

A STUDY OF JOB SATISFACTION OF PHYSICAL EDUCATION TEACHERS OF SECONDARY SCHOOLS OF MALDA DISTRICT

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ABSTRACT

Satisfaction is the most important perspective in life of an individual. If the person is satisfied with his/her work or profession he/she may be able to proceed smoothly with his teaching and as a result person can achieve greater heights in life. In the same way satisfaction is necessary in every profession. The objective of the study is to find out the job satisfaction towards teaching of the Secondary School's Physical Education teachers of Malda District (West Bengal).. The Study was conducted on 60 Physical Education teachers, working in various Secondary Schools. The researcher collected the data through administered the Job Satisfaction Scale developed by Vikas Kundu (JSS-kv) for Physical Education Teachers. Data was collected from physical education teacher secondary school of Malda district from 60 physical education teachers. . The data work examine by applying 'Z' test and percentage method. Raw Scores were converted into Z-scores. Secondary School's physical education teachers were found to have positive attitude towards their Job Satisfaction. They were satisfied from their job in secondary schools.

Keywords: Job satisfaction, physical education, Attitude, Teaching, Teacher

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INTRODUCTION

The word physical education is derived from two separate words 'physical' and 'education'. The simple dictionary meaning of word physical is relating to body, it may relate to any one or all of the bodily characteristics. It may be physical strength, physical endurance physical fitness, physical appearance or physical health. The word 'Education' means systematic instructions or training, or preparation for life to perform some particular task. A combined meaning of these two words would be that systematic instruction or training which relates to physical activities or programme of activities necessary for development and maintenance of human body, development of physical powers or cultivation of physical skill.

Education is a 'doing' phenomenon one learns through doing. Education is not confined to class-room alone. It may take place on the play-ground, in library, or even at home. Such an education is conducive to the enrichment of an individual's life. A well directed programme of physical education leads to healthy living, social efficacy, good physical health, and worthy use of leisure time. In the modern context, the term 'physical education' has assumed much broader and more meaningful application to our daily life.

Physical education is the education of man 'in' and 'by' means of physical activity. Physical education is that education which starts with physical development and advances towards perfect development of human being, the ultimate result being vigorous and strong body, acquisition of sound health, mental alertness, and social and emotional balance. Such an individual will be able to interpret new situations effectively, in more meaningful and purposeful manner and can be said to be a "Physically Educated Person".

Satisfaction is the most important perspective in life of an individual. If the person is satisfied with his/her work or profession he/she may be able to proceed smoothly with his teaching and as a result person can achieve greater heights in life. In the same way satisfaction is necessary in every profession. Whether, it is physical education or general education. But when we are dealing with these professions a bit certain differences arises. In some cases in spite of getting equal salary and having equal status, most of the teachers seems to be unsatisfied with their profession. There could be various reasons for their unsatisfaction towards their job. In case of physical education teacher in spite of having good. Knowledge or command over the subject. He/she cannot feel comfortable, the most important reason seems to be the lack of facilities such as in some schools students wants to play but they don't have grounds to play, don't have sufficient equipment.

Today, teaching in Physical Education has become a demanding profession which requires exceptional skills. Physical education teachers have to play a very vital role and their work involves a number of duties such as planning, teaching, evaluative, administrative and various unclassified ones. A physical education teacher requires a greater variety of talents than any other teaching area. His responsibilities are diverse and the society looks up to him as a leader who can create and maintain general fitness of the sedentary people on one hand and help produce sports persons at grass root level, on the other. As a result, physical education teachers working in schools feel their workload heavier, strenuous and difficult too. Some of them feel that in proportion to the expectations of the society they are not given due place, recognition, autonomy, pay, working conditions, opportunities for growth and advancement and so on. All this leads to job dissatisfaction or low job satisfaction among teachers in general and physical education teachers in particular in many developing

countries around the world.

Comprehensive development of students and the job satisfaction of a physical education teacher have a crucial role for national development. The youths wishing to be physical education teachers can make a good career in this field, if they have interest, attitude, perception, study and vocational skill. According to Charlse Boosar, an ideal physical education teacher is supposed to have a chain of multiple social, spiritual, ethical and emotional values and qualities such as moral character, leadership, honesty, ingenuity, attractiveness, personality, absence of physical ugliness, best dynamic power, dynamic skill, high intelligence, erudition, best social rational competence, interest in learning, cooperative attitude, oral and written expression ability, co-ordination of activities etc. The physical education teacher having the above virtues should get job satisfaction.

The Kothari Commission rightly referred to teachers as national builders. The all-round development of the students is influenced by the teachers. Further, teachers' mental health will have a significant impact on teachers' performance. The teachers' performance is influenced by several factors among which job satisfaction is a significant dimension. Hence, the author studied the job satisfaction among teacher educators in Telangana region of Andhra Pradesh. The present article examines the job satisfaction among Teacher Educators in relation to their gender, age, marital status, teaching experience and management of the institution (Rambabu, 2014).

Job satisfaction has always been a flash point of discussion among the researchers and scholars since long. Many investigations on job satisfaction in govt. and private school teachers of physical education were conducted by Indian researchers. They concluded that government secondary school physical education teachers have significantly better satisfaction with their job than private secondary school physical education teachers (Thakur, Chaurasia, Kumar & Thakur, 2012; Bhardwaj, 2012; Singh, Sharma, and Kaur, 2009; Sharma, Mishra, Shukla, 2013; Gupta and Gehlawat, 2013; Arumugasamy. and Renu, 2013; Kumar, 2014; Mishra & Pandey, 2014; Slathia, 2014; Malik, 2014; Neeru Sharma and Chandni Rana(2014).

Kumar (2014) revealed that the more experienced secondary school physical education teachers have significantly better satisfaction with their job than less experienced secondary school physical education teachers. Job satisfaction is one of the most widely discussed issue in organizational behaviour and Human Resource Management and organizational management. Slathia (2014) indicated that the physical education teachers have to work in different conditions in various schools with and without sports facilities. Malik (2014) observed that the teachers working in Public schools were facing significantly more Job stress than their counter parts but at the same time they were enjoying better job satisfaction than others. Singh (2013) revealed that physical education teachers at government, private and C.B.S.E. schools and significance difference in relation to job satisfaction. Yarmohammadi & Taghibigloo (2013) showed that there is a significant relationship between teacher's job satisfaction balance with salary, nature of job, and job promotion. But there is not a significant relationship between teacher's job satisfaction balance and satisfaction with management and colleagues. Astrauskaite (2011) revealed that the some of the JSS's scales do not reflect teachers' job satisfaction. Singh, Sharma, and Kaur (2009) indicated the significant difference among government private and public school

physical education teachers as regards to their job satisfaction. Singh et al. (2006) revealed that the coaches had lower satisfaction with job security. The consent of colleagues, mentors were moderate to high. Finally, they had the consent of the head of a medium.

The purpose of the present investigation was to find out the job satisfaction of various secondary schools level physical education teachers of Malda District in West Bengal. It was also hypothesized that. the job satisfaction of physical education teacher would be satisfactory.

METHODOLOGY

Selection of Subjects:

For the purpose of the present study, a total number of 60 physical education teachers, teaching in government and private secondary schools of Malda District of West Bengal were selected randomly.

Instrument:

In this study, Job Satisfaction Scale (Physical Education Teachers) developed by Vikash Kundu (J S S- KV) was used to collect the reliable and valid data.

Statistical Analysis:

To find out the job satisfaction among physical education teachers in government and private secondary schools of Malda District (West Bengal), the Means, Standard Deviations and 'Z' test were computed.

RESULTS AND DISCUSSION

In order to analyse the job satisfaction among secondary schools physical education teachers of Malda District, the raw scores were converted into Z-scores. After that means and standard deviation were computed data pertaining to this have been presented in Table 1 and depicted in Figure 1.

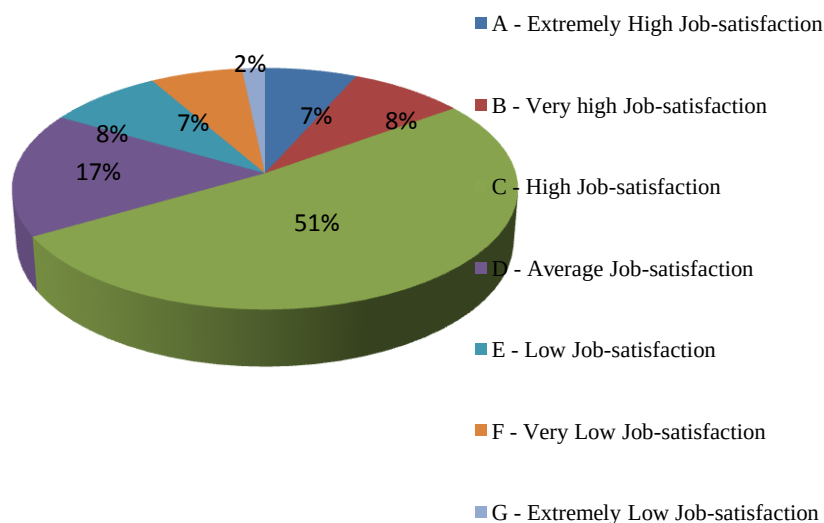
TABLE 1
MEAN AND S.D. OF JOB SATISFACTION AMONG SECONDARY SCHOOLS
PHYSICAL EDUCATION TEACHERS

Variable	Category	N	Mean	S.D.
Job satisfaction	Secondary schools physical education teachers	60	117.75	15.57

It is clearly revealed from Table 1 that the mean and standard deviation of job satisfaction of physical education teacher of secondary school are 117.75 and 15.57 respectively. Figure shows that the percentage of job satisfaction of physical education teacher of secondary school are, 7% teacher are extremely high job satisfaction, 8% teacher are very high job satisfaction, 51% teacher are high job satisfaction, 17% teacher are average job satisfaction, 8% teacher are low job satisfaction, 7% teacher are very low job satisfaction, 2% teacher are extremely low job satisfaction,

So finally we can say that the percentage of job satisfaction was extremely high (51%) followed by very high (17%), high and average(8%), low and very low (7%) and extremely low (2%). The physical education teacher are secondary school of Malda District in West Bengal were better satisfied with their job.

Figure:1. Percentage of Physical Education Teacher's Job Satisfaction



CONCLUSION

1. Fifty percent of total physical education teacher of secondary school of Malda district in West Bengal were extremely satisfied with their job.
2. Less than fifty percent of total physical education teacher of secondary school of Malda district in West Bengal were found to have job satisfaction in between very high to extremely low category.

APPLICATION IN SPORTS

. Results of this study will provide a useful background to the headmasters/principals of schools, administrators and education department of the state to modify the administrative procedure and to make necessary changes in the programmers related to physical education and games & sports. Results of this study will play an important role in providing motivation and inspiration to physical education teachers and increasing their social status. Also help to know the job satisfaction towards physical education teachers. The results would also help to understand the factors responsible job satisfaction among Physical Education teachers.

FUTURE DIRECTION FOR RESERACH

A study may be conducted on a large population of other parts of the country. Similar study may be conducted on colleges and University level physical education teacher. Similar study may be conducted on coaches. It is also recommended that the study may be conducted on the teachers of rural and urban area. From the findings of the study it is also recommended that similar study may be conducted on teachers of other subject.

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EFFECT OF SELECTED EXERCISES ON THE PERFORMANCE OF KICKING ACCURACY IN FOOTBALL PLAYERS

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ABSTRACT

Kicking accuracy is an important component of successful penalty kicks, which may be influenced by the approach angle. The purpose of this study was to examine the effects of Selected Exercises on the Performance of kicking Accuracy in Football Players. The experimental study was made on thirty (30) male subjects. All the subjects were divided into equal groups of 15 (fifteen) subjects in each. One was experimental group; the second one was control group. The investigator was prepared a suitable training programmed for the experimental group the prescribed selected exercises (hopping, rope skipping, squat with weight, steps up with weight). Duration of the training programmed was 6 days in a week for a period of 6(six) weeks with 45 minutes each day. The control group did not practice any selected exercise during training period of six weeks. The significance of difference between the pre and post means of experimental group was 3.21 (place kick) and 2.08 (rolling kick), which was much greater than the require value at 0.05 level of confidence ($t= 2.048$). It showed that significant improvement in kicking accuracy in case of right place kick and rolling kick in football of experimental group. But in case of control group no significance difference found between the pre and post test of kicking accuracy (place kick and rolling kick) in football. Therefore, it indicated that specific exercises are significant changes on kicking accuracy in football for the experimental group in case of place kick and rolling kick. The finding of the study shows that there is no significant improvement in control group due to lack of training.

Keywords: Performance, Accuracy, Kick, Football Players, Males

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INTRODUCTION

Football is the most world famous game and watched by many of the fans globally. More than 200 million people worldwide play this game. Soccer, fuss ball, football, whatever this game with round leather ball may be called in various languages. It breaks the barriers of culture, caste, creed, ethnicity, religion and language, soccer is the national game of nearly every country in Asia, Africa and South America. Argentina, Brazil, England, Germany, Italy etc are football giants. It also brings national integration and also results in brother hood relationship among the international countries. It is such as powerful game that a player needs lot of strength and endurance to survive in the game. At International level FIFA is the governing body of football who frames the dales and regulation regarding the game.

Football was introduced to India by British soldiers in the mid-nineteenth century. It spread because of the efforts of Nagendra Prasad Sarbadhichary. In 1888 the Durand Cup was founded by then India's Foreign Secretary, Mortimer Durand at Simla, India. The Durand Cup is the third oldest football competition behind the FA Cup and the Scottish Cup. Calcutta, then capital of British India, soon became the hub of Indian football. In 1889 India's oldest current team Mohun Bagan A.C. was founded as Mohun Bagan Sporting Club. This was the first club to be under the rule of the army. Several football clubs like Calcutta FC, Sovabazar and Aryan Club were established in Calcutta during the 1890s. Tournaments like the Gladstone Cup, Trades Cup and Coochbehar Cup also started around this time. The first Indian Federation, the Indian Football Association, was founded in 1893 but did not have a single Indian in the board.

Although the football is primarily a physical game, the bodily benefit afforded the player are by no means the only ones he receives. It does afford the player better opportunities for physical development than any other sport. In most other branches of competitive athletics only parts of the body are brought into exercise. In football all muscles are used alike. The arms, legs, and back are all required to their work.

The running and swift succession of plays develop the endurance. In every possible way the muscles of the player are hardened. Football players do not become slow, muscle-bound men. They develop into smooth, enduring athlete. The physical development derived from football is readily shown by the charts of college trainers, giving the physical measurements of football player before and after they have become veterans. In every case the measurements show a remarkable growth in strength, size and symmetry for the athlete. Football teams are trained by skilled men whose sole duty it is to see that each player is fit to do his part in the game. Football is being made more force. All this tends to eliminate the liability of serious injury to the player and at the same time affords him the very best opportunity for physical development.

Many health of playing soccer researchers say that soccer is a sport that effective for controlling high blood pressure. And some research shows, playing soccer can build self esteem for children and also improves physical fitness. As play during soccer is continuous, soccer is great for fitness and cardiovascular health. People of various ages and skill levels can participate in soccer, with individuals of various sizes being able to do equally well. Soccer can also be a great sport for kids who may not have high levels of athletic ability, but who would like to participate in team sports.

Kicking accuracy is an important component of soccer performance, and can be defined as the ability to kick the ball at a specified area. Kicking movement in football is a relatively easy series of rotational movements. In this movement, the aim is to produce through the kinematics chain of body segments, high angular velocity to the foot. The length of the body segments or the radius of rotational movements influences the linear velocity of the rotating foot. Thus the body height and lengths of different body segments are an advantages are an advantages feature for players, because the linear velocity of rotating levers can be expressed as a product of the radius of rotational movement and angular velocity.

The role of the arms in kicking is primarily to maintain the balance of the body. The arms are usually extended out to the sides of the body during the forward motion of the kicking leg, to help to keep the center of gravity over the support foot, and to increase the moment of inertia of the trunk and increase resistance to rotation around the spin, or the long axis of the body. As the kicking foot contacts the ball, the opposite arm moves forward and upward across the body to help keep the trunk down and the body in balance. As the most frequently used element of play, kicking is the conscious passing or placing of the ball using inside/outside of foot, inside/outside of the instep, full instep, toe, knee or heel as the situations demand. It is a player's most valuable technical asset.

The aim of the study was to investigate the effect of selected exercises on the performance of kicking accuracy in football players. It was also hypothesized that the selected exercises will be helpful to improve the kicking accuracy of college level football player.

Scurr and Hall (2009) concluded that altering an individual's self-selected approach angle at recreational level did not improve kicking accuracy or ball velocity, despite altering aspects of underlying technique. Hassan Ali (2009), showed that the fatigue protocol affected the vertical displacement of corridor Z-axis in the right toe and the right heel. Young, et.al. (2010) showed that after the exercise bout, the fitter group had significantly better KA than the less fit group, and the more experienced players were 16% more accurate than the less experienced group. The midfielders were 8.2% better than the forwards/backs in KA. Young and Rath (2011) reviewed the studies on strength training. They explained that the foot velocity and kicking performance can be enhanced by supplementary programmes to regular football training, especially in non elite athletes. Potentially valuable training includes plyometrics, exercises that simulate the whole kicking action, and kicking weighted balls. Pepping, et.al. (2011) explained that the participants mainly used inside-foot pass-kicks with little to no height over the entire range of distances when the task was to perform pass-kicks into a stationary goal. The paper outlines these results in terms of the perception of (social) affordances for passing in football. Bjelica, Popovic and Petkovic (2011) demonstrated that the young football players have much more uniformed legs at the expense of accuracy when fatigued and kick the ball with the maximal intensity. It means a state of fatigue can affect the tested accuracy of instep kicking with the maximal intensity. Tirumala & Motimath (2014), indicated that the significant improvements in post-intervention kicking accuracy were found when males and females were treated as a single group. The two-week resistance tube exercise program was found to have an effect on kicking accuracy, vertical jump height and 40-yard technical test performance in competitive football players. Hadi and Ali (2012) resulted in the positive impact of the proposed training program on improving the penalty

kick accuracy. Sterzing (2010), defined the kicking action of soccer which has gained huge interest within the scientific community with respect to practice, coaching, science and technology. Additionally, it refers to a fairly new research aspect, the influence of soccer footwear on the kicking movement and consequently on kicking success as it has been shown that soccer footwear alters the biomechanics of kicking.

METHODOLOGY

Selection of Subjects:

For this study the researcher has selected the male students from college level players in Malda district, West Bengal. For these study 30 male subjects was selected randomly and all the subjects belong to different socio economic backgrounds and the environmental conditions, daily routine work of the subjects were same. Their ages varies from 18-27 years.

Description of Tests:

1. PLACE KICK

Eighteen feet (18 feet) line marked in front of the goal post and its divided in three parts 5,8,5 feet, a kick point is marked 12 yards apart from the 18 feet line. The subject has ten trials from a distance of 12 yards with the use of instep kick. Scoring: Two (2) points are awarded when ball passed through the 5 feet mark area, and one (1) point is awarded when ball passed through the 8 feet area. If the ball goes outside of the 18 feet goal area 0 point given. Total points of ten trials are the score of the subject.

2. KICKING A ROLLING BALL

For the administration of this test goal area and penalty area are used. The subject stands on point A and B, and examiner stand on C and D point. Examiner roll the ball from point C and subject run from point B and kick the ball towards the goal, in this way from opposite corner also. The subject has kicks five trials from each corner. Scoring: Two (2) points are awarded when ball passed through the 6 yards area, and one (1) point is awarded when ball passed through the 8 yards area. Total points of ten trials are the score of the subject.

Administration of Test:

All the subjects are divided into two groups of 15 subjects in each group. One is treated as Experimental group and second one is control group. The experimental group is instructed to practice selected exercises (hopping, rope skipping, squat with weight, steps up with weight) six days in a week for duration of six weeks. Before involving their training program pre test and after the training post test were administered to measure kicking accuracy of both the group with the help of Heath and Rodger's soccer Test. Data for kicking accuracy of football players before and after the training program was collected through administration of Heath and Rodger's test

Statistical Analysis

The collected data before and after the training program, kicking accuracy scores of football players were analyzed by using t- test statistical technique at 0.05 level of significance.

RESULTS AND DISCUSSION

To investigate the kicking Accuracy in Football Players of Malda District, the means, standard deviations, t-ratios were computed for experimental and control groups on place

kick and rolling kick performance and data pertaining to this have been presented in Table 1 and 2 and depicted in Figure 1 and 2.

TABLE 1
MEAN DIFFERENCES BETWEEN THE PRE AND POST TEST SCORE OF
EXPERIMENTAL AND CONTROL GROUP
OF PLACE KICK

Group	Test	M ₁ & M ₂	SD ₁ & SD ₂	MD	t-value
E.G	Pre test	8.46	1.30	1.67	3.21*
	Post test	10.13	1.54		
C.G	Pre test	8.20	1.34	0.14	0.26
	Post test	8.06	1.58		

*Significant at .05 level

t.05 (28)=2.04

Table-1 showed that mean differences between the pre and post test score of experimental and control group of place kick also reveals that the significance of difference between the pre and post means of experimental group was 3.21, which was much greater than the require value at 0.05 level of confidence (t= 2.04). It showed that significant improvement in kicking accuracy in case of right place kick in football of experimental group. But in case of control group no significance difference was found between the pre and post regarding the kicking accuracy (place kick) in football..

Therefore, it indicated that specific exercises are significant changes on kicking accuracy in football for the experimental group in case of place kick. Hence the null hypothesis is accepted.

The finding of the study shows that there is no significant improvement in control group due to lack of training, strength of the leg muscle and endurance and co-ordination may not be developed in the subject.

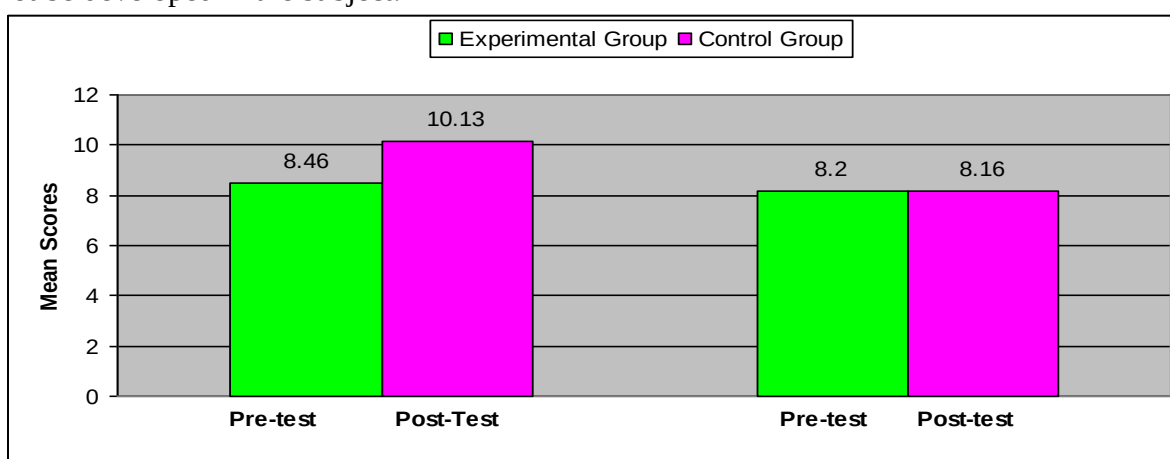


Figure :1. Mean Scores of Pre and Post Tests of Place Kick Accuracy of Experimental and Control Groups Male Football Players

TABLE 2
MEAN DIFFERENCES BETWEEN THE PRE AND POST TEST SCORE OF
EXPERIMENTAL AND CONTROL GROUP
OF ROLLING KICK

Group	Test	M ₁ & M ₂	SD ₁ & SD ₂	MD	t-ratio
E.G	Pre test	7.6	1.01	1.0	2.08*
	Post test	8.6	1.57		
C.G	Pre test	7.7	1.12	0.2	0.43
	Post test	7.9	1.43		

* Significant at .05 level
t.05 (28)=2.04

Table-2 show that mean differences between the pre and post test score of experimental and control group of rolling kick also reveals that the significance of difference between the pre and post means of experimental group was 2.08, which was greater than the require value at 0.05 level of confidence (t= 2.048). It showed that significant improvement in kicking accuracy in case of rolling kick in football of experimental group. But in case of control group no significance difference found between the pre and post regarding the kicking accuracy of rolling kick in football.

Therefore, it indicated that specific exercises are significant changes on kicking accuracy in football for the experimental group in case of place kick. Hence the null hypothesis is accepted.

The finding of the study shows that there is no significant improvement in control group due to lack of training, strength of the leg muscle and endurance and co-ordination may not be developed in the subject.

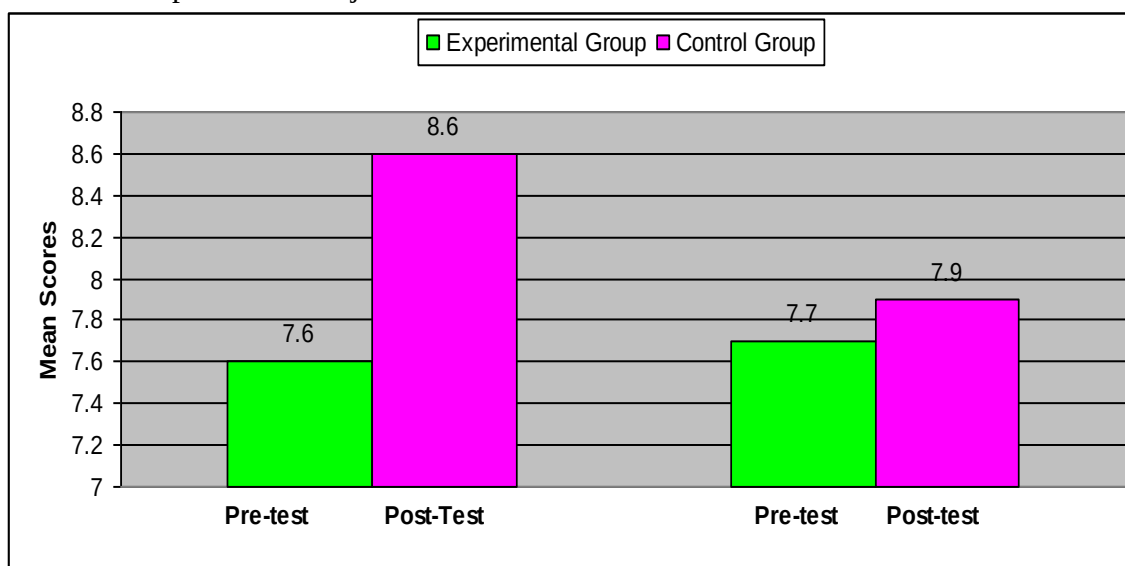


Figure :2. Mean Scores of Pre and Post Tests of Rolling Kick Accuracy of Experimental and Control Groups Male Football Players

DISCUSSION

The specific exercises had significantly improved on the kicking accuracy in football in case of place kick as well as rolling kick. This may be due to the fact that rope skipping, half squat with weight, one leg hopping, steps up with weight which are may be helped to increase the muscle strength of the legs, co-ordination between the different organs of the body, perception ability to improve the kicking accuracy in football of the experimental group.

The experimental group had significant improvement in kicking accuracy in football in case of place kick as as well as rolling kick after the period of six weeks training programmed. It might be reason that prescribed specific exercises has got significant influence on muscle contraction and relaxation ability, co-ordination of central nervous system and whole body co-ordination might be properly function.

CONCLUSIONS

1. Statistically Significant difference was observed between the pre and post means of experimental group on the accuracy of place kick of football players.
2. Significant difference was not found between the pre and post means of control group on the place kicking accuracy of football players.
3. Statistically Significant difference was observed between the pre and post means of experimental group on the accuracy of rolling kick of football players.
4. Similarity was indicated between the pre and post means of control group on the accuracy of rolling kick of football players

APPLICATION IN SPORTS

It was hope that the study will be helpful for improving the kicking accuracy of college students in football. The study will be helpful for the football coaches to adopt these selected exercises to improve kicking accuracy. The study will be helpful for the physical education students to adopt these selected exercises to improve kicking accuracy of football players.

FUTURE DIRECTION FOR RESEARCH

From the finding of the study it is also recommended that a study might be carried out with other variables. Similar study may be carried out on female subjects. A study may be conducted on soccer players of different age group. A study might be conducted on other game also. A similar study may be conducted on high school level. It is also recommended that similar study may be conducted on a large population for the other parts of the country.

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EFFECT OF EIGHT WEEKS OF FITNESS PROGRAMME ON SKILL RELATED FITNESS COMPONENTS OF SCHOOL GOING CHILDREN

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ABSTRACT

The purpose of the present study was to compare the effect of eight weeks of fitness programme on skill related fitness components of school going children. The sample was collected as school children studying at Senior Secondary Schools of Kulgam District of Jammu and Kashmir. 40 children were selected for the purpose of the study. The age of the sample were ranged between 15 to 17 Years. Speed were measured with the help of 50 Yard Dash Test. Reaction time were measured with the help of Nelson Hand Reaction Time Test. Agility were measured with the help of Shuttle Run Test. Balance were measured with the help of Modified Bass Dynamic Balance test. Power were measured with the help of Vertical Power Jump. Coordination were measured with the help of Dodging Run Test. Random group experimental design was employed in this study. The subjects were divided into four groups, viz. (A) Experimental Group, (B) Control Group. Each group consisted of twenty subjects. To find out the significant effect of eight weeks of fitness program on skill related physical fitness of school children t -test was employed to compare mean difference between the pre-test and post-test scores. The results of the study revealed that the significant effect of fitness training program was observed on selected skill related fitness components for school going children i.e. Speed , Agility. Balance, Coordinative Ability. Power, Findings of the study also indicated the insignificant effect of fitness training program when the Pre and Post-Test scores of selected skill related physical fitness i.e. Reaction Time (Nelson Hand Reaction Time) for school going children were compared.

Keywords: Skill related fitness, Physical fitness, School Children, Training.

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INTRODUCTION

Human beings by nature are competitive and aspire for excellence in every given field. Sport is not an exception. Not only individuals but nations also want to show their supremacy in the field of sports. This friendly rivalry has inspired and motivated all too sweet and strive, to run faster, jump higher, throw longer and exhibit greater strength, endurance and skill in the competition. Sports play a major role in the lives of practically every one the players, the coaches, the officials and the spectators.

Much of the attraction of sports comes from the wide variety of experiences and feelings that result from the participation-joy, anguish, success, failure, exhaustion, pain, relief, a feeling of belonging. Sports can bring money, glory, status and good will. However, sports can also bring tragedy, grief and even death.

In fact sports entered a new horizon of sporting culture, leading to the emergence of sports sciences as the backbone of performance sports. This brought into sharp focus the training system as the means of development of sports performance. Now the coaches are striving to get optimum performance with minimum expenditure of energy and time. The players and athletes are trained on scientific guide lines (Singh, 1991).

The National Education Policy which was established by the Govt. of India in 1985 also gave adequate importance to the program of physical education and physical fitness at the institutional level and stipulated the every educational institution should have adequate sports facilities and scientific program to enable every school going child to participate in games and sports and fitness activities of his/her own choice (Uppal, 1992).

The aims and objectives of physical education depend to a great extent on the political, economic and social changes that take place in a society. India has achieved political freedom and chosen to become a secular democratic re-public. This means that physical education must make its contribution to the development of such qualities of body; mind and character as well enable our pupils in schools to develop and grow to be worthy citizens of a great new democracy.

Physical fitness is a matter of fundamental importance to individual wellbeing and to the progress and security of a nation. It is the basis for all other forms of excellence. With increased mechanization there has been a corresponding decrease in the number of tasks that require an expenditure of energy. Sufficient vigorous exercises are not done to develop and maintain adequate level of physical fitness. Individuals must rely on various forms of exercises to attain an acceptable level of physical fitness (<http://www.sharecare.com.>, 2014)

The component of skill-related fitness called reaction time is the amount of time it takes for a person to respond to a stimulus. The stimulus is often sight, sound, or touch. When measuring reaction time, the amount of time from presenting the stimulus to the first muscle movement afterward is recorded. An example is the elapsed time from the sound of a race starting gun to the runner starting to run.

The components of skill-related fitness may not have a direct effect on improving health, but often make a person more proficient in health-related fitness activities as well. For instance, power may enhance a person's endurance for cardiovascular activities with proven health benefits. They also tend to enhance a person's performance in sports and other general activities of daily living (<http://www.sharecare.com.>2014)

Clarke (1981) has expressed that physical educators must recognize the basic needs of physical fitness for boys and girls under their charge and with this recognition should come a determination to formulate and conduct a sound and effective physical fitness program for them.

Bucy (1965) showed that all the groups improved significantly in physical fitness, strength and weight. The isometric exercise group had significantly greater strength than the callisthenic exercise group.

Singh (1992) revealed that both the training programs (Rope Skipping exercise and Step-up exercise) have not got significant effect on cardio-respiratory endurance.

Wilson (1993) indicated that the experimental group which trained with the load maximised mechanical power achieved the best overall results in enhancing dynamic athletic performance recording statistically significant ($P < 0.05$) improvements on most test items and showing statistically superior results from the two other training modalities on the jumping and the iso kinetic test.

Kraemer et. al. (...) demonstrated that only Group A and Group B made significant ($p < 0.05$) improvements in the load bearing performance task. Groups A, B, and D improved all components of their APFT scores while Group C improved in push ups and sit ups only. The results of this study suggest that a combination of running and resistance training is necessary to improve short duration, high intensity load bearing performance.

Twist, (2008) indicated that there is a latent impairment of balance performance following a bout of plyometric exercise, which has implications for both, with greater loss of force at the lower angular use of skill-based activities and for increased injury risk following high-intensity plyometric training.

The estimation and improvement of the skill related physical fitness of youths should become an important part of every secondary-school program. It seems particularly wise in these days to make a testing program as brief and yet as helpful as possible. The ability to perform certain activities which require all the above six components and skill is also important and it is desirable to test and subsequently to attempt to teach or improve them. Therefore, realizing the importance of skill related physical fitness in school going the present study has been taken by the research scholar.

The purpose of the present study was to compare the effect of eight weeks of fitness programme on skill related physical fitness of school children. It was also hypothesized that there may be significant difference in the selected skill related physical fitness variables, following the eight weeks of fitness programme on skill related physical fitness of school children.

METHODOLOGY

Sample:

The sample was collected as school children studying at Senior Secondary Schools of Kulgam District of Jammu and Kashmir. 40 children were selected for the purpose of the study. The age of the sample were ranged between 15 to 17 Years. Their fitness was considered according to school medical report and their age was verified by the school register.

Criterion measures:

Speed were measured with the help of 50 Yard Dash Test. Reaction time were measured with the help of Nelson Hand Reaction Time Test. Agility were measured with the

help of Shuttle Run Test. Balance were measured with the help of Modified Bass Dynamic Balance test. Power were measured with the help of Vertical Power Jump. Coordination were measured with the help of Dodging Run Test.

Design of Study:

Random group experimental design was employed in this study. The subjects were divided into four groups, viz. (A) Experimental Group, (B) Control Group. Each group consisted of twenty subjects. The groups were administered initial tests related in Skill related physical fitness such as Speed, Reaction Time, Agility, Balance, Power and Coordination. After the initial test, the training programme were administered to the Experimental Group whereas no training was administered to the control group. The training was administered for a period of eight weeks, thrice a week in a progressive manner. The final test was administered on the selected variables under similar condition after eight weeks of training.

Fitness Training Program:

The Fitness training program was formulated with the help of expert and guide

Cardiovascular Training

Frequency: 3 times per week including one day of interval training. Intensity: Heart Rate recommended in the Target Heart Rate Zone. Time: 60 minutes. Type: Aerobic activity such as jogging, Callisthenic exercises, etc. Subjects were made to do circuit run: run, stop and do pushups, run, stop and do abdominal exercises; run and practice jumping 5 feet distances.

Resistance Training

Frequency: 3 times per week .Intensity: 2-4 sets per session. Repetitions vary with each exercise. Time: Rest interval between sets were between 45-90 seconds. Type: Exercise were done with free weights. This program included a "total body" workout using major muscle groups.

The experimental group met six days per week i.e., Monday, Wednesday and Friday for Cardiovascular Training and Tuesday, Thursday and Saturday for the period of eight weeks for Resistance Training. Sunday was considered as rest day. Each experimental session was of 60 minutes duration. The training schedule was repeated for two weeks block and after that the load was re-adjusted. The control group did not go under any specific training except the testing program.

Prior to any workout it is important to complete a warm-up. A warm-up was designed to prepare the body of the subjects for efficient and safe functioning of heart, blood vessels, lungs and muscles during vigorous exercise. A good warm-up helped to reduce any joint soreness that may be experienced during the early stages of an exercise program. A proficient warm-up included 5-10 minutes of low-intensity aerobic activity, such as brisk walking, and slow jogging. After that the subjects were given dynamic warm-up. 5-10 minutes of low-intensity activity was given to increase muscle temperature, oxygen to working muscles, and to improve muscle elasticity; and to create movement patterns for upcoming activity. Prior to start of training program for Cardio vascular training group their target heart rate was fixed.

Target Heart Rate Zone: The intensity at which the subjects were trained was determined by the percentage of maximal heart rate as per their age and gender. The target heart rate zone is used to determine the intensity. They were established by predicting the maximum heart rate for their age group. This method was developed by "KARVONEN".

Any activity that raises the heart rate 60-70 percent of maximum is considered moderate intensity and offers many health benefits. To have an effect on cardiovascular fitness, activity must raise the heart rate so it is in the 60-90 percent range. In this method first I have calculated HRR. HRR is nothing but the difference between the Resting Heart Rate (HR rest) and Maximum Heart Rate (HR max). The mean resting Heart Rate of the subjects were found as 72 beats/min. the maximum heart rate is 220 beats/min.

$$\begin{aligned}\text{Therefore HRR} &= (\text{HR max}) - (\text{HR rest}) \\ &= 220 - 72 \\ &= 148.\end{aligned}$$

Hence, Target heart rate (THR) was determined as a percentage of the HRR plus the HR rest. Therefore the THR selected for present study was 80% of the HRR which was calculated as below:

$$\begin{aligned}80\% \text{ of THR} &= (.80 \times 148) + 72 \\ &= 118.4 + 72 \\ &= 190.4\end{aligned}$$

Therefore 80% of the intensity + 190 beats/min.

Therefore the intensity zone was fixed from 65% to 80%.

TABLE 1 INTENSITY ZONE

Week	Monday Intensity / Time	Wednesday Intensity / Time	Friday Intensity / Time
1	65 - 75% / 15 min	65 - 75% / 15 min	65 - 75% / 15 min
2	65 - 75% / 16 min	65 - 75% / 16 min	65 - 75% / 16 min
3	65 - 75% / 18 min	65 - 75% / 18 min	65 - 75% / 18 min
4	70 - 80% / 20 min	70 - 80% / 20 min	70 - 80% / 20 min
5	70 - 80% / 20 min	70 - 80% / 20 min	70 - 80% / 20 min
6	70 - 80% / 22 min	70 - 80% / 22 min	70 - 80% / 22 min
7	75 - 85% / 18 min	75 - 85% / 18 min	75 - 85% / 18 min
8	75 - 85% / 20 min	75 - 85% / 20 min	75 - 85% / 20 min

Resistance Training:

Exercises and activities that tax the muscles beyond their normal capacity help to improve muscular strength and endurance. Activities of daily living like heavy yard work, raking and carrying leaves, shoveling snow, and chores around the house all contribute to healthy musculoskeletal fitness.

Structured programs from simple calisthenics to resistance training routines using various kinds of equipment are particularly effective in training and improvement of Fitness. A program was designed in consultation with experts considering the below important points.

Number of exercises- 8 - 10 exercises. Order of exercises- Exercise for large muscle groups were given before smaller muscle groups (e.g. chest before triceps). Alternate push with pull exercises (example: push-up/pull-up or abdominals/lower back). Most of the

exercise were involved with multi-joint movements. Repetition - One complete action of an exercise. Set - A predetermined number of repetitions completed one right after the other. Resistance – It was determined by the body weight or the weight of the equipment that the subjects used (e.g. dumbbell, barbell, etc.). Rest/Recovery - The amount of rest taken between sets of an exercise, between different exercises, or between training sessions was incomplete. Frequency - The number of training sessions completed in a specified period of time. Progression Overload-A gradual and progressive increase in the difficulty of the program in some capacity, to continue to challenge the muscles. This was achieved by overload Techniques- Increasing the amount of weight lifted; Increasing the repetitions in a set; Increasing the number of sets; and Decreasing the rest period between sets. Progression guidelines- Progression was achieved by increasing one variable at a time; Decreasing repetitions when a set is added; Increasing resistance when able to complete more repetitions than recommended; and Not overloading or lifting to maximal ability during every workout.

Eight -Week Resistance Training Program:

This program included 8 strength training exercises for the major muscle groups. Frequency: 3 times per week (every other day)

1: Dumbbell Swing- Objective: Power. Description: Subjects were asked to keep head up (eyes forward), back straight and abs engaged (tight). Hold a dumbbell with both hands between legs to start. Using legs and torso, keeping arms straight, swing the weight up above head. Allow the dumbbell to return to the initial position in a controlled manner and repeat the exercise. Number of sets: 2-3. Number of repetitions:10 (Weight was increased when exceeding 10 repetitions)

2: One Leg Split Squat with Dumbbell- Objective: Single Leg Work. Description: A squat was performed with one foot on the floor and the other on a bench. Back was asked to be kept straight and abs engaged (tight), head neutral and eyes looking forward. Dumbbells were held in each hand. Number of sets: 2-3. Number of repetitions: 10 on each side (Increase weight when exceeding 10 repetitions).

3: Chin-ups Medium Grip- Objective: Upper Body Vertical Pull. Description: Using a suspended bar, subjects were asked to pull-up their body weight until chin slightly goes beyond the bar. Abdominal engaged (tight) and trunk rigid during the exercise. Number of sets: 2-3. Number of repetitions: 5+ (Assistance were given as and when required (e.g. elastic, partner assistance, jumping chin-up or step up with a bench and lower their body in a controlled manner).

4: Dumbbell Bench Press- Objective: Upper Body Horizontal Push. Description: Subjects were asked to keep abdominals engaged (tight), and back flat on the bench. Dumbbells were held and lowered the weight until the elbows reach a 90-degree angle, keeping forearms perpendicular to the ground. Then were asked to return to the starting position and repeat. Number of sets: 2-3. Number of repetitions: 10 (Increase weight when exceeding 10 repetitions).

5: Dumbbell Row- Objective: Upper Body Horizontal Pull. Description: Subjects were asked to keep back straight and head in a neutral position aligned with the back. They were asked to pull dumbbell towards the trunk, keeping the elbow close to the trunk and repeat the same. Number of sets: 2-3. Number of repetitions: 10 on each side (Weight was increased when exceeding 10 repetitions).

6 : Dumbbell Biceps Hammer Curl and Shoulder Overhead Press- Objective: Upper Pull and Vertical Push. Description: Subjects were asked to keep back straight, abdominals engaged (tight), knees bent and feet shoulder width apart. Using a neutral/hammer grip (palms inward), the subjects were asked to perform a biceps hammer curl followed by an overhead shoulder press. Number of sets: 2-3. Number of repetitions: 10 on each side (Weight was increased when exceeding 10 repetitions).

7: Bird Dog- Objective: Core. Description: Subjects were asked to perform from hands and knees crawling position. Subjects were asked to keep back straight, abs engaged (tight), and head aligned with back. They were asked to extend one arm forward and the opposing leg backwards, until both are parallel with ground. They were asked to keep the foot neutral and knee pointing to the floor, and ensure both extended arm and leg form a straight line. Number of sets: 2-3. Number of repetitions: 10 on each side

8: Burpee- Objective: Conditioning/Speed. Description: They were asked to keep back straight, abs tight (engaged), hips aligned with shoulders, and head aligned with shoulders/back.

Sequence:-They were asked to start from a standing position; go to a crouching position; then to a push-up position; then to a crouching position again; followed by a vertical jump before returning to the starting position. Number of sets: 2-3 Number of repetitions: 10 Note: -1)The training schedule carried out after a warming up session of 15 minutes.2)The rest period between each repetition was one and half minutes to two minutes.

Cool-down and stretching - All exercise sessions were conclude with a cool-down phase. Cooling-down is best accomplished by slowly reducing the intensity of the exercise during the last several minutes of the workout. Stretching Routine 5-6 minutes-Stretching each body part 1-2 times; Holding each stretch 20-30 seconds; Stretching slowly and in control; They were asked not bounce or jerk; They were asked go to the point of tension but not pain; Breathe normally; and Avoid stretches that are uncomfortable or that hurt. For each exercise they were asked to feel a light stretch and maintain it 20-30 seconds; the tension was eased out gradually.

Administration of tests:

Before administration of tests a meeting of all the subjects and testers was held at the play field of Senior Secondary Schools of Kulgam District of Jammu and Kashmir. The requirements of testing procedure were explained to them in detailed so that there was no doubt left in their mind, regarding the effort and strain, they have to endure in addition to their school activities. No motivational technique was used in this study.

50 Yards Dash

Purpose: The purpose of the test were to measure the speed of the subjects. Equipment and Supplies: Stopwatches, measuring tape, marking powder, score sheet. Procedure: Two lines were marked on the ground 50 yards apart. One line were used as starting line and the other as the finish line. On the signal Ready, Go! The subject started running at their best reach the finish line at their earliest. The signal "Go" were accompanied with the downward sweep of the starter's arm to give the visual signal to the timer who will stand at the finish line. Scoring: Three trials were allowed to each subject with same rest in between the trials. The

time interval between the starting signal and the instant subject crosses the finish line were recorded as the score of the test. The time were recorded correctly to 1/100th of the second. The best of three trials were considered as the final score.

Nelson Hand Reaction Time Test

Purpose: To measure the hand reaction time of the subject. **Equipment:** Nelson reaction time scale, Table and Chair. **Description ;** After giving a practical demonstration to the subject, the tester will ask a subject to sit on the chair with his forearm and hand resting on the table in such a way that the tips of thumb and index finger were held in a ready to pinch position about 3 to 4 inches beyond the edge of the table. **Procedure:** The tester will assure that the upper edge of the thumb and index finger were in a horizontal position. Then the tester will hold the stick of the times from its top edge in such a way that the lower edge of the stick timer hanged between the subject thumb and index finger. So that the marked base line of the stick timer were in a same horizontal position in which were upper surface of the subjects thumb and forefinger. The subject were instructed to catch the stick by pinching together his thumb and index finger as soon as the stick timer were released by the timer. The subject were also instructed strictly neither to look at the tester's hand nor to move his hand up or down while attempting to catch the falling stick. Before leaving the stick, the tester gives a preparatory command of "Ready". Each subject were give twenty trials. **Scoring:** Time were read from the stick just upper part of the thumb when the subject catches the falling stick timer. Out of 20 trials, result of five faster and five slowest trials are discarded and the average of the middle 10 trails gives score of the test. To get the Reaction time the following formula were computed independently

$$\text{Reaction time (Sec.)} = \sqrt{\frac{2 \times \text{Distance the stick times fall (in Feet)}}{37 \text{ (Acceleration due to gravity)}}}$$

Shuttle Run

Purpose: The purpose of the test were to measure the agility of the cricket players. **Equipment and Supplies:** Two blocks of wood (2" x 2" x 4"), a stopwatch, marking powder, clapper and measuring tape. **Procedure:** Two parallel lines were marked on the ground 10 yards apart. The two wooden blocks were placed behind one of the lines. The subject were asked to start from behind the other line. On the signal ready, 'go' the timekeeper will start the watch and the subject were asked run towards the blocks, will pick-up one block, will run back to the starting line, will place the block behind the starting line, then again will run back and will pick-up the second block and then will carried it back across the starting line. As soon as the subject will cross the starting line with second block, the timekeeper will stop the watch and will record the time. **Score:** Three trials were allowed to each subject with same rest in between. The best time of the three trials were recorded to the nearest 1/100th of a second as the score of the test item.

Modified Bass Dynamic Balance Test

Purpose: The purpose of the test was to measure the subject's ability to jump accurately and to maintain balance during repeated jumping. **Equipment and Supplies:** Stopwatches, measuring tape, $\frac{3}{4} \times 1$ inch colored marking tape and score sheet. **Procedure:** Eleven Colored marking tape measuring $\frac{3}{4} \times 1$ " was pasted on the floor as shown in Figure-1 at level S and 1-10. These marking tapes were obtained by proper measurement of distance 30" and 15" distance. After marking the required floor pattern, demonstration of the test was given to the subjects. Then the subject was asked to stand with the right foot on the starting tape mark and then to leap to the first tape mark with the left' foot. The subject was asked to maintain a steady balance on the ball of the left foot for as long as possible up to a maximum of five seconds after which he leaped to the second tape mark with right foot, and was asked to repeat the process completed at the first mark and to proceed to the next tape spots serially with alternate foot up to the 10th tape mark. The subject was told clearly that he will get one point for each second of balance maintained at the spot up to a maximum of five seconds and that his foot must cover the tape marked at each spot completely so that the tape cannot be seen by the tester when the subject is maintaining the balance of the body on a particular tape mark. The subject was penalized for hopping or moving the supporting ball of the foot. **Scoring:** The maximum points which can be scored at each landing spot are ten and thus can make a theoretically maximal score of the test as $10 \times 10 = 100$. At each landing point, five points was given to proper landing and five points was given for each second of steady balance on the ball of the concerned foot. If the subject lands improperly and not covered the tape marked at the spot or failed to stop on the landing spot or touched his heel or any other part of the body to the floor, he was awarded zero point out of the five points of landing. However on wrong landing, the subject was allowed to reposition by hopping for the 5-seconds balance points and then continued the test. In case, the subject committed balancing error either by touching any part of the body other than ball of the foot to the floor or by moving the foot, the subject was asked to step back on the spot just previous to balancing error and then was asked to leap afresh for the next spot and so on.

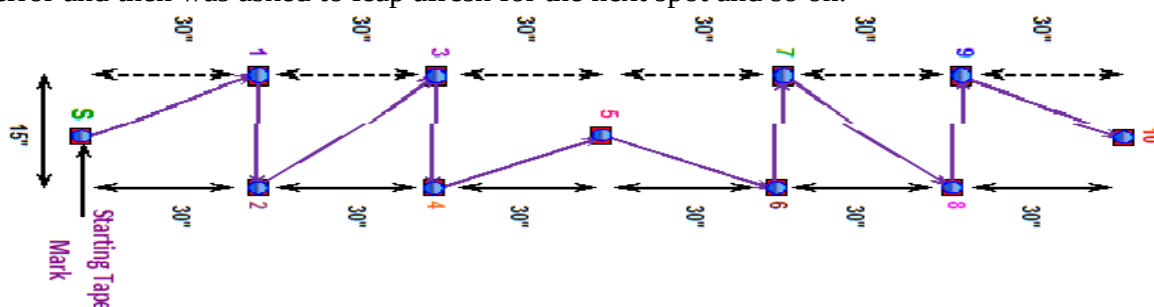


Figure 1:- Floor Area Marking of Modified Bass Dynamic Balance Test.

Vertical Jump

Purpose: To measure the subjects power of the legs in jumping vertically upward. **Equipment and Facilities:** Vertical jump area, Measuring tape, Chalk, Weighing machine and Rag cloths. **Description:** Before making an effort to jump, the subjects weight were recorded in Kg. Than the subject were asked to stand near the wall facing sideward and the preferred

arm grasping top of shorts at the back and the other arm were kept raised vertically with the hand turned outward and fingers extended. Then the subject were asked to raise his hand lifting his hill to maximum as far as possible on the toes so that the height of the extended middle finger of the raised arm can be recorded. Chalk dust were placed on the middle finger, and the subject were asked to adopt full squat position with head and back erect and the body in balance. The subject were then asked to jump as high as possible using only one leg and touch the wall at the top of the jump. The jump were discarded in case the subject losses balance or position and another chance were given. Three trials were given to each subject. Scoring: Using the measure of the best jump i.e., the difference between the reaching height and jumping height, Calculation were made using the following formula.

Dodging Run Test

Purpose: The purpose of the test were to measure the running agility ability of the subjects. **Equipment's and Supplies:** Stop watch, four chair / plastic cones, measuring tape, score sheet etc. **Description:** Four chairs were arranged in a straight line, 10 feet apart. The starting point were 6 feet on the left side of the first chair / plastic cone and the finish line were on the right side of the chair / plastic cone again at a distance of 6 feet from the first chair / plastic cone. All the directions and the starting lines were marked on the ground. Before start of the test a demonstration were given to the subjects. Then the subject were asked to take the prone Starting position with hands on the starting line and on the command Ready, Steady, Go the subject will jump on one foot mark and will sprint for 30 feet, stops and will reverse sprint to go around the first chair / Plastic cone, will take the left turn around the first chair / plastic cone and will complete the zig-zag run as shown in Figure – 2. On returning to chair / plastic cone NO. 1, the subject will again take a left turn, but this time he will take a diagonal sprint to point B to the finish line which were one foot across the small line indicating 30 feet on the right side of the chair / plastic cone 1at a distance of 6 feet. As soon as the subject will, reach the finish area, the time keeper will stop the stopwatch. The subject will asked to run as fast as possible to cross the finish line. **Scoring:** Three trials were allowed to each subject with same rest in between. The best time of the three trials were recorded to the nearest 1/100th of a second as the final score of the test.

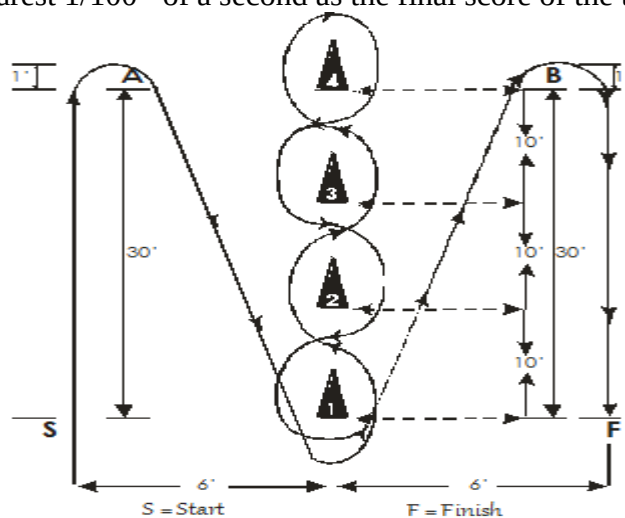


Figure 2:- Floor Area Marking of Dodging Run Test.

Reliability Coefficient of Test-

The tester's reliability was evaluated together with reliability of tests. To determine the reliability of the tests the performance of ten subjects selected at random on selected parameters were recorded by the Investigator and Dr. Tapan Dutta under identical condition was tested. A Pearson's product movement correlation was computed between the two measures of each variable and their reliability co-efficient have been shown in Table – 2.

TABLE 2
RELIABILITY COEFFICIENT OF TEST-RETEST SCORES

Tests	Co-efficient of Correlation 'r'
Speed	.8766*
Reaction Time	.9842*
Agility	.8987*
Balance	.9765*
Power	.9266*
Coordination	.9662*

* Significant at 0.05 level of confidence., $N = 10; r = 0.05 = 0.576$

From the test-retest co-efficient of correlation (Table – 2), it was obvious that the testers reliability was significantly high at 0.05 level of confidence establishing the reliability of the testers to administer the test. The co-efficient of co-relation also indicate the reliability of the tests selected, as very high correlations were obtained when the tests were repeated.

Statistical Technique:

To find out the significant effect of eight weeks of fitness program on skill related physical fitness of school children t -test was employed to compare mean difference between the pre-test and post-test scores. The obtained t-ratio was tested for significance at 0.05 level. All the data were analyzed by the use of (SPSS) Statistical Package for Social Sciences 16.0.

RESULT OF THE STUDY

To find out the significant difference between the pre-test and post-test means for the experimental group and control group were submitted to 't'-test have been presented in table 3 to 8.

TABLE –3
COMPARISON BETWEEN PRE AND POST TEST OF EXPERIMENTAL
AND CONTROLGROUP ON THE BASIS OF 'T' RATIO
FOR 50 YARD DASH (IN SECONDS)

Pre-test Mean	Pot-test Mean	Mean Difference	Standard Deviation	Standard Error	't'-ratio	Sig.
9.24	8.93	.314	.280	.063	5.01	.000

An analysis of Table-3reveals that there is significant difference in mean performance of 50 yard dash between pre-test and post-test of Experimental Group as a result of eight weeks of fitness program as the obtained t- ratio value of 5.01is not only found to be

significant at 0.05 level, but also found to be significant at .000 level of significance. The table also shows that there is a significant improvement in the post-performance of the experimental group. The mean difference of pre-test and post-test scores in seconds of experimental group for 50 yard dash has been depicted in Figure 3.

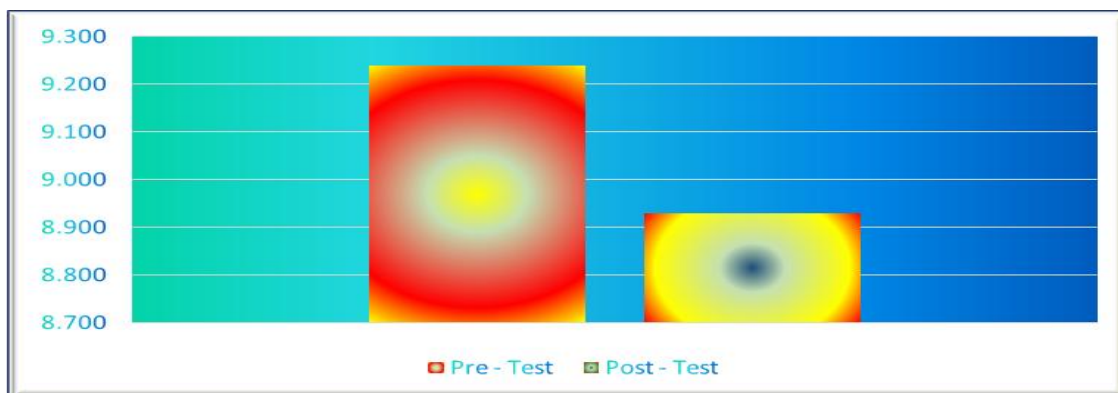


Figure – 3: Graphical Depiction of the Mean Difference of Mean Difference of Pre-Test and Post-Test Scores of Experimental Group for 50 Yard Dash (Seconds)

TABLE 4
COMPARISON BETWEEN PRE AND POST TEST OF EXPERIMENTAL AND CONTROL GROUP ON THE BASIS OF 'T' RATIO FOR NELSON'S HAND REACTION TIME (IN SECONDS)

Pre-test Mean	Pot-test Mean	Mean Difference	Standard Deviation	Standard Error	't'-ratio	Sig.
.183	.189	.006	.021	.005	1.347	.194

***Significant at 0.05 level**

An analysis of Table - 4 reveals that there is no significant difference in mean performance of Nelson Hand Reaction Time between pre-test and post-test of Experimental Group as a result of eight weeks of fitness programme as the obtained t- ratio value of 1.347 is not found to be significant at 0.05 level.

TABLE 5
COMPARISON BETWEEN PRE AND POST TEST OF EXPERIMENTAL AND CONTROL GROUP ON THE BASIS OF 'T' RATIO FOR SHUTTLE RUN (IN SECONDS)

Pre-test Mean	Pot-test Mean	Mean Difference	Standard Deviation	Standard Error	't'-ratio	Sig.
10.61	10.17	.436	.363	.081	5.369	.000

An analysis of Table - 3 reveals that there is significant difference in mean performance of Shuttle run between pre-test and post-test of Experimental Group as a result of eight weeks of fitness program as the obtained t- ratio value of 5.369 is not only found to

be significant at 0.05 level, but also found to be significant at .000 level of significance. The table also shows that there is a significant improvement in the post-performance of the experimental group. The mean difference of pre-test and post-test scores of experimental group for Shuttle run has been depicted in Figure – 4.

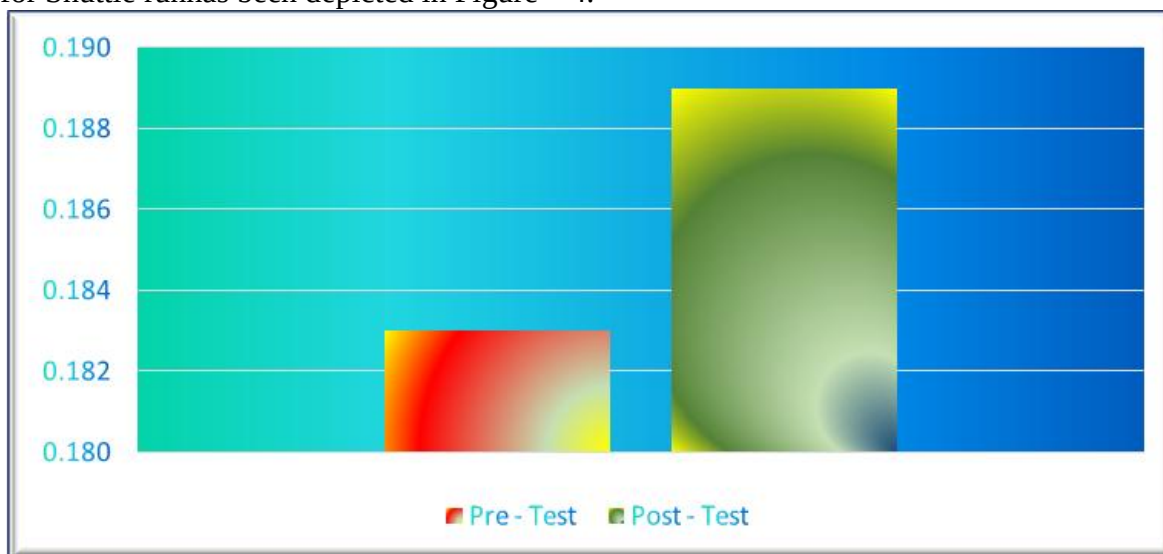


Figure – 4: Graphical Depiction of the Mean Difference of Mean Difference of Pre-Test and Post-Test Scores of Experimental Group for Shuttle Run

TABLE 6

COMPARISON BETWEEN PRE AND POST TEST OF EXPERIMENTAL AND CONTROL GROUP ON THE BASIS OF 'T' RATIO FOR MODIFIED BASS DYNAMIC BALANCE (IN POINTS)

Pre-test Mean	Post-test Mean	Mean Difference	Standard Deviation	Standard Error	't'-ratio	Sig.
50	50	10	16.384	3.663	2.730	.013

An analysis of Table - 6 reveals that there is significant difference in mean performance of Modified Bass Dynamic Balance between pre-test and post-test of Experimental Group as a result of eight weeks of fitness programme as the obtained t- ratio value of 2.730 is not only found to be significant at 0.05 level, but also found to be significant at .013 level of significance. The table also shows that there is a significant improvement in the post-performance of the experimental group.

The mean difference of pre-test and post-test scores of experimental group for Modified Bass Dynamic Balance has been depicted in Figure – 5.

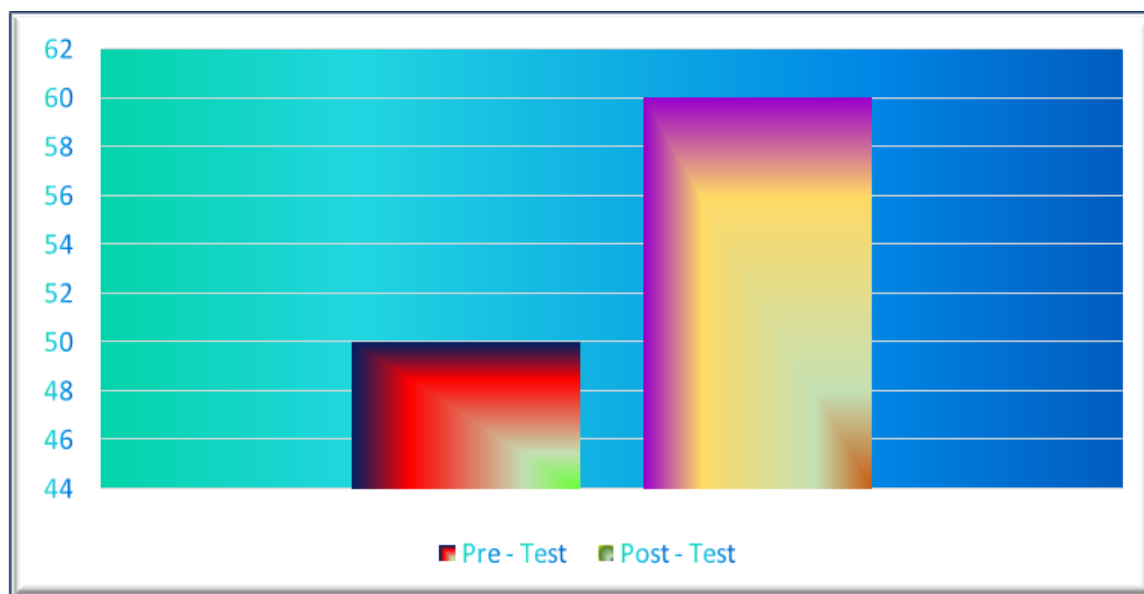


Figure – 5: Graphical Depiction of the Mean Difference of Mean Difference of Pre-Test and Post-Test Scores of Experimental Group for Modified Bass Dynamic Balance (Points).

TABLE 7
COMPARISON BETWEEN PRE AND POST TEST OF EXPERIMENTAL
AND CONTROL GROUP ON THE BASIS OF ‘T’ RATIO
FOR DODGING RUN (IN SECONDS)

Pre-test Mean	Pot-test Mean	Mean Difference	Standard Deviation	Standard Error	‘t’-ratio	Sig.
9.24	8.93	.314	.280	.063	5.01	.000

An analysis of Table - 7 reveals that there is significant difference in mean performance of Dodging Run between pre-test and post-test of Experimental Group as a result of eight weeks of fitness program as the obtained t- ratio value of 4.258 is not only found to be significant at 0.05 level, but also found to be significant at .000 level of significance. The table also shows that there is a significant improvement in the post-performance of the experimental group.

The mean difference of pre-test and post-test scores in Seconds of experimental group for Dodging Run has been depicted in Figure – 6.

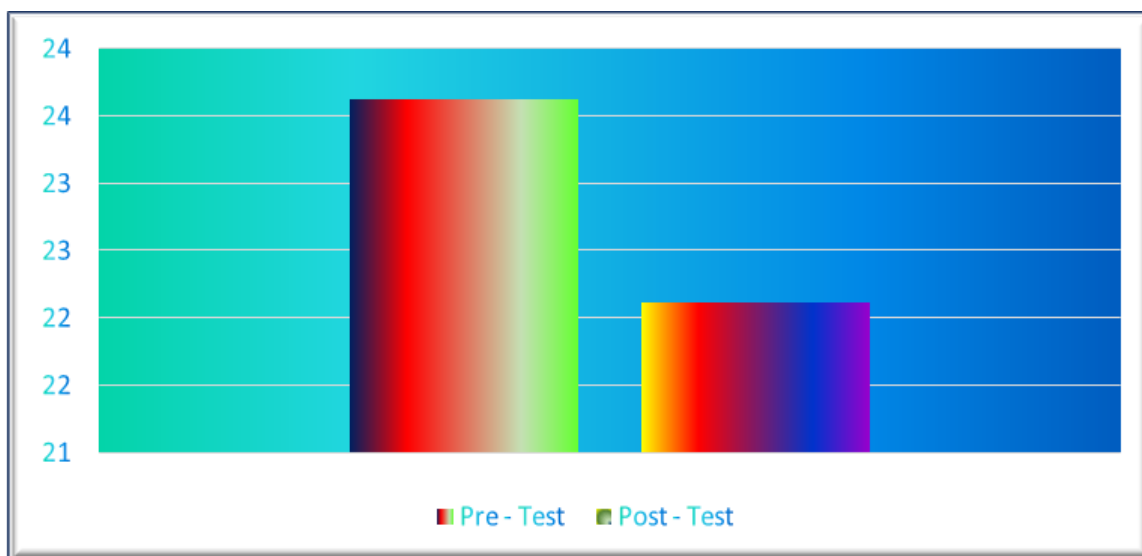


Figure – 6: Graphical Depiction of the Mean Difference of Mean Difference of Pre-Test and Post-Test Scores of Experimental Group for Dodging Run (Seconds).

TABLE – 8
COMPARISON BETWEEN PRE AND POST TEST OF EXPERIMENTAL
AND CONTROL GROUP ON THE BASIS OF ‘T’ RATIO
FOR VERTICAL POWER JUMP (IN SCORES)

Pre-test Mean	Post-test Mean	Mean Difference	Standard Deviation	Standard Error	‘t’-ratio	Sig.
9.24	8.93	.314	.280	.063	5.01	.000

An analysis of Table - 8 reveals that there is significant difference in mean performance of Vertical Power Jump between pre-test and post-test of Experimental Group as a result of eight weeks of fitness program as the obtained t- ratio value of 17.616 is not only found to be significant at 0.05 level, but also found to be significant at .000 level of significance. The table also shows that there is a significant improvement in the post-performance of the experimental group.

The mean difference of pre-test and post-test scores of experimental group for Vertical Power Jump has been depicted in Figure – 7.

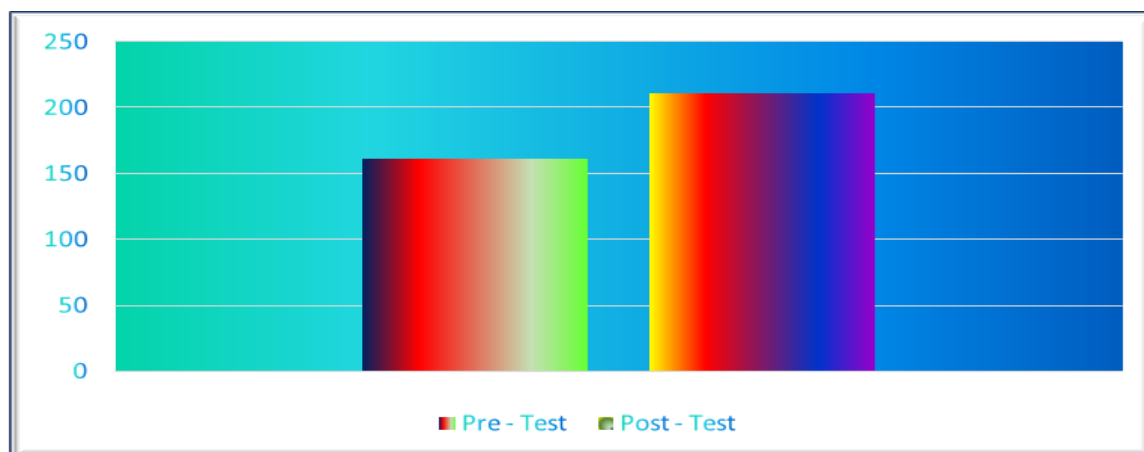


Figure – 7: Graphical Depiction of the Mean Difference of Mean Difference of Pre-Test and Post-Test Scores of Experimental Group for Vertical Power Jump (Seconds)

DISCUSSION

The analysis of data clearly reveals that eight weeks of fitness program brought significant changes in the speed performance of the subjects when the pre-test and post-test means of school children were compared. It may be due to reason that due to repeated involvement in the fitness training program the subjects working capacity of ATP-CP system might have increased which would have resulted in the improvement of glycolytic system and more activation related system takes place which in turn would have improve an-aerobic adaptation. Whereby they have shown better performance as a result of eight weeks of training program. The findings of the study are in consonance with the findings of Bucy (1965),.

The findings of the present study reveals that the eight weeks of fitness program could not brought any significant change in the flexibility of the subjects when the pre-test and post-test means of school children were compared. Which clearly indicates that flexibility could not be improve by adopting the above selected training program.

The analysis of data clearly reveals that eight weeks of fitness program brought significant improvement in the performance of the agility of the subjects i.e., Shuttle run and Dodging run when the pre-test and post-test means of school children were compared. It may be due to the reason that Agility is nothing, but the ability of the individual for rapidly change position of entire body with speed and accuracy, which demands differentiation, orientation courting, reaction, balance, rhythm and adaptation ability. As the subjects where involved in specific interval training program and where in the category of beginners, they might have developed the above abilities, hence the above findings had been shown by the subjects. The findings of the study are in consonance with the findings of Sinha and Brar, 1985.

The findings of the study reveal that there is a significant improvement in dynamic balance i.e., Modified Bass Dynamic Balance test, when the pre-test and post-test means of

school children were compared. It may be due to the reason that dynamic balance is based on kinesthetic sense, physiological mechanism and neuromuscular co-ordination which gets consolidated along with strength. It may be also be due to the reason that 12 weeks training might have brought significant change in the functions of the kinesthetic sensations in the muscles, tendons and joints; visual perception while body is in motion; and the ability of subjects to coordinate these three sources of stimuli which helps in maintaining the stability whether it is static or dynamic. Therefore, change can only be expected as a result of systematic and scientific training process. As the subjects have gone through systematic training program they have shown significant improvement. The findings are in consonance with the findings of Twist, Gleeson and Eston (2008).

The findings of the study reveal that there is a significant improvement in Vertical Power Jump, when the pre-test and post-test means of school children were compared. It may be due to the reason that fitness training program might have improved the muscle tone which might have attributed to two inherent properties of the muscle tissue. One the muscle possibly stretched prior to a contraction utilizes the stretch reflex to activate the muscle to shorten vigorously, and second the elastic nature of the muscle fibre allowed the muscle to store energy during negative work or the phase of amortization, to be later released during the overcoming phase or shortening contraction. Therefore, the increased performance in leg strength following 8 weeks of fitness training program might have attributed to the utilization of elastic energy and to the stretch reflex potential of muscles.

In the beginning of the study, it was hypothesized that there may be significant difference in the selected skill related physical fitness variables, following the eight weeks of fitness program on skill related physical fitness of school children. The result of the study showed the when the selected g skill related physical fitness variables were analysed on the basis of 't' ratio between the Pre-test and Post-test scores significant difference was found among the five selected variables i.e., Speed i.e., 50 yard Dash, Agility i.e., Shuttle run, Balance i.e., Modified Bass Dynamic Balance, Power i.e., Vertical Power Jump and Coordinative ability i.e., Dodging Run. Hence, the hypothesis in the above case were accepted. Whereas no significant difference was found in Reaction time i.e., Nelson Hand Reaction Time Test between the Pre-test and Post-test scores, hence the hypothesis is not accepted in the above cases.

CONCLUSIONS

Within the delimitations and limitations of the present study and on the basis of findings, the following conclusions are been drawn –

- 1) The findings of the study reveal that there is a significant effect of fitness training program when the Pre and Post-Test scores of selected skill related physical fitness i.e. Speed (50 Yard Dash) of school children were compared.
- 2) The findings of the study reveal that there is a significant effect of fitness training program when the Pre and Post-Test scores of selected skill related physical fitness i.e. Agility (Shuttle Run) of school children were compared.
- 3) The findings of the study reveal that there is a significant effect of fitness training program when the Pre and Post-Test scores of selected skill related physical fitness i.e. Balance (Modified Bass Dynamic Balance) of school children were compared.

- 4) The findings of the study reveal that there is a significant effect of fitness training program when the Pre and Post-Test scores of selected skill related physical fitness i.e. Coordinative Ability (Dodging Run) of school children were compared.
- 5) The findings of the study also reveal that there is a significant effect of fitness training program when the Pre and Post-Test scores of selected skill related physical fitness i.e. Power (Vertical Power Jump), of school children were compared.
- 6) Whereas the findings of the study reveal that there is no significant effect of fitness training program when the Pre and Post-Test scores of selected skill related physical fitness i.e. Reaction Time (Nelson Hand Reaction Time), of school children were compared.

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A COMPARATIVE STUDY OF PERSONALITY TRAITS OF COMBATIVE AND TEAM GAME PLAYERS

Anees Ahmed Khan*

ABSTRACT

The purpose the study is to compare the personality traits of combative and team game state level players of Maharashtra". A total of 150 state level combative and team games player was randomly selected as the subjects of this study. The age of the subject ranges from 18-28 years. The subjects was selected randomly from the State level tournament who was participated in 2013-14 state games in combative and team games. Out of total sample of 150 players, 75 players (Judo=25, Boxing=25 and Wrestling=25) were selected from combative games and 75 player(Football=25, Volleyball=25 and Handball=25) were selected from Team games. To find out the significance difference in the selected personality traits in combative and team Game players, means, standard deviations and 't' ratios were computed. This study clearly indicated that the combative and team Games players were found to have different personality traits with respect to their Extroversion and Introversion, self concept, Independence-dependence and anxiety aspect, as the calculated 't' values for them were greater than required value to be significant. But the Similar adjustment and temperament aspect of personality. were observed between combative and team Games Players.

Keywords: Combat Games, Team Games, Personality, State level players

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INTRODUCTION

Sports Psychology started to become visible at the Olympic games in 1984, when the Olympic teams began to hire sports psychologists for their athletes, and in 1985, when the U.S. team employed their first permanent sports psychologist. For the Summer Olympics in 1996, the U.S. already had over 20 sports psychologists working with their athletes, and today, each professional sports team has one that is regarded as an important member of their staff.

The human personality is a marvelously intricate structure, delicately woven of motives, emotions, habits, and thoughts into a pattern that balances, however precariously, the pulls and pushes of the world outside. Personality is the total sum of his 'being' and includes physical, mental, social, emotional, and intellectual aspects. One's personality reflects his perception, imagination, attitude, instincts, habits, values, interests, and sentiments about himself and his self worth. Intelligence, achievement, motivation, modes of adjustment, all these and much more constitute human personality.

Personality reveals the psychological make up of an individual through his behaviour. In fact, it is the quality of a person's total behaviour. Personality is a dynamic and continuous process of learning in which the individual acquires the typical modes of responses. The word personality is used to subsume all the factors, inherited or acquired, which make up an individual. It is the total sum of what one is (his psychological make-up), one's typical response patterns (to adjust in the environment or how one responds to the worked around him), and behavior patterns (how one behaves differently in different situations). It is difficult to precisely define a well integrated personality, but acceptance of self, acceptance by others, efficiency in work and freedom from inner conflicts can be conveniently considered as main criteria for exploring the inner depth of personality.

In the modern sports world the psychological, makeup of a sport person is as much important as physiological variables , teaching and tactics. Psychology has become the backbone of high performances especially in achieving peak performances , both training and competition . Sports Psychology .through still in infancy in the developing countries, has: made a definite impact on sports performance, during training and competition (Seaton,1956).

There seems to be certain association between psychological dimensions and sports proficiency either by individual difference in how a person reacts to one's psychological traits. For instance, sports participation may relieve aggressive behavior in some and it may aggravate in others. Some may gain proficiency in sports to overcome high anxiety level whereas others may merely depressed and dishearten and withdraw efforts to achieve proficiency in competitive sports performance. (Cratty, 1989).

Most of the coaches agree that the physical characteristics, skills and training of the players and extremely important but they also indicate the good mental preparation for competitions is necessary component of" success. In western countries like Russia, G.D.R. Bulgaria and Czechoslovakia (East European countries), much stress has been

given on the mental preparation of their national teams as well as on the psychological conditioning of their players and sportsman. This include developing not only the physical attributes but also his' attitudinal, motivational and psychological traits (Singh, 1987).

Athletes who are motivated by aggressive neurotic or competence element will exhibit these component in there personal style and expressions. Competitive styles are characterized by certain personality traits such as individualism, egocentricity and tight, rigid, restrictive defenses. In common usage the term "Personality refers to vaguely Conceived human quality which every one recognizes as a special importance in inter-personal relations (Suinn, 1974).

One's personality is complex combination of qualities that makes one unique and give one his individual identity. It involves in each case and analysis combination of qualities and attributes that characterized the individual person- personality result from an individual combination of attributes qualities and behavior pattern (Scott,1978).

In the modern age of scientific knowledge, man is making rapid progress in all walks of life including that of sports and games. The progress in sports and games may be attributed to the scientific investigations for the better performance of sportsmen and sportswomen, improved scientific and specific training methods and also to the better understanding of the human organism (Simon, 1964).

The psychological preparation on the basis of psychological characteristics of the sport, the competition conditions and the personality structure (profile) of the sportsmen, is planned and carried out with the aim of enabling the sportsman to be in an optimum psychic state at the time of competition so that he can achieve the maximum possible performance.

The personality make-up of an individual plays a vital role in his achievements in every field of life. "Human personality refers to the unique expression of the characteristics of an individual and it must be studied with in the social context in which it develops. It is not an isolated phenomenon, separate from the environment. Although it is often perceived in such a way. Personality is expressed through the complex and interdependent relationship formed between an individual and environment (Dureha, 1987).

Success in athletics seems to be dependent in part on psychological status and traits. The use of an athlete's personality profile, in concern with knowledge of their past experience, coach's rating, anatomic and physiological characteristics and so one can enhance the accuracy of prediction in a number of sports (Morgan,1986).

The participation in Sports contributes to building up self confidence, enhance intellectual level, personality development and outgoing tendency or extraversion as such proficiency leads to enhanced success in sports activities which is highly valued in one's group. Human life is a complex of physical, intellectual, emotional and social development patterns sports and physical activities are integral parts of these patterns. People compete in sports because of the opportunity provided to evaluate their competence in interacting with one's environment. Competition provides people of all levels of ability .with the opportunity to seek out there enforcements attractive to them and gain certain measures of self- evaluation (Sinha, 1986).

Cognitive and general psychological abilities such as intelligence, personality characteristics, concentration, reaction time, motivation, will power, anticipation etc. play a pre-dominant role in various sports activities (Puni, 1980, Macgillivray, 1980, and Schobet, 1981).

The role of education is very much important in the society of human beings in its varied dimension to the life. The education has different aspects to carried with the educational schedule. The development and maintenance of various allied aspects to the education may prove very much important because they have their own purpose and identity to the concept of overall development of a child. Each educational system and educationists refer to the overall development of child, which may be denoted as: mental development (cognitive development), physical and physiological development (non-cognitive development), social development, intellectual development, spiritual and economical development etc.

The education means the modifications in behavior. This statement peruse to the various alteration and modification which may be conducted with the help of education, environment and teaching or training. The education may only be achieved, when the various body systems engaged and involved in a coordinative and systematic form. The educational concept of all-round development of a human being refers to various dimensions in which the physical dimension plays an important role to provide the practical shape to the education process.

Student athlete is widely stereo typed as the "dumb jock," become it is assumed that sport participation interferes with schoolwork. There is, however, no truth in this stereotype and assumption when applied to high school athletes. Infect many studies have consistently demonstrated a positive relationship between athletic participation and academic performance (Thio, 1986).

The high school athletes had higher grade point averages than non-athletes did. They further found that the athletes' greater academic achievement was not due to such factors as being from higher-income families or taking easy course (Walter, 1968).

Sports and physical education are an integral part of the learning process and will be included in the evaluation of performance. A nation wide infrastructure for physical education, sports and games will be built into the education edifice". The infrastructure will consist of play fields, equipment, coaches and teacher of physical education as part of the school improvement program. Efforts will be made to establish sports institutions and hostel where specialized attention will be given to sports activities and sports - related studies along with normal education (Aggarwal, 1972).

The researcher has selected this problem because of his personal interest in the sports psychology as well as the growing demands of psychology in the competitive sports. The researcher has noticed during competitions that some sportspersons may not be able to tolerate the stress or emotional tension arises during competition or may not be able to adjust him with other teammates, which affect their performance. Keeping in view these problems of the sportspersons, the present researcher has made an attempt to explore non conventional, unexplored dimensions of psychology which have direct bearing on sports performance. Hence the study was focused on comparative evaluation of psychological variables among

sportspersons. The titled as: “Comparative Study of Personality Traits of Combative and Team Game State Level Players of Maharashtra.”

The main purpose the study is to compare the “Personality Traits of Combative and Team Game State Level Players of Maharashtra”. It was also hypothesized that there would no significant differences between means of Personality Traits among the Combative and Team Game State Level Players of Maharashtra.

METHODOLOGY

Selection of Subjects:

A total of 150 State level Combative and Team Games player was randomly selected as the subjects of this present study. The age of the subject ranges from 18-28 years. The subjects was selected randomly from the State level tournament who was participated in 2013-14 state games in Combative (Judo, Boxing and Wrestling) and Team games (Football, Volleyball and Handball). Out of total sample of 150 players, 75 players was selected from combative games and 75 player was selected from Team games. These 75 players from combative games was divided into Judo, Boxing and Wrestling having 25 players in each game. In the same way 75 players from team games was divided into Football, Handball and Volleyball having 25 players in each game.

Description of Questionnaire:

The selection of tool was governed by the consideration of their (i) availability (ii) suitability to the sample (iii) reliability and validity keeping in view these consideration, the following questionnaire was used for data collection.

Multidimensional Personality Inventory developed by Ku. Manju Agrawal was used as criterion measure to compare the personality traits of individual and team games players. In view that it is an objective test and gives the most extensive coverage of individual's characteristics and it is widely used in game and sports. It is an objectively scored test. This test is highly reliable and valid for testing the individual conditions. This inventory consists of total 119 statements (20 statements for each A to E and 19 for F personality trait). Each statement has three alternatives viz, ‘Yes’, ‘Sometimes’ and ‘No’.

Six personality traits are measured with the help of questionnaire i.e. Extroversion and Introversion, Self-Concept, Independence- Dependence, Temperament, Adjustment and Anxiety

RESULTS AND DISCUSSION

To find out the significance difference in the selected personality traits in combative and team Game players, ‘t’ test was used and data pertaining to this have been presented in Table 1 to 6 and Figure 1 to 6.

TABLE 1
SIGNIFICANCE OF DIFFERENCE BETWEEN COMBATIVE AND TEAM
GAME”S PLAYERS ON EXTROVERSION AND INTROVERSION
DIMENSION OF PERSONALITY

Group of Players	Mean	SD	MD	σ DM	t-ratio
Team Game	48.296	5.399	4.079	0.987	4.133*
Combat Game	44.217	5.814			

Significant at .05 level, $t_{.05}(129) = 1.98$

From the above Table 1 indicates that statistically significant difference was observed between players of team game and combat game on extroversion and introversion dimension of personality, as the obtained t- value of 4.133 was higher than the required value of $t_{.05}(129) = 1.98$.

Hence it is concluded that there was a significant difference in Combative games and Team games players with respect to their extroversion and introversion aspect of personality. Moreover, team games players were more extrovert than the Combative games players. The difference between mean extroversion and introversion aspect of personality of Combative and Team Games players is depicted in Figure 1.

TABLE 2
SIGNIFICANCE OF DIFFERENCE BETWEEN COMBATIVE AND TEAM
GAME”S PLAYERS ON SELF CONCEPT DIMENSION
OF PERSONALITY

Group of Players	Mean	SD	MD	σ DM	t-ratio
Team Game	46.521	4.316	2.979	0.969	3.074*
Combat Game	49.500	6.371			

Significant at .05 level, $t_{.05}(129) = 1.98$

From the above Table 2 indicates that statistically significant difference was observed between players of team game and combat game on self concept dimension of personality, as the obtained t- value of 3.074 was higher than the required value of $t_{.05}(129) = 1.98$.

From the above findings it was concluded that there is a significant difference in Combative games and Team games players with respect to their Self-concept aspect of personality. Moreover, Combative games players were found to have better self-concept than the Team games players. The difference between means of self concept aspect of personality of Combative and Team Games players is depicted in Figure 2. .

TABLE 3
SIGNIFICANCE OF DIFFERENCE BETWEEN COMBATIVE AND TEAM
GAME”S PLAYERS ON INDEPENDENCE-DEPENDENCE
TRAIT OF PERSONALITY

Group of Players	Mean	SD	MD	6 DM	t-ratio
Team Game	45.803	4.146	3.881	0.926	4.192*
Combat Game	49.683	6.074			

Significant at .05 level,
t.05 (129)= 1.98

From the above Table 3 indicates that statistically significant difference was observed between players of team game and combat game on independence-dependence trait of personality, as the obtained t- value of 4.192 was higher than the required value of t.05 (129)=1.98.

From the above discussion it is concluded that there is a significant difference in Combative games and Team games players with respect to their Independence-dependence trait of personality. Moreover, Combative games players have more Independence-dependence trait than the Team games players. The difference between means of independence-dependence trait of personality of Combative and Team Games players is depicted in Figure 3.

TABLE 4
SIGNIFICANCE OF DIFFERENCE BETWEEN COMBATIVE AND TEAM
GAME”S PLAYERS ON TEMPERAMENT TRAIT
OF PERSONALITY

Group of Players	Mean	SD	MD	6 DM	t-ratio
Team Game	47.732	3.888	1.416	1.062	1.333
Combat Game	46.317	7.409			

Insignificant at .05 level,
t.05 (129)= 1.98

From the above Table 4 indicates that statistically significant difference was not found between players of team game and combat game on Temperament aspect of personality, as the obtained t- value of 1.333 was lesser than the required value of t.05 (129)=1.98.

From the above findings it is concluded that Combative and Team Games players does not differ significantly with respect to their temperament aspect of Personality. It means

Combative games and Team games players have same level of temperament. The difference between means of independence-dependence trait of personality of Combative and Team Games players is depicted in Figure 4.

TABLE 5
SIGNIFICANCE OF DIFFERENCE BETWEEN COMBATIVE AND TEAM
GAME'S PLAYERS ON ADJUSTMENT DIMENSION OF PERSONALITY

Group of Players	Mean	SD	MD	$\bar{d}$ DM	t-ratio
Team Game	49.775	3.034	0.125	0.813	0.154
Combat Game	49.900	5.650			

Insignificant at .05 level,
t.05 (129)= 1.98

From the above Table 5 indicates that statistically significant difference was not found between players of team game and combat game on adjustment aspect of personality, as the obtained t- value of 0.154 was lesser than the required value of t.05 (129)=1.98.

From the above findings it is concluded that Combative and Team Games players does not differ significantly with respect to their adjustment aspect of Personality. It means Combative Game and Team Game Players have same level of adjustment. The difference between means of Adjustment aspect of personality of Combative and Team Games players is depicted in Figure 5.

TABLE 6
SIGNIFICANCE OF DIFFERENCE BETWEEN COMBATIVE AND TEAM
GAME'S PLAYERS ON ANXIETY DIMENSION OF PERSONALITY

Group of Players	Mean	SD	MD	$\bar{d}$ DM	t-ratio
Team Game	47.113	3.358	1.429	0.634	2.254*
Combat Game	45.683	3.820			

*Significant at .05 level,
t.05 (129)= 1.98

From the above Table 6 indicates that statistically significant difference existed between players of team game and combat game on anxiety aspect of personality, as the obtained t- value of 2.254 was higher than the required value of t.05 (129)=1.98.

Hence it is concluded that there was a significant difference in Combative games and Team games players with respect to their anxiety aspect of personality. Moreover, team games players have more Anxiety than the Combative games players. The difference between means of anxiety aspect of personality of Combative and Team Games players is depicted in Figure 6.

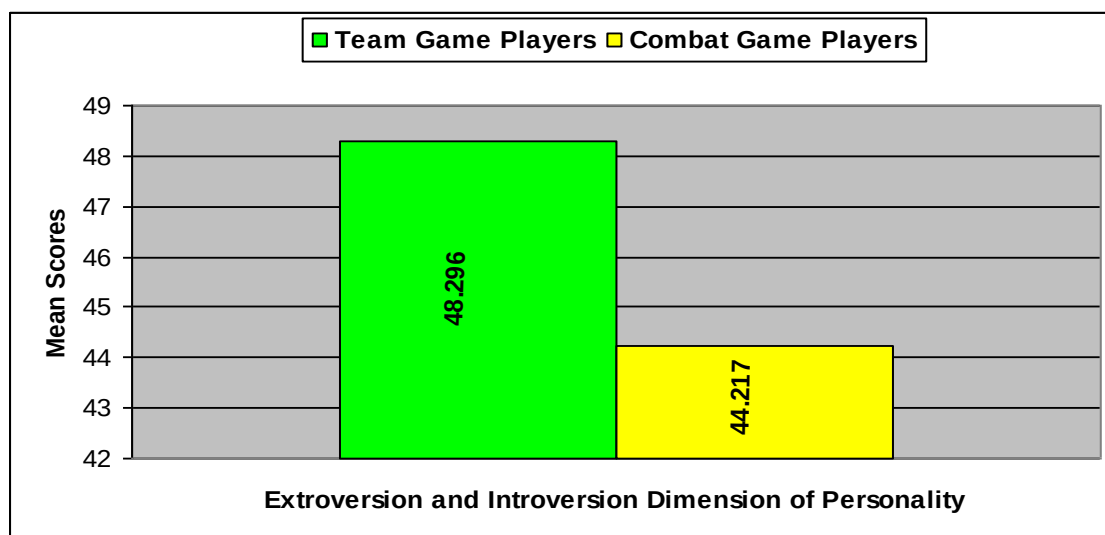


Figure :1-Mean Scores of Extroversion-Introversion Dimension of Personality of Combat and Team Game Players.

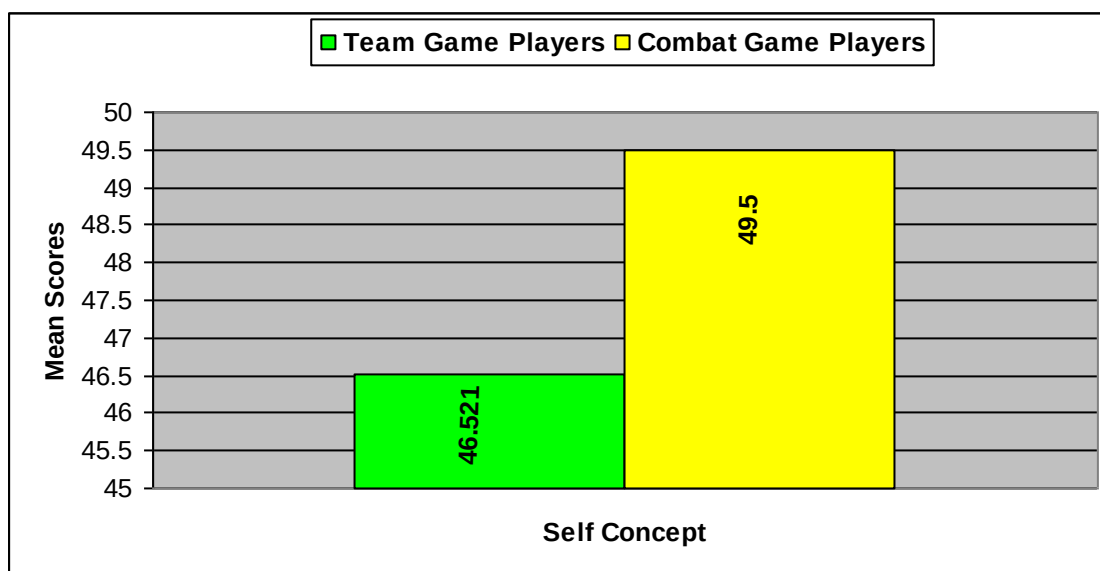


Figure :2-Mean Scores of Self Concept Dimension of Personality of Combat and Team Game Players.

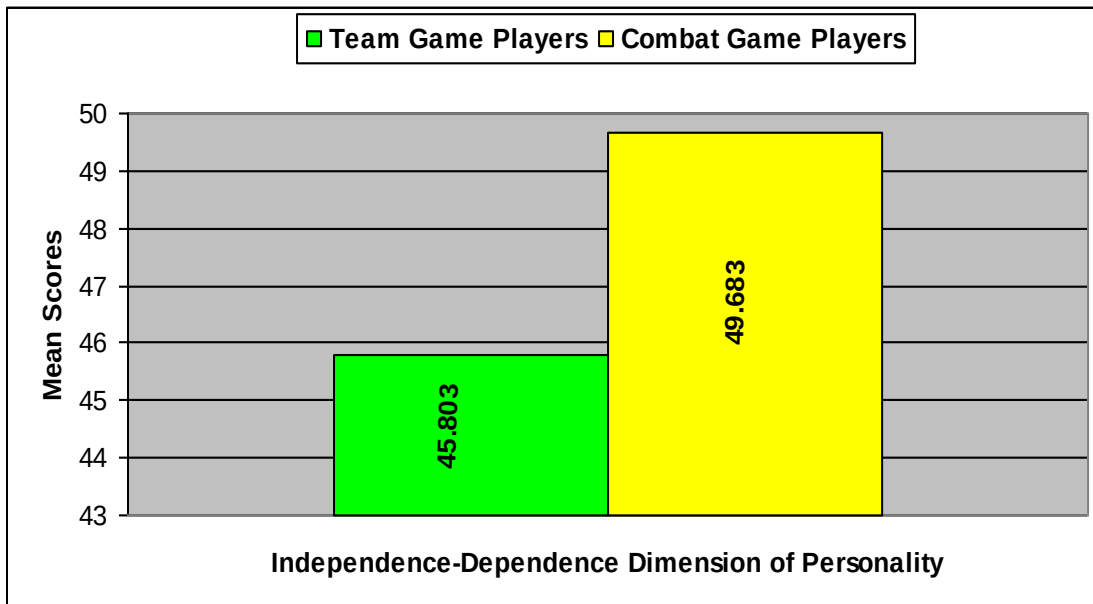


Figure :3-Mean Scores of Independence-Dependence Dimension of Personality of Combat and Team Game Players.

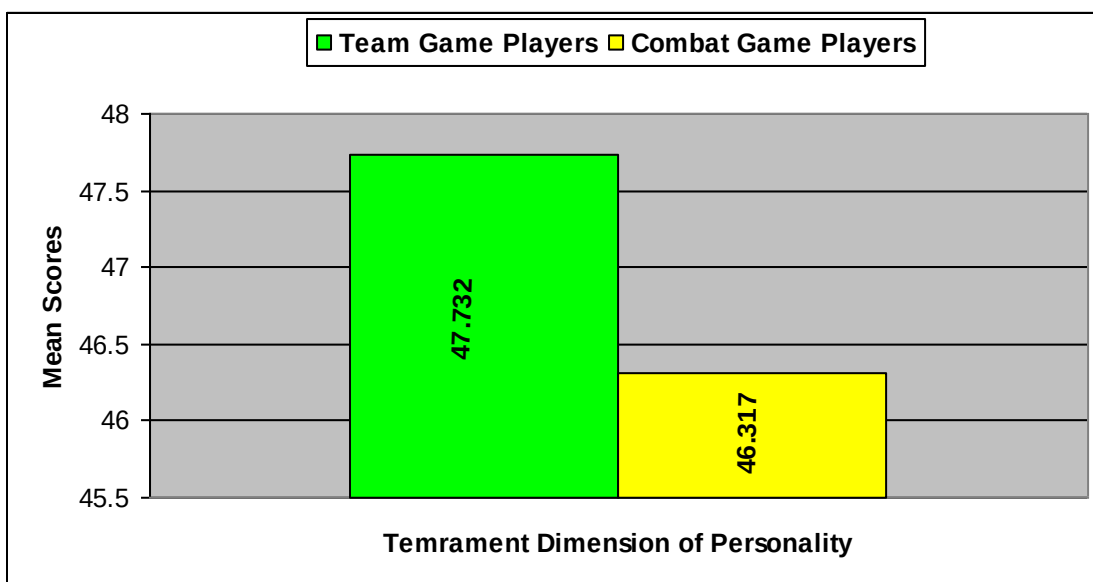


Figure :4-Mean Scores of Temperament Dimension of Personality of Combat and Team Game Players.

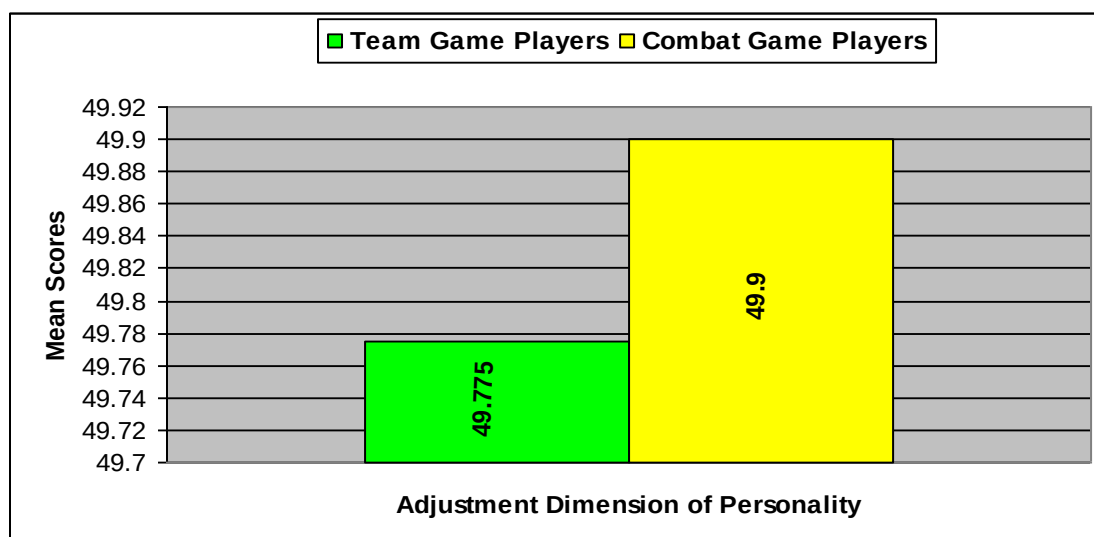


Figure :5-Mean Scores of Adjustment Dimension of Personality of Combat and Team Game Players.

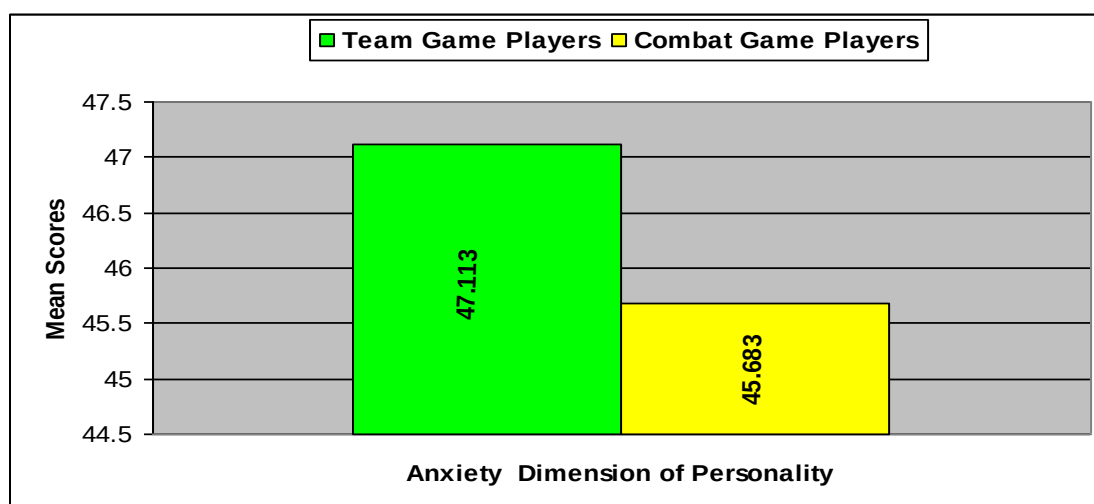


Figure :6-Mean Scores of Anxiety Dimension of Personality of Combat and Team Game Players.

CONCLUSIONS

- (1) Combative and Team Games Players differ significantly with respect to their Extroversion and Introversion aspect of personality.
- (2) Combative and Team Games Players differ significantly with respect to Self-Concept aspect of Personality.
- (3) Combative and Team Games Players differ significantly with respect to their

- Independence-dependence Trait of personality
- (4) Combative and Team Games Players did not differ significantly with respect to their Temperament aspect of Personality
 - (5) Combative and Team Games Players did not differ significantly with respect to their Adjustment aspect of Personality
 - (6) Combative and Team Games Players differ significantly with respect to their Anxiety aspect of Personality.

APPLICATION IN SPORTS

The study would provide help to the physical education teachers, sports psychologists, sports trainers and coaches to find out various levels of Personality traits of sports persons in different games. The study may be help the coaches in selection of the suitable activities for the players according to their level of personality traits. The study would be worthy for the sports psychologists to construct a specific pattern of psychological training for combative and team games players. The results of the study was provide useful information and guidelines to coaches, physical education teachers and athletes regarding behavioral characteristics of sportspersons and may found to be instrumental in effective.

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बालक व बालिका बास्केटबॉल खिलाड़ियों के व्यक्तित्व का तुलनात्मक अध्ययन

COMPARATIVE STUDY OF PERSONALITY OF BOYS AND GIRLS BASKETBALL PLAYERS

Vijay Chauhan*, Dr. Santosh Bajpai** and Sudhir Rajpal***

ABSTRACT

वर्तमान अध्ययन का उद्देश्य बालक व बालिका खिलाड़ियों के व्यक्तित्व का तुलनात्मक अध्ययन करना है। इस अध्ययन हेतु छत्तीसगढ़ राज्य के बास्केटबॉल के 40 बालक व 40 बालिका खिलाड़ियों जिन्होंने राष्ट्रीय स्तर की प्रतियोगिता में राज्य का प्रतिनिधित्व किया हो का चयन न्यादर्श के रूप में किया गया। इस अध्ययन हेतु आइन्जेक द्वारा निर्मित एवं मेनन द्वारा हिन्दी में अनुवादित कसौटी (1979) का चयन किया गया। यह चार आयामों वाली तथा 78 कथनों की विश्वसनीय एवं वैध प्रश्नावली का प्रयोग व्यक्तित्व परीक्षण हेतु किया गया। वर्तमान शोध अध्ययन हेतु तय किये गये समूहों में सभी चरों के सामान्य वितरण की जांच हेतु वर्णनात्मक सांख्यिकी की गणना की गयी। चूंकि इस अध्ययन में दो समूहों के मध्य एक आश्रित चर की तुलना की गयी है, अतः इस अध्ययन हेतु अध्ययनकर्ता द्वारा सांख्यिकीय परीक्षण विधि 't' परीक्षण का उपयोग किया है। इस अध्ययन के परिणामों से स्पष्ट था कि लिंग का राष्ट्रीय बास्केटबॉल खिलाड़ियों के व्यक्तित्व के मनस्तापिता आयाम, बहिर्मुखी-अंतर्मुखी आयाम, मनःस्नायु आयाम और लार्ड-आयाम पर सार्थक प्रभाव दिखायी नहीं दिया। व्यक्तित्व के मनस्तापिता आयाम, बहिर्मुखी-अंतर्मुखी आयाम, मनःस्नायु आयाम और लार्ड-आयाम पर लिंग के आधार पर राष्ट्रीय बास्केटबॉल खिलाड़ियों के मध्य सार्थक भिन्नताएँ दिखायी नहीं दी, अतः परिकल्पना अस्वीकार्य हैं।

Key words - मनस्तापिता, बहिर्मुखी-अंतर्मुखी, एल-स्कोर

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INTRODUCTION

व्यक्तित्व का शब्द का अर्थ दैनिक जीवन में बहुत ही सीमित तौर पर किया जाता है। यदि कोई व्यक्ति समाज में अन्य सदस्यों से अधिक लोकप्रिय होता है अर्थात् उसकी उपस्थिति अन्य व्यक्तियों की प्रसन्नता का कारण होती है तो सामान्यतः उस व्यक्ति का व्यक्तित्व अधिक आकर्षक माना जाता है। आकर्षक व्यक्तित्व वाले व्यक्ति में नेतृत्व की क्षमता तथा अन्य गुण भी होते हैं जिनसे समूह के अन्य व्यक्तियों को उसकी उपस्थिति की जानकारी जल्द हो जाती है। किन्तु मनोविज्ञान में व्यक्तित्व शब्द का उपयोग व्यापक अर्थ में किया जाता है। ऐतिहासिक दृष्टि से Personality (व्यक्तित्व) शब्द की उत्पत्ति लैटिन भाषा के शब्द Person से हुई है जिसका अर्थ है 'मुखौटा'।

व्यक्तित्व की मनोवैज्ञानिक परिभाषाओं में आलपोर्ट का विश्लेषण उल्लेखनीय है। आलपोर्ट के अनुसार, 'व्यक्तित्व, व्यक्ति के भीतर मनोदैहिक गुणों का वह गत्यात्मक संगठन है जो पर्यावरण के प्रति उसके अनूठे समायोजन का निर्धारण करता है। आलपोर्ट के अनुसार शब्द गत्यात्मक का अनुप्रयोग, व्यक्तित्व की परिवर्तनशीलता के परिचायक है।' यह इस बात का संकेत देता है कि व्यक्ति के व्यवहार में गुणात्मक परिवर्तन संभव है। व्यक्तित्व के लक्षण स्थायी एवं स्थिर न होकर समय के साथ परिवर्तित होते हैं। शब्द संगठन का निहित अर्थ है कि किसी समय कोई लक्षण अधिक प्रभावी तथा अन्य कम प्रभावी होते हैं। मनोदैहिक तंत्र का तात्पर्य आदतों, अभिवृत्तियों, स्थायी भावों, मूल्यों, विश्वासों, सांवेदिक दशाओं तथा अभिप्रेरकों से है, जिनका संबंध बालक के स्नायविक, ग्रंथिय और शरीर की सामान्य दशाओं से है और जिनका आधार भौतिक या दैहिक होता है। यद्यपि यह आनुवंशिकता पर निर्भर करती है परन्तु इनका विकास अधिगम और अनुभव द्वारा होता है।

अध्ययन का उद्देश्य बास्केटबॉल के बालक एवं बालिकाओं के व्यक्तित्व का अध्ययन करना था। इस अध्ययन में यह भी परिकल्पित किया गया था कि बालक व बालिका बास्केटबॉल खिलाड़ियों के मध्य मनस्तापिता, बहिर्मुखी-अंतर्मुखी मनःस्नायु विकृति एवं लाई-आयामो पर सार्थक भिन्नताएँ दिखायी देंगी।

METHODOLOGY

Sample:

इस अध्ययन हेतु छत्तीसगढ़ राज्य के बास्केटबॉल के 40 बालक व 40 बालिका खिलाड़ियों जिन्होंने राष्ट्रीय स्तर की प्रतियोगिता में राज्य का प्रतिनिधित्व किया हो का चयन न्यादर्श के रूप में किया गया।

Instrumentation:

न्यादर्श के व्यक्तित्व आयामों यथा मनस्तापिता, बहिर्मुखी-अंतर्मुखी व्यक्तित्व, मनःस्नायु विकृति हेतु आइन्जेक द्वारा निर्मित एवं मेनन द्वारा हिन्दी में अनुवादित कसौटी (1979) का चयन किया गया। यह चार आयामों वाली तथा 78 कथनों की विश्वसनीय एवं वैध प्रश्नावली का प्रयोग व्यक्तित्व परीक्षण हेतु किया गया। इस परीक्षण में मनस्तापिता, बहिर्मुखी-अंतर्मुखी व्यक्तित्व, मनःस्नायु विकृति एवं एल-स्कोर आयाम के लिये test-retest reliability coefficient क्रमशः 0.630, 0.888, 0.687, 0.337 पाये गये।

Collection of Data :

बालक व बालिका बास्केटबॉल खिलाड़ियों के व्यक्तित्व का तुलनात्मक अध्ययन करने हेतु व्यक्तित्व आयामों का आंकलन करने के लिये अनुसंधानकर्ता ने निम्नलिखित प्रक्रिया द्वारा आंकड़ों का संकलन किया।

अध्ययन के लिये चयनित न्यादर्श को व्यक्तित्व परीक्षण प्रश्नावली दी गयी। अनुसंधानकर्ता द्वारा इससे पहले चयनित न्यादर्श को यह भी जानकारी दी गयी कि न्यादर्श द्वारा दिये गये उत्तर गोपनीय रखे जायेंगे तथा उसका प्रयोग केवल शोध के प्रयोजन के लिये ही किया जायेगा।

व्यक्तित्व परीक्षण प्रश्नावली पर प्राप्त उत्तरों की जांच प्रश्नावली निर्माता द्वारा सुझायी गयी विधि द्वारा की गयी एवं प्राप्त आंकड़ों को उनके समूहों के अनुसार सारणीकृत करने के पश्चात परिकल्पनाओं की जांच उपयुक्त सांख्यिकीय विधि द्वारा की गयी।

RESULTS AND DISCUSSION

राष्ट्रीय स्तर के बालक व बालिका बास्केटबॉल खिलाड़ियों के व्यक्तित्व का तुलनात्मक अध्ययन करने के लिए माध्य, प्रमाप विचलन और की परीक्षण का उपयोग किया गया। जिन्हें निम्नलिखित 1-6 तालिकाओं में दर्शाया गया है -

TABLE 1

राष्ट्रीय स्तर के बास्केटबॉल खिलाड़ियों में बालक एवं बालिका समूह के विभिन्न चरों पर प्राप्त सांख्यिकीय मान

चर	Boys (N=40)		Girls (N=40)	
	Mean	S.D.	Mean	S.D.
मनस्तापिता	6.77	3.35	6.85	2.87
बहिर्मुखी-अंतर्मुखी व्यक्तित्व	12.12	2.78	11.05	2.96
मनःस्नायु विकृति	6.30	2.38	9.67	3.49
एल-आयाम	6.30	2.38	6.95	2.27

व्यक्तित्व के विभिन्न आयामों के मध्यमान आंकड़ों को सारणी क्रमांक 1 में दशाते हुए आरेख क्रमांक 1 से 4 में निरूपित किया गया है।

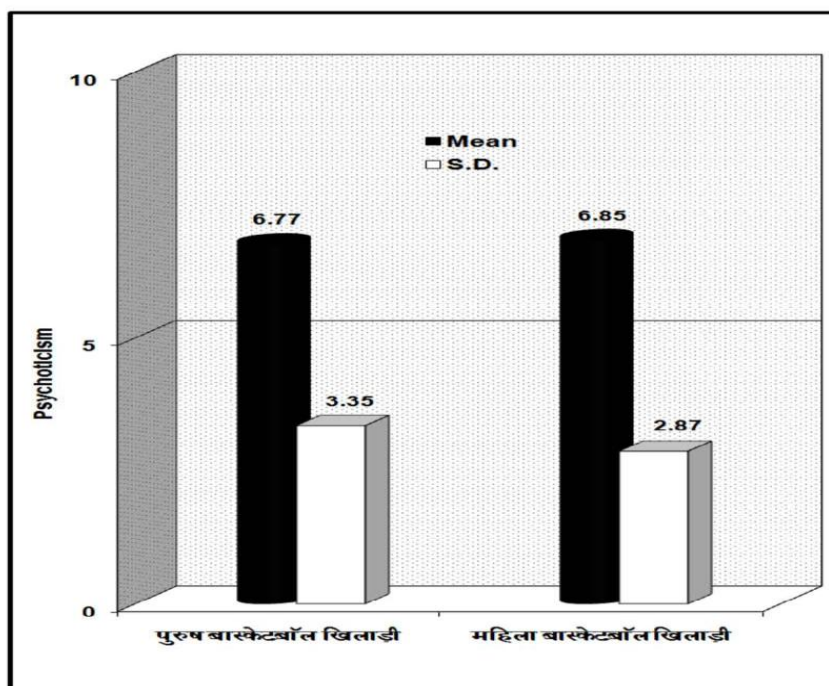
TABLE 2

बालक व बालिका बास्केटबॉल खिलाड़ियों के मध्य व्यक्तित्व आयाम मनस्तापिता की तुलना

चर	बालक खिलाड़ी (N=40)		बालिका खिलाड़ी (N=40)		't'	सार्थकता का स्तर
	Mean	S.D.	Mean	S.D.		
मनस्तापिता	6.77	3.35	6.85	2.87	0.10	NS

Insignificant at .05 level.

तालिका क्रमांक 2 में दर्शित परिणामों से स्पष्ट है कि व्यक्तित्व आयाम मनस्तापिता पर पुरुष बास्केटबॉल खिलाड़ियों (M=6.77), एवं महिला बास्केटबॉल खिलाड़ियों (M=6.85), के मध्य सांख्यिकीय रूप से सार्थक भिन्नता नहीं पायी गयी। प्राप्त $t=0.10$ जो कि सांख्यिकीय रूप से सार्थकता स्तर पर सिद्ध नहीं है, इस परिणाम की पुष्टि करता है। प्राप्त परिणामों को आरेख क्रमांक 1 के माध्यम से भी प्रदर्शित किया गया है।



आरेख क्रमांक 1. राष्ट्रीय बालक व बालिका बास्केटबॉल खिलाड़ियों के मध्य व्यक्तित्व आयाम मनस्तापिता का तुलनात्मक चित्रण

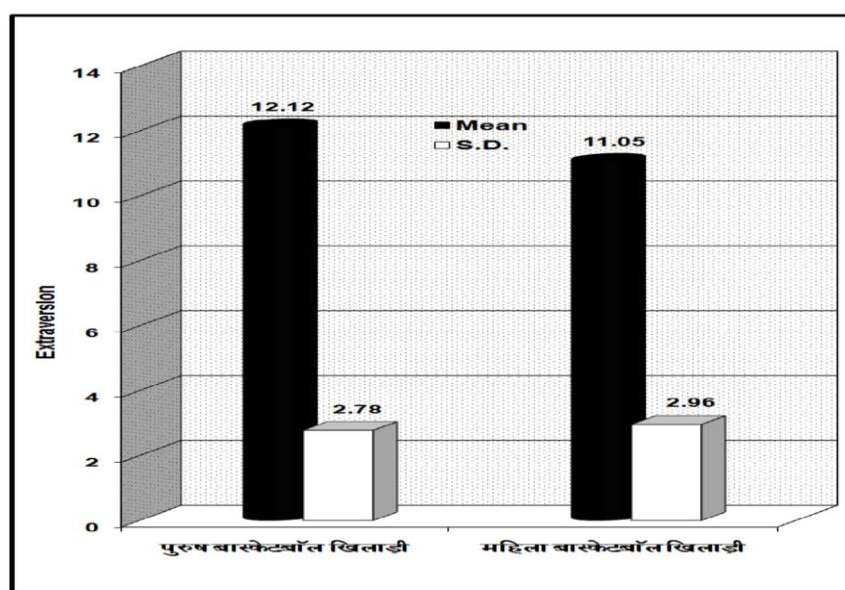
TABLE 3

बालक व बालिका बास्केटबॉल खिलाड़ियों के मध्य व्यक्तित्व आयाम बहिर्मुखी-अंतर्मुखी व्यक्तित्व की तुलना

चर	बालक खिलाड़ी (N=40)		बालिका खिलाड़ी (N=40)		't'	सार्थकता का स्तर
	Mean	S.D.	Mean	S.D.		
बहिर्मुखी-अंतर्मुखी व्यक्तित्व	12.12	2.78	11.05	2.96	1.67	NS

Insignificant at .05 level.

तालिका क्रमांक 3 में दर्शित परिणामों से स्पष्ट है कि व्यक्तित्व आयाम बहिर्मुखी-अंतर्मुखी व्यक्तित्व पर पुरुष बास्केटबॉल खिलाड़ियों (M=12.12), एवं महिला बास्केटबॉल खिलाड़ियों (M=11.05), के मध्य सांख्यिकीय रूप से सार्थक भिन्नता नहीं पायी गयी। प्राप्त $t=1.67$ जो कि सांख्यिकीय रूप से सार्थकता स्तर पर सिद्ध नहीं है, इस परिणाम की पुष्टि करता है। प्राप्त परिणामों को आरेख क्रमांक 2 के माध्यम से भी प्रदर्शित किया गया है।



आरेख क्रमांक 2. राष्ट्रीय बालक व बालिका बास्केटबॉल खिलाड़ियों के मध्य बहिर्मुखी-अंतर्मुखी व्यक्तित्व का तुलनात्मक चित्रण

TABLE 4

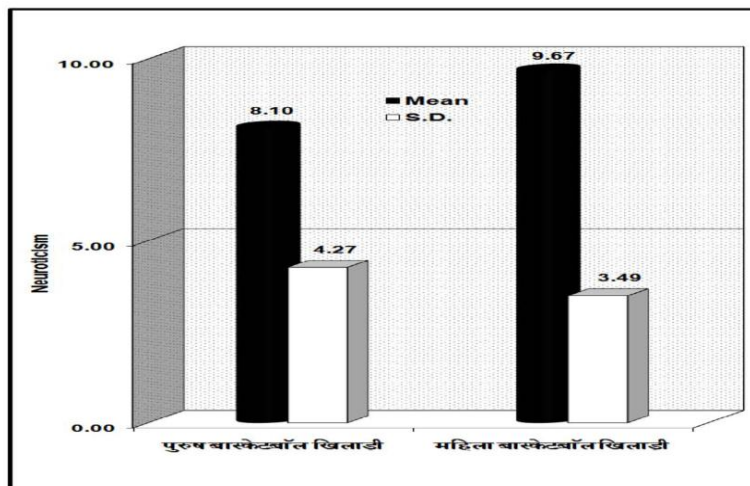
बालक व बालिका बास्केटबॉल खिलाड़ियों के मध्य व्यक्तित्व आयाम मनःस्नायु विकृति व्यक्तित्व की तुलना

चर	बालक खिलाड़ी (N=40)		बालिका खिलाड़ी (N=40)		't'	सार्थकता का स्तर
	Mean	S.D.	Mean	S.D.		
मनःस्नायु विकृति	8.10	4.27	9.67	3.49	1.80	NS

Insignificant at .05 level.

तालिका क्रमांक 4 में दर्शित परिणामों से स्पष्ट है कि व्यक्तित्व आयाम बहिर्मुखी-अंतर्मुखी व्यक्तित्व पर पुरुष बास्केटबॉल खिलाड़ियों (M=8.10), एवं महिला बास्केटबॉल खिलाड़ियों (M=9.67), के मध्य सांख्यिकीय रूप से सार्थक भिन्नता नहीं पायी गयी। प्राप्त $t=1.80$ जो कि सांख्यिकीय रूप से सार्थकता स्तर पर सिद्ध नहीं है, इस

परिणाम की पुष्टि करता है। प्राप्त परिणामों को आरेख क्रमांक 3 के माध्यम से भी प्रदर्शित किया गया है।



आरेख क्रमांक 3- राष्ट्रीय बालक व बालिका बास्केटबॉल खिलाड़ियों के मध्य मनःस्नायु विकृति का तुलनात्मक चित्रण

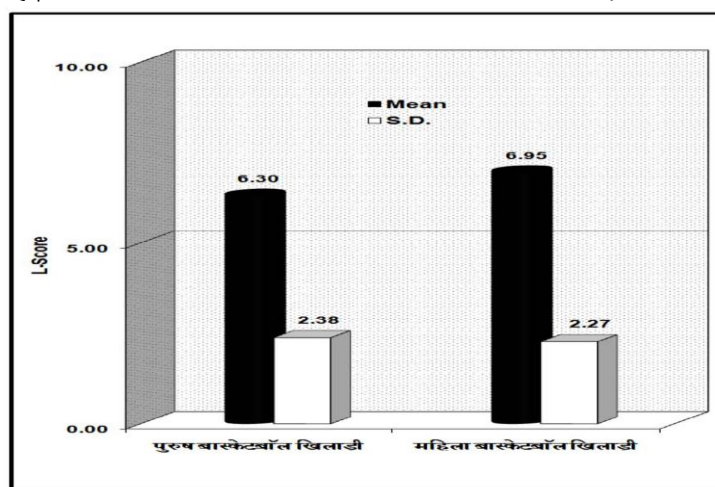
TABLE 5

बालक व बालिका बास्केटबॉल खिलाड़ियों के मध्य व्यक्तित्व आयाम एल-आयाम व्यक्तित्व की तुलना

चर	बालक खिलाड़ी (N=40)		बालिका खिलाड़ी (N=40)		‘t’	सार्थकता का स्तर
	Mean	S.D.	Mean	S.D.		
एल-आयाम	6.30	2.38	6.95	2.27	1.24	NS

Insignificant at .05 level.

तालिका क्रमांक 5 में दर्शित परिणामों से स्पष्ट है कि व्यक्तित्व आयाम बहिर्मुखी-अंतर्मुखी व्यक्तित्व पर पुरुष बास्केटबॉल खिलाड़ियों ($M=6.30$), एवं महिला बास्केटबॉल खिलाड़ियों ($M=6.95$), के मध्य सांख्यिकीय रूप से सार्थक भिन्नता नहीं पायी गयी। प्राप्त $t=1.24$ जो कि सांख्यिकीय रूप से सार्थकता स्तर पर सिद्ध नहीं है, इस परिणाम की पुष्टि करता है। प्राप्त परिणामों को आरेख क्रमांक 4 के माध्यम से भी प्रदर्शित किया गया है।



आरेख क्रमांक 4-राष्ट्रीय बालक व बालिका बास्केटबॉल खिलाड़ियों के मध्य एल-आयाम का तुलनात्मक चित्रण

DISCUSSION

व्यक्तित्व के मनस्तापिता आयाम, बहिर्मुखी-अंतर्मुखी आयाम, मनःस्नायु आयाम और लाई-आयाम पर लिंग के आधार पर राष्ट्रीय बास्केटबॉल खिलाड़ियों के मध्य सार्थक भिन्नताएँ दिखायी नहीं दी, अतः परिकल्पना अस्वीकार्य है।

CONCLUSIONS

अध्ययन से प्राप्त परिणामों से निम्नलिखित निष्कर्ष प्राप्त हुए –

1. लिंग का राष्ट्रीय बास्केटबॉल खिलाड़ियों के व्यक्तित्व आयाम मनस्तापिता पर सार्थक प्रभाव दिखायी नहीं दिया।
2. लिंग का राष्ट्रीय बास्केटबॉल खिलाड़ियों के बहिर्मुखी-अंतर्मुखी व्यक्तित्व पर सार्थक प्रभाव दिखायी नहीं दिया।
3. लिंग का राष्ट्रीय बास्केटबॉल खिलाड़ियों के व्यक्तित्व आयाम मनः स्नायु विकृति पर सार्थक प्रभाव दिखायी नहीं दिया।
4. लिंग का राष्ट्रीय बास्केटबॉल खिलाड़ियों के व्यक्तित्व आयाम एल-आयाम पर सार्थक प्रभाव दिखायी नहीं दिया।

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COMPARISON OF FAT PERCENTAGE BETWEEN PROFESSIONAL AND NON PROFESSIONAL STUDENTS

Dr. Gulbahar khan*

ABSTRACT

The purpose of the study was to compare the fat percentage between B.Sc. and B. Ed students. To fulfill the purpose a total of 40 male (20 B.Sc. and 20 B.Ed students) subjects were selected as subjects from L.C.C., Lucknow. The mean age of the subjects was 22 years. Fat percentage of the subjects was assessed through Skin-fold measurement. Four sites i.e., biceps, triceps, supra-iliac and sub-scapular were measured with the help of skin-fold caliper. For the assessment of fat percentage table made by Durenin and Rehman was used. For the analyzing data, t test was used. It showed that there was a significant difference between B.Sc. and 20 B. Ed students. It was concluded that B.Sc. students have greater amount of fat percentage in comparison of B. Ed students.

Keywords – Skin-folds, Students, Professional, Non-professional, Education

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INTRODUCTION

Essential fat is the level below which physical and physiological health would be negatively affected. Controversy exists as to whether a particular body fat percentage is better for one's health; athletic performance may also be affected. The leanest athletes typically compete at levels of about 6–13% for men or 14–20% for women. Bodybuilders may compete at ranges even lower than these levels (Womersley, 1974).

The skin-fold estimation methods are based on a skin-fold test, also known as a pinch test, whereby a pinch of skin is precisely measured by calipers at several standardized points on the body to determine the subcutaneous fat layer thickness. These measurements are converted to an estimated body fat percentage by an equation. Some formulas require as few as three measurements, others as many as seven. The accuracy of these estimates is more dependent on a person's unique body fat distribution than on the number of sites measured. As well, it is of utmost importance to test in a precise location with a fixed pressure. Although it may not give an accurate reading of real body fat percentage, it is a reliable measure of body composition change over a period of time, provided the test is carried out by the same person with the same technique (Sodhi, 1986).

The body fat percentage of a human or other living being is the total mass of fat divided by total body mass; body fat includes essential body fat and storage body fat. Essential body fat is necessary to maintain life. The percentage of essential fat is 3–5% in men, and 10–14% in women. Storage body fat consists of fat accumulation in adipose tissue, part of which protects internal organs in the chest and abdomen. The minimum recommended total body fat percentage exceeds the essential fat percentage value reported above. A number of methods are available for determining body fat percentage, such as measurement with caliper or through the use of impedance method. The body fat percentage is a measure of fitness level, since it is the only body measurement which directly calculates a person's relative body composition without regard to height or weight (Sinning, 1996).

Body mass index (BMI) is employed globally to classify humans as normal, overweight and obese [World Health Organization, 1995]. Even though BMI has several limitations as an assessment method of body composition (e.g., it cannot identify sarcopenic obesity [Stokic, et.al., 2002], it is expensive and easy to administer. However, its application in sport population has been questioned [Ode, et. al., 2007], because it is associated with fat mass as well as with fat free mass. For instance, as BMI is increased by high amounts of both fat and fat free mass, a very muscular athlete with low BF could be classified as overweight. Recent studies have shown that the relationship between BMI and BF is influenced by sex, age and sport [Srdic, et.al., 2011; Mak et. al. 2010]. Such relationship has not yet been identified in adolescent soccer players. If BMI was in strong correlation with BF, it would offer the coach, trainer or other allied health care professional engaged in soccer training an important tool to develop proper exercise program

BMI is often overlooked in studies on sport populations and there are many studies on team handball players which present data on stature and body weight, but not on BMI

(Cavala & Katic, 2010; Chelly, Hermassi and Shephard, 2010; Kalinski, et.al., 2010; , Mohamed, et.al., 2009; Sibila and Pori, 2009).

There is evidence from research conducted chiefly on general young populations that BMI is associated with reduced physical fitness (Artero, et.al., 2010; Bovet P, Auguste and Burdette, 2007; Chen, et.al., 2006; Duvigneaud, et.al., 2008; Mak, et. al., 2010) and the same has recently been shown on sport populations (Nikolaidis, 2012; Nikolaidis, 2012).

MATERIALS AND METHODS

Selection of Subjects:

For the purpose of the study, 40 male (20 B.Sc. and 20 B. Ed students) studying in L.C.C., Lucknow were selected as subject for the study. The mean age of the subjects was 22 years.

Administration of Test:

For the administration test the subjects B.Sc. and B. Ed students were assembled on LCC ground. They were acquainted with the specific purpose of the study. The tester had done test trails on different subjects to ensure the tester reliability. The caliper was applied to measure the fat% of the subjects.

Subjects were asked to remove the clothes of upper body. The measurement for fat was taken from four sites i.e. Triceps, Biceps, Suprailiac, Sub-scapular. The investigator followed standardized testing procedure for measurement. The site on triceps and biceps was marked at mid acromial-radial and measurement was taken and at the suprailiac region the measurements were taken in the line of naval at side of body. The sub-scapular fat measurement was taken at proper site. Care was taken that subject maintained an ideal anatomical position at the time of measurement.

RESULTS AND DISCUSSION

To find out the significance difference between B.Sc. and B. ED students in their % of fat, descriptive statistics and independent t-test were computed and data pertaining to this have been presented in Table 1 and depicted in figure 1.

TABLE - 1

SIGNIFICANCE OF DIFFERENCE BETWEEN B.SC. AND B. ED STUDENTS IN THEIR % OF FAT

Groups	N	Mean	SD	MD	$\frac{6}{DM}$	t -value
B.Sc.	20	17.44	3.52	5.99	0.93	6.45*
B. Ed.	20	11.45	2.24			

*Significant at .05 level

$t_{.05(38)} = 2.02$

From table-1, it is evident that there was significant difference between B.Sc. and B. Ed students on fat percentage, test means in the fat percentage, where the calculated t- ratio

6.45 was greater than tabulated $t_{0.05(38)} = 2.02$.

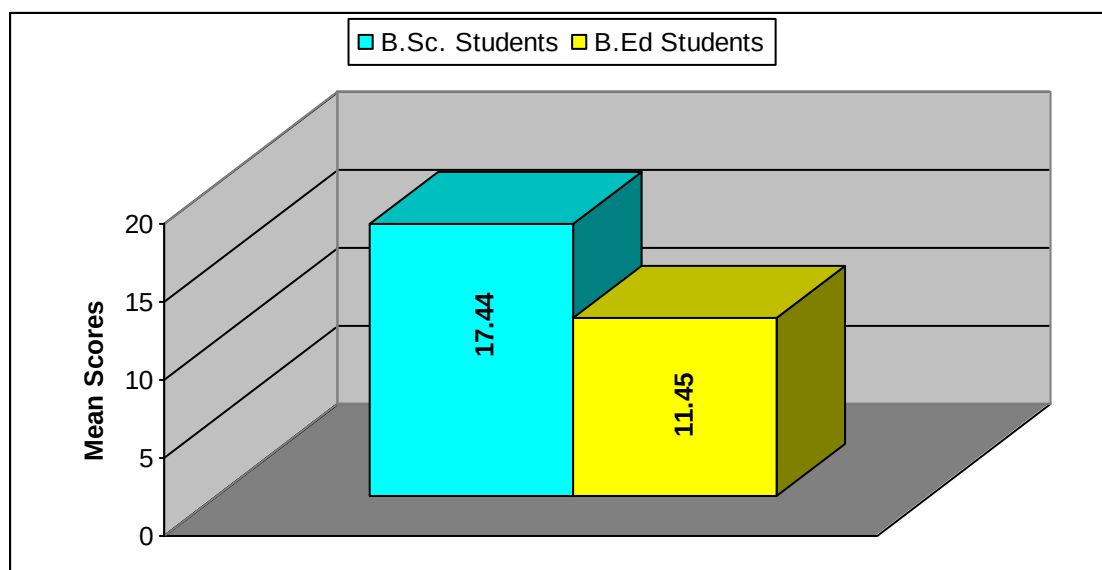


Figure: 1- Mean Scores of Body Fat Percentage of B.Sc. and B. Ed. Male Students.

DISCUSSION

The purpose of the present study was to compare the fat percentage of B.Sc. and B. Ed students. The result of the study indicated that there is a significant difference in the mean values of two groups in fat percentage; this significant difference may be attributed to the nature of training course programme generally followed by the B.Sc. and B. Ed students. While the energy expenditure by B.Sc. student is more than the B. Ed students. During B .Ed. course the amount of physical work done by them is quite more than the B.Sc. Students

CONCLUSION

Result of the study indicated a significant difference in the mean values of two group in fat percentage. This significant difference may be attributed to the nature of programme generally followed by the B. Ed student and not by B. Sc students. It is also concluded that B. Sc students have more amount of fat percentage in comparison of B. Ed students.

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