYBALL SERVICE TEST
In table the results shows that t value after orientation was multiple to many times when compared the t value before orientation for both teams.

**RESULTS**

The statistical procedure was employed to estimate the improvement of the service skills of volleyball and badminton team. The mean is 30% increased than pre test level in both test and significantly increased their performance. Improvement is noticed through using VMBR technique. VMBR controls, Anxiety, Tension, Aggerssion, Stress, Depression, Negative thoughts and Disappointments. The dependent variables selected for this study was tested by French Short Service

<table>
<thead>
<tr>
<th>Variance(inferential)</th>
<th>16.2</th>
<th>8.2</th>
<th>16.63</th>
<th>5.60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Error</td>
<td>1.8</td>
<td>1.28</td>
<td>4.07</td>
<td>2.36</td>
</tr>
<tr>
<td>Sample Mean</td>
<td>67.2</td>
<td>87.2</td>
<td>1.77</td>
<td>0.68</td>
</tr>
<tr>
<td>Hypothetical</td>
<td>67</td>
<td>85</td>
<td>31.5</td>
<td>41.16</td>
</tr>
<tr>
<td>Population Mean</td>
<td>67</td>
<td>85</td>
<td>31.5</td>
<td>41.16</td>
</tr>
<tr>
<td>Difference</td>
<td>0.2</td>
<td>2.2</td>
<td>31</td>
<td>40</td>
</tr>
<tr>
<td>t</td>
<td>0.11</td>
<td>1.71</td>
<td>0.5</td>
<td>1.16</td>
</tr>
</tbody>
</table>
Test. All the subjects were tested prior to and immediately after the training period on the selected dependent variables. The data obtained from the pre and post test were statistically analyzed with dependent ‘t’-test. The level of confidence was fixed at 0.05 levels. The results of the study showed that there was a significant improvement on selected dependent variables of VMBR among the Volleyball and Badminton player.

CONCLUSION

It is understood that in the world class athlete such as sprinter Marian Jones, Tiger Woods, golf champianchip, Willie Daven port five times Olympian, Steffigraf and Martina Navartilova and several others were functionally relaying on VMBR technique for their achievement.

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SPORTS JOURNALISM A CHALLENGING APPROACH IN TELANGANA – A REVIEW

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ABSTRACT

There is a glamorous romanticism in the very mention of the two words `Sports Journalism. This apparently comes from the expectation that one could get to meet and interview their sport icons as part of their day-to-day duty. As a career, it surely marks as the high point of one’s professional life. Sports journalism is a form of journalism that reports on sports topics and events. In sports journalism, it is not about using a lot of big people. Journalism should be easy to read and follow. The words and flowery language to impress sports coverage has grown in importance as sport has grown in wealth, power and influence. While the sports departments within some newspapers has been mockingly called the toy department, because sports journalists do not concern themselves with the 'serious' topics covered by the news desk.

METHOD:

The researcher was interviewed the sports journalists of various newspapers and TV channels (total 30 members) like Andhra Jyothi, Eenadu, Vaartha, The Hindu, The Times of India, The Deccan Chronicle and Saakshi, TV9 Channels in Telangana region and collected data from international news agencies, exclusively sports channels like ESPN and NDTV etc. The researcher opted questionnaire method to obtain information regarding how the growth of the sports coverage occurred, From which period the newspapers giving priority to sports coverage, which Telugu paper allotted first full sports page and what are the developments, how channels air exclusively sports programmed and what are the challenges in sports journalism faced by the sports journalists.

Results and Discussion: Since the 1990s, the growing importance of sport, its impact as a global business and the huge amounts of money involved from sponsorship and in the staging of the Olympic Games and football World Cups, cricket has also attracted the attention of well-known investigative journalists. There are several traditional disciplines, like kabaddi, kho-kho, weight-
lifting, body building, ball badminton, to name a few, that are popular in rural areas but are least covered by the urban-based media.

Conclusion: It is concluded that the biggest problems confronting a reporter is getting access to a celebrated sports person, given the security compulsions and the individual’s averseness to ‘open his mind to media’. A correspondent who has to file stories on lean days (when there are no tournaments) will find it extremely difficult to dig inside stories. A Lack of support from the managements for abroad and upcountry coverage and the Lack of refreshing programmes of rules and regulations and various developments of sporting events in state.

Keywords: Sports journalism, reporting, traditional games, advanced sports.

INTRODUCTION

Sports Journalism

There is a glamorous romanticism in the very mention of the two words `Sports Journalism.

This apparently comes from the expectation that one could get to meet and interview their sport icons as part of their day-to-day duty. As a career, it surely marks as the high point of one’s professional life.

➤ Sports journalism is a form of journalism that reports on sports topics and events.

➤ In sports journalism, it is not about using a lot of big people. Journalism should be easy to read and follow. words and flowery language to impress.

➤ Sports coverage has grown in importance as sport has grown in wealth, power and influence.

While the sports departments within some newspapers has been mockingly called the toy department, because sports journalists do not concern themselves with the 'serious' topics covered by the news desk.

➤ Sports Illustrated and the Sporting News all-sports talk radio stations, and tele Sports journalism is an essential element of any news media organization.
Sports journalism includes organizations devoted entirely to sports reporting — newspapers such as L’Equipe in France, La Gazzetta dello Sport in Italy, and the now defunct Sporting Life in Britain, American magazines such as vision networks like ESPN and NDTV etc.

Since the 1990s, the growing importance of sport, its impact as a global business and the huge amounts of money involved from sponsorship and in the staging of the Olympic Games and football World Cups, cricket has also attracted the attention of well-known investigative journalists.

The sensitive nature of the relationships between sports journalists and the subjects of their reporting, as well as declining budgets experienced by most Fleet Street newspapers, has meant that such long-term projects have often emanated from TV documentary makers.

There are several traditional disciplines, like kabaddi, kho-kho, weight-lifting, body building, ball badminton, to name a few, that are popular in rural areas but are least covered by the urban-based media.

These certainly need the complete support of the State Government, nee political bosses, because there is a dearth of sponsors. Even the most liberal corporate houses prefer to be a vibrant part of cricket, tennis or badminton.

A correspondent who has to file stories on lean days (when there are no tournaments) will find it extremely difficult to dig inside stories.

Having sources in politically-run associations can be rewarding and easy to get inside information but a former player/athlete will be overly protective unless he is planning to float a parallel power-lobby.

CHALLENGES IN SPORTS JOURNALISM IN TELANGANA

Lack of subject information on various national, state and district level sporting events.

Lack of photo/visual libraries on sports persons and sports teams.

Lack of interest and space allocation to sports events in sports pages in Telugu and other Vernacular dailies.

Public relations between Sports Officials and Sports Journalists.

Government support to various organizations in the state to organize major events.

Translation is taking major time from Telugu sports journalists compared to English and Hindi sports journalists.
Too much coverage of cricket leads to less space (in print) and time (in TV) for other games. Hence Telugu sports journalists will forget other games in due course with less and less coverage.

- One of the biggest problems confronting a reporter is getting access to a celebrated sports person, given the security compulsions and the individual’s averseness to ‘open his mind to media’.

- But his office adamantly expects him to deliver a ‘scoop’ almost every other day. It is at aimed at scoring over the rival newspaper or regional television channel, which eventually translates to circulation figures and TRP jugglery.

- Lack of support from managements for abroad and upcountry coverage.

- Lack of refreshing programmers of rules and regulations and various developments of sporting events.

- Telugu Sports Journalists need to improve their speaking abilities in other language especially in English to survive in the field for a long.

- Hard news stories – breaking news of the day. Very timely. Not a lot of room for creativity. No opinion. This is often the standard news story you would expect to see on the front page.

- Game/event stories.

- Features – less time-sensitive than hard news stories. Can be tied to an event in terms of timeliness or can be completely timeless.

- Columns – Opinion pieces.

**METHOD**

The researcher was interviewed the sports journalists of various news papers and TV channels (total 30 members) like Andhra Jyothi, Eenadu, Vaartha, The Hindu, The Times of India, The Deccan Chronicle and Saakshi, TV9 Channels in Telangana region and collected data from international news agencies, exclusively sports channels like ESPN and NDTV etc. The researcher opted questionnaire method to obtain information regarding how the growth of the sports coverage occurred, From which period the news papers giving priority to sports coverage, which Telugu paper allotted first full sports page and what are the developments, how channels air exclusively sports programmed and what are the challenges in sports journalism faced by the sports journalists.
RESULTS AND DISCUSSION

Since the 1990s, the growing importance of sport, its impact as a global business and the huge amounts of money involved from sponsorship and in the staging of the Olympic Games and football World Cups, cricket has also attracted the attention of well-known investigative journalists. There are several traditional disciplines, like kabaddi, kho-kho, weight-lifting, body building, ball badminton, to name a few, that are popular in rural areas but are least covered by the urban-based media.

CONCLUSION

- Do not miss deadline. Ever. Ever. EVER.
- Always check spelling of names, teams, places, etc. Then check them again.
- With the invention of spell check, there’s no excuse for having words spelled wrong.
- Never trust your memory for facts. Confirm that information. Double-check stats.

It is concluded that the biggest problems confronting a reporter is getting access to a celebrated sports person, given the security compulsions and the individual’s averseness to ‘open his mind to media’. A correspondent who has to file stories on lean days (when there are no tournaments) will find it extremely difficult to dig inside stories. A Lack of support from the managements for abroad and upcountry coverage and the Lack of refreshing programmes of rules and regulations and various developments of sporting events in state.

SUGGESTIONS

- Lack of subject information on various national, state and district level sporting events.
- Lack of photo/visual libraries on sports persons and sports teams.
Lack of interest and space allocation to sports events in sports pages in Telugu and other Vernacular dailies.

Public relations between Sports Officials and Sports Journalists.

Government support to various organizations in the state to organize major events.

Translation is taking major time from Telugu sports journalists compared to English and Hindi sports journalists.

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A STUDY ON PHYSIOLOGICAL, HAEMOTOLOGICAL AND PHYSICAL VARIABLES IN RELATION TO AEROBIC CAPACITIES AMONG COLLEGE MEN OF ANDHRA UNIVERSITY REGION

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DR. M.Syam Babu, Director of Physical Education, A.U.

rayapativarma@gmail.com

ABSTRACT

The body needs to be vigorous in order to obey the soul. The weaker the body the more it commands, the stronger it is the better it obeys. In order to think we must exercise our limbs, our senses...
and our organs which are the instruments of our intelligence. In order to drive all the advantages possible from these instruments, it is necessary that the body which furnishes them should be robust and sound.

Development of the Neuro-muscular system and particularly in its relation to control over certain fundamental skills. Providing facilities for the growth and development of body and mind. Development of the organic system of the individual through physical activities. In addition it checks bad posture and develops strength, endurance and organic vigour. Conservation of health and to develop resistance to diseases.

The Primary purpose of the study is to compare the selected Physical, physiological and Haemotological variables between high and low aerobic capacities of men in Andhra University Region.

For the purpose of this study, boys were selected on the basis of Coopers 12 mts. Run/walk test. From the upper 30\textsuperscript{th} percentile 250 students were randomly selected for high aerobic capacity group and from the lower 30\textsuperscript{th} percentile 250 students were randomly selected for low aerobic capacity group. All the subjects were studying Graduate course during the academic year 2011-2012 in the colleges located in Andhra University region, Andhra Pradesh, India. The subjects were free to withdraw their consent in any case if they felt any difficulty during testing period.

**KEYWORDS:**

Physiology, Haemotology, Aerobic Capacity, Cooper Test

**INTRODUCTION**

The body needs to be vigorous in order to obey the soul. The weaker the body the more it commands, the stronger it is the better it obeys. In order to think we must exercise our limbs, our senses and our organs which are the instruments of our intelligence. In order to drive all the advantages possible from these instruments, it is necessary that the body which furnishes them should be robust and sound.
PHYSICAL EDUCATION FOR HEALTHY LIFE

Development of the Neuro-muscular system and particularly in its relation to control over certain fundamental skills. Providing facilities for the growth and development of body and mind. Development of the organic system of the individual through physical activities. In addition it checks bad posture and develops strength, endurance and organic vigour. Conservation of health and to develop resistance to diseases.

STATEMENT OF THE PROBLEM

The primary purpose of the study is to compare the selected physical, physiological and haemotological variables between high and low aerobic capacities of men in Andhra University Region.

HYPOTHESIS

There would be a significant difference in physical, physiological and haemotological variables of high and low aerobic capacities among men in Andhra University Region.

METHODOLOGY

SELECTION OF SUBJECTS:

For the purpose of this study, boys were selected on the basis of Cooper's 12 mts. Run/walk test. From the upper 30th percentile 250 students were randomly selected for high aerobic capacity group and from the lower 30th percentile 250 students were randomly selected for low aerobic capacity group. All the subjects were studying Graduate course during the academic year 2011-2012 in the colleges located in Andhra University region, Andhra Pradesh, India. The subjects were free to withdraw their consent in any case if they felt any difficulty during testing period.
SELECTION OF VARIABLES

PHYSIOLOGICAL VARIABLES

1. Resting cardiac rate
2. Vital capacity

HEMATOLOGICAL VARIABLES

1. RBC count
2. WBC count

PHYSICAL VARIABLES

1. Percentage of Body Fat
2. Total Body Weight

SELECTION OF TESTS

<table>
<thead>
<tr>
<th>Variables</th>
<th>Test/Equipment</th>
</tr>
</thead>
</table>

PHYSIOLOGICAL VARIABLES

(a) Resting Heart rate     Carotid pulse
(b) Vital capacity             Wet Spiro meter
(a) R.B.C. Count

(b) W.B.C. Count

PHYSICAL VARIABLES

(a) Percentage of Body Fat

(b) Total Body Weight

COLLECTION OF THE DATA

The Data on physiological variables, haemotological variables are physical variables were collected by administering the test respectively. Data was collected two days after the selection of high and low aerobic subjects for the Cooper’s 12mts run/walk test.

ANALYSIS OF THE DATA AND RESULTS OF THE STUDY

RESTING CARDIAC RATE:

The analysis of the data on resting cardiac rate of High and low aerobic groups were carried out and presented in Table I

Table I

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Mean difference</th>
<th>S.D</th>
<th>‘t’ ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>High aerobic</td>
<td>69.280</td>
<td>3.096</td>
<td>1.880</td>
<td>4.124*</td>
</tr>
</tbody>
</table>
The table value for significance at 0.01 level with df 2 and 498 is 2.576.

The table I shows that means of High and low aerobic groups are 69.280 bpm and 72.376 bpm respectively. The mean difference is 3.096. The standard deviation of high and low aerobic groups are 1.880 and 2.951 respectively. The obtained ‘t’ ratio 4.124 is greater than the table value of 2.576 for Degree of freedom 2 and 498 required for significance at 0.01 level.

VITAL CAPACITY

The analysis of the data on vital capacity of High and low aerobic groups are presented in Table II

Table II

Mean, Mean difference, Standard deviation and ‘t’ ratio of high and low aerobic groups on vital capacity.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Mean difference</th>
<th>S.D</th>
<th>‘t’ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>High aerobic</td>
<td>3.602</td>
<td>0.317</td>
<td>0.253</td>
<td>2.651*</td>
</tr>
<tr>
<td>Low aerobic</td>
<td>3.285</td>
<td></td>
<td>0.240</td>
<td></td>
</tr>
</tbody>
</table>

*Significance at 0.01 level of confidence
The table value for significance at 0.01 levels with df 2 and 498 is 2.576.

Table II shows that means of high and low aerobic groups are 3.602 and 3.285 respectively. The mean difference is 0.317. The standard deviation of high and low aerobic groups are 0.253 and 0.240 respectively. The obtained ‘t’ ratio 2.651 is greater than the table value of 2.576 for degree of freedom 2 and 498 required for significance at 0.01 level.

**RBC COUNT**

The analysis of the Data on Total RBC Count of High and Low aerobic groups were carried out and presented in table III.

**TABLE – III**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>‘t’ ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>High aerobic</td>
<td>5.303</td>
<td>0.428</td>
<td>0.202</td>
<td>3.294*</td>
</tr>
<tr>
<td>Low aerobic</td>
<td>4.875</td>
<td></td>
<td>0.308</td>
<td></td>
</tr>
</tbody>
</table>

*Significance at 0.01 level of confidence.

The table value for significance at 0.01 level with the df 2 and 498 is 2.576.

The table III shows that Means of high and low aerobic groups are 5.303 Million/Cu.mm and 4.875 Million/Cu.mm respectively. The mean difference is 0.428. The standard deviations of High and
Low Aerobic groups are 0.202 and 0.308 respectively. The obtained ‘t’-ratio 3.294 is greater than the table value of 2.576 for degree of freedom 2 and 498 required for significance at 0.01 level.

WBC COUNT

The analysis of the Data on Total WBC Count of High and low aerobic groups were analyzed and presented in table IV.

TABLE – IV

Mean, Mean difference, standard deviation, ‘t’ ratio

of high & low aerobic groups on Total WBC Count

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>‘t’ ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>High aerobic</td>
<td>5.748</td>
<td>2.444</td>
<td>1.375</td>
<td>3.640*</td>
</tr>
<tr>
<td>Low aerobic</td>
<td>8.192</td>
<td></td>
<td>1.646</td>
<td></td>
</tr>
</tbody>
</table>

*Significance at 0.01 level of confidence.

The table value for significance at 0.01 level with the df 2 and 498 is 2.576.

The table IV shows that Means of high and low aerobic groups are 5.748 Cu.mm and 8.192 Cu.mm respectively. The mean difference is 2.444. The standard deviations of High and Low Aerobic groups are 1.375 and 1.646 respectively. The obtained ‘t’ ratio 3.640 is greater than the table value at 2.576 for degree of freedom 2 and 498 required for significance at 0.01 level.

PERCENTAGE OF BODY FAT
The analysis of the Data on the Percentage of Body Fat of High and Low aerobic groups were analyzed and presented in table V.

**TABLE V**

Mean, Mean difference, standard deviation, ‘t’-ratio of high & low aerobic groups on Percentage of Body Fat

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>‘t’ ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>High aerobic</td>
<td>16.230</td>
<td>3.731</td>
<td>3.538</td>
<td>3.030*</td>
</tr>
<tr>
<td>Low aerobic</td>
<td>19.961</td>
<td></td>
<td>4.223</td>
<td></td>
</tr>
</tbody>
</table>

*Significance at 0.01 level of confidence.

The table value for significance at 0.01 level with the df 2 and 498 is 2.576.

The table V shows that Means of high and low aerobic groups are 16.230% and 19.961% respectively. The mean difference is 3.731. The standard deviations of High and Low Aerobic groups are 3.538 and 4.223 respectively. The obtained ‘t’-ratio 3.030 is greater than the table value of 2.576 for degree of freedom 2 and 498 required for significance at 0.01 level.

**TOTAL BODY WEIGHT**

The analysis of the Data on Total Body Weight of High and Low aerobic groups were analysed and presented in table VI.
TABLE - VI

Mean, Mean difference, standard deviation, ‘t’ ratio
of high & low aerobic groups on Total Body Weight

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>‘t’ ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>High aerobic</td>
<td>61.596</td>
<td>5.503</td>
<td>5.549</td>
<td>3.630*</td>
</tr>
<tr>
<td>Low aerobic</td>
<td>67.099</td>
<td>5.001</td>
<td>5.001</td>
<td></td>
</tr>
</tbody>
</table>

*Significance at 0.01 level of confidence.

The table value for significance at 0.01 level with the df 2 and 498 is 2.576.

The table VI indicates that Means of high and low aerobic groups are 61.595 Kg and 67.099 Kg respectively. The mean difference is 5.503. The standard deviations of High and Low Aerobic groups are 5.549 and 5.001 respectively. The obtained ‘t’-ratio 3.630 is greater than the table value of 2.576 for degree of freedom 2 and 498 required for significance at 0.01 level.

CONCLUSIONS

The resting cardiac rate in high aerobic group is lower as compared to low aerobic group. The vital capacity is high in high aerobic group as compared to low aerobic group. The total RBC Count is high in high aerobic group as compared to low aerobic group. The total WBC count is lower in high aerobic group as compared to low aerobic group. The Percentage of Body Fat is lower in high aerobic group as compared to low aerobic group. The Total Body Weight is lower in higher aerobic group as compared to low aerobic group.

REFERENCES
EFFECT OF AEROBIC EXERCISE ON MUSCULAR ENDURANCE AND FLEXIBILITY OF UNIVERSITY WOMEN  
Rupendra Farswan* K. Tirumourougane**  
Ph.D. Scholar, Pondicherry University.  
drvasanthipu@gmail.com

ABSTRACT

The purpose of the study is to assess the effect of aerobic exercise on flexibility and muscular endurance of university women students after 12 weeks training program. Students were selected as subjects from L.N.U.P.E Gwalior. The subjects were divided randomly into two groups namely one control and one experimental group consisting of fifteen subjects in each group. Experimental group were given 12 weeks aerobic training and control group were not allowed to participate in the training programme. The training programme was given for three days in a week from 4.00pm to 5.00pm. Pretest and post test was conducted and the data was computed statistically by using (ANOVA) to find out the significant changes. The result revealed that the experimental group has significant effect on muscular endurance and flexibility after 12 weeks aerobic training when compared to the control group.  
Keywords: Aerobic exercises, Flexibility, Muscular endurance

INTRODUCTION

Physical exercise is any bodily activity that enhances or maintains physical fitness and overall health and wellness. It is performed for various reasons including strengthening muscles cardiovascular system and enhancing athletic skills, weight loss or maintenance, as well as for the purpose of enjoyment.  
Endurance is the ability to perform repetitive, moderate to high intensity movement for a prolonged period of time. Aerobic endurance improves the function of the heart, lungs and blood vessels and is associated with a low risk of premature death from all causes, most specifically cardiovascular disease. Functions of daily life that become easier include walking, shopping, sightseeing, recreational & sport activities.
Flexibility exercises stretch and lengthen the muscles of the body. Activities such as stretching help to improve joint flexibility and keep muscles limber. The goal is to improve the range of motion which can reduce the chance of injury.

**METHODOLOGY**

The study was conducted on 30 university women students (15 in experimental and 15 in control group) and their age ranged between 17 - 23 years. Group A underwent aerobics exercise and group B did not involve in the training programme. Muscular endurance and flexibility were tested and the data was analyzed by applying ANOVA to find out the significant difference at 0.05 level of significance.

Results of the Study

The results of the analysis are given below.

<table>
<thead>
<tr>
<th></th>
<th>Experimental group</th>
<th>Control group</th>
<th>Source of variance</th>
<th>Sum of square</th>
<th>DF</th>
<th>Mean square</th>
<th>‘F’ ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Test Mean</td>
<td>14.0667</td>
<td>13.4667</td>
<td>Between</td>
<td>2.700</td>
<td>1</td>
<td>2.700</td>
<td>0.245</td>
</tr>
<tr>
<td>S.D</td>
<td>3.45309</td>
<td>3.18179</td>
<td>Within</td>
<td>308.667</td>
<td>28</td>
<td>11.024</td>
<td></td>
</tr>
<tr>
<td>Post Test Mean</td>
<td>16.8000</td>
<td>13.2000</td>
<td>Between</td>
<td>97.200</td>
<td>1</td>
<td>97.200</td>
<td>9.904*</td>
</tr>
<tr>
<td>S.D</td>
<td>3.14416</td>
<td>3.12116</td>
<td>Within</td>
<td>274.800</td>
<td>28</td>
<td>9.814</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level

Required table at 0.05 level of significance for 1 & 28 degrees of freedom = 4.20
Table-1 shows that there is no significant difference between the two groups for the pre-test, since the calculated value 0.245 is less than the required table value 4.20. For the post there is significant difference between two groups since the calculated value 9.904 is higher than the required value 4.20. Hence it is concluded that there is significant improvement on muscular endurance due to the training effect.
EVALUATION OF THREE DIMENSIONAL FINITE ELEMENT ANALYSIS OF ANTERIOR CRUCIATE LIGAMENT FOR SPORTS INJURIES ON FULL EXTENSION

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Department of Mechanical Engineering, MVGR College of Engineering

ABSTRACT:

Knee joint is a complex joint involving multiple interactions between cartilage, bone, muscles, ligaments, tendons and neural control. Anterior Cruciate Ligament (ACL) is one ligament in the knee joint that frequently gets injured during various sports or recreational activities.

Anterior cruciate ligament (ACL) injuries are common, especially in individuals who participate in sports activities associated with pivoting, decelerating and jumping. About 70% of ACL injuries do not result from direct contact. ACL-injury leads to knee instability which is associated with both acute dysfunction and long-term degenerative changes, such as osteoarthritis and meniscal damage.

Nevertheless, arthroscopic reconstruction with either bone-patellar tendon-bone or a hamstring tendon graft is the most widely used method for ACL injuries.

The objective of this study was to evaluate the finite element analysis of ACL on full extension. The primary objective was to develop a specific solid model of knee joint and the second objective was to study the stress analysis.

Keywords: Finite Element Analysis, Ligament, ACL, Knee joint.
INTRODUCTION

The human anterior cruciate ligament (ACL) plays an essential role in maintaining knee stability in multiple directions and is one of the most frequently injured ligaments of the knee. Ligaments can be subjected to extreme stress while performing their role in restricting abnormal joint motions and can be damaged or completely disrupted when overloaded. Excessive stretching or disruption can result in gross joint instability with some activities. Understanding the force and stress distribution within the AM and PL bundles of the human ACL during knee motion is important, as the data can be used to better understand the mechanism of injury.

Experimental studies of ligament mechanics are often technically difficult, costly, and prone to error. The stress and strain fields within ligaments are inhomogeneous, yet we are forced to measure these quantities between a small number of discrete points and assume that they are homogeneous.

In the FE method, a body is discretized into small finite elements of material volume, for which the material and physical properties are known. The appropriate boundary conditions and initial conditions, including applied loading and displacements must also be specified for the forward problem to be well posed.

The objective of this study was to determine the force and stress distribution of the ACL through the use of a validated 3-D FEM of the ACL. The 3-D FEM was based on the anatomy and function of the ACL by considering both the AM and PL bundles, the interaction between them, and the contact and friction that were caused by the wrapping of the ACL around the bone during knee motion.

With the available references to the mechanical properties and dimensions of the ACL, researchers are able to develop various types of models to study the ACL without having the difficulty of obtaining it experimentally using actual human ACL. Currently, three dimensional finite element models have been used to study the ACL and only a few full three dimensional finite element models have been developed (Limbert et al. 2004). According to Park et al. (2010), the finite element (FE) method is an effective approach in identifying stress distributions in the ACL in reaction to loading and tibiofemoral movements.
LITERATURE SURVEY

Limbert et al. 2004 studied on a three-dimensional finite element model of the ACL. They developed and performed simulations of passive knee flexion. The goal was to assess the performance of a 3D finite element model of the ACL by comparing the predicted resultant force with those reported in the literature. The result maximum principal stresses were recorded (Figure 9) at different knee flexion angles. Their developed model was able to reproduce the qualitative mechanical behaviors of the ACL and the quantitative data from cadaver testing.

Park et al. 2010 study was to develop a FEM of the ACL to conduct finite element analysis (FEA) on the ACL impingement against the intercondylar notch under tibial external rotation and abduction. The FEA showed that impingement between the ligament and the lateral wall of intercondylar notch could occur when the knee at 45° was externally rotated at 29.1° and abducted at 10.0°. Their results showed that the impingement force increased as the abduction and external rotation increased.

Peña et al. 2006 study developed a three-dimensional FEM of the human knee that includes the femur, tibia, articular cartilage, menisci, and ligaments (patellar tendon, anterior cruciate, posterior cruciate, medial collateral, and lateral collateral). Their model was used to study the kinematics and stresses. A
combination of 1150 N compressive load, 10 Nm valgus torque and a 134 N anterior load were applied to their model. The FEM and the maximum principal stresses in the ligaments are shown in Figure 11.

Song et al. 2004 Studied the force and stress distribution on the ACL with a 134N anterior tibial load at full extension, and their goal was to determine the feasibility of developing a FEM of the human ACL. This goal was accomplished as the FEM was developed, validated and the force and stress distribution within the ACL was determined. They found that the stress distribution on the ACL during a 134N anterior tibial load at full extension was not uniform throughout the ACL. The highest stress was found to be located near the femoral intersection area as the ACL wraps around the bone when load is applied.

Yao et al. 2005 studied about the menisci are believed to play a stabilizing role in the ACL-deficient knee, and are known to be at risk for degradation in the chronically unstable knee. Much of our understanding of this behavior is based on ex vivo experiments or clinical studies in which we must infer the function of the menisci from external measures of knee motion. More recently, studies using magnetic resonance (MR) imaging have provided more clear visualization of the motion and deformation of the menisci within the tibio-femoral articulation. In this study, we used such images to generate a finite element model of the medial compartment of an ACL-deficient knee to reproduce the meniscal position under anterior loads of 45, 76, and 107N. Comparisons of the model predictions to boundaries digitized from images acquired in the loaded states demonstrated general agreement, with errors localized to the anterior and posterior regions of the meniscus, areas in which large shear stresses were present. Our model results suggest that further attention is needed to characterize material properties of the peripheral and horn attachments. Although overall translation of the meniscus was predicted well, the changes in curvature and distortion of the meniscus in the posterior region were not captured by the model, suggesting the need for refinement of meniscal tissue properties.

Pena et al. 2004. presented and discussed the results obtained with a three-dimensional finite element model of the human knee joint corresponding to different aspects of human anterior cruciate ligament reconstruction. In particular, this model was used to investigate the effect of graft stiffness and graft tensioning on the knee joint biomechanics. The initial graft tension was set to 0, 20, 40 or 60 N with the knee at 0°, 30° and 60° of flexion. Three different stiffnesses corresponding to those of patellar tendon, gracilis and quadrupled semitendinosus grafts were analyzed.

MATERIAL AND METHODS:

Generation of Finite Element Model of the ACL
The finite element model includes the femur, tibia, the ACL. The 3D geometry of the femur and tibia was obtained from the MRI data. The 3D geometry of the ACL was modeled using SOLIDWORKS. To construct a three dimensional model of the two ligaments, assumptions were made and the mechanical properties, anatomical properties and dimensions were applied.

Assumptions
For this model two assumptions are made and they are as follows,
1. The ligament and bone material are considered isotropic. Therefore the material properties of the body and insertion site of the ACL are the same.
2. The viscoelasticity, creep, and relaxation are neglected due to high ratio between viscoelastic time constant and loading time.

**Mechanical Properties**

There are two main types of materials involved in this FEM. They are the bone and ligament. The mechanical properties for both these materials were applied. The femur and tibia were applied with the bone material. The ACL and PCL were applied with the ligament material. The chart with the bone and ligament mechanical properties is shown

**Mechanical Properties of the Bones and Ligament (Ozkaya & Nordin 1999)**

<table>
<thead>
<tr>
<th>Properties</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bone</td>
</tr>
<tr>
<td>Density (kg/m³)</td>
<td>1900</td>
</tr>
<tr>
<td>Yield Strength (MPa)</td>
<td>80</td>
</tr>
<tr>
<td>Ultimate Strength (MPa)</td>
<td>130</td>
</tr>
<tr>
<td>Elastic Modulus (GPa)</td>
<td>17</td>
</tr>
<tr>
<td>Shear Modulus (GPa)</td>
<td>3.3</td>
</tr>
<tr>
<td>Poissons Ratio</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Chandrashekar et al.’s (2006) studied in the differences in tensile properties of the human ACL, they were able to test multiple human ACLs from both male and female cadavers, and their results were compared with the ACL studies of Woo et al. (1991) and Noyes and Grood (1976). From Chandrashekar et al.’s study, noticeable differences in male and female ACLs have been seen.

In mechanical properties, the modulus of elasticity and stiffness is much greater in male than female ACL. The stress, strain, and load at failure are seen to be greater in male than female ACL. For the dimensions of the ACL, the length and cross sectional area of the male ACL is also greater than the female ACL.

The additional mechanical properties of the model ACL are based on the mechanical properties measured by Chandrashekar et al (2006), shown in Table. And the mechanical properties of the PCL are obtained from Prietto et al. (1988) shown.

**Mechanical Properties of the ACL**

<table>
<thead>
<tr>
<th>Study</th>
<th>Chandrashekar et al 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elongation at failure (mm)</td>
<td>8.95 ± 2.12</td>
</tr>
<tr>
<td>Strain at Failure</td>
<td>0.30 ± 0.06</td>
</tr>
<tr>
<td>Load at failure (N)</td>
<td>1818 ± 699</td>
</tr>
</tbody>
</table>
Stress at failure (MPa) 26.35 ± 10.08  
Stiffness (N/mm)     308 ± 89      
Modulus of Elasticity (MPa) 128 ± 35

Dimensions
The ACL was modeled using the dimensions measured by Chandrashekar et al.’s (2005) study. A table of the measurements is shown in Table 6. And the PCL was modeled using the dimensions measured by Harner et al. (1999) and Prietto et al. (1988) shown.

Dimensions of the ACL

<table>
<thead>
<tr>
<th>Study</th>
<th>Chandrashekar et al 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (mm)</td>
<td>29.82 ± 2.51</td>
</tr>
<tr>
<td>Mid Substance (mm²)</td>
<td>83.54 ± 24.89</td>
</tr>
<tr>
<td>Femoral Insertion Width (mm)</td>
<td>--</td>
</tr>
<tr>
<td>Femoral Insertion Length (mm)</td>
<td>--</td>
</tr>
<tr>
<td>Tibial Insertion Width (mm)</td>
<td>--</td>
</tr>
<tr>
<td>Tibial Insertion Length (mm)</td>
<td>--</td>
</tr>
</tbody>
</table>

Boundary Conditions

Boundary conditions are then applied onto the model for finite element analysis. The femur is rigidly fixed as the tibia is free to move in the flexion plane, as well as the varus/valgus and internal/external rotations. Three contact zones are also applied. First is a frictionless contact zone set between the base of the femur with the cranial portion of the tibia. Second is a bonded contact zone between the ACL and the femoral insertion site. The third is also a bonded contact zone between the ACL and the tibial insertion site.

Finite Element Analyses

With the mechanical and anatomical properties, forces, and boundary conditions applied onto the model, finite element analyses were performed. Each analysis tests a different risk factor. These analyses were conducted using ANSYS Workbench v.13 software. And the steps in applying the risk factors are as follows.

Ligament Size

To examine the stress on the ACL according to size, the size of the ACL was varied in increments of 3mm. According to Chandrashekar et al. (2005), the average size of the male ACL is 29.82mm and
26.85mm for females. The sizes of ligament tested were in the range of 24-33mm. This range is chosen to test ligament sizes greater and less than the average ligament sizes of male and female ACLs.

Finite Element Model of the Knee
The assembled CAD model of the knee inputted into ANSYS was setup and meshed to conduct finite element analyses. Notice that the generated number of elements for the femur is less than the tibia for the meshed model. This is because the original CAD model of the femur consists of fewer faces than the tibia. Also the number of elements is reduced due to the extensive run time it requires to generate the mesh and run analyses. The greater the number of elements the model consists of the longer the run time.

Evaluation of the Finite Element Model
To evaluate the model, the model was compared with the model developed by Peña et al. (2006). The study applied a 134N anterior tibial load and a compressive load of 1150N at full extension of the knee. Identical loads were applied onto the constructed model.
The results were then compared with the results from Peña et al.’s study (2006). The results did not turn out to be the same. The results obtained for the maximum principal stress on the ACL were lower than the values obtained from Peña et al.’s study. Peña et al.’s study reported an average maximum principal stress of around 6.5 MPa and a maximum of 15 MPa.

The difference in result values seen in the comparison with Peña et al.’s study (2006) may be due to the lack of anatomical structures. Peña et al.’s model incorporates all four knee ligaments as well as the meniscus. This may cause loads on the ACL to be shared by other ligaments. The mechanical properties used for Peña et al.’s study may have been different from the ones obtained for this model. Another reason for the difference in value may be because of the ACL model used. The ACL model used in Peña et al.’s study was generated using data collected from magnetic resonance imaging (MRI) while the ACL model in this study was modeled in ProENGINEER using parameters and information proposed by Chandrashekar et al. (2005) and Harner et al.

CONCLUSIONS

Computational models of ligaments offer the potential to provide information regarding ligament mechanics that would be difficult or impossible to measure experimentally.

The complex material properties of ligaments make the accurate modeling of their material behavior a challenge.

In the present work, I have provided a critical review of the constitutive models that have been developed to represent ligaments and tendons.

These models have developed from rather simplistic descriptors of one-dimensional behavior to models capable of describing and predicting three-dimensional isotropic behavior.

The objective of these modeling efforts is to improve the clinical diagnosis and treatment of ligament injuries.

The models may also identify means by which to prevent injuries, such as through the use of protective equipment in the case of sports-related injuries.

REFERENCES


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EFFECT OF 12 WEEKS PLYOMETRIC AND RESISTANCE TRAINING ON SPEED AND JUMPING PERFORMANCE AMONG URBAN BOYS OF HIGHER SECONDARY LEVEL

Dr. D. Sakthignanavel professor*** S.Rajaguru Ph.D. Scholar** J.Sabarinathan Ph.D. Scholar* Department of Physical Education and Sports Pondicherry University

arulmped@gmail.com

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INTRODUCTION

This study was designed to deal with the effect of 12 weeks plyometric and resistance training on speed and jumping performance among urban boys of higher secondary level. Plyometrics, training known as jump training or speed are exercises based around having muscles exert maximum force in as short a time as possible, with the goal of increasing both speed and power. This training focuses on learning to move from a muscle extension to a contraction in a rapid or "explosive" way. Strength training is a type of physical exercise specializing in the use of resistance to induce muscular contraction which builds the strength, anaerobic endurance, and size of skeletal muscles.

METHOD

The investigator selected randomly 45 subjects studying in standard XIth and XIIth from Pondicherry state. The study was formulated as parallel group design, consisting of two experimental groups and one control group. The groups were equated into three groups, groups I control, II and III served as experimental groups and group I represented the control group. Polymetric exercise training for 12 weeks was assigned to group II, Resistance exercise training was administered to group III. All the training programmes were scheduled for three days per week for a period of 12 weeks. The control group was not allowed to participate in the experimental treatment. To determine the effects of poly metric and resistance training exercise on higher secondary school bys following variables speed(50meter dash) and jumping performance(long jump) were selected for this study.

RESULTS OF THE STUDY

The data pertaining to the variables under study have been examined by analyzing the variables separately in order to determine the difference if any among the groups (control and experimental) and in different stages (pre and post). The data which are obtained from the subjects are analysed statistically by the application of analysis of co -variance (ANACOVA). Then they obtained ‘F’ ratio is tested at 0.5 and 0.01 level of significant.
### TABLE I
ANALYSIS OF COVARIANCE PRE-TEST AND POST-TEST ON SPEED

<table>
<thead>
<tr>
<th></th>
<th>Control group</th>
<th>Experimental group I</th>
<th>Experimental group II</th>
<th>SOV</th>
<th>SS</th>
<th>MSS</th>
<th>df</th>
<th>‘F’ ratio</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test mean</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>7.51</td>
<td>7.47</td>
<td>7.48</td>
<td>B</td>
<td>0.01</td>
<td>0.006</td>
<td>2</td>
<td>0.51</td>
<td>0.950</td>
</tr>
<tr>
<td></td>
<td>0.36</td>
<td>0.32</td>
<td>0.36</td>
<td>W</td>
<td>5.22</td>
<td>0.125</td>
<td>42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post test mean</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>7.51</td>
<td>7.28</td>
<td>7.34</td>
<td>B</td>
<td>0.43</td>
<td>0.216</td>
<td>2</td>
<td>1.58</td>
<td>0.218</td>
</tr>
<tr>
<td></td>
<td>0.37</td>
<td>0.32</td>
<td>0.40</td>
<td>W</td>
<td>5.74</td>
<td>0.137</td>
<td>42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted test mean</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>7.51</td>
<td>7.28</td>
<td>7.34</td>
<td>B</td>
<td>0.29</td>
<td>0.146</td>
<td>2</td>
<td>29.48*</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>W</td>
<td>0.20</td>
<td>0.005</td>
<td>41</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results of analysis of covariance are presented in Table pretest and post test scores of speed. From the table it can be seen that the obtained ‘F’ value was 29.48 which was much greater than the required F value of 3.23 at 0.05 level of confidence.

<table>
<thead>
<tr>
<th>Control group</th>
<th>Experimental group I</th>
<th>Experimental group II</th>
<th>Mean difference</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.51</td>
<td>7.28</td>
<td>0.23*</td>
<td></td>
<td>0.063</td>
</tr>
<tr>
<td>7.51</td>
<td>7.34</td>
<td>0.17*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.28</td>
<td>7.34</td>
<td>0.07*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

e shows post-hoc method of testing the significant of the difference between the paired means following a significant analysis of covariance for plyometric training group, resistance training group and control group. The adjusted general speed on means in order of magnitude and the difference between this means for the control and two experimental groups are given in the table the mean difference between the control and plyometric training group was 0.23. In the comparison between resistance training group and control group were 0.17and comparison between plyometric group and resistance group were 0.07. which was significant at 0.05 level confidences. This result shows that the plyometric group had a batter improvement when compared to the resistance group and control group. The mean result was shown on the graph.
Graph show mean different of control, plyometric and resistance group

![SPEED Graph](image)

**TABLE II**

**ANALYSIS OF COVARIANCE PRE-TEST AND POST-TEST ON JUMPING PERFORMANCE**

<table>
<thead>
<tr>
<th></th>
<th>Control group</th>
<th>Experimental group I</th>
<th>Experimental group II</th>
<th>SOV</th>
<th>SS</th>
<th>MSS</th>
<th>df</th>
<th>'F' ratio</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test mean</td>
<td>4.30</td>
<td>4.34</td>
<td>4.28</td>
<td>B</td>
<td>0.02</td>
<td>0.01</td>
<td>2</td>
<td>0.043</td>
<td>0.958</td>
</tr>
<tr>
<td>SD</td>
<td>0.51</td>
<td>0.55</td>
<td>0.53</td>
<td>W</td>
<td>12.08</td>
<td>0.28</td>
<td>42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post test mean</td>
<td>4.32</td>
<td>4.56</td>
<td>4.47</td>
<td>B</td>
<td>0.44</td>
<td>0.22</td>
<td>2</td>
<td>0.756</td>
<td>0.476</td>
</tr>
<tr>
<td>SD</td>
<td>0.52</td>
<td>0.58</td>
<td>0.51</td>
<td>W</td>
<td>12.42</td>
<td>0.29</td>
<td>42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted test</td>
<td>4.32</td>
<td>4.56</td>
<td>4.47</td>
<td>B</td>
<td>0.35</td>
<td>0.17</td>
<td>2</td>
<td>8.75*</td>
<td>0.001</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
<td>W</td>
<td>0.82</td>
<td>0.02</td>
<td>42</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results of analysis of covariance are presented in Table pretest and post test scores of speed. From the table it can be seen that the obtained ‘F’ value was 8.75 which was much greater than the required F value of 3.23 at 0.05 level of confidence.
Table shows post-hoc method of testing the significant of the difference between the paired means following a significant analysis of covariance for plyometric training group, resistance training group and control group. The adjusted general speed on means in order of magnitude and the difference between this means for the control and two experimental groups are given in the table. The mean difference between the control and plyometric training group was 0.24. In the comparison between resistance training group and control group were 0.15 and comparison between plyometric group and resistance group were 0.09. That was significant at 0.05 level confidences. This result shows that the plyometric group had a batter improvement when compared to the resistance group and control group. The mean result was shown on the graph.

Graph show mean different of control, plyometric and resistance group

CONCLUSION AND RECOMMENDATIONS

Participation in twelve weeks of plyometric and resistance exercise training changes in speed. Participation in twelve weeks of plyometric and resistance exercise training resulted in changes in long jump performances. When compared to plyometric and resistance training group, plyometric group was good comparably than the resistance training group. Similar studies may be undertaken with age’s group other than mentioned in the study. Similar studies may be undertaken with sex other than mentioned in this study. Similar longitude of studies may be
undertaken by increasing the duration and intensity of training programme. The track and field athletes can get the advantage of this study for improving their maximum performance. Those sports personals like volley ball players, basket ball players and shuttle players can make use of this study. The result may be useful for the physical education teachers and coaches to get maximum outcome.

REFERENCES:


Fatouros, Ioannis g.; Jamurtas, athanasios z.; Leontsini, d.; Taxildaris, Kyriakos; aggelousis, n.; Phillip Evaluation Of Plyometric Exercise Training, Weight Training, And Their Combination On Vertical Jumping Performance And Leg Strength.


Turner, amanda m.; owings, matt; schwane, james a. Improvement in Running Economy After 6 Weeks of Plyometric Training.
EFFECT OF PRANAYAMA EXERCISE ON SELECTED SPORTS RELATED PSYCHO MOTOR SKILLS AMONG MEN ATHLETES IN OSMANIA UNIVERSITY, HYDERABAD

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**Dr. K. Sudhakar
***Dr. B. Sunil Kumar

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INTRODUCTION

Pranayama - the science of breath control, consist a series of exercises intended to meet these needs and to keep the body in vibrant health. Pranayama means "breathing techniques" or "breath control". Ideally, this practice of opening up the inner life force is not merely to take healthy deep breaths. It is intended for yoga practitioners to help and prepare them in their meditation process. In our respiration process, we breathe in or inhale oxygen into our body, going through our body systems in a form of energy to charge our different body parts. Then we exhale carbon dioxide and take away all toxic wastes.
from our body. Through the practice of Pranayama, the balance of oxygen and carbon dioxide is attained. Absorbing prana through breath control links our body, mind, and spirit. Our breath is our dearest companion. A companion who never loses sight of what emotion we are experiencing at any given moment of time. Think about it – isn’t your breath really fast when you are angry and smooth and mellow when you are calm? This signifies that breath is not only linked to the body but also to the mind. And we all want a happy state of mind, right? This is where pranayama can help. By paying attention to your breath through breathing exercises, you can bring the mind to a pleasant state by enhancing and regulating the life force in the system.

The term pranayama is made up of two words – prana (life force energy or breath) and yama (regulating or causing a break). As such, by breaking the normal breathing pattern, which happens in pranayama, we attend to the breath, and in turn to the health of our body and mind. Pranayamas fill the body with plenty of prana which makes you feel energetic and positive. On the other hand, a low level of prana in the body can be a reason for increased feelings of anxiety or stress.

**STATEMENT OF THE PROBLEM**

The purpose of the study is to find out the effect of Pranayama Exercise on reaction time, among athletes in Osmania University Hyderabad.

**SIGNIFICANCE OF THE STUDY**

The study investigates the existing difference between pre test and post test of pranayama exercise in relation to their reaction time among athletes in Osmania University Hyderabad.

- The finding of the study may provide guidance to the physical education teachers and coaches to prepare training programmes on the basis of the study.
- It may further help the researchers who are interested in other sports and games.
- The findings of the study may add to the quantum of knowledge in the area of sports and physical education.

**OBJECTIVE OF THE STUDY**

The research will find out the effect of Pranayama Exercise on reaction time among athletes in Osmania University Hyderabad.
HYPOTHESES
The following hypotheses are formulated for the study.

- There may not be any significant difference the effect of pranayama exercise between pre test and post test of athletes of Osmania University in relation to their reaction time.

DESIGN OF THE STUDY
The diagrammatic presentation was presented hereunder.
SAMPLE OF THE STUDY

The study was formulated based on the simple random sampling. The samples were collected from the 50 athletes in the age group of 18-22 years from Osmania universities.

Showing the Sample of the study

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Name of the Universities</th>
<th>Number of athletes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Osmania University</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>50</td>
</tr>
</tbody>
</table>

TOOLS USED

- Pranayama Exercises
  - Bhashrika Pranayama
  - Kapalbhati
  - Bahya Pranayama
  - Anuloma-Viloma Pranayama
  - Nadi Shodhan Pranayama
  - Bhamrari Pranayama
- Psycho motor skills
  - Reaction time

DATA COLLECTION PROCEDURE

The subjects of the study were in the age group between 18 to 22 years. The players consisting 50 men athletes of Osmania University. 50 athletes have been selected for the study and they have undergone pranayama exercises for 3 weeks. Reaction time was administrated and the pre-test was taken, and then the post test was administered after the systematic training of pranayama exercises athletes Osmania University.

RESULTS AND DISCUSSION

The results pertaining to the study are present in the following

The table showing significant differences between Pre Test and Post Test of athletes of Osmania University in relation to their effect of Pranayama Exercises on Reaction time.
<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Subjects</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>df</th>
<th>‘t’ value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pre-test</td>
<td>50</td>
<td>0.1969</td>
<td>0.0418</td>
<td>98</td>
<td>0.508</td>
<td>0.478</td>
</tr>
<tr>
<td>2.</td>
<td>Post-test</td>
<td>50</td>
<td>0.1719</td>
<td>0.0388</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Graph showing the significant difference between Pre Test and Post Test of athletes of Osmania University in relation to their effect of Pranayama Exercises on Reaction time.

CONCLUSION

Hence, it is finally concluded that the Effect of Pranayama Exercises on Cardio Vascular Endurance have shown a positive impact among Pre-Test and Post-Test of athletes. In the present study the effect of Pranayama Exercises shows a better significant impact on the performance of the athletes in Osmania university through the systematic training of physical fitness and Pranayama Exercises for the period of 3 weeks training, the player’s endurance has increased to their ability. One can improve his performance at the peak level through training methods and by Pranayama exercises. Therefore, the power of endurance training may be more beneficial to prepare the players according to the game. Cardio Vascular and metabolic specific determines on the Pranayama or meditation.
References:

- Srivatson, “Over all pattern of coaching Basketball”, Yayam I (May 1963) P. 13
A study was conducted to investigate whether visual and kinesthetic imagery with single limb resistance training had benefits on self-concept among intermediate level male bodybuilders. The subjects chosen for the study were divided into four categories comprising experimental and control groups. The groups were assigned as follows: experimental group i was advised to undergo visual imagery, experimental group ii was advised to undergo kinesthetic imagery, experimental group iii was intervened with both visual and kinesthetic imagery techniques along with single limb resistance training. The control group was not given any intervention. Training on visual and kinesthetic imagery along with resistance training was given selectively to the groups over a period of time. The subjects were assessed on self-concept by Mukta Rani Rastogi. The result showed that visual and kinesthetic imagery with single limb resistance training provided significant improvement in self-concept among intermediate level male body builders.
Key words: Mental imagery, Visual imagery, Kinesthetic imagery, Self-concept.

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EFFECT OF VISUAL AND KINESTHETIC IMAGERY WITH SINGLE LIMB RESISTANCE TRAINING ON SELF- CONCEPT AMONG INTERMEDIATE LEVEL MALE BODYBUILDERS

Sangeeth G*

Ahmed, Shahin**

INTRODUCTION:

Mental imagery, also termed as visualization and mental rehearsal, is simply the formation of any mental picture. Imagery aids the processing of information in our mind more efficiently. Mental Imagery is of many types – most prominent being Visual imagery and Kinesthetic imagery, especially in a sporting context.

Visual imagery: Imagery is made up of the dreams and daydreams; memories and reminiscence; plans, projections, and possibilities. It is the language of the emotions and most important of the deeper self. Visual imagery in muscle building is closely related to “mindfulness” for which Dr. Jon Kabat-Zinn defines it as paying attention in a particular way: on purpose, in the present moment, and non-judgmentally. Zinn stated that Meditation exercises encourage individuals to engage in non-judging awareness of their internal experience occurring at each moment, such as bodily sensations, cognition and emotions and to environmental stimuli, such as sights and sounds.

Kinesthetic imagery: It is a mental process by which an individual rehearses or simulates a given action. Both are widely used in sport training. This is a mental process by which an individual rehearses or simulates a given action. It is widely used in sport training and is also termed as ‘Mental Practice of
Action’ and neurological rehabilitation. Studies have revealed that Kinesthetic imagery is associated with the specific activation of the neural circuits involved in the early stage of kinesthetic control.

The use of Visual and Kinesthetic imagery is a means of mental training interventions that aid in improving the performance in the field of bodybuilding. In the field of muscle building, using imagery in conjunction with some form of simulation is the key. Imagining an action strengthens pathways important to the coordination of your muscles – all by training solely with your mind (Elnikova M.V., 2010).

Self-Concept is the way one perceives oneself. It is derived from several factors including certain personality traits, how you look, your personal values and life goals, and your place or role in life. Self-concept in Bodybuilding: The field of bodybuilding, apart from its competitive goals promotes general physical well-being which directly impacts the self-concept of the individual.

Review of related literature:

Moore JB, Mitchell NG, Bibeau WS, Bartholomew JB (2011) studied the effects of a 12-week resistance exercise program on physical self-concept in varsity bodybuilding community. Self-esteem using the hierarchical framework of the Exercise and Self-Esteem Model (EXSEM) along with cognitive facets at the sub-domain level (e.g., competence, certainty, importance, and ideal self-discrepancy) was used. This allowed for an analysis of cognitive facets as possible contributors to changes in physical self-concept. A sample of 120 college-age bodybuilders who completed a 12-week resistance exercise program were selected. Results indicated significant improvements in self-concept constructs at all levels of the EXSEM. The hierarchical structure of the EXSEM was partially supported, as successively smaller improvements at each level of the model were observed.

Hypothesis: It was hypothesized that ‘Visual and Kinesthetic Imagery with Single Limb Resistance Training’ would significantly improve Self-concept among intermediate level male body builders.

It was further hypothesized that Experimental group III with combined intervention comparatively would have significant improvements in Self-concept than that of Experimental group I, II and the Control group among the intermediate male bodybuilders.

Methodology: To achieve the purpose of the study, sixty intermediate level male bodybuilders in and around the district of Calicut, Kerala were selected for the administration of specified imagery techniques. They were randomly divided in to four equal groups consisting of fifteen participants. The study was formulated as a random group design, consisting of pre and post test. The groups were assigned as follows: Experimental group I was advised to undergo visual imagery, experimental group II was advised to undergo kinesthetic imagery, experimental group III was intervened with both visual and kinesthetic imagery techniques along with Single Limb Resistance Training. The control group was not given any intervention.

A pilot study was conducted before analyzing the training program (with 5 subjects in each group) to understand the reliability of the participants and their participation in the research study.
Administration of Visual and Kinesthetic Imagery Training: The training on visual imagery and kinesthetic imagery was given for four days a week up to twelve weeks to the intermediate male body builders constituting the experimental group I and II respectively. The training was combined with Single Limb Resistance Training program for all the four days of training per week. Imagery sessions were conducted prior and post resistance training for ten to fifteen minutes.

Combined Intervention training with a combination of both visual and kinesthetic imagery was given for four days a week up to twelve weeks to the intermediate male body builders constituting the experimental group III. The training was combined with Single Limb Resistance Training program for all the four days of training per week. Imagery sessions were conducted prior and post resistance training for ten to fifteen minutes.

Single Limb Resistance training: This training was given for thirty minutes a day for four days in between the respective imagery training until twelve weeks. The training involved a unilateral methodology of executing weights throughout the range of motion. The exercise form comprises of weighted and body weight oriented executions and they also comprise of cable, machines as assistance. Selected upper and lower body exercises were chosen, to involve maximum muscle groups and their loads were fixed after testing the affordability. The repetitions were fixed at eight to twelve reps per set with standard sets of three for an exercise.

Description of tools for Self-concept assessment: Self-concept was assessed by Self-concept Scale developed by Muktha Rani Rastogi. It comprised of twenty statements (both positive and negative), and five responses are given to choose from (Strongly agree, Agree, Undecided, Disagree, Strongly disagree). The subject has to read each statement carefully and respond to it by marking a tick on any of the five responses.

Statistical Analysis The following tables illustrate the statistical result of visual and kinesthetic imagery with Single Limb Resistance Training on Self-concept among intermediate male bodybuilders. The adjusted post-test mean and difference between the means of the groups under study are given:

Computation of Analysis of Covariance of Self-concept (Table I)
Computation of Schaffe’s Post-hoc Test ordered Adjusted Final mean difference on Self-concept (Table IA)

Table I shows that the pre-test means of Experimental Group I, II, III, and the control group were 65.63, 64.47, 65.13 and 66.73 respectively. The obtained ‘F’ ratio was 0.10 which was lesser than the table ‘F’ ratio of 3.1. Hence pre-test was not significant at 0.05 level of confidence for degrees of freedom 3 and 56.

The Post-test means of Experimental Group I, II, III, and the control group were 70.27, 72.73, 75.73 and 67.33 respectively. The obtained ‘F’ ratio was 1.87 which was lesser than the table ‘F’ ratio of 3.1. Hence post-test was not significant at 0.05 level of confidence for degrees of freedom 3 and 56.

The adjusted post-test means of Experimental Group I, II, III, and the control group were 70.22, 73.41, 75.96 and 66.48 respectively. The obtained ‘F’ ratio was 5.93 which were greater than the table ‘F’ ratio of 3.1. Hence adjusted post-test was significant at 0.05 levels for degrees of freedom 3 and 55.

Table IA is Schaffe’s post-hoc test ordered and final mean difference on Self-concept of different groups. In the first comparison between experimental group III and the control group, the mean difference was 9.48 which was significant in the class interval (CI) of 5.92. The second comparison was made between the control group and the experimental group I, and the mean difference of 3.74 was not significant at the CI of 5.92. The third comparison was made between the experimental group III and the experimental group I, and the mean difference of 5.74 was not significant at the CI of 5.92. The fourth comparison was made between the control group and the experimental group II, and the mean difference of 6.93 was significant at the CI of 5.92. The fifth comparison was made between the experimental group III and the experimental group II, and the mean difference of 2.55 was not significant at the CI of 5.92. The sixth
comparison was made between the experimental group I and the experimental group II, and the mean difference of 3.19 was not significant at the CI of 5.92.

The pre, post and the adjusted means on self-concept were presented through bar diagram for better understanding of the study, as in the following figure:

The result showed that the effect of visual and kinesthetic imagery with Single Limb Resistance Training significantly increased the Self-concept among intermediate male bodybuilders.

Since there was significant difference, the post hoc test was conducted. Experimental group III and the control group had significance of F at 9.48 which was greater than the Class interval of 5.92. Experimental group II and the control group had significance of F at 6.93 which was greater than the CI of 5.92. Self-concept being a holistic portrayer of the bodybuilder’s abilities, characteristics, potentials, etc., imagery techniques would have contributed to the betterment through refinement and corrective approaches to specific mental representations and also through redefining attitudes towards training
principles. The Single Limb Resistance Training is a novelty factor to the bodybuilder and therefore has an influence on deep muscle engagement. Combined intervention had better significance than other experimental groups and the control group.

Conclusions

Within the limitations of the study, the following conclusions were drawn: It is concluded that ‘Visual and Kinesthetic Imagery with Single Limb Resistance Training’ significantly improved Self-concept among intermediate level male body builders when compared to Experimental Group I (visual imagery training) and Group II (kinesthetic imagery training).

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LATEST TRENDS IN PHYSICAL ACTIVITIES IN DAILY ROUTINE

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ABSTRACT

It is must to do at least 20 minutes of activity at a time, shorter bursts of activity will not have the same health benefits. Physical activity simply means movement of the body that uses energy. Walking, gardening, briskly pushing a baby stroller, climbing the stairs, playing soccer, or dancing the night away are all good examples of being active. For health benefits, physical activity should be moderate or vigorous intensity. Apart from common physical activities specific activities such as swimming, golfing, bowling, softball, visiting public places like museum, art gallery, flea market, country fair, shopping etc. Gather some like-minded friends and start a walking club. Enjoy laughing in a group. At various places during our daily routine one can perform physical activity as per the convenience of him or her; it may be at home, work and during play.
Keywords: Physical Activity, Healthy Habits and Exercise Physiology.

INTRODUCTION

When we are trying to increase our physical activity always remember to make it enjoyable. With a little effort we can be able to reach the target of at least 150 minutes of moderate intensity aerobic activity (or 75 minutes of vigorous intensity aerobic activity) in a week. Different people enjoy different things, and whilst running on a treadmill for an hour a night may suit one person, it will definitely not be for everyone. Remember that your 150 minutes could be made up of 5 x 30 minute sessions during the week or more, shorter sessions of 10 minutes or more. Many people say that the feel like they don’t have time to be active, so shorter sessions may make activity easier to fit into our day.

Physical activity burns calories from the foods we eat and improves the body's ability to use insulin. Because we’ve eliminated many of the physical demands of daily living, we need to find ways of making more physical activity part of our daily routines. For most people, exercise means workouts involving gyms, equipment, special clothing, etc. the real key to success is changing your lifestyle by increasing your general level of activity throughout the day, each and every day through incremental, sustained changes to your lifestyle.

Common Physical Activity in Daily Routine

20-25 minutes of daily physical activity are advisable to all age group of people starting from going children to old age people. Following are small steps in same direcion:

i. Get off the bus one stop earlier and walk to the store

ii. Stand up and move around while making phone calls.

iii. Cut back on e-mail. Deliver the message in person.

iv. Do your own yards work.

v. Walk up the stairs instead of taking the elevator.

vi. Park as far away from the store as you can.

vii. Take a walk around the building at lunch or on your break at work.

viii. Walk the dog. Walk with your children.

ix. Don’t stay seated for more than 30 minutes.

Specific Physical Activity

i. Take up a sport (swimming, golfing, bowling, softball, etc.).

ii. Go to a museum, art gallery, flea market, country fair.

iii. Go shopping. (It takes well over 1,000 steps to circumnavigate the average shopping mall.)

iv. Gather some like-minded friends and start a walking club. Enjoy laughing in a group.

Different Ways to Increase Physical Activity

At Home

i. Join a walking group in the neighborhood or at the local shopping mall. Recruit a partner for support and encouragement.

ii. Push the baby in a stroller.

iii. Get the whole family involved — enjoy an afternoon bike ride with your kids.
iv. Walk up and down the soccer or softball field sidelines while watching the kids play.
v. Walk the dog — don’t just watch the dog walk.
vi. Clean the house or wash the car.
vii. Walk, skate, or cycle more, and drive less.

At Work

i. Get off the bus or subway one stop early and walk or skate the rest of the way.
ii. Replace a coffee break with a brisk 10-minute walk. Ask a friend to go with you.
iii. Take part in an exercise program at work or a nearby gym.
iv. Join the office softball team or walking group.

At Play

i. Walk, jog, skate, or cycle.
ii. Swim or do water aerobics.
iii. Take a class in martial arts, dance, or yoga.
iv. Play racquetball, tennis, or squash.
v. Ski cross-country or downhill.
vi. Play basketball, softball, or soccer.
vii. Hand cycle or play wheelchair sports.
viii. Take a nature walk.
ix. Most important — have fun while being active!

Nutrition Education Series also necessary for Physical Activity

Nutrition Education Series provides consumers and professionals with high quality, easy-to-follow tips in a convenient, printable format. These are perfect for posting on a refrigerator. These tips and ideas are a starting point. One must find a wealth of suggestions here that can help you to get started toward a healthy diet. Choose a change that you can make today, and move toward a healthier you. Add more vegetables to your day focus on fruits healthy eating for vegetarians enjoy your food, but eat less.

CONCLUSION

Choose activities that you enjoy and can do regularly. Fitting activity into a daily routine can be easy — such as taking a brisk 10 minute walk to and from the parking lot, bus stop, or subway station. Or, join an exercise class. Keep it interesting by trying something different on alternate days. Every little bit adds up and doing something is better than doing nothing. Make sure to do at least 10 minutes of activity at a time, shorter bursts of activity will not have the same health benefits. For example, walking the dog for 10
minutes before and after work or adding a 10 minute walk at lunchtime can add to your weekly goal. Mix it up. Swim, take a yoga class, garden or lift weights. To be ready anytime, keep some comfortable clothes and a pair of walking or running shoes in the car and at the office. One can choose moderate or vigorous intensity activities, or a mix of both each week. Activities can be considered vigorous, moderate, or light in intensity. This depends on the extent to which they make you breathe harder and your heart beat faster. Only moderate and vigorous intensity activities count toward meeting your physical activity needs. With vigorous activities, you get similar health benefits in half the time it takes you with moderate ones. You can replace some or all of your moderate activity with vigorous activity. Although you are moving, light intensity activities do not increase your heart rate, so you should not count these towards meeting the physical activity recommendations. These activities include walking at a casual pace, such as while grocery shopping, and doing light household chores.

References
http://www2.gsu.edu/~wwwfit/physicalactivity.html retrieved on May 12, 2014.
EFFECT OF PILATES TRAINING ON THE PHYSIOLOGICAL AND BIO-CHEMICAL VARIABLES OF UNIVERSITY PLAYERS OF DIFFERENT TEAM GAMES

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ABSTRACT

Introduction:-Pilates training is a physical fitness regimen of repeated exercise and is a holistic approach to well-being and a lifelong process of refinement (Isacowitz, 2006). It develops every aspect of physical fitness namely strength, flexibility, coordination, speed, agility and endurance (Keane, 2005). The purpose of the study is to find the comparative effect of Pilates training on the selected physiological and biochemical variables among three different ball games namely soccer, volleyball and handball players.

Method:- To achieve the purpose of the study, sixty university level players who participated in inter-university tournaments were selected in three groups based on their games. Each group consisted of twenty members (n=20). They were given Pilates training program for a period of 12 weeks (each group separately). Forced vital capacity and blood sugar were selected as the criterion variables for the study. It was hypothesized that there will be significant differences among all the three groups on the selected physiological and biochemical variables. Pre and post test data was collected on forced vital capacity and blood sugar. One way analysis of variance was used for statistical analysis to find out the significance if any.

Results: - The mean value (ANOVA) for forced vital capacity of volleyball players(Group-1) was 4.655, group-2 (handball) was 4.333 and for group-3 (soccer) the value was 4.212. The obtained F ratio (8.25) was higher than the table value and hence the study was significant. The mean values for blood sugar were Group-1 (110.2), Group-2 (116.5) and Group-3 (117.8). The obtained F ratio 1.44 was lesser the table value 3.15 and hence the study was not significant on the selected variable.

Conclusions:- It was concluded that the group -1(volleyball) has better vital capacity than soccer and handball players. There was no significant difference between soccer players and handball players in terms of vital capacity. There was no significant difference in blood sugar among all the three groups.

Key words : Pilates training, forced vital capacity, bio-chemical variables

INTRODUCTION

The physical, physiological and psychological capacities of players will be different for different team games and athletic activities. It is apparent that specific training can enhance or strengthen some these characteristics to a great extent. For the purpose, the scientific study of exercise physiology is becoming increasingly important with the growing realization of the relation of exercise to health. Field and
laboratory observations of exercise in human subjects are being supplemented with physiology, biochemical and hematology studies (Guyton Arther, 1976). Pilates training is one of the important modes of training which is widely used by trainers to get the best of the trainees from different sports and games. Pilates training was developed by Joseph Pilates from Germany in 1880. He studied eastern and western philosophies and forms of exercise and was greatly influenced by ancient Greek and Roman regimens. This rich background provided him with the foundation, shaped by his experiences, to innovate a system that he developed throughout his life. It develops every aspect of physical fitness namely strength, flexibility, coordination, speed, agility and endurance. It heightens body awareness, enhances body control, teaches correct muscle activation, corrects posture alignment, facilitates optimal function of the internal organs, improves balance and proprioception, focusses on breathing and its related benefits, distribution of body mass effectively and aesthetically and provides inner harmony through a finely tuned body (Keane, 2005). Here, the very purpose of the study was to verify the impact of Pilates training on the selected physiological and bio-chemical variables of university players who belong to different team games namely soccer, volleyball and handball. It would be of great significance to know which group will be benefited more by this specific training mode on the selected physical and physiological variables.

METHOD

The purpose of the study was to find out the effect of Pilates training program on the selected physiological and bio-chemical variables of university team players in different team games. To achieve the purpose of the study, sixty university level players who participated in inter-university tournaments were selected. The age group of all the subjects was between 18 and 25 years. All the subjects had extensive experience in the inter-university level competitions for a minimum of two years. They were divided into three groups based on their games. Volleyball group was termed as Group-1, Handball group was termed as Group-2 and Soccer group was termed as Group-3. Each group consisted of twenty members (n=20). Clear explanation and demonstration was given before the beginning of the training program and doubts of the subjects were cleared to minimize errors and to yield best results. The Pilates training program started on the same date for all the three groups. The schedule of training program was one hour per day, three times per week. The total course training program was twelve weeks. Training was given to each group separately under professional supervision. Forced vital capacity and blood sugar were selected as the criterion variables for the study. It was hypothesized that there will be significant differences among all the three groups on the selected physiological and biochemical variables. Pre and post test data was collected on forced vital capacity and blood sugar. Wet spirometer was used to measure the vital capacity of the subjects and blood sugar was measured by standard CONI-BIO machine. Analysis of variance was used for statistical analysis to find out the significance if any.

RESULTS AND DISCUSSION:-

The collected data was analyzed using proper statistical tools. Analysis of variance (ANOVA) was used to test whether there is any significant difference among all the three groups.
Table -1 gives the details of ANOVA (ANALYSIS OF VARIANCE) OF VITAL CAPACITY OF THE SELECTED THREE GROUPS

Analysis of variance (ANOVA) for the data -vital capacity test- for soccer, volleyball, and handball players

Table -1

<table>
<thead>
<tr>
<th>Mean values</th>
<th>SOV</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Table value</th>
</tr>
</thead>
<tbody>
<tr>
<td>volleyball</td>
<td>handball</td>
<td>soccer</td>
<td>Sum of total</td>
<td>9.10</td>
<td>59</td>
<td>0.154</td>
</tr>
<tr>
<td>4.655</td>
<td>4.333</td>
<td>4.212</td>
<td>Sum Between</td>
<td>2.02</td>
<td>2</td>
<td>1.012</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Sum within</td>
<td>7.08</td>
<td>57</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Significant at 0.05 level

The mean value of group-1 (volleyball) is 4.655, for Group-2 (handball) is 4.333 and for Group-3 (soccer) is 4.212. The obtained F value is 8.25 and the table value is 3.15 at 0.05 level of confidence. As the obtained F value is higher than the table value, the study is significant. Therefore, Scheff’s post hoc test is administered to find out the paired mean significant difference.

Scheff’s post hoc test for the difference between the adjusted post test paired mean of forced vital capacity (scores –Volume liter)

Table-2

<table>
<thead>
<tr>
<th>volleyball</th>
<th>handball</th>
<th>soccer</th>
<th>Mean difference</th>
<th>Confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.655</td>
<td>4.333</td>
<td>0.322</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.655</td>
<td>4.212</td>
<td>0.443</td>
<td>0.310</td>
<td></td>
</tr>
<tr>
<td>4.333</td>
<td>4.212</td>
<td>0.121</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant at 0.05 levels

Table-2 shows that the mean difference values between handball and volleyball (0.322) is more than the confidence interval. The Mean difference values between soccer and volleyball (0.443) is greater than confidence interval and hence it is significant. The mean difference between soccer and handball (0.121) is lesser than the confidence interval (0.310) and hence it is not significant. That is, there are
significant differences among the three groups and the volleyball group has more forced vital capacity than the other two groups. It can also be noted that handball group has more vital capacity than soccer group.

**ANALYSIS OF VARIANCE FOR THE DATA OF BLOOD SUGAR (RANDOM) FOR SOCCER, VOLLEYBALL, AND HANDBALL GROUPS.**

<table>
<thead>
<tr>
<th>Mean values</th>
<th>SOV</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Table value</th>
</tr>
</thead>
<tbody>
<tr>
<td>soccer</td>
<td>volley</td>
<td>handball</td>
<td>Sum of total</td>
<td>10587.3</td>
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</tr>
<tr>
<td>110.2</td>
<td>116.5</td>
<td>117.8</td>
<td>Sum Between</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Sum within</td>
<td>10059</td>
<td>57</td>
<td>176.480</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level*

When the data analyzed for the physiological variable blood sugar, it was found that the mean values of Volleyball, Handball and Soccer groups were 110.2, 116.5 and 117.8 respectively. The level of confidence for the degree of freedom 2 to 57 was 3.15. The obtained F value was 1.44 which is lesser than the table value 3.15, and hence the study is insignificant. Therefore, it can be inferred that there was no significant difference between the means of blood sugar among all the three groups.

**CONCLUSION**

Within the limitation of the present study, the following conclusions were drawn.

1. It was concluded that due to SAQ training, the volleyball players are having the high level of vital capacity than the handball players group.
2. due to PILATES training, The Volleyball group has more vital capacity than Soccer group.
   (It may be inferred that the difference may be because of initial lower level vital capacity level of Volleyball players group compared to that of the other two groups (Soccer and Handball groups) which are having more field dimensions and also due to their higher level of aerobic fitness levels to adapt with their high physiological demands during their concerned games).
3. Due to PILATES training, there was no significant difference between the forced vital capacity of Soccer group and Handball group. (This may be due to their higher level aerobic fitness levels which are basically essential to meet their high speed playing movements throughout the field with higher level of agility and quickness.)
4. There was no significant differences in blood glucose among all the three groups

ACKNOWLEDGEMENT

The authors express their deep sense of gratitude towards King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia for their unstinted support and co-operation in all the stages of this study.

REFERENCES

INFLUENCE OF AEROBIC EXERCISE ON SOME SELECTED FITNESS VARIABLES AMONG OBESE MALES

By

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APSWR Junior College, Shaikpet.

ABSTRACT

Introduction: Obesity is an ailment and is a growing threat globally today. Nowadays obesity is a major challenge around the world to give attention towards the role and importance of aerobic exercise to improve one’s health. Obesity leads to cardio-vascular disease, diabetes, (Haslam and James, 2005). The purpose of the study was to find out the influence of aerobic exercise on the selected fitness variables among obese males.

Method: A group of twenty obese male subjects were selected to participate in this study; Age of the subjects was in the range between 19 and 23 years. Aerobic training was employed on the participants. The duration of the training program was 45 minutes, thrice per week. All the participants were tested prior and after 10 weeks of the training program. For analyzing the data and to find out the significance level from pre to post test among the participants, mean, standard deviation, and t-test was applied. The level of significance was fixed at 0.05 level of confidence.

Results & Discussion: The analyzing of the data shows significant performance with regard to body composition, muscular strength & endurance, and flexibility among the participants from pre to post test.

Conclusion: It was concluded that the participants improved their performance in all the selected bio-motor variables from pre to post test, which is significant.

INTRODUCTION

Obesity is an ailment and is a growing threat globally today. Nowadays obesity is a major challenge around the world to give attention towards the role and importance of aerobic exercise to improve one’s health. ‘Childhood obesity is a condition where excess body fat negatively affects a child’s health or wellbeing.’ As mentioned on Wikipedia, Childhood
Obesity. According to Mickey Mehta childhood obesity simply means, ‘Childhood is characterized by pronounced and unexplained behavioral changes.

‘The only way to measure excess body fat is by calculating the child’s BMI. Spotting the obesity at a young age can help your child grow into adulthood without any lifestyle problems, which brings us to our next point. Obesity leads to cardio-vascular disease, diabetes, (Haslam and James, 2005). The purpose of the study was to find out the influence of aerobic exercise on the selected fitness variables among obese males.

Obesity has reached epidemic proportions in India in the 21st century, with morbid obesity affecting 5% of the country's population in 2001. India is following a trend of other developing countries that are steadily becoming more obese. Unhealthy, processed food has become much more accessible following India's continued integration in global food markets.

### Obesity Trends in India: Recent studies: Adults

<table>
<thead>
<tr>
<th>Author</th>
<th>Year of Study</th>
<th>Country/ State</th>
<th>Criteria used</th>
<th>Prevalence of overweight (M/F)</th>
<th>Prevalence of obesity (M/F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gopinath et al</td>
<td>1994</td>
<td>Delhi</td>
<td>BMI&gt;25</td>
<td>21.3% (M) 33.4% (F)</td>
<td>INA</td>
</tr>
<tr>
<td>Singhal et al</td>
<td>1998</td>
<td>Jaipur</td>
<td>BMI&gt;25</td>
<td>14.6% (M) 6.6% (F)</td>
<td>INA</td>
</tr>
<tr>
<td>Asthana et al</td>
<td>1997</td>
<td>Varanasi</td>
<td>BMI&gt;25</td>
<td>30.2% (F)</td>
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<tr>
<td>Chadha et al</td>
<td>1997</td>
<td>Delhi</td>
<td>BMI&gt;25</td>
<td>20.7 (M) 32.6% (F)</td>
<td>INA</td>
</tr>
</tbody>
</table>
BODY COMPOSITION MEASUREMENTS

Body mass index: Body mass index (BMI) is a tool for indicating weight status in adults. It is a measure of weight for height. For adults over 20 years old, BMI falls into one of these categories: Below 18.5 (underweight), 18.5-24.9 (normal), 25.0-29.9 (Overweight) and 30.0 and above (obese). BMI correlates with body fat; BMI does not measure body fat. The relation between fatness and BMI differs with age and gender.

Waist to hip ratio: Waist to hip ratio (WHR) is the circumference of the waist (smallest part of the torso, usually slightly above the navel) divided by the circumference of the hips (largest part of the buttocks). This ratio may indicate body fat distribution and obesity and potentially the risk for certain diseases, such as diabetes, high cholesterol and cardiovascular disease.
Key Guidelines for Adults

- All adults should avoid inactivity. Some physical activity is better than none, and adults who participate in any amount of physical activity gain some health benefits.
- For substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous intensity aerobic activity.
- For additional and more extensive health benefits, adults should increase their aerobic physical activity to 300 minutes (5 hours) a week of moderate intensity, or 150 minutes a week of vigorous intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity activity.
- Adults should also do muscle-strengthening activities that are moderate or high intensity and involve all major muscle groups on 2 or more days a week, as these activities provide additional health benefits.

Aerobic Exercise

Aerobic exercise is sometimes known as "cardio"- exercise that requires pumping of oxygenated blood by the heart to deliver oxygen to working muscles. Aerobic exercise stimulates the heart rate and breathing rate to increase in a way that can be sustained for the exercise session. In contrast, anaerobic ("without oxygen") exercise is activity that causes you to be quickly out of breath, like sprinting or lifting a heavy weight. Examples of aerobic exercises include cardio machines, spinning, running, swimming, walking, hiking, aerobic classes, dancing, cross country skiing, and kickboxing. There are many other types. Aerobic exercises can become anaerobic exercises if performed at a level of intensity that is too high. Aerobic exercise not only improves Fitness. It also has known benefits for both physical and emotional health.

What is aerobic exercise?
Imagine that you're exercising. You're working up a sweat, you're breathing hard, your heart is thumping, blood is coursing through your vessels to deliver oxygen to the muscles to keep you moving, and you sustain the activity for more than just a few minutes. That's aerobic exercise (also known as "cardio" in gym lingo); any activity that you can sustain for more than just a few minutes while your heart, lungs, and muscles work overtime. In this article, I'll discuss the mechanisms of aerobic exercise: oxygen transport and consumption, the role of the heart and the muscles, the proven benefits of aerobic exercise, how much you need to do to reap the benefits, and more.

METHOD

A group of twenty obese male subjects were selected to participate in this study; Age of the subjects was in the range between 19 and 23 years. Aerobic training was employed on the participants. The duration of the training program was 45 minutes, thrice per week. All the participants were tested prior and after 10 weeks of the training program. For analyzing the data and to find out the significance level from pre to post test among the participants, mean, standard deviation, and t-test was applied. The level of significance was fixed at 0.05 level of confidence.

RESULTS & DISCUSSION

The analyzing of the data shows significant performance with regard to body composition, muscular strength & endurance, and flexibility among the participants from pre to post test.

Conclusion:

It was concluded that the participants improved their performance in all the selected bio-motor variables i.e body composition, muscular strength, endurance and flexibility from pre to post test, which is significant. The influence of aerobic exercise on obese males is significant and there functional ability was improved. So it will be suggested that aerobic exercises are play vital role in improving overall health of obese males.

Key words: Obesity, Aerobics, Health, Diseases

EFFECTS OF YOGA EXERCISES ON SELECTED PHYSIOLOGICAL VARIABLES

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ABSTRACT

Introduction: Yoga exercises were trained more than thousands of years. Yoga training is only one of its kind exercises and also helps in improving health and sports performance. The effect of yoga had shows improved performance with regard to basic fitness in the research studies of (Gharote and Ganguly, 1976). The benefits of yoga are huge, which emphasizes in improving physical, physiological, and psychological aspects. The purpose of this investigation was to find out the effect of Yoga exercises on selected physiological variables on college males.

Method: A group of 30 college male students at Arrow gym, health and fitness centre, Hyderabad, India were randomly selected as subjects; age of the subjects was between 19 to 23 years. Pre and post tests were employed on the subjects for physiological variables: (resting pulse rate and breath holding time). The numbers of pulse beats per minute were recorded to find out the pulse rate, Breath holding time was recorded in seconds to find out breath holding. The Yogic practices were employed for 10 weeks, 3 days training in a week & four days rest, 45 minutes of training per session. The statistical tools of mean, standard deviation and ‘t’-test were used for the analysis of the data by using statistica software.

Results & Discussion: The results of this study revealed that the effect of yoga on the resting pulse rate had shown improved performance with the mean and S.D in the pre and post test were, (70.5, 1.51) and (68.3, 1.1) respectively, which is significant. With regard to Breath holding time of the subjects had shows improvement in the performance from pre to post test with the mean and S.D being (10.1, 1.4) and (12.2, 0.92) respectively, which is significant.

Conclusion: It is concluded that the effect of yoga practices showed a significant performance with regard to physiological variables of the subjects from pre to post test.

Keywords: Yoga, Physiological, Fitness, Health

INTRODUCTION
Yoga exercises were trained more than thousands of years. Yoga training is only one of its kind exercises and also helps in improving health and sports performance. It does this through gentle physical poses, deep, steady breathing, and meditation practice. The effect of yoga has shown improved performance with regard to basic fitness in the research studies of (Gharote and Ganguly, 1976). The benefits of yoga are huge, which emphasizes in improving physical, physiological, and psychological aspects. The purpose of this investigation was to find out the effect of Yoga exercises on selected physiological variables on college males. Weight loss, a strong and flexible body, glowing beautiful skin, peaceful mind, good health – whatever you may be looking for, yoga has it on offer. However, very often, yoga is only partially understood as being limited to asanas (yoga poses). As such, its benefits are only perceived to be at the body level and we fail to realize the immense benefits yoga offers in uniting the body, mind and breath. When you are in harmony, the journey through life is calmer, happier and more fulfilling. 

Your heart rate, or pulse, is the number of times your heart beats per minute. Normal heart rate varies from person to person. Knowing yours can be an important heart-health gauge. “As you age, changes in the rate and regularity of your pulse can change and may signify a heart condition or other condition that needs to be addressed,” said Richard Stein, M.D., professor of medicine and cardiology at the New York University School of Medicine in New York City. Your resting heart rate is the heart pumping the lowest amount of blood you need because you’re not exercising. If you’re sitting or lying and you’re calm, relaxed and aren’t ill, your heart rate is normally between 60 (beats per minute) and 100 (beats per minute), Stein said.

All-round fitness: You are truly healthy when you are not just physically fit but also mentally and emotionally balanced. As Sri Sri Ravi Shankar puts it, “Health is not a mere absence of disease. It is a dynamic expression of life – in terms of how joyful, loving and enthusiastic you are.” This is where yoga helps: postures, pranayama (breathing techniques) and meditation are a holistic fitness package.

Improved immunity: Our system is a seamless blend of the body, mind and spirit. An irregularity in the body affects the mind and similarly unpleasantness or restlessness in the mind can manifest as an ailment in the body. Yoga poses massage organs and strengthen muscles; breathing techniques and meditation release stress and improve immunity.

Better flexibility & posture: You only need to include yoga in your daily routine to benefit from a body that is strong, supple and flexible. Regular yoga practice stretches and tones the body muscles and also makes them strong. It also helps improve your body posture when you stand, sit, sleep or walk. This would, in turn, help relieve your body pain due to incorrect posture.

So what does yoga do? It gives you range of motion in all the joints of the body as it is a fully integral workout for the entire body. Whatever your sport you’ve got some overworked muscles in the body. Yoga practice strengthens the muscles that are underused and releases the muscles that are overworked from your particular sport. The yoga is an excellent for building core strength, because it involves moving the body in various directions and angles through postures requiring stability and balance, often in an unusual relationship to gravity. It prevents injuries or can facilitate a quicker recovery time when injured. It is often an injury that leads people in to their very first yoga class following their physiotherapist recommending it as a form of healing. It heightens concentration and focus. This can be the edge in your performance. Athletes in all sports are finding that yogic conditioning not only elongates tight, shortened, fatigued muscles but also brings calmness and clarity to the mind. Some athletes begin the practice to rehabilitate an injury and to gain more flexibility, stability and strength.
METHOD: A group of 30 college male students at Arrow gym, health and fitness centre, Hyderabad, India were randomly selected as subjects; age of the subjects was between 19 to 23 years. Pre and post tests were employed on the subjects for physiological variables: (resting pulse rate and breath holding time). The numbers of pulse beats per minute were recorded to find out the pulse rate, Breath holding time was recorded in seconds to find out breath holding. The Yogic practices were employed for 10 weeks, 3 days training in a week & four days rest, 45 minutes of training per session. The statistical tools of mean, standard deviation and ‘t’-test were used for the analysis of the data by using statistical software.

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The results of this study revealed that the effect of yoga on the resting pulse rate had shown improved performance with the mean and S.D in the pre and post test were, (70.5, 1.51) and (68.3, 1.1) respectively, which was significant. With regard to Breath holding time of the subjects had shows improvement in the performance from pre to post test with the mean and S.D being (10.1, 1.4) and (12.2, 0.92) respectively, which was significant. The resting pulse rate in athletes is shown less after training with enhanced performance of pumping blood by heart.

Conclusion: It is concluded that the effect of yoga practices showed a significant performance with regard to physiological variables of the subjects from pre to post test. There was a significant difference on athletes enhanced resting pulse rate and better breath hold time noticed after a 10 week of yogasanas practice. Keywords: Yoga, Physiological, Fitness, Health

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IMPACT OF WEIGHT TRAINING EXERCISE ON BODY COMPOSITION AND MUSCULAR ENDURANCE ON COLLEGE MALES

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S.Ravinder PD2, ZPHS Dharpally, Nizamabad.

ABSTRACT
Introduction: Weight training is essential for one and all. Weight training is a secure form of exercise when the movements are controlled, and carefully performed under the able guidance of a coach. A person’s total body weight may not change over time. But the weighting machine does not assess how much of that body weight is fat and much is lean mass, body composition is important to consider for health and managing (Johnson and Nelson 1998). Muscular endurance is defined as the ability to muscle to apply force repeatedly into sustains a contraction for a period of time, (Hockey, 1973). The purpose of this investigation was to find out the effect of weight training exercise on the selected fitness variables among the males. Method: A group of (N=30) subjects were selected for this study from the various degree colleges of Osmania university. The age of the participants was between 19-22 years. The selected physical fitness test considered for this study was body composition (body mass index, BMI), muscular endurance (sit-ups test for 30 sec). The Weight training program was employed for nine weeks, 45 minutes of training per session, six days in a week. A pre and post selected fitness test were conducted before and after the training regime. For analyzing the data, mean, Standard deviation, and t-tests were computed by means of Statistical Software. Results and Discussion: The analysis of data shows that the body mass index of the participants from pre to post test shows significant performance. With regard to other selected variables i.e. s, sit-ups, shows encouraging and significant results from pre to post test. Conclusion: It is concluded that the impact of nine weeks weight training regime had shows an effective means in reduction of the body weight of the participants from pre to post test. Further more the effect of nine weeks weight training program had shows improved performance with regard to sit-ups performance, which is significant.

Keywords: weight training, endurance, body composition,

INTRODUCTION

Weight training is essential for one and all. Weight training is a secure form of exercise when the movements are controlled, and carefully performed under the guidance of a coach. Weight training is a type of strength training that uses weights for resistance. Weight training provides a stress to the muscles that causes them to adapt and get stronger, similar to the way aerobic conditioning strengthens your heart. Weight training can be performed with free weights, such as barbells and dumbbells, or by using weight machines. You can see significant improvement in your strength with just two or three 20- or 30-minute weight training sessions a week. That frequency also meets activity recommendations for healthy adults, which call for strength training at least twice a week — in addition to at least 150 minutes a week of moderate aerobic activity. A person’s total body weight may not change over time. But the weighting machine does not assess how much of that body weight is fat and much is lean mass, body composition is important to consider for health and managing (Johnson and Nelson 1998).
The body composition: The body is composed of water, protein, minerals, and fat. A two-component model of body composition divides the body into a fat component and fat-free component. Body fat is the most variable constituent of the body. The total amount of body fat consists of essential fat and storage fat. Fat in the marrow of bones, in the heart, lungs, liver, spleen, kidneys, intestines, muscles, and lipid-rich tissues throughout the central nervous system is called essential fat, whereas fat that accumulates in adipose tissue is called storage fat. Essential fat is necessary for normal bodily functioning.

Muscular Endurance and Strength: Muscular endurance is defined as the ability to muscle to apply force repeatedly into sustains a contraction for a period of time, (Hockey, 1973). The ability to withstand hardship or adversity; especially: the ability to sustain a prolonged stressful sports activity. Muscular endurance is the ability to repeat a series of muscular contractions without fatigue. Muscle endurance is different from cardiovascular endurance because it involves the muscle fatiguing rather than a limitation in the amount of oxygen being supplied or utilized by the muscles. Muscular endurance is one of the main fitness components, it is very important for success in many sports. Strength is the ability to carry out work against a resistance. The maximum force that can be generated depends on the size and number of muscles involved, the proportion of muscle fibers called into action, the coordination of the muscle groups, the physical condition of the muscles and the mechanical advantage of the levers involved.

Body Mass Index: BMI stands for Body Mass Index. It is a measure of body composition. BMI is calculated by taking a person's weight and dividing by their height squared. For instance, if your height is 1.82 meters, the divisor of the calculation will be (1.82 * 1.82) = 3.3124. If your weight is 70.5 kilograms, then your BMI is 21.3 (70.5 / 3.3124).

The purpose of this investigation was to find out the effect of weight training exercise on the selected fitness variables among the males.

METHOD:

A group of (N=30) subjects were selected for this study from the various degree colleges of Osmania University. The age of the participants was between 19-22 years. The selected physical fitness test considered for this study was body composition (body mass index, BMI), muscular endurance (sit-ups test for 30 sec). The Weight training program was employed for nine weeks, 45 minutes of training per session, six days in a week. A pre and post selected fitness test were conducted before and after the training regime. For analyzing the data, mean, Standard deviation, and t-tests were computed by means of Statistical Software.

Results and Discussion: The analysis of data shows that the body mass index of the participants from pre to post test shows significant difference in performance. If we computed the results after weight training there is a significant difference in reducing a body weight and it is noticed that there was a better muscular endurance. With regard to other selected variables i.e., sit-ups, shows encouraging and significant results from pre to post test.
CONCLUSION:

It is concluded that the impact of nine weeks weight training regime was tremendous. It shows an effective means in reduction of the body weight of the participants from pre to post test. A overall body composition which denotes as BMI become better and muscular endurance improved which is helpful to attain goal oriented performance. Further effect of nine weeks weight training program had shows improved performance with regard to sit-ups performance, which was significant.

REFERENCES


FORMING POSITIVE HABITS AND CHARACTER THROUGH PHYSICAL EDUCATION- AN OBSERVATION

"We are what we repeatedly do; excellence is not an act but a habit"—Aristotle.

Our character is the sum of total of our habits. If we have positive habits then we have good character. The role of physical education and its activities is to mould the individual through creating learning situation with positive attitude, as useful citizen in the society. That’s why learning habits are most important aspect of physical education curriculum.
Some of the unknowing repeated movements make an individual to learn bad habits. Such as students getting deformities and bad postures like kyposis, lordosis, scoliosis, kypolordosis etc.. It can be rectified very easily either by self experience or with guidance of the teacher. Here we can take the examples - may be dressing style, imitating the film stars, impact of T.Vs and media etc. As a Practicing Phenomenon: 1) Kind of books we read, 2) Kind of programs we watch, 3) Kind of music we listen, 4) Kind of friends we accompany and 5) Kind of personnel interests and attitudes.

Conscious and Sub Conscious: The conscious mind has the ability to think. It can accept or reject. But the subconscious only accept. Subconscious is like the automobile while conscious is like the driver. The subconscious mind can work for us or against us. If we are not successful in making good habits and positive thinking we need to reprogram the subconscious.

Character Building: Character building becomes a habit. If we want to build a pleasing personality we have to examine our habits closely. We need to cultivate positive habits during childhood which built character in adulthood. Learning new habits takes time. But positive habits once mastered give new meaning to life. Habits are a matter of a pain and pleasure principle. So long as the gain is more than the pain we continue with the habit. But if the pain exceeds the gain we drop it. Smoking may be the example of it.

Conclusion: Physical education having tremendous command and enlighten on activities of human motion also contributes a lot in making habits with positive way of thinking. A saying “There is no other alternative to character building other than play”. A play is the main part of physical educational wings. The observational study is also as part of physical education helps the human being to stay with good character.

Key words: Habits, Character, Deformities, Physical Education

INTRODUCTION

We are born to lead successful lives but, our conditioning leads us to failure. If we think on why it is happening, there is one conclusion that the habits which we learnt are leading us. If we analyze the lines of lucky and unlucky individual being commented the successful person is during something right the failure is repeating the same skill.
Here the person who deals with subject on behavior and observation in the institution and outside of learning situation is only physical education person. The physical education plays a key role in cultivating the habits just like plowing the field for better crop. Slaying healthy does not happen by an accident. It is the product of healthy habits practice every day. Most people have never taken the time to observe their moment pattern and leads to getting habits.

**HABIT**

“We are what we repeatedly do; excellence is not an act but a habit”– Aristotle.

Anything we do repeatedly becomes a habit. We learn by doing. By behaving courageously we learn courage. In the same practicing honesty and fairness we learn traits. Negative traits like dishonesty, unjust behavior are lack of discipline. Attitudes are habits. They lead to behavior patterns. They became a state of mind and dictate our response.

Our character is the sum of total of our habits. If we have positive habits then we have good character. The role of physical education and its activities is to mould the individual through creating learning situation with positive attitude, as useful citizen in the society. That’s why learning habits are most important aspect of physical education curriculum.

Some of the unknowing repeated movements make an individual to learn bad habits. Such as students getting deformities and bad postures like kyposis, lordosis, scoliosis, khypolordosis etc.. It can be rectified very easily either by self experience or with guidance of the teacher. Here we can take the examples - may be dressing style, imitating the film stars, impact of T.Vs and media etc.
AS A PRACTICING PHENOMENON

1. Kind of books we read
2. Kind of programs we watch
3. Kind of music we listen
4. Kind of friends we accompany
5. Kind of personnel interests and attitudes.

PROGRAMME

The program of learning has four stages. For example if you want learn to ride a bike, the first stage is called *unconscious incompetence*. At this stage we don’t know what is to ride and how is to ride. Second stage is *conscious incompetence*. We know what is to ride but we cannot ride our self (need guidance). Third stage is *conscious competence*. We can ride and we know the mechanics of the process. Fourth stage is *unconscious competence*. Riding becomes an automatic process. We can ride and can talk. At this level we don’t need the concentration and thinking because the behavior pattern has become automatic.

CONDITIONING

It is the process of occurring in association with each other. The most famous example of conditioning is PAVLOV’S Dogs. Where the dogs would salivate soon after ringing the bell, Not even the sight of their meal. Because they have been conditioned to bell with their food in the same way most of our behavior comes as a result of conditioning. We can take an example of mighty elephant tide up with a weak rope and conditioned.

CONSCIOUS AND SUB CONSCIOUS

The conscious mind has the ability to think. It can accept or reject. But the subconscious only accept. Subconscious is like the automobile while conscious is like the driver. The subconscious mind can work for us or against us. If we are not successful in making good habits and positive thinking we need to reprogram the subconscious.

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Character building becomes a habit. If we want to build a pleasing personality we have to examine our habits closely. We need to cultivate positive habits during childhood which built character in adulthood. Learning new habits takes time. But positive habits once mastered give new meaning to life. Habits are a matter of a pain and pleasure principle. So long as the gain is more than the pain we continue with the habit. But if the pain exceeds the gain we drop it. Smoking may be the example of it.
Behavioral Habits

**CONCLUSION**

Physical education having tremendous command and enlightenment on activities of human motion also contributes a lot in making habits with positive way of thinking. A saying “There is no other alternative to character building other than play”. A play is the main part of physical educational wings. The observational study is also as part of physical education helps the human being to stay with good character.

**REFERENCES**


“THE EFFECT OF MEDICINE BALL EXERCISE FOR DEVELOPMENT OF ACCURACY IN PASSING ABILITY AMONG GIRLS BASKETBALL PLAYERS”

By

C. KUMUDHINI DEVI

INTRODUCTION

Basketball

Basketball is a sport played by two teams of five players on a rectangular court. The objective is to shoot a ball through a hoop 18 inches (46 cm) in diameter and 10 feet (3.0 m) high mounted to a backboard at each end. Basketball is one of the world’s most popular and widely viewed sports. A team can score a field goal by shooting the ball through the basket during regular play. A field goal scores two points for the shooting team if a player is touching or closer to the basket than the three-point line, and three points (known commonly as a 3 pointer or three) if the player is behind the three-point line. The team with the most points at the end of the game wins, but additional time (overtime) may be issued when the game ends with a draw. The ball can be advanced on the court by bouncing it while walking or running or throwing it to a team mate. It is a
violation to move without dribbling the ball, to carry it, or to hold the ball with both hands then resume dribbling.

METHODOLOGY:

Aim:
The Aim of the study was to find out the impact of medicine ball exercise on the development of accuracy of passing ability of basketball players.

Sample:
30 girl's students were selected as subject from Hyderabad district for the study.

Test Administration

Passing:
The subject was allowed to the area of restraining line, which is distance of form the wall and target is rectangle with 71/2 meters outer most, 5 meters second and the inner most is 2.5 meters and its width 5 meters 6.25 meters 2.50 meters is the inner most rectangle and the height is 3 mts above from the floor. The subject was asked to pass with the standing position two hand chest pass. The subject is allowed for two trails. The subject should not cross the line.

Two Hand Chest Pass
The subject was allowed to take either parallel or diagonal stance. He held the ball with both hands fingers well spread on either side of the ball and kept in front of the chest, the elbows are close to the body, and knees slightly bent, eyes on the ring with well balanced position. From this position the subject raise the knees, and fully extend the hands, release the ball in front of the chest with fingers in one action. After release the follow through in the direction of target and palms facing outside.

The score is recorded out of 10 trails. Each converted basket is counted as 1 point.

Apparatus and Equipment
The apparatus required for the conduct of the present investigation are presented as follows:-

1. Medicine ball
2. Basketball
3. Score Sheet
4. Subjects

RESULTS AND DISCUSSION

T-Test
Paired Sample Statistic

<table>
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<th></th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
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Paired Sample Test

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<td>3.500</td>
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</tr>
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The above table shows that calculated value of t-ration of 4.6 is much higher than the table value required at 0.05 level of confidence.

This can be explained that there is a significance difference exists in respect of the medicine ball exercise among control and experimental groups.

CONCLUSION:

The conclusion of the study were derived the results from the previous chapter.

1. It has been clearly proved that the medicine ball exercise have improved the strength of the fore-arms, wrist, fingers and the passing ability.
2. As a result there is a significant improvement in the performance of the passing ability
3. It helps in the maintaining the flexibility and body structure.

REFERENCES:

LEADERSHIP AND MANAGEMENT

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Leadership involves influencing task objectives and strategies influencing commitment and compliance in task behavior to achieve these objectives, influencing group maintenance and identification and influencing the culture of organization. Leadership is an ability to get men to do what they don’t like to do and like it.

- Leadership is not gender specific
- Leadership is nurtures with age and experience
- Leadership can be developed through mentoring and training

Leadership as a Process:

- First, the processes involved are such things as influence, exemplary behavior and persuasion.
- Secondly, it involves interaction between actors who are both leaders and followers.
- Thirdly, the nature of interaction is affected by the situation in which it takes place. For example, the interaction between a commander and troops on the battlefield is different in important respects from the interaction between a team leader and a group of scientists in a laboratory.
- Finally, the process has various outcomes – most obviously the achievement of goals, but also intermediate outcomes such as the commitment of individuals to such goals, the enhancement of group cohesion and the reinforcement or change of organizational culture.

Understanding Leadership: People change, Situation change. So, should the leadership practices. Leaders are not just about management theory where situation do not largely change and mostly remain the same. Thus, u can not just harp on performance graphs and blame people for the change in trends. When situations are beyond influence, you need to make sure that the sailing is smooth when it comes to the productivity and performance of the team.
Leadership – “The process of influencing the activities of an individual or a group in efforts towards the achievement of goals in a given situation”. The source of influence may be formal or informal. It emerges from within a group as well as being formally appointed.

Leaders perform various roles such as planning and implementing, evaluating, monitoring, controlling, motivating, managing conflicts, organizing task groups, mobilizing human and financial resource and above all, setting an example to the group.

Leadership is sometimes viewed as headship as in a formal position such as that of chairperson, director or politician. A person who lacks a leadership may still be appointed as leadership. In due course, this person may be replaced by the new leader if he/ she does not to exercise the functions of leadership in such a away as to satisfy the needs of the group or the community.

Spheres of influence: In our society different leader influence different spheres of activity. Some will be opinion-leader on only one topic (monomorphic leaders); other will be opinion-leaders as a variety of topics (polymorphic leaders). It is important to understand in which area of knowledge an individual commands trust, respect and credibility.

Another facet of influence is that of its geographical extent. A leader may be influential at a district, shire, region, state, national or even international level. In other words the influence can be specific to a topic or to a geographic region.

Today, leadership is on the agenda in a big way. Books on the subject are streaming on to the market, top industrialists are hailed as great leaders alongside the great military and political leaders of the age, and leadership ‘gurus’ have emerged from academic obscurity. Management is perfectly adequate when things are routine and predictable; but when the organization hits turbulence and uncertainty, leadership is called for.

Seven attributes of leadership:

- Technical competency
- Conceptual skill
- Track record
- People skills
- Taste
- Judgment
- Character

Special trait of Leadership

The trait approach basically states that you either have it or you don’t, and the right person will be selected to fill formal positions. Some behavioral scientists however, have focused more on the behavior of effective leaders. May be there is something unique about leadership behavior; example is it more democratic than autocratic? This approach has been seen as more useful than the trait theory as it may provide more definitive answers on effective leadership, and suggests that people can be trained as leaders.

Five myths surrounding leadership:

- Leadership is a rare skill
Leaders are born, not made. Not so
Leaders are charismatic
Leadership exists only at the top of the organization
The leader controls and directs. Again, not so.

Leadership qualities:

- The ability to build effective teams
- The ability to listen
- The capability to make decisions on his own
- The ability to retain good people
- The ability to surround himself with good people.

Leadership dependent or contingent on many factors:

The Styles and Roles Approach: This approach analyses the leadership roles and behavioral styles of successful leaders. It acknowledges that group situations are often different, and emphasizes the need for flexibility in styles and roles. A person must play many roles and employ different styles in order to be an effective leader.

The Activator: When a person plays the part of an activator, the chosen behavior style is active and flexible. He is interested in involving other members of the group in a problem or situation and shares the decision-making process, operating on the principle that “People support what they help create”.

The Controller: When a leader plays this role, the source of power comes from rewards and punishments. He attempts to frighten the group into action and the leadership behavior is rigid but active.

The Martyr: In this role, the leader attempts to induce guilt feelings in the followers. Martyrs try to impose their own values and policies on everyone.

The Cacalier: In this role, the leader wins group support through fun and games. The behavioral style varies between active and passive and has too much flexibility.

The Abdicator: The abdicator avoids responsibility, postpones action, takes no risks, and often with draws from the group. The style is passive and usually rigid, but it can be flexible on occasions.

STRESS AND GENDER – COPING MECHANISM

Ms. R. Rajeswari,
Assistant Professor,
Stress is defined as a perturbation of the body’s homeostasis. The common indices of stress include changes in: (i) Biochemical parameters such as epinephrine and adrenal steroids, (ii) Physiological parameters such as heart rate and blood pressure and (iii) Behavioral effects such as anxiety, fear and tension. In essence, stress is an umbrella term that encompasses physical trauma, strenuous exercise, metabolic disturbances and anxiety as they produce challenges to the body’s homeostasis. The wear and tear that stressors subject our body too is termed as stress.

Stress is how people react to demands placed on them, and arises when there is worry about one’s capacity to cope. Seventy-five to 90 percent of adult visits to primary care physicians are for stress-related problems. Stress occurs when you are incapable of handling a given situation. For instance, for soldiers constantly at the border, the situation is no longer so stressful. But for others, it would be. Stress is an agitated mind, a state that’s caused by unfulfilled desire. Stress has nothing to do with an external situation.

Primary Causes: Although the causes of stress are myriad, we could loosely categorize these into common and uncommon stressors. Common stressors comprise disease, academic stress, marital discord, separation or divorce, career stress, bereavement and unemployment. The uncommon ones include overcrowding, commuting, sleep deprivation, shifts, malnutrition, drug abuse, phobias, excessive exercise, noise pollution, etc.

Insidious Effects: Stress can be the culprit in palpitations, heart attacks, migraine and tension headaches, eating disorders, ulcers, irritable bowel syndrome, colitis, diabetes, backache, chronic fatigue syndrome, dermatitis, allergies, colds and coughs, asthma, insomnia, stammering, phobias, depression, premature aging…. The list is endless.

Stress can be subdivided into constructive stress and destructive stress: The former is positive and a good motivator. It increases productivity and efficiency, besides providing stimulation. Destructive stress is counterproductive and detrimental to both psyche and body. Needless to say, stress affects a negative person’s performance in a well-defined manner. This effect is referred to as the Yerkes-Dodson law, which states that as arousal increases, performance improves, and with further increase in arousal, performance drops. Stress also affects their behavior by boosting the activity level. Besides, the individual attempts to engage in coping behavior.

Stress and Gender: Does stress tend to affect the male more than the female? Opinions vary, since there are differentiating factors between the sexes. AU parameters being equal, however, the preponderant view is that women are more adept at handling stress, thanks to better coping mechanisms.

Females handle stressors better than man do, opines – Dr.Chugh.

Ex-journalist Anandi Iyer echoes similar sentiments: “Women tend to have more stress because they have to manage two worlds, home and career. So they are stretched and
stressed a little more. But women manage to balance both worlds and have more tenacity. Men tend to flap, while women deal with stress more rationally.”

Malvika Joshi, a general manager at Fibcom India, thinks otherwise: “I feel men handle stress equally well as women. Men are more composed and don’t show stress. Women show it.” But Janki Chopra perceives no gender benders: “Whoever has a mind that’s not within control will have stress.

Coping strategies: Understanding stress-causing attitudes is crucial to determining the coping mechanisms to use. Perfectionism, idealism and control could be major causes of stress not only for an individual but also for people around him. It is imperative to replace a stress-building attitude with a stress-busting one.

If you constantly seek to control the situation and achieve a ‘perfect ten’, don’t. Delegate tasks to subordinates. Strive for excellence, not perfection. Excellence is a positive aspiration. Except in a high-perception industry, perfectionism can be a very negative attribute that induces stress in oneself and others.

A positive attitude can be dramatically reduce stress and transform an individual’s life. Redefine priorities, reassess abilities and potential, have realistic and flexible expectations, regular exercise, a healthy lifestyle and a balanced diet.

According to Joe Rodrigues, the Director of Breakthrough Communication Services in Mumbai: “The pillars of stress management are meditation, physical exercise and proper eating habits.” In daily life, people use two kinds of coping strategies – positive or negative. Positive coping includes time management, proper nutrition, healthy relationships and social support, regular exercise, recreational activities, sufficient sleep, vacations, meditation, relaxation techniques, a sense of humor, auto-suggestion, self-hypnosis, creative visualization, massage and yoga, to name a few. Negative coping includes smoking, drinking, drugs, food, tranquilizer and stimulants like tea and coffee.

At the fag end of this piece, we wouldn’t labor the point as to which strategies a reader should use. The choice is yours. And if making choices is a stressful activity for you, learn to view things backwards.

Remember: STRESSED spelt backwards is DESSERTS! Happy distressing!

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A COMPARATIVE STUDY OF SPEED AND ENDURANCE AMONG NET BALL AND BASKET BALL PLAYERS OF OSMANIA UNIVERSITY
Deepika  
Assistant Professor (C), University College of Women’s, Koti

ABSTRACT:
Speed and Endurance are very important physical ability for performance in Net Ball and Basket Ball. Netball is very similar to basketball, except you do not dribble the ball and you can only take one step once you’ve received it. The purpose of the present study to compare the speed and endurance among Net ball and Basket Ball Players. The sample for the present study consists of 40 Male Net Ball and Basket Ball Players of Osmania University out of which 20 are Net ball players and 20 are Basket Ball players. The 30 Meters Run for Speed and 12 Minute Run Cooper Test for endurance is used to assess the results. This study shows that Basket Ball Players are having good speed and Net Ball Players are having the good aerobic endurance. Basket Ball Players performed very well in 30 Meters Run due to good speed requires in basket ball game and Net Ball Players are shown good in 12 min run because they are playing the netball game of four quarters of fifteen minutes each quarter. Net Ball is heavily intermittent meaning its involves physical events expressing maximal exertion short distance, speed, agility, explosive power and endurance. Basket Ball requires high speed, super agility and enormous endurance.

Key Words:
Net Ball, basket ball, intermittent, speed, endurance etc.

Aerobic Endurance is the amount of oxygen intake during exercise. Aerobic Endurance is the time which you can exercise, without producing lactic acid in your muscles. During aerobic (with oxygen) work, the body is working at a level that the demands for oxygen and fuel can be meet by the body’s intake. The only waste products formed are carbon-dioxide and water which are removed by sweating and breathing. Aerobic exercise is physical exercise of relatively low intensity and long duration, which depends primarily on the aerobic energy system. Aerobic means “with oxygen”, and refers to the use of oxygen in the body’s metabolic or energy – generating process. Many types of exercise are aerobic, and by definition are performed at moderate levels of intensity for extended periods of time.

Speed is the quickness of movement of a limb, whether this is the legs of a runner or the arm of the shot putter. Speed is an integral part of every sport and can be expressed as any one of, or combination of, the following: maximum speed, elastic strength (power) and speed endurance.

Basketball is a sport played by two teams of five players on a rectangular court. The objective is to shoot a ball through a hoop 18 inches (46 cm) in diameter and 10 feet (3.0 m) high
mounted to a backboard at each end. Basketball is one of the world's most popular and widely viewed sports. A team can score a field goal by shooting the ball through the basket during regular play. A field goal scores two points for the shooting team if a player is touching or closer to the basket than the three-point line, and three points (known commonly as a 3 pointer or three) if the player is behind the three-point line. The team with the most points at the end of the game wins, but additional time (overtime) may be issued when the game ends with a draw. The ball can be advanced on the court by bouncing it while walking or running or throwing it to a team mate. It is a violation to move without dribbling the ball, to carry it, or to hold the ball with both hands then resume dribbling. Violations are called "fouls".

Netball is one of many sports that developed its unique form and structure from another, transplanted sport—in this case, from the United States to Great Britain—and then, as a result of that move, evolving into a significantly different sport. Netball was introduced to England in 1895 as the indoor game of basketball, which it greatly resembles, although a staccato game and a sport of stop, start, catch, and shoot compared to the all-action fluidity of basketball.Netball is an international sport, played by two teams of seven players and based on throwing and catching. Traditionally it is played by women but mixed and men's netball is becoming increasingly popular. The game consists of four quarters of 15 minutes each, with an interval of 3 minutes between the first/second and third/fourth quarters and an interval of 5 minutes at half time. Teams change end each quarter.

Purpose of the study:
The purpose of the present study to compare the speed and endurance among Netball and Basket Ball Players.

METHODOLOGY:
To find out the Aerobic Endurance and Speed between Male Net Ball and Male Basket Ball Players. The sample for present study consists of 20 Male Net Ball Players and 20 Male Basket Ball Players of Osmania University who has taken part in the O.U. Inter College sports and games during the year 2012-13.

12 Min. Run Cooper Test. The 12 Minute Cooper Test is used for collection of Data. The Cooper test is a test of Aerobic Endurance. It was designed by Kenneth H. Cooper in 1968 for US military used in the original form; the point of the test is to run as far as possible within 12 minutes.

30 M Run: The objective of this test is to monitor the development of the athlete's ability to effectively and efficiently build up acceleration, from a standing start or from starting blocks, to maximum speed. This test requires the athlete to sprint as fast as possible over 30 metres. The athlete warms up for 10 minutes. The assistant marks out a 30 metre straight section with cones. The athlete starts in their own time and sprints as fast as possible over the 30 metres. The assistant starts...
the stopwatch on the athlete’s 1st foot strike after starting and stopping the stopwatch as the athlete’s torso crosses the finishing line. The test is conducted 3 times. The assistant uses the fastest recorded time to assess the athlete’s performance.

**Results:**

This study shows that Basket Ball Players are having good speed and Net Ball Players are having the good aerobic endurance. Basket Ball Players performed very well in 30 Meters Run due to good speed requires in basket ball game and Net Ball Players are shown good in 12 min run because they are playing the netball game of four quarters of fifteen minutes each quarter.

**DISCUSSION:**

The Table No.1 showing the Mean, S.D, Standard Error, t-ratio of Net Ball Players and Basket Ball Players in 30 M Run Test.

<table>
<thead>
<tr>
<th>Results of 30 M Run Test</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Ball Players</td>
<td>20</td>
<td>4.50</td>
<td>0.292</td>
<td>0.653</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basket Ball Players</td>
<td>20</td>
<td>3.36</td>
<td>0.259</td>
<td>0.580</td>
<td>-13.067</td>
<td>38.00</td>
<td>.000</td>
</tr>
</tbody>
</table>

The Mean Score of Basket ball Players is 3.36 compare to Net Ball Players Mean Score of 4.50. That Means Basket Ball Players are having good speed compare to Net Ball Players.

The Table No.2 showing the Mean, S.D, Standard Error, t-ratio of Net Ball Players and Basket Ball Players in Cooper Test.

<table>
<thead>
<tr>
<th>Results of 12 min Cooper Test</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Ball Players</td>
<td>20</td>
<td>3086.500</td>
<td>140.190</td>
<td>25.595</td>
<td>10.197</td>
<td>38.00</td>
<td>.000</td>
</tr>
<tr>
<td>Basket Ball Players</td>
<td>20</td>
<td>2645.833</td>
<td>190.729</td>
<td>34.822</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Net ball Players mean performance in 12 Min cooper test is 3086.500 and Basket ball Players mean performance in 12 Min cooper test is 2645.833. The netball players are having the better endurance i.e.3086.500 than Basket Ball players is 2645.833.
Conclusion:
It is concluded that Basket Ball Players are having good speed and Net ball players are having the good endurance. Both this motor qualities are compulsory for both players to excel in their performance. Hence all the condition programme for improvement of motor qualities are included in the coaching programme of both the players.

RECOMMENDATIONS:
Similar studies can be conducted on other sports and games. The coaches must include the Physical Condition Programmes to improve the motor qualities of sports persons.

Reference:
Brianmac Sports Coach

INVLUENCE OF SPORTS ON THE BEHAVIOR OF PRISONERS

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   (Rural) Dept of
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   Services and
   Welfare of Street
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   Telangana State

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ABSTRACT

After the reviewing the research and after going through the opinion given by the experts it was felt that Sports will have positive effects on the behaviour of the prisoners.
Anxiety and aggression are very important aspects of behaviour, which are connected to criminal behaviour. Sports have the effects of reducing anxiety through the relaxation, they provide and the physical energy spent on Sports activity may reduced the aggressive behaviour too.

INTRODUCTION

The dawn of civilization has seen man indulging in physical endeavours. Nature has also given man ample opportunities to exhibit his physical prowess, when he was a fruit gatherer in the early stage and thereafter inventing simple tools. A hunter braving himself against ferocious wild beast. God has endowed him with perfect physique which enabled him to perform the acts of hunting for his very existence. His daily chores kept him engaged in intense physical work which gave abundant physical exercise. The intake of food which was very coarse in nature made his system work in such manner which bestowed on him sound health.

As the time passed by man became most civilised, which gave him insight to attain proficiency in education and he acquired knowledge of various types' which sharpened his intelligence. Due to the most important invention, the steam engine dawned industrial revolution which changed the entire complex of the human life. People deserted the villages and started living in cities due to the compulsion of their jobs. In the factories they were getting better remuneration which resulted in the crowding of the people in cities. Moreover after the industrial revolution the machine did more work than the muscle used to do. As a result the body development of many people was far below the standard conditions. Hence the need for physical fitness was felt very badly and there emerged the concept physical fitness. It was felt that strength, balance, agility, Posture, endurance, speed and accuracy should be paid enough attention to. Exercise does play a vital role in physical fitness but another things like nutrition, sleep, rest and good health habits are also important. That is the reason why emphasis on learning of good habits and having opportunities of sports activities is important. Sport have influenced many spheres and even in the prison it will have great impact on the behaviour pattern of the prisoners.

When the prisoners involve themselves in sports they may develop a healthy body which leads to sound mind. The behaviour of the prisoners will be influenced by participating in sports and due to the sense of achievement and feeling of relaxation, they may never dream of escaping from the prisons. Active participation in the sports will make them so tired hungry that they eat well and sleep soundly to awake completely refreshed. This will strongly influence whatever work they are doing and will modify their day to day activities.

OPINION OF THE EXPERTS:
The investigator had an opportunity to interview personally with Mr. M.R. Ahmed, Deputy Inspector General of Prison, A.P. on 2.2.1997 and Mr. Jaidev Sarangi, D.I.G. of Tihar Prison on 3.3.1997. They both have agreed fully with the Mulla - Committee report (All India Jail Reforms 1980-83) and felt that Sports will be a boon to the prisoners.

Mr. M.R. Ahmed D.I.G. Jails, agrees fully with Mulla Committee recommendation and feels that sports will be a boon to the prisoners. The D.I.G. of Tihar Jails also agreed with the expression of Mr. M.R. Ahmed.

Dr. Kiran Bedi, former Inspector General of Tihar Jail feels that sports will release the mental tension and stress with which most of the prisoners suffer. She said that there is no other go but encourage sports as it leads to physical health which in turn creates mental health, which is a must for the prisoners. According to her the sports activity will channelize the energy of prisoners to a constructive purpose. She feels that the recommendation of Mulla Committee were not implemented due to sheer lethargy of the Government. If the recommendations were to be implemented, the scenario would have been different for the last twenty years.

Shri K.V. Ramana Chary I.A.S. Special Commissioner, Youth Services Vice Chairman / Managing Director Sports Authority of Andhra Pradesh has strongly advocated that the sports activity for the prisoners will influence the behavioural pattern of prisoners which will keep them mentally and physically alert and will arouse positive, constructive, and concrete thinking towards life, family and society.

While taking an interview with the prisoners of Agra Central Jail, I came to know that when they were participating in the Sports week starting from Second October they were involved in sports activity to such an extent that they never thought of their families and hence the idea of escaping from Jail never came to their mind as they were engrossed in sports activity. The Superintendent of Central Jail Agra also feels that Sports and Games will go a long way in keeping the prisoners physically and mentally fit.

**CONCLUSION**

In conclusion, we can say with conviction that "Sports mean recreational competitive activity involving a degree of physical exertion which invariably leads to the overall development of the human body and mind and that prisoners are no exception to it."

Hence we see that sports will have impact upon the behaviour pattern of the prisoners which has also been advocated by All India Committee on Jail reforms 1980-83 Vo.1 (Mulla Committee Report) in the following words. "Every Jail and allied institution should have Annual Sports Meets, Inter Institution and Inter State Sports meet. 3 of Prisoners should also be organised. The Department of Jails and correctional services should maintain close liaison with the Department of Sports and committees for recreational and cultural activities at the District and State Level. Such liaison will be useful in developing good public relations and in promoting healthy recreational and cultural activities in jails".
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THE EFFECT OF INTERVAL TRAINING FOR DEVELOPMENT IN AEROBIC ENDURANCE AMONG OSMANIA UNIVERSITY CROSS COUNTRY RUNNERS

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ABSTRACT

Cross country running is a sport in which teams and individuals run a race on open-air courses over natural terrain. The course, typically 4–12 kilometers long, may include surfaces of grass, and earth, pass through woodlands and open country, and include hills, flat ground and sometimes gravel road. It is both an individual and a team sport; runners are judged on individual times and teams by a points-scoring method. Both men and women of all ages compete in cross country, which usually takes place during autumn and winter, and can include weather conditions of rain, sleet, snow or hail, and a wide range of temperatures. The objective of study

The study is to determine the effect of interval training for development in aerobic endurance among Osmania University cross country runners. The hypothesis for the study there will not be any significant effect of interval training for development in aerobic endurance among Osmania University cross country runners. The table shows the significance between Pre-test and post –test of cross country runners in relation to their Endurance. The mean value of pre-test was 2132, standard deviation was 224.65 and the mean value of post-test was 1921 and standard deviation was 276.52. The obtained t-ratio was 4.01, which was found to be significant at 0.001 levels. Hence it is concluded that there is a slight significance difference was found between pre- test and post- test of cross country runners in relation to their cooper test (endurance) showed in the table. In this study all physical fitness involve some level of cardiovascular support, cardiovascular endurance typically refers to the ability of a person to perform activities that raise the heart to a training level and maintain that level for a sustained period of time. Endurance may also refer to the ability of the muscle to do repeated work without fatigue. It is also one of the five components of physical fitness.

Key words: runners, Fitness, woodlands, cross country
INTRODUCTION

Cross country running is a sport in which teams and individuals run a race on open-air courses over natural terrain. The course, typically 4–12 kilometers long, may include surfaces of grass, and earth, pass through woodlands and open country, and include hills, flat ground and sometimes gravel road. It is both an individual and a team sport; runners are judged on individual times and teams by a points-scoring method. Both men and women of all ages compete in cross country, which usually takes place during autumn and winter, and can include weather conditions of rain, sleet, snow or hail, and a wide range of temperatures.

Cross country running is one of the disciplines under the umbrella sport of athletics, and is a natural terrain version of long-distance track and road running. Although open-air running competitions are pre-historic, the rules and traditions of cross country racing emerged in Britain. The English championship became the first national competition in 1876 and the International Cross Country Championships was held for the first time in 1903. Since 1973 the foremost elite competition has been the IAAF World Cross Country Championships

Interval training is a type of discontinuous physical training that involves a series of low- to high-intensity exercise workouts interspersed with rest or relief periods. The high-intensity periods are typically at or close to anaerobic exercise, while the recovery periods involve activity of lower intensity. Interval training can be described as short periods of work followed by rest. The main aim is to improve speed and cardiovascular fitness.

Interval training can refer to organization of any cardiovascular workout (e.g., cycling, running, rowing, etc.), and is prominent in training routines for many sports. It is a technique particularly employed by runners, but athletes in many disciplines use this type of training.

OBJECTIVE OF THE STUDY

The study is to determine the effect of interval training for development in aerobic endurance among Osmania University cross country runners

SIGNIFICANCE OF THE STUDY:

The study investigates the effect of interval training for development in aerobic endurance among Osmania University cross country runners. The findings of the study may provide guidance to physical education teachers and coaches to prepare training schedules.

HYPOTHESIS
There will not be any significant effect of interval training for development in aerobic endurance among Osmania University cross country runners.

**SAMPLE OF THE STUDY:**

The study was formulated based on the simple random sampling. The samples were collected from the 30 cross country runners of Osmania University. Cross country runners are in the age group of 18 – 20 years from Osmania University, Hyderabad was considered.

**SHOWING THE SAMPLE OF THE STUDY**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Category of the subjects</th>
<th>Number of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cross country runners of Osmania University</td>
<td>30</td>
</tr>
</tbody>
</table>

**TOOLS USED:**

The present study under investigation selected the following test performed on Cross country runners of Osmania University

- Physical Fitness
- Endurance (Cooper Test 12 Minute Run / Walk)

**DATA COLLECTION PROCEDURE**

The subjects of the study were in the age group between 18 to 20 years, 30 cross country runners of Osmania University, Hyderabad were considered. The study is delimited for the Osmania University. 30 cross country runners of Osmania University have been selected for the study and they have undergone Interval training exercises for 3 weeks. The pre-test was taken, and then the post test was administrated after the systematic training of Interval training exercises for the cross country runners. The subjects were administrated Physical Fitness i.e. Endurance (Cooper Test 12 Minute Run / Walk).

**RESULTS AND DISCUSSIONS:**

Table: 1 showing that the significant difference between Ranga Reddy District and Hyderabad District Football Players in relation to their Cooper Test 12 Minute Run (Endurance) are presented.
Sl. No. | Subjects     | N  | Mean | SD    | df  | t-value | p-value |
-------|--------------|----|------|-------|-----|---------|---------|
1      | Pre – Test   | 25 | 2132 | 224.65| 48  | 2.01    | 0.001   |
2      | Post - Test  | 25 | 1921 | 276.52| 48  | 2.01    | 0.001   |

**DISCUSSION:**

Table-1 and Graph-1 shows the mean, standard deviation, degrees of freedom, t-value and significance between Pre-test and post –test of cross country runners in relation to their Endurance. The mean value of pre-test was 2132, standard deviation was 224.65 and the mean value of post -test was 1921 and standard deviation was 276.52. The obtained t-ratio was 4.01, which was found to be significant at 0.001 levels.

**CONCLUSION**

Hence it is concluded that there is a slight significance difference was found between pre-test and post- test of cross country runners in relation to their cooper test (endurance) showed in the table. In this study all physical fitness involve some level of cardiovascular support, cardiovascular endurance typically refers to the ability of a person to perform activities that raise the heart to a training level and maintain that level for a sustained period of time Endurance may also refer to the ability of the muscle to do repeated work without fatigue. It is also one of the five components of physical fitness. They mostly agreed that physical fitness is very important and that you should be physically active in younger ages, because it will have a positive influence as you get older. Every source came to a conclusion that age affect fitness, and physical fitness benefits your life.

**References**

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**A STUDY ON WOMEN PHYSICAL FITNESS AMONG KABADDI PLAYERS & KHO- KHO PLAYERS AT WEST GODAVARI**

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**INTRODUCTION**
Physical fitness is a multifaceted continuum extending from birth to death, affected by physical activity. It ranges from optimal activities in all aspects of life through high and low levels of different physical fitness to serve disease and dysfunction. The ability to function efficiently and effectively is to enjoy leisure, to be healthy, to resist disease and to cope with emergency situations. Health related components of physical fitness include body composition, cardiovascular fitness, flexibility, muscular endurance and strength. Skill related components include agility, balance, coordination, power, reaction time and speed.

The relative importance of each of the components varies for each sport. Physical fitness is not only sport specific it may also be position specific, combined good health and physical development. The object of any program of physical fitness is to maximize any individual’s health, strength, endurance and skill relative to age, sex, body build and physiology. These ends can only be realized through conscientious regulation of exercise, rest, diet and periodic medical examinations. Exercise should be regular and vigorous, but begun slowly and only gradually increased in strenuousness. Popular exercise methods include jogging, cycling and the use of body-building machines. It is more important that periods of sleep be regular and restful than that they extend any fixed number of hours.

**SIGNIFICANCE OF THE STUDY:**
The study is to determine the women physical fitness of the Kabaddi players and Kho-Kho players of Osmania University.

**HYPOTHESES**

6. There may not be any significant difference between women Kabaddi players and women Kho-Kho players at West Godavari in relation to their speed (50M run).

7. There may not be any significant difference between women Kabaddi players and women Kho-Kho players at West Godavari in relation to their endurance (Cooper Test - 12 minutes run/walk).

**SAMPLE OF THE STUDY:**
The study was formulated based on the simple random sampling. The samples were collected from the Women 50 Kabaddi players and Women 50 Kho-Kho players in the age group of 18 – 22 years from West Godavari.

Showing the Sample of the Study

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Category of the subjects</th>
<th>Number of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kabaddi players</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>Kho-Kho players</td>
<td>50</td>
</tr>
</tbody>
</table>

**TOOLS USED:**
The present study under investigation selected the following physical fitness test performed are

- Physical Fitness
  Speed (50M Run), Endurance (Cooper Test 12 Minute Run / walk).

**DATA COLLECTION PROCEDURE:**

The study under report focuses the women physical fitness, basis of team game players, which is the order of the day in everlasting sports scenario. The study was formulated based on the simple random sampling. The samples were collected from the Women 50 Basketball players and Women 50 Kho- Kho players in West Godavari in the age group of 18-22 years were considered. Physical fitness test was administrated on Kabaddi and Kho-Kho players i.e. the speed (50m run) and endurance (Cooper Test - 12 minutes run/walk).

**DESIGN OF THE STUDY:**

The study has focused the following experimental design.
RESULTS AND DISCUSSIONS

The results pertaining to the study are present in the following,

Table – 1 Showing the Mean Values, SD, df, ‘t’ value and p-value between Kabaddi players and Kho-Kho players of West Godavari Players in relation to their speed (50m run).

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Subjects</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>‘t’ ratio</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kabaddi Players</td>
<td>50</td>
<td>8.26</td>
<td>0.54</td>
<td>2.601</td>
<td>0.01</td>
</tr>
<tr>
<td>2.</td>
<td>Kho - Kho Players</td>
<td>50</td>
<td>6.97</td>
<td>0.39</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table – 2 Showing the Mean Values, SD, df,’t’ value and p-value between Kabaddi players and Kho-Kho players of West Godavari Players in relation to their Endurance (cooper test).

Endurance (Cooper Test - 12 minutes run/walk)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Subjects</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>‘t’ ratio</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kabaddi Players</td>
<td>50</td>
<td>2232</td>
<td>278.76</td>
<td>4.01</td>
<td>0.01</td>
</tr>
<tr>
<td>2.</td>
<td>Kho - Kho Players</td>
<td>50</td>
<td>2468</td>
<td>224.62</td>
<td>2.601</td>
<td>0.01</td>
</tr>
</tbody>
</table>

CONCLUSION:

The study under report has scientifically examined the various factors which influence the power game, especially the women physical fitness variables pertinent to speed and endurance. A trained individual is in a better state of physical fitness than the person who follows a sedentary, inactive life. When two persons, one trained and one untrained or approximately the same build are performing the same amount of moderate muscular work, evidence indicates that the trained individual has a lower oxygen consumption, lower pulse...
rate, larger stroke volume poor heartbeat, less in blood pressure, greater red and white blood
cell counts, slower rate of breathing, lower rate of lactic acid formation, and a faster return to
normal of blood pressure and heart rate.

The heart becomes more efficient and is able to circulate more blood while bearing less
frequently. Furthermore, in work of a strenuous nature that cannot be performed for any great
period of time the trained individuals has greater endurance, a capacity for higher oxygen
consumption, and a faster return to normal of heart rate and blood pressure. Training results
in a more efficient organism. Since a greater efficiency of heart action enables a larger flow
of blood to reach the muscles and thus ensure an increased supply of fuel and oxygen, more
work is performed at less cost; improvements in strength, power, neuromuscular coordination,
and endurance occur, coordination and timing of movements as better, and an improved state
of physical fitness results. Physical fitness is a multifaceted continuum extending from birth
to death, affected by physical activity. It ranges from optimal activities in all aspects of life
through high and low levels of different physical fitness to serve disease and dysfunction.

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  Differential among Indian Men and Women Basketball and Volleyball, Teams prior to SAG
**Anitha**

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**Associate Professor, Department of Physical Education, Osmania University

INTRODUCTION

Physical activity, fitness, and exercise are critically important for the health and well-being of people of all ages. Research has demonstrated that virtually all individuals can benefit from regular physical activity, whether they participate in vigorous exercise or some type of moderate health-enhancing physical activity. Even among frail and very old adults, mobility and functioning can be improved through physical activity. Therefore, physical fitness should be a priority for people of all ages in modern life. Physical activity has been shown to reduce the morbidity and mortality from many chronic diseases. Millions suffer from chronic illnesses that can be prevented or improved through regular physical activity.

The physiological and psychological rewards of being physically active are well established. The important benefits of exercise are extensive for health and modern life scenario.

- Enhancing function
- Maintaining reserve capacities
- Preventing disease
- Ameliorating the effects of age and chronic disease

It is well known that physical inactivity or a sedentary lifestyle is related to an increased risk of cardiovascular disease and other chronic disease states, such as hypertension, diabetes, obesity, osteoporosis and certain forms of cancer. The risks associated with physical activity must also be considered. The most common health problems that have been associated with physical activity are musculoskeletal injuries, which can occur with excessive amounts of activity or with suddenly beginning an activity for which the body is not conditioned. Much more serious associated health problems (i.e., myocardial infarction, sudden death) are also much rarer, occurring primarily among sedentary people with advanced atherosclerotic disease who engage in strenuous activity to which they are unaccustomed. Sedentary people, especially those with preexisting health conditions, who wish to increase their physical activity, should therefore gradually build up to the desired level of activity. Even among people who are regularly active, the risk of myocardial
infarction or sudden death is somewhat increased during physical exertion, but their overall risk of these outcomes is lower than that among people who are sedentary.

SIGNIFICANCE OF THE STUDY

The purpose of the study is to promote a sense of health and fitness, personal responsibility in being fit, and an appreciation of individual and group achievement. It provides them the opportunity to participate in activities that may be of ongoing interest to them throughout their health life.

Physical activity in health and risk of disease

Physical inactivity is recognized as a significant common and preventable risk factor for non communicable diseases, which account for almost 60% of global deaths and 43% of global burden of chronic disease. Maintaining regular physical activity helps avoid positive energy balance and obesity. Physical activity reduces the risk of developing heart disease, type II diabetes, osteoporosis, colon cancer, and may also play a protective role against breast cancer. Physical activity also plays a role in a person's well being by reducing stress, anxiety and feelings of depression in the individuals.

CARDIOVASCULAR DISEASE

Heart disease accounts for a third of all global deaths. Physical inactivity is linked to an increased risk of coronary heart disease, but only a minority of adults takes sufficient exercise to benefit health. The mechanism by which physical activity might help protect against coronary heart disease may involve effects on coagulation and thrombosis as well as an influence on lipoprotein metabolism. Individuals who frequently exercise often have a lower concentration of plasma fibrinogen. Physical activity may also produce a reduction in plasma triglycerides and an increase in HDL cholesterol (good cholesterol), and therefore a reduction in risk from developing coronary heart disease. Habitual physical activity also reduces the risk of arterial hypertension, particularly among those who are overweight, and therefore can be a useful adjunct with pharmacological treatment. Increased levels of aerobic exercise can also produce a reduction in both systolic and diastolic blood pressure.
CONCLUSION:

Hence, the recommendation of the study that everyone should accumulate 30 minutes or more of physical activity over the course of most days of the week is fully justified. However despite the health benefits of physical activity and the fact that it is potentially accessible to all, it is estimated that over 60% of the world population is not active enough.

Scientists and doctors have known for years that substantial benefits can be gained from regular physical activity. The expanding and strengthening evidence on the relationship between physical activity and health necessitates the focus of the study brings to this important public health challenge. Although the science of physical activity is a complex and still-developing field, we have today strong evidence to indicate that regular physical activity will provide clear and substantial health gains.

We must get serious about improving the health of the nation by affirming our commitment to healthy physical activity on all levels: personal, family, community, organizational, and national. Because physical activity is so directly related to preventing disease and premature death and to maintaining a high quality of life, we must accord it the same level of attention that we give other important public health practices that affect the entire nation. Physical activity thus joins the front ranks of essential health objectives, such as sound nutrition, and the prevention of adverse health effects of tobacco.

The effort to understand how to promote more active lifestyles is of great importance to the health of this nation. Although the study of physical activity determinants and interventions is at an early stage, effective programs to increase physical activity have been carried out in a variety of settings, such as schools, physicians’ offices, and worksites. Determining the most effective and cost-effective intervention approaches is a challenge for the future.

Finally, physical activity is only one of many everyday behaviors that affect health. In particular, nutritional habits are linked to some of the same aspects of health as physical activity, and the two may be related lifestyle characteristics. This study deals solely with physical activity to prevent disease and enhance the healthy lifestyle in promoting the modern life

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• Hamel "Heredity and Muscle Adaption to Endurance Training "Medicine and Science in Sports and Exercise". P. 16
EFFECT OF PRANAYAMA EXERCISES ON CARDIO VASCULAR ENDURANCE OF HIGH SCHOOL GIRLS AT HYDERABAD PUBLIC SCHOOL

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**Dr. K. Deepla

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**Associate Professor, Department of Physical Education, Osmania University.

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ABSTRACT

INTRODUCTION

Cardiovascular Endurance is the ability of the heart to provide oxygen to muscles during the physical activity for a prolonged period of time. Cardiovascular endurance is the most important aspect of fitness. It is basically how strong your heart is, which can potentially add years to your life. The heart is the most important muscle in the human body and if it is kept healthy then you can avoid numerous health problems. Another reason that cardiovascular endurance is important because your heart controls the oxygen flow to all your muscles, cardiovascular health has a direct impact on your performance, both endurance and strength wise.
SAMPLE & DATA COLLECTION PROCEDURE

50 basketball players have been selected for the study and they have undergone pranayama exercises for 45 days. Copper test (12 min walk/run) was administrated and the pre-test was taken, and then the post test was administrated after the systematic training of pranayama exercises for the basketball players.

ANALYSIS OF DATA

The results pertaining to the study are present in the following:

The table showing significant differences between Pre Test and Post Test of high school girls at Hyderabad public school in relation to their effect of Pranayama Exercises on Cardio-Vascular Endurance.

<table>
<thead>
<tr>
<th>SNo.</th>
<th>No. of Groups</th>
<th>subjects</th>
<th>Df</th>
<th>Mean</th>
<th>SD</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pre Test</td>
<td>50</td>
<td>98</td>
<td>2076.12</td>
<td>225.39</td>
<td>9.122</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>Post Test</td>
<td>50</td>
<td></td>
<td>2429.00</td>
<td>155.01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The effect of pranayama exercises has shown a greater variation on cardio vascular endurance among of high school girls at Hyderabad public school.

CONCLUSION

Hence, it is finally concluded that the Effect of Pranayama Exercises on Cardio Vascular Endurance have shown a positive impact among Pre-Test and Post-Test of Basketball Players. A player has to judge, to observe and act with rational 'think-and-act' manner. So the maxim "Healthy mind in a healthy body" assumes a touch of reality. In this way physical activity develops or at least involves intellectual activity and consequently brings about a communion between hand and head which elates the heart. This leads to the development of right and desirable habits resulting in the formation of socially useful and cheerful citizens.

Keywords: Pranayama Exercises, copper test, cardio vascular endurance

INTRODUCTION

Physical fitness is a multifaceted continuum extending from birth to death,
affected by physical activity; it ranges from optimal activities in all aspects of life through high and low levels of different physical fitness to severe disease and dysfunction.

The modern man depends mostly on the modern outfits for his daily routine, involving mainly his mental power to live an easygoing life. There has been a fall and deterioration in his physical health and capacities. The modern man need not toil like his forefathers for his daily life. So, he has become less vigorous and lethargic. Man’s basic pattern of movements is embodied in the physical fitness and fundamental skills. Most of the games played now days not only give enjoyment but also help to develop physical fitness and skills. Nature, being the first and foremost teacher, makes all educational philosophers and thinkers realize that play is an innate tendency and it, being the source of physical activity and expression of the bodily needs, has also an intellectual aspect as a self teaching and self-learning process.

*Pranayama* - the science of breath control, consist a series of exercises intended to meet these needs and to keep the body in vibrant health.

**CARDIOVASCULAR ENDURANCE**

Cardiovascular Endurance is the ability of the heart to provide oxygen to muscles during the physical activity for a prolonged period of time. Cardiovascular endurance is the most important aspect of fitness. It is basically how strong your heart is, which can potentially add years to your life. The heart is the most important muscle in the human body and if it is kept healthy then you can avoid numerous health problems. Another reason that cardiovascular endurance is important because your heart controls the oxygen flow to all your muscles, cardiovascular health has a direct impact on your performance, both endurance and strength wise.

The reason your cardio performance can be improved is because the heart is a muscle, and like all other muscles in the body if you keep working it it will adapt to the workload given. This allows us to have direct control of how healthy one of the most important systems in our body is. But keep in mind there are other factors that effect heart health, such as cholesterol, and blood pressure. Eating right and exercising will ensure that your heart becomes, and remains, healthy throughout your life.

**SIGNIFICANCE OF THE STUDY:**

The study investigates the difference between pre test and post test of cardiovascular endurance of high school girls at Hyderabad public school. The findings of the study may provide guidance to physical education teachers and coaches to prepare training schedules. It may further help the researchers to involve more number of degree colleges and university. The findings of the study may add to the quantum of knowledge in the area of sports and physical education. The findings of the study may help the parents to select suitable college for their children. It is hypothesized that the effects of pranayama exercises have shown better impact on the cardio vascular endurance of high school girls at Hyderabad public school.
DATA COLLECTION PROCEDURE

50 basket ball players have been selected for the study and they have undergone pranayama exercises for 45 days. Copper test (12 min walk/run) was administrated and the pre-test was taken, and then the post test was administrated after the systematic training of pranayama exercises for high school girls at Hyderabad public school.

RESULTS AND DISCUSSION

The results pertaining to the study are present in the following

The table showing significant differences between Pre Test and Post Test of high school girls at Hyderabad public school in relation to their effect of Pranayama Exercises on Cardio-Vascular Endurance.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>No. of Groups</th>
<th>subjects</th>
<th>Mean</th>
<th>SD</th>
<th>df</th>
<th>t-value</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Pre Test</td>
<td>50</td>
<td>2076.12</td>
<td>225.39</td>
<td>98</td>
<td>9.122</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>Post Test</td>
<td>50</td>
<td>2429.00</td>
<td>155.01</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The effect of pranayama exercises has shown a greater variation on cardio vascular endurance of high school girls at Hyderabad public school.

CONCLUSION:-

Hence, it is finally concluded that the Effect of Pranayama Exercises on Cardio Vascular Endurance have shown a positive impact among Pre-Test and Post-Test of Basketball Players. A player has to judge, to observe and act with rational 'think-and-act' manner. So the maxim "Healthy mind in a healthy body" assumes a touch of reality. In this way physical activity develops or at least involves intellectual activity and consequently brings about a communion between hand and head which elates the heart. This leads to the development of right and desirable habits resulting in the formation of socially useful and cheerful citizens.

In the present study the effect of Pranayama Exercises shows a better significant impact on the performance of the of high school girls at Hyderabad public school through the systematic training of physical fitness and Pranayama Exercises for the period of 45 days training, the player’s endurance has increased to their ability. One can improve his performance at the peak level through training methods.
and by Pranayama exercises. Therefore, the power of endurance training may be more beneficial to prepare the players according to the game. Cardio Vascular and metabolic specific determines on the Pranayama or meditation.

Keywords: Pranayama Exercises, copper test, cardio vascular endurance

REFERENCES:

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- Madanmohan, Kaviraja Udupa, Ananda Balayogi Bhavanani, Chetan Chinmaya Shatapathy and Ajit Sahai, modulation of cardio vascular response to exercise by yoga training, Department of Physiology, Department of Social and Preventive Medicine, Jawaharlal Institute of Post Graduate Medical Education & Research (JIPMER), Pondicherry, India
- Hamel “Heredity and Muscle Adoption to Endurance Training “Medicine and Science in Sports and Exercise”. P. 16

ANALYTICAL STUDY ON PSYCHOLOGICAL TRAITS OF OSMANIA UNIVERSITY & KAKATIYA UNIVERSITY KABADDI PLAYERS

Dr. T. Venkateshwalru

Physical Education Teacher
ZPSS, Wanaparthi, Warangal

INTRODUCTION

Sport psychology is a specialization within the brain psychology and kinesiology that seeks to understand psychological/mental factors that affect performance in sports, physical activity and exercise and apply these to enhance individual and team performance. It deals with increasing performance by managing emotions and minimizing the psychological effects of injury and poor performance. Some of the most important skills taught are goal setting, relaxation, visualization, self-talk, awareness and control, concentration, using rituals, attributions training and periodization. Sport psychology is the scientific study of people and their behaviours in sport. The main job of a sport psychologist is to recognize how participation in sport exercise and physical activity enhances a person's development.
Coach should give equal attention to both i.e. physically & mentally that is the ideal approach. It is the job of a coach to develop it and watch it flourish by combining physical and mental training with a great work ethic. The player and his team should be prepared mentally and physically to the best of its ability to increase the chance of success. It is important to talk about peak performance because this is what athletes are trying to achieve and what experts in the field of sports psychology are trying to achieve and what experts in the field of sports psychology are trying to help athletes and terms obtain. It's imperative to examine some of the universal characteristic of that best performance. This way it will have more control and awareness about these peak performances and they won’t seem as mysterious as they once might have.

Success in sports requires your mind and your body and as an athlete it is very important to have a clear mental picture of what it is you are striving for. By taking some time to think about peak performances you have had in the past, it can aid you in making sure they happen more often. As a sport psychologist is important to be aware of these characteristics so you can guide each one to help the athletes strengthen each area so they can achieve peak performances on a more consistent basis.

Psychology of sport means applying psychological theories and concepts to aspects of sport such as coaching and teaching. The sport psychologist uses psychological assessment techniques and intervention strategies in an effort to help individuals to achieve their optimal performance. While sport psychology is concerned with analyzing human behaviour in various types of sport settings, it focuses on the mental aspects of performance.

**SIGNIFICANCE OF THE STUDY**

The study investigates the existing difference between Osmania University and Kakatiya University Kabaddi players in relation to their psychological traits.

**OBJECTIVES OF THE STUDY**

The present study finds out the existing difference between psychological traits of Osmania University and Kakatiya University Kabaddi players. To find out the existing difference between Osmania University and Kakatiya University Kabaddi players in relation to their motivation. To find out the existing difference between Osmania University and Kakatiya University Kabaddi players in relation to their anxiety.

**Sample of the Study**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Category of the subjects</th>
<th>Number of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Osmania University volleyball Players</td>
<td>50</td>
</tr>
<tr>
<td>2.</td>
<td>Kakatiya University volleyball Players</td>
<td>50</td>
</tr>
</tbody>
</table>
DATA COLLECTION PROCEDURE

The subjects of the study were in the age group between 20 to 24 years, 50 Osmania University Kabaddi players and 50 Kakatiya University Kabaddi players were considered. The researcher has collected the data separately for Osmania University Kabaddi players and Kakatiya University Kabaddi players. The subjects were tested two categories of psychological traits i.e. motivation and anxiety. Sinha scale was adopted for opinionnaire used to measure motivation. Sport Competition Anxiety Test (SCAT) that was developed by Martens, Vealey, and Burton in 1990.

RESULTS AND DISCUSSION

The results pertaining to the study were present in the following:

The table showing significant differences between Osmania University & kakatiya University Kabaddi Players in relation to their Motivation.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Subjects</th>
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<th>Mean</th>
<th>S.D.</th>
<th>‘t’ ratio</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Osmania University</td>
<td>50</td>
<td>29.82</td>
<td>7.97</td>
<td>3.97</td>
<td>0.01</td>
</tr>
<tr>
<td>2.</td>
<td>kakatiya university</td>
<td>50</td>
<td>26.04</td>
<td>9.13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table showing significant differences between Osmania University & kakatiya University Kabaddi Players in relation to their Anxiety.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Subjects</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>‘t’ ratio</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Osmania University</td>
<td>50</td>
<td>15.00</td>
<td>6.98</td>
<td>2.28</td>
<td>0.05</td>
</tr>
<tr>
<td>2.</td>
<td>kakatiya university</td>
<td>50</td>
<td>16.80</td>
<td>7.95</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSION

The study under report has scientifically examined the various factors which influence the power game; the psychological variables like anxiety and motivation are
playing a significant role in the present game. The advanced game techniques have greatly influenced the psychological variables of the standard players. The results of the study will certainly contribute to the promotion and betterment of volleyball game not only in Andhra Pradesh but in India as well. However, the psychological variables like motivation, anxiety were recorded better results for Osmania university volleyball players.

In the present scenario the academic standards in volleyball game have been playing a significant role in the creeping performance of the game. The fluctuations noticed psychological variables will be attributed to the educational background of the volleyball players. But, the fact here was both players were well trained in all aspects due to their difference in exposure to various situations the results differ. By and large, the players exposed at higher levels of competition need to be fit physically, mentally and technically, so that the standards of the power game will remain at its best all the time at international level.

REFERENCES:

A STUDY ON ANTHROPOMETRIC MEASUREMENTS AND SELECTED MOTOR FITNESS COMPONENTS OF SCHOOL ATHLETES IN HYDERABAD

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*ZPHS, Manoharabad(v), Toopran(m), Medak ;

drpyvolleyball@gmail.com

ABSTRACT

Play is a voluntary activity or occupation executed within certain fixed limits of time and place, according to rules freely accepted and absolutely binding, having its aim in itself and accompanied by a feeling of tension, joy and consciousness that is “different” from “ordinary life”. Anthropometry simply means "measurement of people". The word is derived from the Greek ‘anthros’ meaning man, and ‘metron’ meaning measure. More formally it is the study of the size, shape and strength of the human body, including, mass, volumes, mobility, proportions, centers of gravity, and inertial properties of the whole body and body segments. The study would help to find out the significant relationship between jumpers, runners and throwers on motor fitness components. The study would give an additional knowledge to the area of research. The study would help the coaches and physical education teachers to find out the athletic jumpers, runners and throwers are better in the selected motor fitness components.
variables. The sample of the study was the school athlete’s age group ranging between 11 to 16 years from three types of athletes (jumpers, runners and throwers) the jumpers, runners and throwers consisting Hyderabad total of 100 are studying in Govt./ZPHS/ of Hyderabad. The subjects were randomly selected considering the factors such as height, weight, sitting height, arm length and leg length of the total sample this group was given the orientation of the Indiana motor fitness test like pull-ups, push-ups, vertical jump and standing broad jump were taken accordingly. A pioneer attempt was made in the area of Physical Education which focused on General Body Measurements [Weight, Height, and Sitting Height] and Motor Fitness components [Pull-ups, Push-ups, Vertical Jump, Standing Broad Jump]. The striking features of the study resulted into the final conclusion have clearly indicated that Throwers and Jumpers was showing a significant role in Motor Fitness components was showing highly significant effect on other motor fitness component [i.e., Weight]. With regard to Pull ups and Push-ups, as the results and discussions have clearly focused on drawing the final conclusions which was not found to be significant at 0.01 level of significance. Similarly, the study was scientifically proved that throwers and jumpers have shown a meagre impact on other variables.

INTRODUCTION

Play is a voluntary activity or occupation executed within certain fixed limits of time and place, according to rules freely accepted and absolutely binding, having its aim in itself and accompanied by a feeling of tension, joy and consciousness that is “different” from “ordinary life”. Anthropometry simply means "measurement of people". The word is derived from the Greek ‘anthros’ meaning man, and ‘metron’ meaning measure. More formally it is the study of the size, shape and strength of the human body, including, mass, volumes, mobility, proportions, centers of gravity, and inertial properties of the whole body and body segments.

Significance of the study

The study will help to identify the difference between motor fitness performances.

The study would help to find out the significant relationship between jumpers, runners and throwers on motor fitness components. The study would give an additional knowledge to the area of research. The study would help the coaches and physical education teachers to find out the athletic jumpers, runners and throwers are better in the selected motor fitness variables. The findings of the study by bringing forth adequate, inadequacies in Physical Education of schools in Hyderabad district. Specific contributions of the study for the development of physical education programmes would include the following areas. Relation of physical education programmes with the educational programmes. Fiscal management of the physical education programme.
HYPOTHESES:

Based on the review of literature discussed in chapter two and the theoretical framework developed in the present study, the following hypotheses have been formulated.

1. There might not be any significant difference between Runners and Throwers in relation to their Motor Fitness.
2. There might not be any significant difference between Runners and Jumpers in relation to their Motor Fitness.
3. There might not be any significant difference between Throwers and Jumpers in relation to their Motor Fitness.

DATA COLLECTION PROCEDURE:

The sample of the study was the school athlete’s age group ranging between 11 to 16 years from three types of athletes (jumpers, runners and throwers) the jumpers, runners and throwers consisting Hyderabad total of 100 are studying in Govt./ZPHS/ of Hyderabad. The subjects were randomly selected considering the factors such as height, weight, sitting height, arm length and leg length of the total sample this group was given the orientation of the Indiana motor fitness test like pull-ups, push-ups, vertical jump and standing broad jump were taken accordingly.

Results and Discussion

The table showing the significant difference between Runners and Throwers in relation to their Motor Fitness

<table>
<thead>
<tr>
<th>Activity</th>
<th>Sample</th>
<th>Mean</th>
<th>SD</th>
<th>‘t’</th>
<th>P. value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor fitness</td>
<td>Runners</td>
<td>100.90</td>
<td>11.76</td>
<td>1.88</td>
<td>0.061</td>
</tr>
<tr>
<td></td>
<td>Throwers</td>
<td>97.73</td>
<td>12.01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table showing the significant difference between Runners and Jumpers in relation to their Motor Fitness
<table>
<thead>
<tr>
<th>Activity</th>
<th>Sample</th>
<th>Mean</th>
<th>SD</th>
<th>‘t’</th>
<th>P. value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motor fitness</strong></td>
<td>Runners</td>
<td>100.90</td>
<td>11.76</td>
<td>-5.33</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Jumpers</td>
<td>112.06</td>
<td>17.28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table showing the significant difference between Throwers and Jumpers in relation to their Motor Fitness

<table>
<thead>
<tr>
<th>Activity</th>
<th>Sample</th>
<th>Mean</th>
<th>SD</th>
<th>‘t’</th>
<th>P. value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motor fitness</strong></td>
<td>Throwers</td>
<td>97.73</td>
<td>12.01</td>
<td>6.80</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Jumpers</td>
<td>112.06</td>
<td>17.28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSIONS:

Striking Features of the Research:

A pioneer attempt was made in the area of Physical Education which focused on General Body Measurements [Weight, Height, and Sitting Height] and Motor Fitness components [Pull-ups, Push-ups, Vertical Jump, Standing Broad Jump]. The striking features of the study resulted into the final conclusion have clearly indicated that Throwers and Jumpers was showing a significant role in Motor Fitness components was showing highly significant effect on other motor fitness component [i.e., Weight]. With regard to Pull ups and Push-ups, as the results and discussions have clearly focused on drawing the final conclusions which was not found to be significant at 0.01 level of significance. Similarly, the study was scientifically proved that throwers and jumpers have shown a meagre impact on other variables.

References-


A COMPARATIVE STUDY ON PHYSICAL FITNESS COMPONENTS BETWEEN HOCKEY AND KABADDI PLAYERS AT UNIVERSITY LEVELS

D. Hari
Prof. L.B. Rathod,
L. Shailaja

INTRODUCTION:

The world of games and sports has crossed many milestones scientific investigation into performance of sportsman has been playing an increasingly important role to action excellence of performance. Fitness is used to provide us with a untitled and total concept, conveying the idea of wholeness for a particular person with his particular experience of time and place. Physical fitness assist a Sportsman in learning specific skills from a solid base over which he can develop merit in the particular game he is involved. Sportsmen concentrate on the development of speed, strength, ability, flexibility, Endurance etc. as a part of preparation in their respective sports. Kabaddi is a very popular in their respective sports. Kabaddi is a very popular game and is a regular sport in Asian Games, Asian indoor Games and Asian Beach games.

The origin of Kabaddi poses infinite changes in the history of India scenario and the popularity of this game is a rural indigenous origin draw charms and identity for great performance about mix blend of human strength, sound mind, concrete spirit, decision making ability.

Hockey is a sport practiced around the world. The Hockey lies on the British Isles. Hockey is played on a rectangular field with goals at each end, contest of strength, speed, Endurance. Very essential part of this sport. It can be perfected through practice and various work out and balanced diet, which is the prime demand of this game. Agility, strength, good ground work. The objective of this game is to knock out opponent by employing a fair Fighting strategy rather than simple brutal Force, under a set of rules & regulations.

METHODOLOGY:

* Asst. Professor (C), Dept. of Physical Education, University College of Law, Osmania University, Hyderabad.
** Professor, IUT Secretary, Dept. of Physical Education, Osmania University, Hyderabad.
The purpose of the present study was to compare the selected physical Fitness components of Hockey and Kabaddi players. To achieve this purpose 12 state and national level Hockey and 12 state and National level Kabaddi players from SAI-Netaji subhash Southern Centre Hyderabad Begumpet of age of group 16-21 years were selected as subjects. By carefully choosing the above set of players from academy it is attempted to bring out uniform subjects of study in terms of diet, living and practicing environment and standard work outs.

Selection of Variables: Among various physical fitness components generally evaluated – speed. Strength and agility were chosen for this present study. The selected physical fitness components were measured through 50 mtrs, run, 5 hops (RGL legs) and 60x10 mtr shuttle run: To achieve accuracy in each test 3 test 3 trails were given and the best results were considered for analysis.

Selection of Tests: Various standard statistical analyses like mean, Standard deviation are computed on the collected data and were statistically analyzed through t-ratio. The level of significance was fixed at 1.5% level of confidence.

**RESULTS:**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std Mean</th>
<th>Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start 30 m</td>
<td>12</td>
<td>5.0167</td>
<td>.44779</td>
<td>.12782</td>
<td></td>
</tr>
<tr>
<td>Kabaddi:</td>
<td></td>
<td>4.8875</td>
<td>.27997</td>
<td>.08082</td>
<td></td>
</tr>
<tr>
<td>Hockey:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L. Leg</td>
<td>12</td>
<td>8.0567</td>
<td>.90932</td>
<td>.2625</td>
<td></td>
</tr>
<tr>
<td>Kabaddi:</td>
<td></td>
<td>9.5983</td>
<td>.93277</td>
<td>.26977</td>
<td></td>
</tr>
<tr>
<td>Hockey:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R. Leg</td>
<td>12</td>
<td>8.5725</td>
<td>.92544</td>
<td>.26715</td>
<td></td>
</tr>
<tr>
<td>Kabaddi:</td>
<td></td>
<td>9.8982</td>
<td>.69706</td>
<td>.20123</td>
<td></td>
</tr>
<tr>
<td>Hockey:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Shuttled 10 Kabaddi: Hockey

<table>
<thead>
<tr>
<th>Group</th>
<th>Time</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 mtr Starts</td>
<td>-.854</td>
<td>.402</td>
</tr>
<tr>
<td>5 hops (Left leg.)</td>
<td>4.100</td>
<td>.000</td>
</tr>
<tr>
<td>5 hops (right leg.)</td>
<td>3.967</td>
<td>.001</td>
</tr>
<tr>
<td>Shuttle Runs</td>
<td>17.206</td>
<td>.000</td>
</tr>
</tbody>
</table>

** 1% Level of significant

* Not Significant.

**DISCUSSION ON FINDINGS:**
Present study was conducted to compare certain Physical fitness components between Hockey and Kabaddi players. As per the t-ratios obtained there is no significant difference in speed component of physical fitness between the two groups, the statistical means of 30 Mtr run results are 4.8895 and 5.0167 of Kabaddi player’s and Hockey respectively.

As per the T-ratio obtained, there is 12% level of significant difference between Hockey and Kabaddi players in their strength and agility, the statistical means of shops (left leg) test results are 9.5983 & 8.0567 of Hockey and Kabaddi players respectively. The statistical means of 5 hops (rt.leg/test result are 9.88992 & 8.5725 of Kabaddi and Hockey players respectively.

As per the t-ratio obtained here is 1% level of significant difference between the two groups in their agility. The statistical means of 6* shuttle run results are 18.6m and 17.206 of Hockey and Kabaddi players. The Kabaddi finished earlier when compared to Hockey players. That simply Hockey is having more agility than Kabaddi players.
CONCLUSION:

It is concluded that there is 1% level of significant difference between Hockey and Kabaddi players of SAI – Netaji Subhash Southern Centre, Hyderabad in the Physical Fitness components. Strength agility comparatively the Hockey players are having great strength and whereas Kabaddi are having more agility physical fitness between the two groups.

RECOMMENDATIONS:

On the basis of the results of the study the following suggestions & recommendations are made.

(1) The Findings of study can be used by the coach physical trainers and aid in screening and selecting talented identification.

(2) Study of Similar nature can be conducted on male players.

(3) It is suggested that similar study may be conducted by using psychological variables and motor Fitness measures of Players.

(4) The similar study may be undertaken by selecting subjects belonging to different levels and age groups of participations in different games and sports.

REFERENCES:

(1) Comparative study of selected physical Fitness. Physiological and Anthropometric variable of Tribal & Non-Tribal. Student of Himachal Pradesh Chandigarh, Punjab University.


A STUDY ON THE EFFECTS OF A MOTIVATIONAL CLIMATE INTERVENTION FOR COACHES ON COLLEGIATE SPORTSMEN FOR SPORT PERFORMANCE ANXIETY

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2Dr.B.Sunil Kumar, Associate Professor, Physical Education Department, Osmania University, Hyderabad, Telangana

3Dr.K.Narsimha, Physical Director, ZPHS Boys, Shabad, Ranga Reddy (Dist), Telangana

INTRODUCTION

Sport performance trait anxiety is a predisposition to appraise sport situations in which athletic performance can be evaluated as threatening and to respond with state anxiety reactions of varying intensity. These reactions include high levels of autonomic arousal, worry, and self-oriented cognitions that can disrupt attention processes and other cognitive functions. Although some athletes report that anxiety facilitates task performance, a growing body of research indicates that performance anxiety can have deleterious effects on performance, enjoyment of sport participation, and physical well-being in both Coaches and Collegiate sportsmen. It has also been linked to young athletes’ avoidance of organized sport experiences, to athletic burnout, and to sport attrition. High levels of performance trait anxiety can also affect physical well-being, serving as a risk factor for physical injury in performers who are experiencing significant negative life events.

Given the critical role that coaching behaviors can have on the emotional reactions of both Coaches and Collegiate sportsmen and on their continuation in sports, the potential value of educational interventions designed to train coaches to provide a positive and supportive athletic environment seems self-evident. For that reason, it is important to determine whether appropriate interventions directed at coaches might reduce the degree to which athletes experience performance anxiety.

Collegiate Sportsmen who play for trained coaches enjoy their sport experience more, evaluate their coach and teammates more positively, show significant increases in general self-esteem over the course of the sport season, and are roughly five times less likely than those playing for untrained coaches to drop out of the sport program the following season.
METHOD

Participants

Participants were 25 male coaches between the ages of 40 to 50 as 25 athletes between the ages of 21 and 25 years as Experimental group and 25 male coaches between the ages of 40 to 50 as 25 athletes between the ages of 21 and 25 years as experimental as Control group who participated in Osmania University Inter Collegiate Tournaments in twin cities of Hyderabad and Secunderabad in the state of Telangana were select for the study.

To minimize the possibility that coaches in the experimental condition might interact with and potentially share MAC guidelines with the coaches in the control group, researcher utilized a matched quasi-experimental design so as to ensure the integrity of the intervention. The MAC program that participated in the development of a new appropriate achievement goal orientation scale. Given the possibility that achievement goal orientation might affect responses to a motivational climate intervention, researcher compared the participants in the intervention and control conditions on the Achievement Goal Scale for collegiate sportsmen.

MEASURES

Sport Performance Anxiety. Sport performance was measured using the Sport Anxiety Scale-2. The SAS-2 has five-item subscales for Somatic Anxiety, Worry, and Concentration Disruption.

INTERVENTION

The 25 male coaches between the ages of 40 to 50 as 25 athletes between the ages of 21 and 25 years as Experimental group in the experimental condition participated in a 50-min MAC workshop presented by the researcher, who has extensive experience in conducting psychologically oriented coaching workshops. The training session provided coaches with behavioral guidelines derived from previous research on coaching behaviors and their effects on athletes and from more recent research inspired by achievement goal theory. Accordingly, MAC behavioral guidelines focused on two major themes.

PROCEDURE
As part of a larger test battery, the multidimensional SAS-2 was administered to the participants during team practice sessions on two separate occasions. The first session occurred in the week preceding the administration of the MAC workshop and early in the preseason practice period. The second administration occurred at a team practice approximately 12 weeks later during the final week of the competitive season as teams were preparing for postseason playoffs. The measure of motivational climate, which served as a manipulation check on the intervention, was also administered during this second assessment session. This variable was assessed only at this point because athletes who had not played for the coach in the past would have no realistic basis for rating the coaches’ behaviors prior to the season, and those who had played for the same coach in the past would be giving potentially unreliable retrospective responses spanning a year or more. Such intervals have been shown to result in highly unreliable motivational climate data. Our interest was in the athletes’ perceptions of coaching behaviors during the season in which this study was conducted.

STATISTICAL ANALYSIS USED

For the present study multilevel analyses, conducted using the SPSS Version 11.5 linear mixed model program in athletes’ scores on the preseason and late-season measures of anxiety. Multilevel linear modeling was also used to know the statistical significance, group differences on the Mastery and Ego-goal orientation scales.

RESULTS

Raw Means and standard deviations for the dependent variable measures as a function of time and condition are presented in Table-1. In multilevel analyses, however, the major interest is in estimated means generated as the result of the hierarchical modeling procedures, together with the significance tests associated with them. For SAS-2 scores, the interclass correlations were considerably lower than they were for the ego climate measure, ranging from .02 to .09 for total score and for the Somatic, Worry, and Concentration Disruption preseason and late-season measures.
Table-I: Means and Standard Deviations of Pre-season and Late-Season Intercollegiate SAS-2 Total and Subscale Scores for Intervention under Control Conditions.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Preseason Before Intercollegiate</th>
<th>Late Season after Intercollegiate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>SAS-2 Total Score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAC trained</td>
<td>25+25</td>
<td>25.04</td>
</tr>
<tr>
<td>Control</td>
<td>25+25</td>
<td>24.12</td>
</tr>
<tr>
<td>Somatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAC trained</td>
<td>25+25</td>
<td>8.23</td>
</tr>
<tr>
<td>Control</td>
<td>25+25</td>
<td>7.48</td>
</tr>
<tr>
<td>Worry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAC trained</td>
<td>25+25</td>
<td>9.49</td>
</tr>
<tr>
<td>Control</td>
<td>25+25</td>
<td>9.46</td>
</tr>
<tr>
<td>Concentration Disruption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAC trained</td>
<td>25+25</td>
<td>7.32</td>
</tr>
<tr>
<td>Control</td>
<td>25+25</td>
<td>7.17</td>
</tr>
</tbody>
</table>

Intervention Effects on Athletes’ Performance Anxiety

Multilevel analyses were carried out to test this hypothesis. As indicated in Table-II, a significant effect was found for time for SAS-2 Worry and total score, indicating an overall tendency for trait anxiety to increase from preseason to the second administration prior to playoffs, when competitive pressures were higher.

Table-II: Main and Interactive Effects of Time and Condition Upon Change in SAS-2 Scores: Parameter Estimates from Multilevel Linear Models

<table>
<thead>
<tr>
<th>Variable</th>
<th>Estimate</th>
<th>SE</th>
<th>t-value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS-2 total score</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Intervention effects were formally tested by the Time × Conditions interactions in Table II. These interactions were significant for SAS-2 total score and for each of its subscales. The interactions involving the expected means generated by the multilevel analyses for each subscale are illustrated in Figure 1, which shows divergent patterns of change in the intervention and control groups. Athletes who played for the control coaches exhibited higher scores late in the season than at the beginning, whereas athletes who played for coaches who underwent the MAC intervention exhibited decreases in anxiety scores from preseason to late season.

Separate tests of time differences within each condition were performed using multilevel analyses of the nested athletes-within-teams data. Because significant increases in
anxiety in the control condition were not predicted on an a priori basis in the control condition, significance was assessed using two-tailed tests. These analyses of time differences (late-season score minus preseason score) revealed that athletes in the control condition increased significantly in SAS-2 total score ($t = 2.68, p < .01$), and on the Somatic Anxiety ($t = 3.85, p < .001$) and Concentration Disruption ($t = 2.80, p < .01$) scales, but the increase on the Worry scale ($t = 1.40$) was not significant. One-tailed significance tests of the predicted decreases in anxiety within the intervention condition revealed significant effects for SAS-2 total score ($t = -2.51, p < .01$) and for the Somatic ($t = -1.97, p < .025$) and Worry ($t = -2.60, p < .01$) scales, but the decrease on Concentration Disruption ($t = -1.12$) was not significant.

DISCUSSION

To the extent that the MAC program was successful in establishing a stronger mastery-oriented motivational climate, collegiate sportsmen would be expected to manifest lower levels of performance anxiety as a result of their season-long athletic experience. The late-season manipulation check of motivational climate revealed that athletes in the intervention group reported a significantly higher coach-initiated mastery climate than did the control group.

The MAC program is a multifaceted one that includes a variety of behavioral guidelines, as well as the use of modeling, role playing, and training in self-monitoring of coaching behaviors. The relative contribution of these components to outcome is unknown at this time. With appropriate caution, we choose to attribute the decreases in anxiety associated with MAC training to a supportive mastery climate that emphasizes personal skill development and fun, rather than winning, but we do not know the relative importance that the many MAC elements may have in producing the outcomes in this study.

Within the limitations noted above, present study results indicate that it is possible, through a relatively brief and economical educational program for coaches, to effect changes in young athletes’ trait anxiety over the course of a sport season. Moreover, both somatic and cognitive components of trait anxiety were influenced. The fact that the intervention was associated not only with late-season group differences in motivational climate, but also with changes in anxiety, strengthens the theoretically predicted link between a mastery-initiating motivational climate and lowered anxiety, previously demonstrated only in correlation research.

REFERENCES

K. Pravin Kumar  
TGT (Physical & Health Edn.) Kendriya Vidyalaya No.2 AFA, Hyderabad, INDIA.

ABSTRACT

In the personality psychology, Locus of control refers to the extent to which individuals believe that they can control events that affect them. Understanding of the concept was developed by Julian B. Rotter in 1954, and has since become an aspect of personality studies. A person's "locus" (Latin for "place" or "location") is conceptualized as either internal (the person believes they can control their life) or external (meaning they believe that their decisions and life are controlled by environmental factors which they cannot influence, or by chance or fate).

Sprint involves the athlete to attempt to run at peak speed for the complete duration of the race. In Middle distance running athlete’s involvement of muscles is more to greater extent than compare to Heart. In Long distance running athlete’s involvement of Heart is more to greater extent than compare to muscles to perform better performance. These are also known as Heart distance races. The events are 5000 Mts., 10000 Mts. Marathon and cross country running. The purpose of the study is to find out the Locus of Control of Sprints, Middle and Long distance runners. The sample for the study consists of 150 Sprinters, 150 Middle distance runners and 150 Long distance runners those who have participated in the Inter District Tournaments of Andhra Pradesh state.

Locus of Control Scale constructed by Dr. Anand Kumar and Dr. S. N. Srivastav (29 items) is used for the study. It was found the Middle distance runners have significantly high locus of control than the sprinters. Long distance runners have significantly high locus of control than the sprinters. Long distance runners have significantly high locus of control than the middle distance runners.

Key words: Locus of Control, athletes, sprints, Middle distance, long distance etc.
Introduction:

Sport Psychology is the scientific study of people and their behaviours in sport. The role of a sport psychologist is to recognize how participation in sport exercise and physical activity enhances a person’s development.

Every person has some sort of Anxiety in their daily activities. Athlete has to participate in competitions against their opponents to win the race. He is the winner who overcome psychological stress and having Self confidence & Locus of Control.

Track and Field dominated the ancient Greek athletic festivals, and was also popular in Rome, but declined in the Middle Ages. In England track was revived sporadically between the 12th and 19th century the first college meet occurred in 1864 between Oxford and Cambridge universities.

Sample which Study among below sprinters, Middle and long distance runners

<table>
<thead>
<tr>
<th>SPRINTS</th>
<th>100 M., 200 M., 400 M., 110 M.Hur., 400M.Hur</th>
<th>Muscle endurance events</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIDDLE DISTANCE</td>
<td>800 M., 1500 M.</td>
<td>Muscle Heart Endurance events</td>
</tr>
<tr>
<td>LONG DISTANCE</td>
<td>3000 M. St.Ch., 5000 M., 10000 M. Marathon (42.195 k.m.) 20 K.M. Walk, 50 K.M. Walk</td>
<td>Heart Endurance events</td>
</tr>
</tbody>
</table>
Purpose of the study: The purpose of the study is to find out the Locus of Control among Sprinters and Middle and Long distance runners.

**METHODOLOGY:**

The sample for the study consists of 150 Sprinters, 150 Middle distance runners and 150 Long distance runners those who have participated in the Inter District Tournaments of Andhra Pradesh state of Hyderabad District. The Standardized Locus of Control Scale constructed by Dr. Anand Kumar and Dr. S. N. Srivastav (29 items) was used for the study. The Questionnaire was administered in small groups of runners.

**RESULTS:**

It was found the Middle distance runners have significantly high locus of control than the sprinters. Long distance runners have significantly high locus of control than the sprinters. Long distance runners have significantly high locus of control than the middle distance runners.

Discussion:
The decision must be made by Long distance runners is final for their performance. Whereas in sprints where muscle power and technique is needed. Locus of Control level differs from event and individual.

Table 1.1

Sprinters, Middle Distance Runners and Long Distance Runners Shows the Mean, S.D,
S. E. and F value of Locus of Control

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Group</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locus of control</td>
<td>Mean</td>
<td>12.40</td>
<td>11.22</td>
<td>9.98</td>
<td>11.19</td>
</tr>
<tr>
<td></td>
<td>S. D.</td>
<td>2.55</td>
<td>2.44</td>
<td>1.76</td>
<td>2.48</td>
</tr>
<tr>
<td></td>
<td>S. E</td>
<td>0.21</td>
<td>0.19</td>
<td>0.14</td>
<td>0.11</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>450</td>
</tr>
</tbody>
</table>

A = Sprinters  B = Middle Distance Runners  C = Long Distance Runners

Table No. 1.2
Summary of One Way ANOVA

<table>
<thead>
<tr>
<th>Source</th>
<th>Ss</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>437.87</td>
<td>2</td>
<td>218.93</td>
<td>42.15</td>
<td>&lt; .01</td>
</tr>
<tr>
<td>Error</td>
<td>2306.19</td>
<td>447</td>
<td>5.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2744.06</td>
<td>449</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the one way anova summary and graph it is seen that Mean of locus of control score of the sprinters Mean is 12.40, middle distance runners Mean is 11.22 and long distance runners mean is 9.98. The difference between the three means is highly significant (F = 42.15, df =449, P < 0.01) It is clear that first result middle distance runners have significantly high locus of control than the sprinters. Second long distance runners have significantly high locus of control than the sprinters. Third long distance runners have significantly high locus of control than the middle distance runners. HSD[.05]=0.62; HSD[.01]=0.77.

(Locus of control: high score indicates external locus of control and low scores indicates internal locus of control)

**CONCLUSION:**

1) Middle distance runners have significantly high locus of control than the sprinters.
2) Long distance runners have significantly high locus of control than the sprinters.
3) Long distance runners have significantly high locus of control than the middle distance runners.
4) Sprinters are externally controlled persons, they believes that reinforcements are under the control of powerful others, luck, chance, fate etc. The persons with external Locus of control, they believe that their life is ruled by factors beyond their control.
5) Middle distance runners are with both Internal and External Locus of control, they are mediocre type of athletes. They may believe that reinforcements are under the control of powerful others, and they may be internally controlled persons.
6) Long distance runners are internally controlled persons. Internal control refers to the perception of positive and or negative events as being a consequence of one’s own actions and thereby under personal control. Long distance runners feel that reinforcement which he receives occurs primarily because of their own purposeful behaviour.

RECOMMENDATIONS:

1. This type of Study is useful to the Coaches and Physical Education Teachers to train the Students as per the requirements of the Psychological variables for the better performance in sports.
2. Conducting a similar study, by adding other psychological factors such as goal setting, Achievement motivation, concentration and imagery.
3. Doing a similar study on Individual and Team Games.
4. Comparing Locus of control and self confidence between elite and non-elite athletes in different regions.
5. Conducting a similar study among female sprinters, Middle and long distance runners.

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Sinha’s comprehensive Anxiety Test (SCAT), Natuional Psychological Corporation.1971.
Kinikema K. and Harris J.(1992) sport and the mass media, Exercise and Sport Science reviews 20,127-159.
SURGERIES AND INJURIES HELPS

PSYCHOLOGICAL STRATEGIES FOR FASTER RECOVERY

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International Indian School Al-Jubail, K.S.A

Ms. Fathima Musharaf Jahan
Glindal Academy, Hyderabad, India

ABSTRACT

Sports Injury recovery generally focuses on physical rehabilitation, but using a few sports psychology skills and techniques may actually help an athlete recover faster as they learn to use such setbacks to become a more confident and resilient athlete. Athletes react to injuries with a wide range of emotions which may include denial, anger, sadness and even depression.
Key words: strategies, Injuries, Psychological, Rehabilitation

INTRODUCTION

An injury often seems unfair to anyone who has been physically active and otherwise healthy. Although these feelings are real, it’s important to move beyond the negative and find more positive strategies to cope with this setback. In many cases dealing gracefully with an injury helps an athlete become a more focused, flexible, and resilient athlete. Here are some sports psychology strategies that can be used for faster injury recovery.

INJURY AWARENESS

Learning about the cause, treatment and prevention of injury will help in recovery. Not fully understanding an injury can cause fear or anxiety.

The following questions to the doctor, trainer, coach or therapist may help to know exactly what can be done to heal quickly and fully.

- What is the diagnosis (what type of injury)
- How long will recovery take
- What is the purpose of the treatments
- What is expected during rehabilitation
- What are the alternative workouts
- What are the warning signs that the injury getting worse

By understanding the injury and knowing what to expect during the rehabilitation process, it will make feel less anxiety and a greater sense of control. The following are some of the psychological strategies for faster injury recovery.

METHODOLOGY

Accept the Responsibility for the Injury: This is not to say that the injury is your fault. This means is that you accept that now you have an injury and you are the only one that can fully determine your outcome. By taking responsibility for your recovery process, you will find a greater sense of control and will quickly progress in recovery, rather than dwelling on the past or blaming the injury on an outside factor.

Maintain a Positive Attitude: To heal quickly you need to be committed to overcome the injury by showing the up for your treatments, working hard, and listening and doing what your doctor or the trainer recommend. There is need to monitor what you are thinking and saying to yourself regarding the injury and the rehab process. Your self-talk is important. Are your thoughts negative and self defeating? To get the most out of
your daily rehab, you need to work hard and maintain a positive attitude. Remain focused on what you need to do.

**Develop Mental Strength to Heal the Injury:** It may be possible to speed up the healing process by using specific mental skills and techniques such as imagery and self-hypnosis. Imagery techniques use all of the senses to create mental images, feelings and sensations related to a desired outcome as though it is happening now or has already happened. Healing from sports injury take some time. Healing time varies from person to person and one cannot force it to happen.

**Get Support:** A common response after an injury is to isolate yourself from teammates, coaches, and friends. It is important to maintain contact with others as you recover from injury. Your teammates, friends and coach can listen when you need to vent some anger, or can offer advice or encouragement during the rehab process. Just knowing you don't have to face the injury alone can also be a tremendous comfort. Be visible by being an active member of the group.

**Set Appropriate Goals:** Just because of the injury it doesn't mean to stop planning or setting goals, rather than viewing the injury as a crisis, make it another training challenge. The goals will now focus on recovery rather than performance. This will help keep motivated. By monitoring the goals one can be able to notice small improvements in the rehab of the injury. This will feel more confident that you are getting better and improving. Remember to work closely with the therapist or doctor. They can help to set realistic goals that are in line with each stage of the rehab. Most athletes have a tendency to try to speed-up the recovery by doing too much too soon.

**ANALYSIS AND RESULTS**

**Maintain the Fitness While Injured:** Depending upon the type of injury it is possible to modify the training or add alternate forms of training to maintain cardiovascular conditioning or strength. Work with the trainer, therapist or physician to establish a good alternative workout program. Work on relaxation training and flexibility. Create a modified strength training program, do a limited amount of exercise to maintain cardiovascular fitness or focus on better nutritional health.

With the right knowledge, support and patience an injury can be overcome without turning the whole world upside down. By taking things slow, setting realistic goals and maintaining a positive, focused approach most athletes can overcome minor injuries quickly and major injuries in time. Make sure to see a doctor for a proper diagnosis and treatment plan for any injury.
Healing time for any injury can be longer if one return to activity too soon. Never exercise the injured part if it pain during the rest. When the injured part no longer hurts at rest, start exercising it slowly with simple range of motion exercise. If pain occurs stop and rest. Return to activity at a very low intensity, and build up to the previous level. Increase intensity of exercise only when one can do so without pain.

DISCUSSION

The injured part is now more susceptible to re-injury and should pay close attention to any warning signs of over doing it. Soreness, aches and tension must be acknowledged or it may end up with an even more serious injury.

The psychological impact of injury can affect an athlete long after the body has successfully healed. For this reason the role of a trainer or coach is particularly important in the progression from the rehabilitation to full completion. Both the performance and self-confidence of the athlete will likely be lower than pre-injury and this can be tackled by implementing a steady process of goal-setting and achievements to build both factors. On occasions, the circumstances surrounding the initial injury might cause negative memories and expectations that need to be worked through with a sport psychologist.

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ETHIOPIA IN MODERN OLYMPIC GAMES – AN APPRAISAL

Dr. SATYANARAYANA, Professor,
Osmania University, & Aschenaki Taddese, PhD Scholar, O U, India,
Lecturer in physical education Addis-ababa university, ETHIOPIA
ojpeou@yahoo.com

Abstract

Ethiopia started participating in Olympics in 1956. Since then competed in all Olympic Games except the Montreal, Los Angeles and Seoul Olympic Games which were boycotted due to different reasons. In those Olympic at which Ethiopia participated collected a total of 38 medals and all have been won in middle and long distance events. These medals were collected by only 21 Olympians - 15 men and 6 women. This indicates that athletics is Ethiopia’s major sport and the country has produced some of the world’s best long distance runners.

OBJECTIVE of this study is to analyze the personal background, family background, socioeconomic background, educational background, achievement
background and government support on the Olympians and their participations in Olympics. The researcher is motivated by the fact that there is no well organized and in-depth study on the area so far. So this study will fill this gap and to address the understanding on the past events in the Ethiopian Olympic participation.

In order to explore and analyze the subject, the researcher used mainly primary data collected through personal interview with the Olympians and secondary sources are used to fill the gaps. Ethiopian Olympic medalists actively involved in the interview and provided their overall experience regarding the factors that have contributed to their success. These factors include: personal, family, educational, socio-economic, achievement backgrounds and government support in line with the research objectives.

**FINDINGS:** Much of the success Ethiopians have experienced in the Olympics has been attributed heavily to their active life style, hard work, determination (will power), self discipline, the physical and social conditions in which they live (The Olympians covered 10.92 km in average to go to school five days in a week in a round trip). As Ethiopia’s lowland is higher than 3800 feet above sea level and more than twenty-five percent of it is over 5500 feet, Ethiopians develop a higher lung capacity by living at higher altitudes. In addition, the traditional diet of the average Ethiopian, rich in complex carbohydrates and proteins, is ideal for endurance runners and athletes of all types. Over all: the altitude, diet, active lifestyle, hard work and self discipline. Moreover, the fact that the nature of running does not need sophisticated sport facilities and equipment for track events of Ethiopian citizens have built a nation living in conditions that are beneficial in becoming endurance runner. (Exercise physiology fifth edition William D. Mc Ardle 2001, page 603, 604. Beall C. M. (2000) in Oxygen Sensing: Molecule to Man, ed. Forster, R. E., II (Kluwer Academic, New York), pp. 63–74 East African Running Toward a Cross-Disciplinary Perspective Edited by Yannis Pitsiladis, John Bale, Craig Sharp and Timothy Noakes First published 2006 by Routledge)

**INTRODUCTION**

Ethiopia started participating in Olympics in 1956. Since then competed in all Olympic Games except the Montreal, Los Angeles and Seoul Olympic Games which were boycotted due to different reasons. In those Olympic at which Ethiopia participated collected a total of 38 medals and all have been won in middle and long distance events. These medals were collected by only 21 Olympians - 15 men and 6 women. This indicates that athletics is Ethiopia’s major sport and the country has produced some of the world’s best long distance runners.

A summary of Olympic medalists and their achievement
Total medals won at the Olympics since Ethiopia started participating from 1956 (Melbourne) - 2008 (Beijing Olympic Games)

<table>
<thead>
<tr>
<th>Olympic Year</th>
<th>Olympian</th>
<th>Event</th>
<th>Medal Won</th>
<th>Finish Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beijing 2008</td>
<td>Tirunesh Dibaba</td>
<td>10,000 m</td>
<td>Gold</td>
<td>29:54.66 OR</td>
</tr>
<tr>
<td></td>
<td>Kenenisa Bekele</td>
<td>10,000 m</td>
<td>Gold</td>
<td>27:01.17 OR</td>
</tr>
<tr>
<td></td>
<td>Sileshi Sihine</td>
<td>10,000 m</td>
<td>Silver</td>
<td>27:02.77</td>
</tr>
<tr>
<td></td>
<td>Tirunesh Dibaba</td>
<td>5,000 m</td>
<td>Gold</td>
<td>15:41.40 OR</td>
</tr>
<tr>
<td></td>
<td>Meseret Defar</td>
<td>5,000 m</td>
<td>Bronze</td>
<td>15:44.12</td>
</tr>
<tr>
<td></td>
<td>Kenenisa Bekele</td>
<td>5,000 m</td>
<td>Gold</td>
<td>12:57.82</td>
</tr>
<tr>
<td></td>
<td>Tsegaye Kebede</td>
<td>Marathon</td>
<td>Bronze</td>
<td>2:10.05 s0</td>
</tr>
<tr>
<td>Athens 2004</td>
<td>Kenenisa Bekele</td>
<td>10,000 m</td>
<td>Gold</td>
<td>27:05.10</td>
</tr>
<tr>
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<td>Gold</td>
<td>14:45.65</td>
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<tr>
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<td>Silver</td>
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<tr>
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<td>27:09.39</td>
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<tr>
<td></td>
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<td>10,000 m</td>
<td>Silver</td>
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<td>14:51.83</td>
</tr>
<tr>
<td></td>
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<td>10,000 m</td>
<td>Bronze</td>
<td>30:26.42</td>
</tr>
<tr>
<td>Sydney</td>
<td>Million Wolde</td>
<td>5,000 m</td>
<td>Gold</td>
<td>13:35.49</td>
</tr>
<tr>
<td>Year</td>
<td>Event</td>
<td>Distance</td>
<td>Gold/Medal</td>
<td>Time</td>
</tr>
<tr>
<td>---------</td>
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</tr>
<tr>
<td>2000</td>
<td>Haile Gebrselassie</td>
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</tr>
<tr>
<td></td>
<td>Gezahgne Abera</td>
<td>Marathon</td>
<td>Gold</td>
<td>2:10.11</td>
</tr>
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<td>10,000 m</td>
<td>Gold</td>
<td>30:17.49 OR</td>
</tr>
<tr>
<td></td>
<td>Gete Wami</td>
<td>10,000 m</td>
<td>Silver</td>
<td>30:22.48</td>
</tr>
<tr>
<td></td>
<td>Assefa Mezgebu</td>
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<td>Bronze</td>
<td>27:19.75</td>
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<tr>
<td></td>
<td>Tesfaye Tola</td>
<td>Marathon</td>
<td>Bronze</td>
<td>2:11.10</td>
</tr>
<tr>
<td></td>
<td>Gete Wami</td>
<td>5,000 m</td>
<td>Bronze</td>
<td>14:42.23</td>
</tr>
<tr>
<td>Atlanta 1996</td>
<td>Haile Gebrselassie</td>
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<td>Gold</td>
<td>27:07.34 OR</td>
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<td></td>
<td>Fatuma Roba</td>
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<td>Gold</td>
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<td></td>
<td>Gete Wami</td>
<td>10,000 m</td>
<td>Bronze</td>
<td>31:06.65</td>
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<td>Barcelona 1992</td>
<td>Derartu Tulu</td>
<td>10,000 m</td>
<td>Gold</td>
<td>31:06.02</td>
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<tr>
<td></td>
<td>Fita Bayisa</td>
<td>5,000 m</td>
<td>Bronze</td>
<td>13:13.03</td>
</tr>
<tr>
<td></td>
<td>Addis Abebe</td>
<td>10,000 m</td>
<td>Bronze</td>
<td>28:00.07</td>
</tr>
<tr>
<td>Moscow 1980</td>
<td>Miruts Yifter</td>
<td>5,000 m</td>
<td>Gold</td>
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</tr>
<tr>
<td></td>
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<td>Gold</td>
<td>27:42.69</td>
</tr>
<tr>
<td></td>
<td>Mohamed Kedir</td>
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<td>27:44.64</td>
</tr>
<tr>
<td></td>
<td>Eshetu Tura</td>
<td>3,000 m</td>
<td>Bronze</td>
<td>8:13.57</td>
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Volume: 1, No: 1, July 2014- December 2015
Munich 1972

<table>
<thead>
<tr>
<th>Event</th>
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<th>Distance</th>
<th>Medal</th>
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<tr>
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</tr>
<tr>
<td>Marathon</td>
<td>MamoWolde</td>
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Mexico City 1968

<table>
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<th>Medal</th>
<th>Time</th>
</tr>
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<tr>
<td>Marathon</td>
<td>MamoWolde</td>
<td></td>
<td>Gold</td>
<td>2:20.27</td>
</tr>
<tr>
<td>10,000 m</td>
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<td></td>
<td>Silver</td>
<td>29:27.75</td>
</tr>
</tbody>
</table>

Tokyo 1964

<table>
<thead>
<tr>
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<th>Distance</th>
<th>Medal</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
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<td>AbebeBikila</td>
<td></td>
<td>Gold</td>
<td>2:12.11.2 OR</td>
</tr>
</tbody>
</table>

Rome 1960

<table>
<thead>
<tr>
<th>Event</th>
<th>Athlete</th>
<th>Distance</th>
<th>Medal</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marathon</td>
<td>AbebeBikila</td>
<td></td>
<td>Gold</td>
<td>2:15.16.2 OR</td>
</tr>
</tbody>
</table>

Total medals won at the Olympics till Beijing Olympic Games: 38

<table>
<thead>
<tr>
<th>Event</th>
<th>Medal</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 Gold</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>6 Silver</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>14 Bronze</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

STATEMENT OF THE PROBLEM

The researcher is motivated by the fact that there is no well organized and in-depth study on the area so far. So this study will fill this gap and address the understanding on the past events in the Ethiopian Olympic participation. The country also has no data base as a result there is no a base for policy makers for their future thought and action in enhancing country’s status in sport. Historical events in Olympics are not recorded to inform and inspire the new generations.

SIGNIFICANCE OF THE STUDY

The present study is useful in promoting and enhancing the performance of the future participants of the country in Olympics. There is no well organized and in-depth study on the area. So this study will fill this gap and to communicate and understand of past events. This study also indicates the strong and weak side of the government support in the area which gives the policy makers a basis for their future strategies and actions. So this study will provide information to the public, to the professionals and policy makers. It will also inform and enlighten physical education teachers, coaches and sports
The historical materials focused from the investigation will be an eye opener for the future researchers in the same field.

OBJECTIVE OF THE STUDY

The objective of this study is to analyze the personal background, family background, socioeconomic background, educational background, achievement background and government support on the Olympians and their participations in Olympics in early period (1956 – 1972), middle period (1973 – 1988) and later period (1989 – 2008) which are classified based on Ethiopian governmental regimes; The Imperial period, the socialist period and the current government (federal democratic republic period).

HYPOTHESIS

The hypotheses is formulated in question form to disclose if there is any significant impact of personal background, family background, educational background, socio-economic background, achievement background and government support on the Olympians and their participation in Olympic Games during early period, middle period and later period which are classified in to three era since 1956 Ethiopia started participating in Olympic till the recent Beijing 2008 Olympic Games.

SCOPE OF THE STUDY

In this type of study it is not possible to discuss all the highlights and lowlights of the Olympic Games of the modern era. So, this research will focus only on the personal background, family background, educational background, socio-economic background, achievement background and government support of all Ethiopian Olympic medalist and their participation till Beijing Olympic Games of 2008.

METHODOLOGY

In order to explore and analyze the subject, the researcher used mainly primary data collected through personal interview with Ethiopian Olympic medalists and provided their overall experience regarding the factors that have contributed to their success. These factors include: personal, family, educational, socio-economic, achievement backgrounds and government support in line with the research objectives. The interview also took place in a manner that the respondents could feel free and open to provide information of their background. In some cases, I gathered interview data through their close associates and whom they trust to feel comfortable enough and speak openly about their lives as runners and individuals. Also sources which are available in the form of personal records, official records and pictorial records are used to supplement the primary data.

Findings: Much of the success Ethiopians have experienced in the Olympics has been attributed heavily to their active life style, hard work, determination (will power), self discipline, the physical and social conditions in which they live (The Olympians covered 10.92 km in average to go to school five days in a week in a round trip). As Ethiopia’s lowland is higher than 3800 feet above sea level and more than twenty-five percent of it is over 5500 feet, Ethiopians develop a higher lung capacity by living at
higher altitudes. In addition, the traditional diet of the average Ethiopian, rich in complex carbohydrates and proteins, is ideal for endurance runners and athletes of all types. Over all: the altitude, diet, active lifestyle, hard work and self-discipline. Moreover, the fact that the nature of running does not need sophisticated sport facilities and equipment for track events of Ethiopian citizens have built a nation living in conditions that are beneficial in becoming endurance runner.

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EFFECT OF CONCURRENT TRAINING ON STRENGTH AMONG UNIVERSITY BOYS

Dr. K. Deepla, Associate Professor,
Department of Physical Education, Osmania University, Hyderabad.

SK. Saleem Bhasha, Lecturer in Physical Education,
GDC, Tuni, East Godavari.

ABSTRACT

The purpose of the study was to find out the effect of concurrent training on strength among university boys. To achieve this purpose of the study, thirty university students were selected as subjects who were from the Acharya Nagarjuna University, Guntur. The selected subjects were aged between 18 to 22 years. They were divided into two equal groups of fifteen each, Group I underwent concurrent training programme and Group II acted as control that did not participate in any special training apart from their regular curricular activities. The subjects were tested on selected criterion variable such as strength prior to any immediately after the training period. The selected criterion variable such as strength was measured by bent knee sit-ups. The analysis of covariance (ANCOVA) was used to find out the significant differences if any, between the experimental group and control group on selected criterion variable. In all the cases, 0.05 level of confidence was fixed to test the
significance, which was considered as an appropriate. The result of the present study has revealed that there was a significant difference among the experimental and control group on strength.

**INTRODUCTION**

The primary objective of sports training is to stress various bodily systems to bring about positive adaptation in order to enhance sporting performance. To achieve this objective, coaches and athletes systematically apply a number of training principles including overload, specificity and progression, organized through what is commonly termed periodisation. The application of these principles involves the manipulation of various programme design variables including choice of exercise, order of training, training intensity (load and repetition), rest periods between sets and training frequency and volume in order to provide periods of stimulus and recovery, with the successful balance of these factors resulting in positive adaptation.

Whilst the abovementioned training principles are employed for both endurance and strength training regimes, the physiological adaptations for both are notably different due to differences in the application of programme design variables. Endurance training programmes such as those used for running or cycling typically involve the performance of high-repetition, low-resistance exercise continuously over long periods of time (e.g. 1-2 hours). The intention of this type of training is to increase aerobic capacity (maximal oxygen uptake (VO2 max), efficiency and economy) through physiological changes including increased muscle capillary and mitochondrial density and enzyme activity in the respiratory pathway. Due to the low level of resistance utilized, endurance training produces very little change in a muscle’s strength capabilities. In contrast, strength training typically involves the performance of high-resistance, low-repetition exercises to produce increases in muscle strength, hypertrophy and motor performance. Associated with these changes are increases in muscle fibre size, a reduction in mitochondrial density, an alteration of the ratio of type II fibres and little or no change in aerobic capacity. In light of these differences in adaptations to endurance and strength training, the question needs to be asked, are athletes who supplement their sport specific training with other forms of physical conditioning in order to enhance their sporting performance (e.g. endurance athletes engage in strength training and vice versa), optimising their potential for adaptation to both forms of conditioning? Whilst an array of books have been published suggesting that strength training can increase strength levels and enhance sporting performance, little is known about the compatibility of strength and endurance training within one training regime, commonly termed concurrent training. Further, it is not clear whether concurrent training sessions compromise, enhance or have no influence on physiological responses and subsequent adaptations of the respective training sessions compared to single mode strength and endurance training regimes.
METHODOLOGY

The purpose of the study was to find out the effect of concurrent training on strength among university boys. To achieve this purpose of the study, thirty university boys were selected as subjects who were from the Acharya Nagarjuna University, Guntur. The selected subjects were aged between 18 to 22 years. They were divided into two equal groups of fifteen each, Group I underwent concurrent training programme and Group II acted as control that did not participate in any special training apart from their regular curricular activities. The experimental group underwent the training programme for three days per week for eight weeks. Strength was measured by bent knee sit-ups. The data were collected at prior and immediately after the training programme for the criterion variable. Analysis of covariance (ANCOVA) was applied for analyze the data. In all the cases, 0.05 level was used to test this significance.

RESULTS

Findings: The mean and standard deviation scores of pretest, posttest and adjusted posttest of strength on concurrent training and control group are given in table.

Table: MEAN STANDARD DEVIATION AND ‘F’ RATIO OF CONCURRENT TRAINING AND CONTROL GROUP ON STRENGTH

<table>
<thead>
<tr>
<th>Variables</th>
<th>Concurrent Trg</th>
<th>Control</th>
<th>‘F’ ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S D</td>
<td>Mean</td>
</tr>
<tr>
<td>Pretest</td>
<td>17.47</td>
<td>5.05</td>
<td>17.67</td>
</tr>
<tr>
<td>Posttest</td>
<td>23.67</td>
<td>7.78</td>
<td>17.82</td>
</tr>
<tr>
<td>Adjusted posttest</td>
<td>22.87</td>
<td></td>
<td>17.85</td>
</tr>
</tbody>
</table>

‘F’ratio test computed in regards to the strength on concurrent training and control group in the pretest, posttest and adjusted post test are also presented in table.

DISCUSSION/CONCLUSIONS
The findings of the study showed that there was no significant difference between the pretest of strength.

The findings of the study showed that there was a significant difference between the posttest and adjusted posttest of strength.

The results of the study have shown there was a significant difference among concurrent training group and control group on strength reference to the past studies on selected physical fitness variables such as agility, strength and endurance in accordance with Jothi, Vinu and Muthu Elackuvan, Senthil and Arul and Daniel Baker.

REFERENCE

“A Study of Aggression, Mental Health and Self Confidence among Body Touches Game Players and Non-Body Touches Game Players”

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Head

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ABSTRACT

Objective of the study was to search aggression, mental health and self confidence among body touches game players and non-body touches game players. Hypothesis:
1) There will be no significant difference between body touches game players and non-body touches game players dimension on aggression. 2) There will be no significant difference between body touches game players and non-body touches game players dimension on mental health. 3) There will be no significant difference between body touches game players and non-body touches game players dimension on self confidence. **Sample:** For the present study 120 Sample were belongings to Maharashtra, among them 60 body touches game players (Boxing, Kabaddi, Kho-Kho and Malla Khamb) and 60 non-body touches game players (tennis, chess, cricket and swimmer). The age range of subjects was 20-30 years (Age Mean = 24.68, SD = 5.11). **Tools:** 1) Sports aggression scale constructed and standardized by Dr Quadri Syed Javeed. 2) Mental health inventory constructed by Dr. Jagdish and Dr. A K Srivastav.. 3) Sports self confidence inventory constructed and standardized by Dr Quadri Syed Javeed. **Result:** 1) Body touches game players had significantly high aggression than the non-body touches game players. 2) There was no significant difference between body touches game players and non-body touches game players dimension on mental health. 3) Body touches game players had significantly high self confidence than the non-body touches game players.

**Introduction:**

Aggression in sport can be caused by a number of factors. The most identifiable reasons are the rules of the game (level of physical contact), frustration, instinct, presence, arousal, environmental cues, self control and also the behaviour of those around. Other factors in aggression include personality, media involvement, coaching, role models and the society we live in.

Psychologists have distinguished two types of aggression in sport, hostile and instrumental. Hostile aggression is a participants purpose to solely harm someone physically, using there fist or elbow can fall into this category and a sporting example of this was shown in football by Ben Thatcher of Manchester City when he slammed his elbow into Pedro Mendes of Portsmouth. This can also be called reactive aggression (sympathetic arousal) and is associated with anger. Instrumental aggression can be used to achieve a goal, which can be to tackle harder to gain possession of the ball i.e. rugby. It is also known as channelled aggression, the ability to turn it on and off and control there temperament and it is not associated with anger.

This definition of mental health highlights emotional well-being, the capacity to live a full and creative life, and the flexibility to deal with life's inevitable challenges. Many therapeutic systems and self-help books offer methods and philosophies espousing strategies and techniques vaunted as effective for further improving the mental wellness of otherwise healthy people. Positive psychology is increasingly prominent in mental health.A holistic model of mental health generally includes concepts based upon anthropological, educational, psychological, religious and sociological perspectives, as well as theoretical perspectives from personality, social, clinical, health and developmental psychology.
Self-confidence means having a basic belief that we can successfully carry out activities and attain our goals. Confidence is necessary for being and staying motivated so that we persevere with and achieve tasks. In turn, having a belief in ourselves and having the confidence that we can fulfill our deepest personal needs, aspirations and goals feeds into our self-esteem. Self-esteem can be defined as a realistic and healthy self-appraisal. Self-confidence and self-esteem impact on many significant areas of our lives. These include educational achievements, getting pleasure out of personal pursuits, and relationships with people who are important to us.

**Objective of the study:**

1) To search the aggression, mental health and self confidence among body touches game players and non-body touches game players.

**Hypotheses:**

1) There will be no significant difference between body touches game players and non-body touches game players dimension on aggression.
2) There will be no significant difference between body touches game players and non-body touches game players dimension on mental health.
3) There will be no significant difference between body touches game players and non-body touches game players dimension on self confidence.

**Methods:**

**Sample:**

For the present study 120 Sample were belongings to Maharashtra, among them 60 body touches game players (Boxing, Kabaddi, Kho-Kho and Malla Khamb) and 60 non-body touches game players (tennis, chess, cricket and swimmer). The age range of subjects was 20-30 years (Age Mean = 24.68, SD = 5.11).

**Tools**

**Sports Aggression Scale (SAS):**

This scale was constructed and standardize by Dr. Quadri Syed Javeed. That test consists of 23 items, five alternatives. Highly reliable and valid this inventory.
Mental health inventory constructed by Dr. Jagdish and Dr. A K Srivastav. 56 items are in the questionnaire and each of the item has four responses – 1. Almost always true, 2. Some time true, 3. Rarely true and 4. Almost never true. The reliability of the inventory is determined by split-half method using odd-even procedure. Overall mental health reliability coefficients is .73 and Construct validity of the inventory is determined by finding coefficient of correlation between scores on mental health inventory and general health questionnaire (Gold beig, 1978) it is found to be .54.

Sports Self confidence Inventory (SSCI):

This scale was constructed and standardize by Dr. Quadri Syed Javeed. Highly reliable and valid this inventory

PROCEDURES OF DATA COLLECTION

All three tests were administered individuals as well as a small group. While collecting the data for the study the later approaches was adopted. The subjects were called in a small group of subjects and Prior to administration of test, through informal talk appropriate rapport form. Following the instructions and procedure suggested by the author of the test. The test was administered and a field copy of test was collected. Following the same procedure, the whole data were collected.

VARIABLE

Independent variable-

1) Type of Game Players
   i) Body Touches   ii) Non- Body Touches

Dependent Variable

1) Aggression
2) Mental Health
3) Self Confidence

Statistical Analysis and Discussion

Mean Std. Deviation, Std. Error and t value of body touches and non-body touches game players dimension on aggression, mental health and self confidence.
<table>
<thead>
<tr>
<th>Dimension</th>
<th>Body Touches Game Players</th>
<th>Non-Body Touches Game Players</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Aggression</td>
<td>83.12</td>
<td>7.09</td>
</tr>
<tr>
<td>Mental Health</td>
<td>179.22</td>
<td>10.41</td>
</tr>
<tr>
<td>Self Confidence</td>
<td>43.78</td>
<td>4.13</td>
</tr>
</tbody>
</table>

At the first mean of aggression score of body touches game players was 83.12 and non-body touches game players score was 72.63 body touches game players and non-body touches game players mean was highly significant t value 8.87 (118) and both levels were significant as well as null research hypothesis was reject and alternative hypothesis was accepted body touches game players had significantly high aggression than the non-body touches game.

Second mean of mental health score of the body touches game players was 179.22 and non-body touches game players score was 176.93 body touches game players and non-body touches game players mean was not significant t value 1.14 (118) and null research hypothesis was accepted it means there was no significant difference between body touches game players and non-body touches game players dimension on mental health.

Third mean of Self confidence score of body touches game players was 43.78 and non-body touches game players score was 38.41 body touches game players and non-body touches game players mean was highly significant t value 7.34 (118) and both levels were significant as well as null research hypothesis was reject and alternative hypothesis was accepted body touches game players had significantly high Self confidence than the non-body touches game.


MOTIVATION MATTERS CHALLENGES IN EVERY INDIVIDUAL PERFORMANCES

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Abstract

If you have a team of people reporting to you, then supervising them takes time and needs both consideration and care. It does not matter whether the team is just a handful of people or an entire organization; the principles are the same. So tool is the measurement that is applied.

Start with good people, layout the rules, communicate with your employees, motivate them and reward them when they perform.

Management Matters

INTRODUCTION

Your competences as a manager will be judge not solely on what you do yourself, though this is doubtless important, but on the combined performance of you and your team all of them, in all their aspects. And there is no doubt that people who are well motivated perform better than those who are not. The days of just telling people what to do, if they ever truly existed, are long gone. Staffs are more demanding of their employers than in the past. They want to know what is going on, they want to be consulted and they want to be involved. They want to feel that whatever they do it has some real worth and they preferably want it to have an element of enjoyment, certainly of satisfaction. When people are content in these kinds of ways they will perform well. So, if you motivate your people well, they will perform better than if you do not (and certainly better than when they feel management is actively antagonistic in some way). And the incentive for doing so is that a successful team not only gets the job done whatever that is but reflects well on whoever manages them also.

METHODOLOGY

Motivation increased efficiency, effectiveness and productivity, and make it more likely that whatever results are targeted will be hit. Conversely, its lack increases the time management takes, the endless checking up,
argument and hassle that comes the manager's way when people are at a low ebb motivationally and thus take their eye to some extent off the ball.

Let us be clear. If a group of people is not motivated, the results can specifically include the following.

RESULTS AND DISCUSSION

Increased:

- Absenteeism
- Waste of time - breaks, conversation (unrelated to work) and private tasks (from telephoning friends to surfing the internet).
- Gossip and, at worst, active rumour-mongering or disruption of others;
- Bucking of the system (eg. Embellishing claims for expenses);
- Challenging of policy;
- Bureaucracy.

Reduced:

- Care, and thus lower quality of work;
- Pace of work.
- Willingness to take responsibility;
- Level of creative contributions;
- Punctuality (eg., being late for meetings or finding reasons to go home early);
- Attention (eg to management instructions, leading to errors);
- Maintenance of the organization culture.

This is a list to which you can doubtless add. The small details are important, and any combination of symptoms is possible. The net outcome in terms of results is clear. So too is the way the management job increases and become more difficult when motivation is low.

The advantages of good motivation are also clear from the list above (absenteeism is reduced and so on). Again many combinations of advantages may come from it, and much of the success is the detail.
For example, the well-motivated person one who is prepared to put himself or herself out that much more than others -can make a big difference to results and this can be multiplied by the number in the team.

Being well motivated can also make world more fun, and do so for both motivated and motivator. All in all, motivating people, is a key aspect of any manager's job. It is not as many sometimes be thought, just a good thing to do'-it is a tool, like any other, that can directly influence the achievement of results.

The sample formula, shown below, makes the point: performance in all its aspects is inherently tied in with motivation Any manager ignores the motivation of their people at their peril.

**Performance — (Ability + Knowledge) X Motivational Feeling.**

If you understand the motivation process, first in terms of the basic human psychology involved, and also by having an ordered and logical ‘shopping list' of motivational possibilities that you might deploy, then what must be done becomes straightforward. It may still take time and effort, and it must still be fitted in with other matters. But certain individual actions can become routine - some things can benefit from becoming habit and in this way some activity can be fitted in without major time commitment. There can then remain time to take a creative view of the process too, for it needs more than routine action. Motivation should not simply satisfy people (sometimes with them hardly being aware that influence is being brought to bear), it should occasionally surprise them.

**RECOMMENDATIONS**

Motivation is a core skill. Used well it allows managers, and their staff achieve more potentially much more. If you want to be judged a successful manager you must cultivate suitable motivational skills. The rewards are in the results that it helps ensure will follow.

Within this context, management probably has a tougher job to do than at any time in the past. The fast pace of technology provides one major ongoing example with the job of coming to terms with and getting to grips with, new equipment and the processes it involves all the time. The information technology revolution is just a part of that.

Managers under pressure, particularly what they see as unreasonable pressure, can respond by taking it out on those nearest them, and in the office this is their staff. Yet they may be under pressure too and the whole difficulty increases as relationships between the two parties decline. Though many, most even, thrive from being under some pressure, clearly too much pressure is ultimately likely to affect people's performance adversely.

**Motivation in context**

What is important is the relationship between this soft of reality, and the attitude take to it and the process of motivation. It is easy to underrate the need to spend time motivating people and even easier to do so when you are under pressure and could perhaps do with a bit of motivation yourself. Allowing this to happen must be avoided. If times are tough, the pressure is on and still results must be achieved, that is surely precisely the time when you want
your staff to be performing well, when you want them to be largely self-sufficient, and when-logically-they must be well-motivated. The time you spend on the process may be all sorts of things useful, desirable, a good thing but it is also cost and time effective. It works, motivating people has a direct link with results. So, ultimately, the reason for doing it and doing it well is to help you achieve the results you want. Given the support of your staff it can engender, it may even make your own life a little less stressful.

Acknowledgement

The Author thanksthesubjectsandtheauthoritiesof King Fahd University of Petroleum & Minerals, S.A, and St. Francis College for Women, India for their help in the completionofthisstudy.

REFERENCES


**PHYSIOTHERAPY AND FITNESS EXERCISE FOR POST NATAL AND POST HYSTERECTOMY IN WOMEN**

By

Dr. Samina Farooq, Mr. Syed Farooq Kamal, Dr. Matin Sheik,

**ABSTRACT**

**Surgery**

**Hysterectomy**, an older women over 40, not desirous of child-bearing or associated with uterine disease such as DUB or fibroids, is best treated by hysterectomy. Vaginal route is preferred to abdominal if possible. The ovaries should be conserved, and there is no need to remove a vaginal cuff if colposcopy reveals no CIN vaginal involvement. Hysterectomy is also advised in women who cannot come for follow up after conservative therapy and when dysplasia recurs (1-4%) following conservative therapy.

**ALTERING FOOT SIZE**: Pregnancy may permanently alter a woman’s foot size, according to a study published in the American Journal of Physical Medicine & Rehabilitation.
Researchers measured the foot length and arch height of 49 pregnant women and repeated the measurement about five months after childbirth.

INTRODUCTION

About 60 to 70 per cent of the women had longer feet and shorter arch height after delivery. Their feet grew in length by 2-10mm.

Changes in foot size were more prominent in the first pregnancy and could be attributed to the extra weight women carry, and increased looseness of the joints and ligaments associated with pregnancy. These foot changes during pregnancy may explain why women are more prone to pain or arthritis in their feet, knees, hips, and spines compared to men, the researchers said.

Most of the Gynecologist around the world confirm that doing Aqua fitness like Aqua Aerobics, Aqua Yoga and Aqua Physical Fitness which contains flexibility, endurance and rhythmic movements.

They always prefer as water is one of the best exercises of giving Aqua therapy and hydro therapy and lots of flexibility, agility and endurance capacity which enhances the fitness level of an individual keeps changes the lifestyle of a person.

Finally, energizing postnatal exercises close up your pelvis, tone your body and strengthen your abdominal muscles.

All the exercises are presented in sequences that are short, simple, effective and safe. Aqua physical fitness exercises in water particularly experiences harmonizing exercises in water for pregnancy birth and beyond.

Most of the Gynecologist refers the pregnancy ladies to do the fitness always in the safest manner, life most of the pregnancy ladies when they do on land are up and down where they slip and fall so, the best way to keep themselves to choose is water fitness.

Both in pregnancy and after birth it is extremely important to strengthen and elongate the muscles of the back, buttocks, thighs and abdomen. In aqua fitness, as in classical fattiness, this is achieved through a combination of breathing and stretching, but greater elongation of muscle is possible in water.

METHODOLOGY

Your deep spinal muscles, together with your leg muscles adjust your posture through pregnancy and after birth by holding your pelvis in the right position at all times, supporting your baby comfortably.
To enjoy a gravity-free environment
To open the pelvis
To stretch and strengthen the spinal and abdominal muscles.
To gain control of the pelvis floor muscles so that you can relax them while giving birth.
To expand you breathing capacity
To relax more deeply and release worries and fears.
To tune in with your growing baby.

POSTNATAL AQUA FITNESS:

The aims are:

- To realign the spine and strengthen the spinal muscles.
- To tone and strengthen the abdominal muscles
- To regain full tone of the pelvic floor muscles
- To energize without strain in a short movement, relaxing at the same time
- To tone and remodel your figure safely
- To get ready to swim with your baby.

RESULTS AND DISCUSSION

Water stretches with your baby

Postnatal stretches in water can be practiced with your baby. You can hold your baby safely with both hands under the arms at first and then with one arm only. It is relatively easy to hold your baby against your body, facing out, with one of your arms across her chest extending to hold her arm between your thumb and index finger. Make sure you hold your baby in the most relaxed way you can and, whenever possible, allow her to find her own buoyancy in the water as well as relying on the support you give her.
Most young babies enjoy lying on their At first, even if you can float, the idea
experience sensation of    of your baby falling off may cause you rest similar to those felt
during your          to tense up. It may therefore be best to pregnancy relaxation in water, except
start with a long woggle or even two that now your baby is outside rather     woggles
under your arms, which allow than inside. The freer you are in water,     you to have your two
hands free to    the more enjoyable the relaxation is for     support your baby gently on the sides
of you both.                   her body.

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Cadmus L, et.al. (2010), “Community-Baed Aquatic Exercise and Quality of Life in Persons with Osteoarthritis”, Medicine & Science in Sports & Exercise, 42: 8-15
A COMPARATIVE STUDY OF PERSONALITY DIFFERENCES BETWEEN PRESENT RUNNERS ATHLETES AND NON RUNNERS ATHLETES

Rajeshwar Vaijnath Rao* Patil,
Hargi Swami Mahavidyalaya Uddgir, Dist, Lathur, India

ABSTRACT

The Study was conducted to find out the personality differences between Present Runners Athletes and Non Present Runners Athletes in Hyderabad. The Sample of the Study is 75 Present Runners Athletes and Non Present Runners Athletes 75 Members who have taken part in various Athletics Competition in Hyderabad District. The Catells Sixteen Personality Questionnaire was used to know the personality differences of Present Runners Athletes and Non Present Runners Athletes. It was found that Present Runners Athletes are having good personality traits compare to Non Present Runners Athletes.

INTRODUCTION:

Personality can be defined as a dynamic and organised set of characteristics possessed by a person that uniquely influences his or her cognitions, motivations and behaviours in various situations. The word Personality originates from the latin word persuna which means mask. The mask was not used as a plot device to disguise the identity of a character, but rather was a convention employed to represent or typify that character.

The study of personality has a rich and varied history in psychology with an abundance of theoretical tradition. Personality type refer to the Psychological clarification different types of people personality types are distinguished from personality traits which come in different level or degrees, personality develops in a social context, and if finds expression in social task. The life span appeared the development emphasize that some of these facts are particularly important at certain steps for life and provide a focus for continued personality growth.

Present Runners is an organised Sports that Originated from the Crik Run held every year since 1837 at Rugby School in England. In the early 19th Century the Present Runners the Present Runners was practiced in all private schools in England. A two mile Present Runners Steeple Chase formed part of the Oxford University Sports in 1860, but was replaced in 1865 by an event over barriers on a flat field which become the modern Steeple Chase.

The Present Runners Course must be designed on an open or woodland area, covered as far as possible by grass with natural obstacles, which can be used by the course designed to build a challenging an interesting race course the area must be wide enough to accommodate not only the course but also a necessary facilities. The Distance of Modern Present Runners Runs are for Men 12 Kms., 4 Kms., Women 8 Kms., 4 Kms., Boys under 20 years 8 Kms. and Girls Under 20 Years, 6 Kms.

SAMPLE

The Sample for the Study consist of 75 Present Runners Men Athletes and 75 Non Present Runners Men Athletes those who have taken part in the Hyderabad District Athletics Competitions these Athletes are of different background and there is no control was made on this Athletes.

METHODOLOGY

The Catells sixteen personality questionnaire is an objective scoreable test basic research find the sixteen personality differences among Present Runners and Non Present Runners Athletes was used. The test consist of 100 Questions
RESULTS AND DISCUSSION

The Present Runners Athletes are significantly outgoing, intelligent, more emotional, more assertive, sober, more conscious, more venturesome, tough minded, more treating, more practical, more forthright, more friendly, more experimenting, self sufficient, more controlled, more will power, than Non Present Runners Athletes.

The Study reveals that Present Runners Athletes are having good personality traits then Non Present Runners Athletes.

RECOMMENDATIONS :

Personality Test should be conducted by the Coaches for development of performance among Present Runners Athletes and giving proper coaching to Non Present Runners Athletes also depend upon their personality traits.

REFERENCES


ACADEMIC ACHIEVEMENTS OF VOLLEYBALL PLAYERS OF URBAN GOVERNMENT SCHOOLS IN RELATION TO THEIR SOCIO-ECONOMIC STATUS

By

Dr.M.Barnabas
Associate Prof, MGIT, Hyderabad, India

ABSTRACT

Current Education is intended for the people to benefit as much from it. Education and Physical Education had relatively the same objectives and goals that is the development of a wholesome personality. For example in the seven cardinal principles of education, physical education contributes directly to the objectives of citizenship, command of the fundamental process, worthy home membership and vocation. As a result, it should be based on the need, interest and aspiration of the people. (Knapp and et.al) stated that the teachers can enhance the changes for students in achieving the success by carefully graded teaching methods. The idea of socio-economic status varies from society to society according to the social values held by that society. Hence the definition of socio-economic status is specific to a society. The purpose of this study was to find out the academic achievement of volleyball players of Urban government Schools in relation to their socio economic status. A group of (n=250) subjects from urban private schools were randomly selected for this study. There ages were up to 16 years. To investigate the academic achievement of the volleyball players, following heads were considered: academic achievement in Telugu test, academic achievement in English test, academic achievement in problem areas, and total academic achievement. To ascertain the socio-economic status of the subjects, the investigator
followed questionnaire as suggested by Aggarwal et al. The analyzing of data reveals that the mean and S.D for volleyball playing ability was (120.37, 19.53). Academic achievements with regard to Telugu subject were (57.42, 14.74). Mean and S.D with regard to English subject was (59.69, 15.02). Mathematics subject had shows mean and S.D (61.94, 14.10). With regard to problem areas mean and S.D was (65.69, 15.15). Total marks had shows with mean and S.D (244.2, 50.10). Socio economic status of the subjects with mean and S.D was (44.3,10.5). It was concluded that the volleyball players of urban government schools achieve higher academic performances in compare with average socio-economic status.

Key words: academic, urban, socio-economic, achievements

INTRODUCTION

Current Education is intended for the people to benefit as much from it. Education and Physical Education had relatively the same objectives and goals that is the development of a wholesome personality. For example in the seven cardinal principles of education, physical education contributes directly to the objectives of citizenship, command of the fundamental process, worthy home membership and vocation. As a result, it should be based on the need, interest and aspiration of the people. (Knapp and et.al) stated that the teachers can enhance the changes for students in achieving the success by carefully graded teaching methods. The idea of socio-economic status varies from society to society according to the social values held by that society. Hence the definition of socio-economic status is specific to a society.

The purpose of this study was to find out the academic achievement of volleyball players of Urban government Schools in relation to their socio economic status

METHOD:

A group of (n=250) subjects from urban private schools were randomly selected for this study. There ages were up to 16 years. To investigate the academic achievement of the volleyball players, following heads were considered: academic achievement in Telugu test, academic achievement in English test, academic achievement in problem areas, and total academic achievement. To ascertain the socio-economic status of the subjects, the investigator followed questionnaire as suggested by Aggarwal et al.

Table I
Number of Volleyball Players Selected from Urban Government Schools

<table>
<thead>
<tr>
<th>S.No</th>
<th>Name of School</th>
<th>PLACE</th>
<th>No. of Players Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Z.P. High School</td>
<td>RUDRARAM</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>Z.P. High School</td>
<td>KODANGAL</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>Z.P. High School</td>
<td>KOTEPALLY</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>Z.P. High School</td>
<td>DHARUR</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>Z.P. High School</td>
<td>AMEERPET</td>
<td>14</td>
</tr>
</tbody>
</table>
RESULTS AND DISCUSSION: Table II

Mean and Standard Deviation Values of Volleyball playing Ability, Academic Achievement and Socio Economic Status of Andhra Pradesh Volleyball Players

<table>
<thead>
<tr>
<th>S.NO</th>
<th>VARIABLES (Urban Govt Schools)</th>
<th>Mean ± S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Volleyball Playing Ability</td>
<td>120.37 ± 19.53</td>
</tr>
<tr>
<td>2</td>
<td>Telugu</td>
<td>57.42 ± 14.74</td>
</tr>
<tr>
<td>3</td>
<td>English</td>
<td>59.69 ± 15.02</td>
</tr>
</tbody>
</table>
The analyzing of data reveals that the mean and S.D for volleyball playing ability was (120.37, 19.53). Academic achievements with regard to Telugu subject were (57.42, 14.74). Mean and S.D with regard to English subject was (59.69, 15.02). Mathematics subject had shows mean and S.D (61.94, 14.10). With regard to problem areas mean and S.D was (65.69, 15.15). Total marks had shows with mean and S.D (244.2, 50.10). Socio economic status of the subjects with mean and S.D was (44.3, 10.5).

**CONCLUSION:**

It was concluded that the volleyball players of urban government schools achieve higher academic performances in compare with average socio-economic status.

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**Sports Injuries In Female Sports Persons**

By

Mr. Sanjay Khandekar, Dastagir Ali Khan, Mohammed Nazeer

Principal, Physical Education College, Jalna, Maharashtra
ABSTRACT

Sports injuries are commonly caused by overuse, direct impact or the application of force that is greater than the body part can structurally withstand. Chronic injuries are caused by overusing the same muscle groups or joints. Poor Technique and structural abnormalities can also contribute to the development of Chronic injuries.

Introduction:

Common Sports Injuries:

1. Ankle Sprain
2. Bruises
3. Concussion
4. Cuts and abrasions
5. Groin Strain
6. Hamstring Strain
7. Knee joint injuries
8. Nose injuries
9. Stress fractures

DISCUSSION:

No injury strikes more fear into the hearts of athletes and coaches than an Anterior Cruciate Ligament tear.

Although, common in the male dominated sporting world, recent studies have shown that Anterior Cruciate Ligament tears occur at a disturbingly high incidence in female athletes! Many studies have documented a four-to-eight-fold increase in ACL tears.
It is no secret that men and women are inherently different both physically and physiologically; the cause of this "gender-bias" therefore, is multi-factorial. Intrinsic factors such as differences in anatomy, hormones, generalized laxity and neuromuscular function or extrinsic factors such as coaching, training, and conditioning techniques are implicated.

Anatomical differences like wider pelvis, knock-knees and foot pronation, all place the women's ACL at a mechanical disadvantage compared to men. With wider hips, there are increased angular forces involving the female athlete's knee which may increase torque or rotational twist on the knee which again will stress the anterior cruciate ligament.

In general, women have greater ligamentous laxity than men. There are receptors for the female hormones estrogen and progesterone in the ACL. Some studies have shown that an increase in estrogen concentration may decrease the strength of the ligament.espl during the ovulatory phase (days 5 through 12) of the menstrual cycle.

Sports such as tennis, badminton, basketball, football and volleyball which require the jumping, cutting, pivoting and landing activities and knee position are more likely to cause ACL tears.

Another factor separating women athletes from male athletes is the so-called "female athlete triad." This involves a combination of decreased energy availability due to disordered eating, bone loss due to osteoporosis, and menstrual disturbances that interferes with health and performance of female athletes. Osteoporosis in itself increases the risk of stress fractures and chronic injuries like shoulder impingement syndrome.

Moreover, the combination of not having strong shoulder muscles, including the rotator cuff muscles, and having loose supporting ligamentous tissues can lead to instability of the shoulder joint. As a result, women playing sports such as badminton, swimming, softball or volleyball typically are at risk for rotator cuff weakness, and tears.

Can these injuries be prevented? Several training programs directed toward maximizing hamstring strength greater than quadriceps strength to improve the knee function and decrease an injury to the ACL have been developed.
The number of young girls and women participating in physical activity and sport is increasing. Female athletes may experience select musculoskeletal injuries or medical issues and with a greater understanding of the causes of these phenomena, we can move forward with effective prevention strategies. Implementing programs that address the unique needs of the female athlete will generate peak performances but not at the expense of the long-term health of the athlete.

CONCLUSION:

The female athletes must be given proper training for development of muscle groups and joints to avoid the sports injuries.

Recommendations:

Studies can be conducted in all sports and games.

REFERENCES


Effect of Plyometric Training, Resistance Training and Their Combination on the Performance of Baseball Players

By
ABSTRACT

A total of sixty female (N=60) school national level female Baseball players ranging between 16-19 years of age were taken as subjects for the purpose of the study. The subjects were randomly selected and training was conducted at government senior secondary girls' school, Mall Road, Amritsar. The subjects were divided into two groups namely: Experimental Group (45 subjects in total) and Control Group (15 subjects). The Experimental group was further sub-divided into three groups of 15 subjects in each group. Experimental Group-I was given (Plyometric Training), Experimental Group-II (Resistance Training) and Experimental Group-III (Combined Training). The performance variables were selected for the purpose of the study: Performance (Johnson Baseball Test, C. Meyers, 1974) - Field Goal Speed Test, Baseball Throw for Accuracy, Dribble Test. In order to find out the differential effects of the two treatment groups (Plyometric and Resistance) and one control group, Analysis of Covariance (ANCOVA) test was computed with the help of SPSS computer software. The LSD post-hoc test was applied in cases where 'F-ratio has shown significance to find out which of the differences of the paired means were significant. The level of significance chosen was .05.

Keywords: Plyometric Training, Resistance Training, Performance, Baseball Player

INTRODUCTION

In sports that require jumping and quick movements, there is a need for muscular strength and power such as Baseball. One of the Baseball skills is rebounding, dribbling etc. The necessity to attain ultimate ability to perform skills has motivated coaches and trainers to apply different solutions and exercises for the success of players. In order to improve in any sport, in addition to necessary knowledge of principles and techniques, the player should have the necessary required fitness. Plyometric Exercises are specialized high intensity training technique used to develop strength and speed. Plyometric movements are those in which a muscle is loaded and then contracted in
rapid sequence, use the strength, elasticity and innervations of muscle and surrounding tissues to jump higher, run faster or hit harder, depending on desired training goal.

Performing Plyometrics at high amounts and intensity is very dangerous. As fatigue sets in, one becomes more prone to lose form and perform the movement incorrectly. These jumps should be done sparingly and each jump should be done for quality not quantity so doing death jumps from the top of your garage roof over and over again, isn't going to help you much. This simply means performing Plyometrics is same as to lift weights. Concentrate, keep perfect form and give it all you got; jumping as high as possible. Plyometric refers to exercise that enables a muscle to reach maximum force in the shortest possible time. The muscle is loaded with an eccentric (lengthening) action, followed immediately by a concentric (shortening) action. This study outlines the physiology behind how and why plyometrics works. It also examines the research that demonstrates why, as a form of power training, plyometric training is very effective.

A combination of plyometrics and resistance training during a training cycle should be structured to allow maximal efficacy and physical improvement. To our knowledge, no randomized studies have compared the effects of combined plyometric training and prospective resistance training in children and adolescents. Physical adaptation of the player to perform the sport activities is one of the practical functions of the training which improve the training of the player to reach to higher levels in the sport activities (Abdel et.al 1993). The skillful performance is relevantly associated with the special physical motor abilities as the perfection of the skillful performance depends on the range of the development of the special physical abilities to perform such requirements, such as muscular power, endurance, agility and others. The skillful performance is often measured by the level of the player to acquire physical abilities (Abdel et.al 1992).

The importance of this study lies in demonstrating an important aspect of special preparation and training for the competition as through the matches' results, we can see the failure of a number of players in passing, dribbling and shooting during the matches: the matter that enables the author to determine the problems of that study as a scientific attempt directed to study the effect of using the plyometric training on developing the special physical abilities and the skillful performance of the Baseball players.

The combination of plyometric exercise and weight training increased (Adams et al., 1992; Baur et al., 1990; Ioannisi et al., 2000) or maintained as unaffected the vertical jumping performance (Stone & O' Bryant, 198.6). (Adams et al 1992) suggested that this combination may provide a more powerful training stimulus to the vertical jumping performance than either weight training or plyometric training alone. However, (Clutch et. al 1983) did not reach similar conclusions. Therefore, the purpose of the present investigation was to compare the effects of 8-week training period of plyometric, resistance and combined plyometric and resistance training with fitness and performance in youth Baseball players.

PROCEDURE AND METHOD
The present study was conducted on sixty (60) School National level female Baseball players ranging between 16-18 years of age. The subjects were randomly selected and training was conducted at Government Senior Secondary Girls School, Mall Road, Amritsar (Punjab). The subjects were divided into two groups namely: Experimental Group (45 subjects in total) and Control Group (15 subjects). The Experimental group was further sub-divided into three groups of 15 subjects in each group. Experimental Group-1 was given (Plyometric Training), Experimental Group-II (Resistance Training) and Experimental Group-III (Combined Training). All the subjects were local residents. During data collection period, the subjects were not allowed to participate in any competition except daily training schedule.

The performance variables were: Performance (Johnson Baseball Test, C. Meyers, 1974) - Field Goal Speed Test, Baseball Throw for Accuracy, Dribble Test. In order to find out the differential effects of the three treatment groups (Plyometric, Resistance and Combined Plyometric & Resistance) and one control group, Analysis of Covariance (ANCOVA) test was computed with the help of SPSS computer software. The LSD post-hoc test was applied in cases where 'F'-ratio has shown significance to find out which of the differences of the paired means were significant. The level of significance chosen was .05.

REFERENCES:

www.monkeybargym.com
A COMPARATIVE ANALYSIS ON AGGRESSION LEVEL AMONG NATIONAL PLAYERS OF HYDERABAD IN RELATION TO THEIR TIME FACTOR GAMES AND NON TIME FACTOR GAMES

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INTRODUCTION

PSYCHOLOGY:

Psychology is the study of the mind and behavior. Its immediate goal is to understand individuals and groups by both establishing general principles and researching specific cases. For many, the ultimate goal of psychology is to benefit society. In this field, a professional practitioner or researcher is called a psychologist, and can be classified as a social scientist, behavioral scientist, or cognitive scientist. Psychologists attempt to understand the role of mental functions in individual and social behavior, while also exploring the physiological and neurobiological processes that underlie certain functions and behaviors.

SPORTS PSYCHOLOGY

Sport psychology is the study of the psychological factors that affect participation and performance in sports. It is also a specialization within the brain psychology and kinesiology that seeks to understand psychological/mental factors that affect performance in sports, physical activity, and exercise and apply these to enhance individual and team performance. Orderly development and advancement of the practice of sport psychology embrace and enhance interdisciplinary nature of sport psychology. Advance development of
graduate education and training in sport psychology. Advance job opportunities for practice in collegiate, Olympic, and pro sports.

AGGRESSION:

In psychology, the term aggression refers to a range of behaviors that can result in both physical and psychological harm to oneself, other or objects in the environment. The expression of aggression can occur in a number of ways, including verbally, mentally and physically.

Aggression in sport can be caused by a number of factors. The most identifiable reasons are the rules of the game (level of physical contact), frustration, instinct, presence, arousal, environmental cues, self control and also the behaviour of those around. Other factors in aggression include personality, media involvement, coaching, role models and the society. The relationship between sport and aggression has been studied extensively for decades, more recent research shows the opposite-participation in sports is likely to increase an individual's aggression. Sport psychologists distinguish between hostile and instrumental aggression. The primary purpose of hostile aggression is to inflict physical or psychological injury on another, the main aim of instrumental aggression is to attain an approved goal, such as winning a game. These two forms of aggression can be distinguished clearly in most sport situations, although not necessarily in extreme contact sports such as boxing and ice hockey.

METHODOLOGY:

- The researcher has opted questionnaire method consist of 15 questions for testing the Aggression level of the players.
- The researcher has gone to various experts for the scrutinization of the questions and got approved from them.
- The researcher took the pilot study for 20 players of time factor games and Non time factor games which show 90% of reliability.

SAMPLE OF THE STUDY:

- The sample was divided in two equal groups as the Time Factor Games (TFG) ie: Kho-Kho, Kabaddi, Hockey, Football, Basketball and Non Time Factor Games (NTFG) ie: Volleyball, Lawn Tennis, Table Tennis, Badminton, Softball.
- Each group consist of 50 National players.
- The sample was collected from various colleges of Hyderabad of Osmania University and JNTU.

RESULTS AND DISCUSSIONS:
### INDEPENDENT SAMPLE TEST

<table>
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<th>GROUPS</th>
<th>N</th>
<th>MEAN</th>
<th>STD.DEV</th>
<th>STD.ERROR</th>
<th>t</th>
<th>Sig</th>
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<td>Aggression– Time Factor Games</td>
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</table>

The Results of the study shows that the Time factor Games are having more Aggression compare to Non Time Factor Games.

**CONCLUSION:**

It concludes that the Time factor Games are having more Aggression compare to Non Time Factor Games. Time Factor Games are Kho-Kho, Kabaddi, Hockey, Football, Basketball etc are having good psychological variable of Aggression compare to Non Time Factor Games ie: Volleyball, Lawn Tennis, Table Tennis, Badminton, Softball.

**RECOMMENDATIONS:**

- Similar studies can be conducted on other sports and games.
- Male and female players can also be conducted.

**REFERENCES:**