



A COMPARISON OF ADJUSTMENT BETWEEN UNIVERSITY LEVEL SPORTSMEN AND NON-SPORTSMEN OF CHHATTISGARH

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ABSTRACT

The purpose of the study was to compare and investigate the adjustment between sportsmen and non-sportsmen. The subjects of this study were one hundred and fifty male sportsmen and non-sportsmen (Sportsmen=75 and Non-sportsmen = 75) from different colleges affiliated to Bilaspur university, Bilaspur (Chhattisgarh). Sinha & Singh's AICS (1992) was employed to measure five dimensions of adjustment viz., Home (16), Health (15), Social (19), Emotional(31), and educational (21) and total adjustment. The mean age and SD of male sportsmen and non-sportsmen were 20.17 ± 2.42 and 20.23 ± 3.18 respectively. The results of study revealed that Similarity was observed between male sportsmen and non-sportsmen in their five dimensions of adjustment and total adjustment.

Key words: Adjustment, Sportsmen, Non-sportsmen , University level.

INTRODUCTION

Scientific research in the field of physical education and sport is a boon to the athletes, trainers and Physical Education Scientists have been trying to Attain higher levels of performance in sports and games.

Sports and games are going importance in human life day by day. Participation in sporting events is related to bodily balance and psychological stability. The impact of sport and exercise on mental health is a longstanding issue, which became clearly identified in 1980s. Just as physical health means something more than the absence of disturbing symptoms, mental health also has a positive aspect.

Sports is a remarkable setting in which the psycho-physical capabilities are put to test under highly demanding conditions. The competitive athletic activities test both mind and the body of individual. The success in the athletic activities implies the development of specific physical qualities and psychological attributes. (Khan and Mohanti, 1992)

Success in competitive sports place high psycho-physical demands on the participants. They have to be physically fit, technically sound and tactically prepared to have a firm grip over the competitive situation. However, their psychological aliveness to the situation has been described by many to be of paramount importance. At the time of competitive struggle it is the psyche of the player which moves them to use their physically fitness, technical and tactical preparedness at its maximum (Kamlesh, 1988).

The most widely emphasized aspect of adjustment is achievement. This makes sense to businessman who must hire personnel who will be most effective at the job, often under adverse circumstances; to a coach or Physical educator who must select men who can adjust to the stressful conditions of competition combat and to the psychological deprivations that are sometimes associated with competition as well as training; to educators because educational opportunities can be wasted by a person who is failing to make a satisfactory school adjustment; to society in general, which must pay the cost of widespread maladjustment. In the form of neuroses, psychoses, and character disorders, defects of adjustment waste the manpower resources of the community and require huge custodial and therapeutic expenditures.

If we talk about adjustment in terms of achievement or achievement in sports, that is, how good or bad it is, then we must consider a criteria to determine the quality of adjustment. Such criteria have been provided value system. We must recognize that in other cultures or in other generations other criteria are often utilized and some of the present indices of good adjustment might conceivably become signs of psychological illness in future generations.

Bidulph (1954) reported that superior athletes showed higher levels of personal and social adjustments than that of less skilled athletes. Therefore, adjustment is positively related with sports performance. Krall and Carlon (1967) have reported no difference between superior and inferior participants. Almost no study has reported a negative correlation between adjustment and sports performance (Sperling & Martin, 1982). An athlete can adjust well for higher performance by certain objectives : Security and confidence, improving one's own adjustments, maintain good physical health, do satisfying work, rest and recreation, participate in society, have a confidential relationship with another person, plan and do something about every problem, be objective, seek insight, Don't take yourself too seriously, most important is live in the present.

The purpose of the study was to compare and investigate the adjustment between sportsmen and non-sportsmen. It was also hypothesized that there may be significance of difference between male sportsmen and male non-sportsmen in their adjustment

METHODOLOGY

Selection of Sample:

The subjects of the study were one hundred and fifty male sportsmen and non-sportsmen (Sportsmen=75 and Non-sportsmen = 75) from different colleges affiliated to Bilaspur university, Bilaspur (Chhattisgarh) volunteered to participate in this study, were selected to serve as the subjects for this investigation. The subjects were in age group of 18 to 25 years. The mean age and SD of male sportsmen and non-sportsmen were 20.17 ± 2.42 and 20.23 ± 3.18 respectively.

Description of Questionnaire:

Sinha & Singh's AICS (1992) has been prepared in Hindi as well as in English and it has 102 items to measure five dimensions of adjustment viz., Home (16), Health (15), Social (19), Emotional (31), and educational (21) and total adjustment. . Item analysis was done by calculating bi-serial correlation of each item (i) with the total score of the Inventory and (ii) with the area total scores. The use of small a, b, c, d, e corresponding to the five measures of adjustment, as well as numbers, enable the test user to discover readily the particular question relating measure. The total score may be taken to indicate the general adjustment.

Statistical Analysis :

To assess the Adjustment of male sportsmen and non-sportsmen of different universities of Madhya Pradesh, means and standard deviations were computed. The t-ratio was computed to find out the significant difference between means of male sportsmen and non-sportsmen on different dimensions of adjustment, Significant level was set at .05 level of confidence.

RESULTS AND DISCUSSION

To assess the five dimensions of adjustment of male sportsmen and non-sportsmen: means, standard deviations and t-ratios were computed with the help of SPSS 16.0 software and data pertaining to this has been presented in Table 1 and 2.

TABLE 1
DESCRIPTIVE STATISTICS OF VARIOUS DIMENSIONS OF ADJUSTMENT AMONG MALE AND FEMALE RESPONDENTS

Dimensions of Adjustment		Sportsmen M$\pm$SD	Non-sportsmen M$\pm$SD
(i)	Home adjustment	4.09 $\pm$ 2.11	4.37 $\pm$ 2.14
(ii)	Health adjustment	3.83 $\pm$ 2.07	4.21 $\pm$ 2.77
(iii)	Social adjustment	5.80 $\pm$ 3.05	6.47 $\pm$ 3.02
(iv)	Emotional adjustment	9.29 $\pm$ 5.16	10.55 $\pm$ 5.93
(v)	Educational adjustment	4.96 $\pm$ 3.14	5.44 $\pm$ 3.32
(vi)	Total Adjustment	27.97 $\pm$ 12.64	31.04 $\pm$ 12.85

The mean scores of different psychological variables as scored by male sportsmen & non-sportsmen belonging to Chhattisgarh have been depicted in figure 1 to 6.

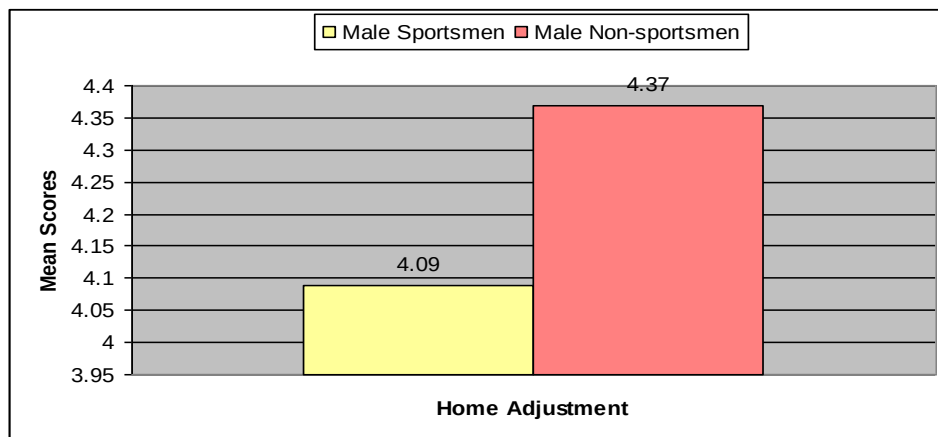


Figure 1: Mean Scores of Male Sportsmen and Non-sportsmen on Home Adjustment

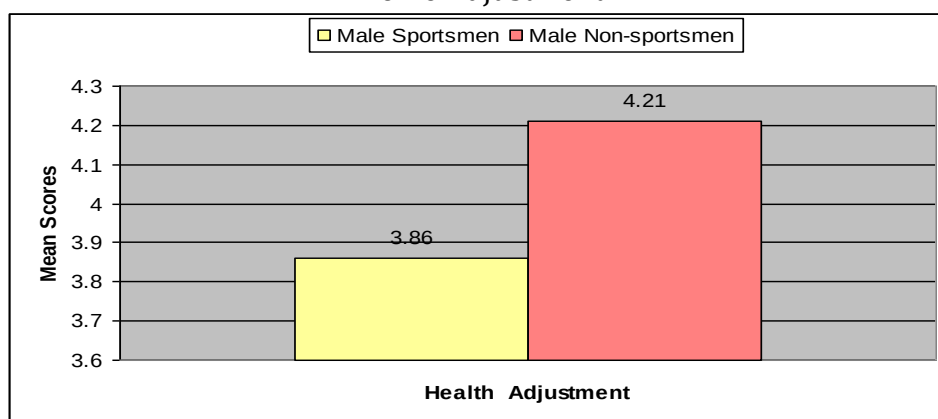


Figure 2: Mean Scores of Male Sportsmen and Non-sportsmen on Health Adjustment

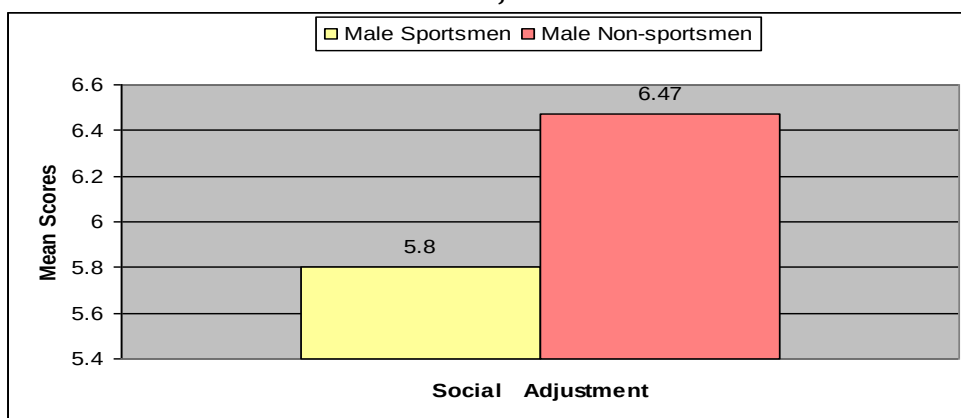


Figure 3: Mean Scores of Male Sportsmen and Non-sportsmen on Social Adjustment

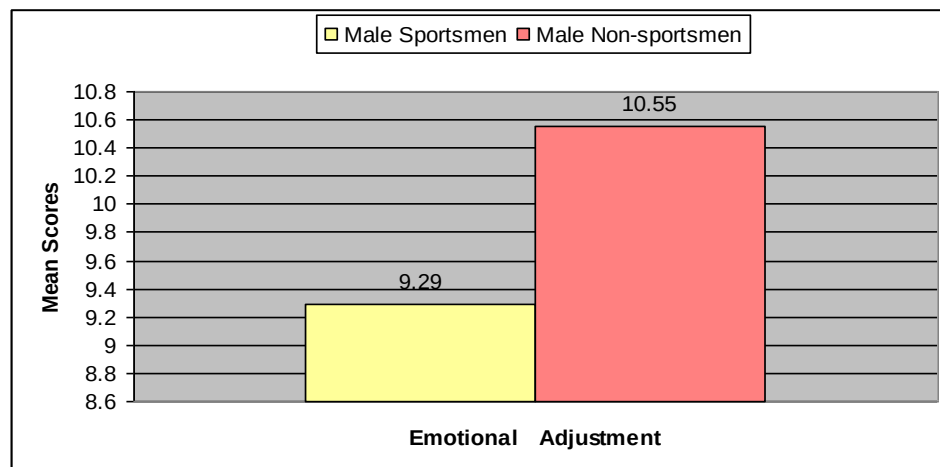


Figure 4: Mean Scores of Male Sportsmen and Non-sportsmen on Emotional Adjustment

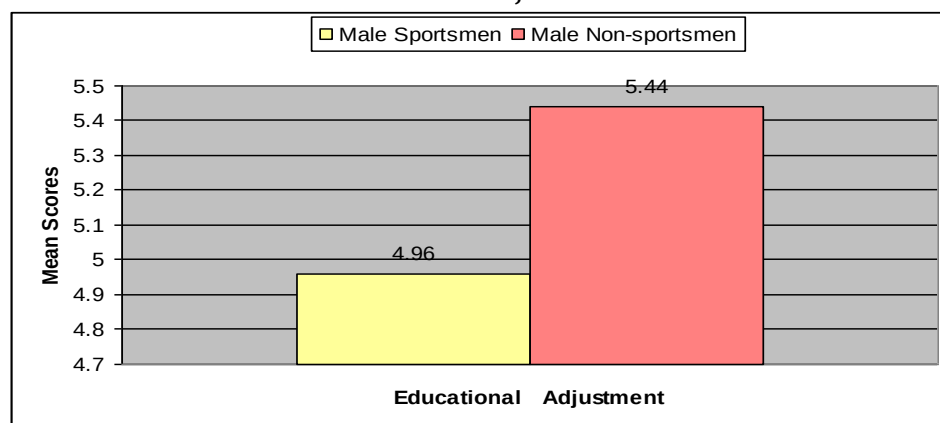


Figure 5: Mean Scores of Male Sportsmen and Non-sportsmen on Educational Adjustment

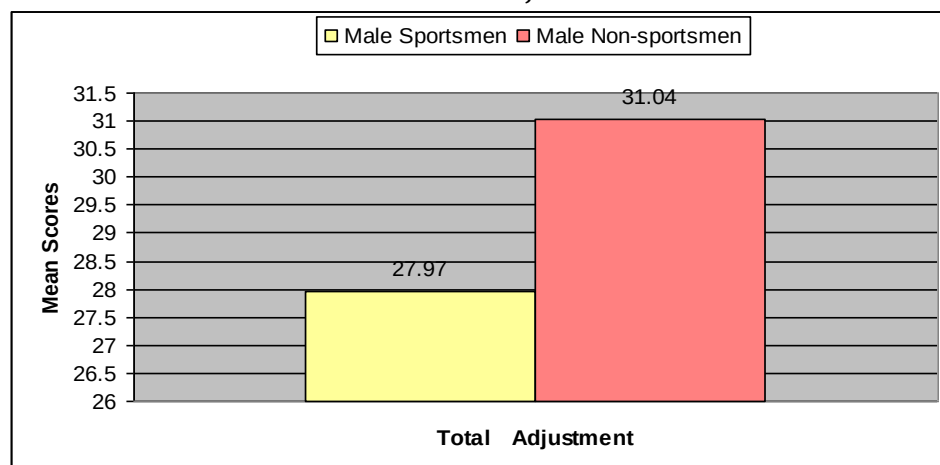


Figure 6: Mean Scores of Male Sportsmen and Non-sportsmen on General Adjustment

TABLE 2
SIGNIFICANCE OF DIFFERENCES BETWEEN MEAN SCORES OF MALE SPORTSMEN AND NON-SPORTSMEN ON FIVE DIMENSIONS OF ADJUSTMENT

S. No.	Dimensions of Adjustment	Groups	Mean	MD	σ DM	t-ratio
1.	Home adjustment	Sportsmen Non-sportsmen	4.09 4.37	0.28	0.326	0.81
2.	Health adjustment	Sportsmen Non-sportsmen	3.83 4.21	0.38	0.400	0.97
3.	Social adjustment	Sportsmen Non-sportsmen	5.80 6.47	0.67	0.496	1.35
4.	Emotional adjustment	Sportsmen Non-sportsmen	9.29 10.55	1.26	0.907	1.38
5.	Educational adjustment	Sportsmen Non-sportsmen	4.96 5.44	0.48	0.527	0.91
6.	Total Adjustment	Sportsmen Non-sportsmen	27.97 31.04	3.07	2.082	1.47

Insignificant at .05 level, $t_{.05 (148)} = 1.98$

Table 2 reveals that the male sportsmen and non-sportsmen did not differ significantly in health, home, social, emotional, educational dimensions of adjustment and total adjustment, as the obtained t-values of 0.81, 0.97, 1.35, 1.38, 0.91 and 1.47 respectively were lesser than the required value of $t_{.05 (148)} = 1.98$. This implies that both the groups are homogeneous with respect to health, home, social and educational and emotional dimensions of adjustment as well as total adjustment.

DISCUSSION

Findings of the descriptive analysis of data on various psychological variables obtained from male sportsmen indicated that non-sportsmen were found to have greater adjustment than sportsmen in all the dimensions of adjustment as well as total adjustment. which clearly indicated that the physical training in sports did not have any effect on the adjustment among sportsmen. When the male sportsmen and non-sportsmen were compared together on selected psychological variables, the results of t-ratio indicated the insignificant difference between male sportsmen and non-sportsmen in five dimensions of adjustment as well as general adjustment, which may be due to similarity in reinforcement, emotions, feelings, mutual understanding, level of satisfaction, individual beliefs and friendliness. It was also hypothesized that there would be no significance of difference between male sportsmen and non-sportsmen in different dimensions of adjustment. is partially accepted, as homogeneity was observed between male sportsmen and non-sportsmen in five dimensions of adjustment, over all adjustment.

CONCLUSIONS

1. Male sportsmen and non-sportsmen had similarity in their five dimensions of adjustment.
2. Male sportsmen and non-sportsmen had similarity in their general adjustment.

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COMPARATIVE SURVEY ON OBESITY PROFILE OF CAREER ENDED SPORTSPERSONS AND PHYSICAL EDUCATION TEACHERS

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ABSTRACT

The purpose of this study was to compare the selected obesity profile of career ended sportspersons and physical education teachers. For this comparison research scholar had selected 40 male subjects for each group with mean age of 32 ± 1.29 year. The career ended sportspersons were from different games and sports and represented their respectively games at national level and Physical education teacher were working at various schools of Pune city. The selected obesity profile were weight (Kg), height (cm), arm girth (inch), waist circumference (inch), thigh girth (inch) and BMI. The mean value of selected obesity profile reflected that career ended sportsperson and physical education teachers were weight (78.17 ± 5.58 & 79.67 ± 4.32), height (1.61 ± 0.933 & 1.62 ± 0.88), arm girth (13.47 ± 1.19 & 13.42 ± 1.14), waist circumference (33.85 ± 1.35 & 34.07 ± 1.42), thigh girth (25.62 ± 1.19 & 25.97 ± 1.27), and BMI (30.17 ± 2.06 & 30.57 ± 2.03). The analysis of statistical significance difference on selected obesity profile of career ended sportspersons and physical education teachers shows that there were insignificance difference were found on weight (1.343 P= value 0.308), height (0.48 P= value 0.775), arm width (0.381 P= value 0.584), waist circumference (0.726 P= value 0.783), thigh girth (1.27 P= value 0.887) & BMI (0.873 P= value 0.935).

Keywords- Arm girth, Waist Circumference, Thigh girth

INTRODUCTION

In common man language the word overweight and obesity mean to reflects the excess layer of fat in body in certain part. The often method used to assess the weight status of an individual is body mass index commonly known as BMI (Chan, 2016). To calculate the individual BMI person's weight in kilogram is to be divided by the square of his/her height in meter (kg/m^2). Most of the researches conducted on obesity profile shows that BMI provides a clear guideline of accumulation of fat and also help to find the relationship with common health hazards like overall mortality, heart problems, diabetes and cancer (World Health Organization, 2016).

As per the WHO media center reports on obesity indicates that in present situation the number of obesity percentage in almost double then 1980. In last 40 year, the percent of obesity worldwide has been increased the rate has raise 2.6 fold and number goes up to from 105 million to 641 million till 2014 almost more than 13 percent of total world population in presently obese (Catherine, 2016).

Further, the report depicts that more than 1.9 billion adults were overweight and remaining 600 million were toward obsess. Obesity problem became so enormous in most of the countries that large numbers of the people are suffering with overweight and obesity in comparison to underweight. The problem not only in adult but survey reports of 2014 said that 41 million children under age of 5 year were more toward overweight (European association for study of obesity, 2016).

India is the country which comes under the developing nations and India's most of the population still away from the problem of obese contrary Indian population is facing under nutritional problem more. But recent changes in food habits and living standard of Indian people grow the problem of obese in India. A recent study of Suryatapa Bhattacharya reveled that most of the Indian youth are very much falling in obesity level (Bhattacharya, 2016).

The obese is the excess of body weight which is results from imbalance between what an individual eat and whatever come out in form of his energy expenditure. The studies show that participation in physical activities is one of the common methods for energy expenditure. The people those are regular engaged in physical activities are more toward lean body mass. It found the physical activities is very importance on reducing body weight or control body weight for long term bases and therefore, sufficient levels of activities should be included in daily routine to fight obesity epidemic (Chan, 2016; National Nutrition Surveillance Centre, 2009 and Cris, et. al., 2004).

METHODOLOGY

Selection of Subject:

The study was to compare the obesity profile of career ended sportsperson and physical education teachers therefore, this researcher had selected total (N=80) subjects. The mean age of selected subjects was 32 ± 1.29 year. Further the selected subjects were divided into two groups career ended sportsperson (n=40) and physical education teachers (n=40). All the selected subjects were resident of Pune city and experts of their field from more than eight year. The career ended sportsperson were selected from different games and sports like football, volleyball, athletic and physical education teachers selected were working at different school of Pune city. The researcher had taken care that only those career ended sportsperson would be selected as subjects who are fully devoted during

their sports career and represented state at various national and international competitions. The physical education teachers selected for this study were regular students during their educational period and actively played interuniversity and different games and sports.

Selection of Variables:

The obesity profile variable for this study were weight in Kg, height in cm, arm width in inch, waist circumference in inch, thigh girth in inch and BMI(weight (kg)/(height²)). The researcher had explained the purpose of the study before collecting the data on selected variables. The data were collected from selected subjects as per their availability without disturbing their regular schedule.

RESULTS

The independent 't' test was used as statistical tool for this study. The data collected on selected obesity profile were analysis with appropriate statistical tool and presented in table1 and 2.

TABLE 1
DESCRIPTIVE STATISTICAL RESULTS OF OBESITY PROFILE OF CAREER ENDED
SPORTSPERSONS AND PHYSICAL EDUCATION TEACHERS

Variables	Group	N	Mean	Std. Deviation	Std. Error Mean
Weight	Sports persons	40	78.1750	5.58334	0.88280
	Physical education teachers	40	79.6750	4.32872	0.68443
Height	Sports persons	40	1.6108	0.09333	0.01476
	Physical education teachers	40	1.6210	0.08825	0.01395
Arm girth	Sports persons	40	13.4750	1.19802	0.18942
	Physical education teachers	40	13.3750	1.14774	0.18147
Waist circumference	Sports persons	40	33.8500	1.35021	0.21349
	Physical education teachers	40	34.0750	1.42122	0.22471
Thigh girth	Sports persons	40	25.6250	1.19158	0.18841
	Physical education teachers	40	25.9750	1.27073	0.20092
Body mass index	Sports persons	40	30.1550	2.06171	0.32598
	Physical education teachers	40	30.5750	2.03668	0.32203

Table- 1 shows that, mean value of weight for sports person was 78.17±5.58 (kg) and for physical education teacher was 79.67±4.32 (kg). The mean value of height for sports person was 1.6108±0.09333 (cm) and for physical education teacher was 1.6210±0.08825 (cm). The mean value of Arm girth for sports person was 13.4750±1.19802 (inch) and for physical education teacher was 13.3750±1.14774 (inch). The mean value of Waist circumference for sports person was 33.8500±1.35021 (inch) and for physical education teacher was 34.0750±1.42122 (inch). The mean value of Thigh girth for sports person was 25.6250±1.19158 (inch) and for physical education teacher was 25.9750±1.27073 (inch). The mean value of Body mass index for sports person was 30.1550±2.06171 (inch) and for physical education teacher was 30.5750±2.03668 (inch).

TABLE-2
STATISTICAL SIGNIFICANCE DIFFERENCE OF MEAN RESULTS OF OBESITY PROFILE
OF CAREER ENDED SPORTSPERSONS AND PHYSICAL EDUCATION TEACHERS

Obesity Profile variables	df	t value	Sig
Weight	78	1.343	0.308
Height	78	0.480	0.775
Arm girth	78	0.381	0.584
Waist circumference	78	0.726	0.783
Thigh girth	78	0.271	0.887
Body mass index	78	0.873	0.935

Table-2 depicts that there were insignificant difference was found in between career ended sports persons and physical education teachers on weight as t value was 1.343 on degree of freedom 78 and sig. 0.308. There were insignificant difference was also found in between career ended sports persons and physical education teachers in height as t value was 0.480 on degree of freedom 78 and sig. 0.775. There were insignificant difference was also found in between career ended sports persons and physical education teachers in Arm girth as t value was 0.381 on degree of freedom 78 and sig. 0.584. There were insignificant difference was also found in between career ended sports persons and physical education teachers in Waist circumference as t value was 0.726 on degree of freedom 78 and sig. 0.783. There were insignificant difference was also found in between career ended sports persons and physical education teachers in Thigh girth as t value was 0.271 on degree of freedom 78 and sig. 0.887. There were insignificant difference was also found in between career ended sports persons and physical education teachers in Body mass index as t value was 0.873 on degree of freedom 78 and significant 0.935.

DISCUSSION

Present scenario required a healthy way to enjoy the life at optimal level and for this an individual should engaged himself in vigorously physical activities. The selected subjects for this study were career ended sportsperson Physical education teachers who were regular involved in physical activities during their career but once leaving the active sports participation, various changes takes place in relation to obesity profile. Keeping this noble idea researcher had framed piece of researcher here.

The selected obesity profile for this study where weight, height, arm girth, waist circumference, thigh girth and BMI. The results of the study revealed that there was insignificance differences were found in all the obesity profile when its compare to career ended sportsperson and physical education teachers. This indicates both the intervention groups subjects were falling in the category of obesity after leaving their active participation from sports. The career ended sportspersons were engaged in their sports profession for period of more 10 year and even physical education teacher were also actively involved in sports as it was mandatory parts of their curriculum and participated in various collegiate competitions.

Increase in weight of an individual directly enhance the fats layer of the various parts of the body specially waist, arm thigh which are most prominent place in the body to find the subcutaneous layer. The USA department of health & human services published an article in 2012 under national institute of health in which they mention some of the major causes for overweight and obesity and more emphasized were given on lack of energy

balance. They mention that whatever the energy of calories an individual is getting from food and drink should be out in same amount of energy from the body through breathing, digesting and doing exercises. If an individual getting more energy but releasing less energy out then the extra amount of energy will deposit in term of fat in the body (National institute of health, 2012). Further the article also reveals that one of the reasons that most of the people are falling in obesity due to their inactivity spending most of the time watching TV and working on computers, instead of walking for while using cars and very few physical work due to modern technology and conveniences (World Health Organization, 2012 ; Sallis and Glanz, 2009). Esparza J and Fox C (2000) strongly supported this statement in their study conducted the physical activity level of 40(17female and 23male; 37+/-11y, 66+/-13kg) Mexican Pima Indians from mountainous area of Northwest Mexico, with 40 age-and-sex matched (17female and 23male; 37+/-12y, 93+/-22kg) and found that Daily energy expenditure low physical activity as a possible cause of obesity.

In this study also both the groups were falling toward the higher obesity due to their inactiveness after leaving sports. In most of the obesity profile variables physical education teachers were having less mean value in comparison to career ended sportsperson. Physical education teacher are still doing some of the physical activities in terms of their work routine we make them little bit better, when we compare them with career ended sportsperson. Yannick Stephan et al. (2011) conducted a study on Athletes retiring from sport following the Sydney Olympic Games (n =16) when they were compared to active athletes (n =16) four times during the first year post-career and found that once after taking retirement most of the athletes feel difficult to adjust with surrounding. Similar results were shown in Cecic Erpic (2004) investigation between athletes and non athletes. After retirement athletes feel difficult to adjust in comparison to non athletes.

CONCLUSIONS

1. Education Teachers were heavier and taller than their counter parts.
2. Physical Education Teachers were found more obese than their counter parts. This obesity puts them at elevated risk for many chronic diseases.
3. Similarity was observed between career ended sports persons and
4. physical education teachers in their weight, height, Arm girth , Waist circumference , Thigh girth and Body mass index, which clearly indicates that the both group were homogenous.

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STUDY OF SELF CONCEPT OF INDIAN SOCCER REFEREES

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ABSTRACT

A study was conducted to analyze and compare the self concept Indian soccer referees. Total 200 Indian male, active and retired, FIFA/National Referees (known elite group) and State Football referees, divided into two groups of 100 referees in one group, were taken as subjects. The self concept questionnaire developed by Dr. Raj Kumar Saraswat was used to measure self concept of the subjects. Results of the study revealed that elite referees had better self concept than their state level counterparts. Remarkably 79% of elite referees and 91% of state level referees were found to be having average and low self concept respectively. Only 11% elite referees possessed high self concept but surprisingly none of the state referees exhibited high self concept.

Key words: Self concept, soccer, referee, FIFA, elite,

INTRODUCTION

Every game is played according to some rules formed by the governing body of that game and sports officials have been a part of organized sports since its inception. Officiating is a part and parcel of games and sports.

Sports' officiating has been recognized as a potentially stressful activity. Sports officials are placed in a competitive environment and they are in a highly evaluative position, in which their integrity is often questioned. Reports of verbal and instances of physical abuse of soccer officials are on the increase. This can be threatening if they anticipate failure or negative appraisal from other¹

Soccer is a game of constant action and requires continuous adaptation to changing situations by the players as well as by the officials so the game of soccer requires that an official is physically fit possesses technical knowledge concerning the rules and has the necessary psychological attributes to deal with a broad range of situations and experiences.

Today soccer is established firmly in most of the world as a vital part of sporting scene. Countless millions play the game at many levels and many more watch it. Surely no game has even had the appeal and found such a fixed place in lives of so many nations as soccer has at this time²

Probably soccer is the only game in which excitement runs so high throughout the contest, even before and after the contest. Everyone is under the grip of this mounting excitement; let it be players, spectators, officials, TV viewers or organizers. Officiating is one of the most important aspects of games and sports but has been very much neglected until recently, this is very unfortunate. Poor officiating detracts so much from the enjoyment of the spectators, and players and sometimes it becomes the cause of unstoppable and undesirable unrest.

Being a referee is demanding and full of unrelenting pressure. There are occasions when referee may succumb to the pressure. Refereeing is one of the most difficult professions in the world. To be an effective referee one must possess extraordinary abilities, skills and knowledge. After coaches and managers, referees are the third dimension of athletic contest.³

To become superior official certain combination of physical and mental skills is necessary. Being an official can be challenging, exciting and rewarding, on the other hand, officials can also feel frustrated, abused and unappreciated. Whether an official experiences the positive or the negative rests on his mental approach. The mental approach can be thought of as three selves. The ideal self refers to the person you would like to be. It represents your values, your sense of right and wrong. The public self is the image you believe others have of you; you want others to believe certain things about you. The real self is the sum of other subjective thoughts, feeling and needs that you see as being the authentic. The real self is continually changing, and the healthy person strives to honestly know him or herself and to relate this inner self to the realities of the outside world. Through interactions with others, through the communication process, you come to understand, accept and experience the real self.⁴ To be a successful referee, besides having good physical fitness one must have high self concept. So this study was focused on to analyze the self concept of Indian soccer referees.

METHODOLOGY

Selection of Subject:

Total 200 Indian male, active and retired, FIFA, National and State Football referees were taken as subjects, divided into two groups of 100 referees in one group. Group one consisted of India's 100 FIFA and national referees combined together (elite referees) and group two consisted of India's 100 state level referees (state class Ist, IInd and IIIrd referees combined together), registered with different Indian states/districts football associations.

Instrumentation :

The self concept questionnaire developed by Dr. Raj Kumar Saraswat⁵ was used to measure self concept of the subjects. Reliability of the questionnaire was found by test-retest method and it was found to be 0.91 for the total self concept. Before giving the questionnaire to the respondents, the purpose of the testing was explained to the respondents and they were ensured about the secrecy of the information provided by them. They were encouraged to respond the statements sincerely and authentically without spending much time over any question. The self-concept inventory provides six separate dimensions of self-concept, viz. Physical, Social, Temperamental, Educational, Moral and Intellectual self-concept. It also gives a total self-concept score.

Scoring:

The self-concept inventory contains total 48 questions. Respondent is provided with five alternatives to give his responses ranging from most acceptable to least acceptable description of his self-concept. The responses or alternatives were arranged in such a way that the scoring system for all the items remained the same i.e. 5, 4, 3, 2 and 1 for the five responses respectively whether the items were positive or negative. The subject had to tick (✓) the option which he thinks most appropriate.

The summated score of all the forty eight items provided the total self-concept score of an individual. A high score on this inventory indicates a high self-concept, while low score indicates low self-concept.

RESULTS

TABLE 1
FREQUENCY DISTRIBUTION OF SELF CONCEPT OF ELITE AND STATE LEVEL SOCCER REFEREES

Self Concept	Total	
	Elite Soccer Referees	State Level Soccer Referees
Low Self Concept	10	91
Average Self Concept	79	09
High Self Concept	11	00
Total	100	100

The scores of table 1 indicate that out of 100, large number (79) elite soccer referees having average self concept, only 11 elite soccer referees having high self concept while only 10 were found to be with low self concept. Out of 100, majority (91) of state level soccer referees exhibited low Self Concept. Only 9 state soccer referees having average self concept and remarkably none of the state soccer referees exhibited high self concept.

TABLE 2
DESCRIPTIVE ANALYSIS OF ELITE REFEREES (FIFA & NATIONAL LEVEL) AND STATE REFEREES ON SELF CONCEPT

Variables	Groups	Mean	Standard Deviation	Standard Error
Self-Concept	Elite Referees	187.08	14.113	1.411
	State Referees	151.61	15.600	1.560

Table-2 clearly indicates the mean, standard deviation and standard error of Elite Referees (FIFA & National Level) and State Referees on Self-Concept. The observed mean and standard deviation on Self-Concept of Elite Referees were 187.08 and 14.113 while standard error was 1.411; and State Referees 151.61 and 15.600 with standard error 1.560 respectively. Elite Referees had higher mean score as compared to state referees.

TABLE- 3
SIGNIFICANCE OF MEAN DIFFERENCE OF ELITE REFEREES (FIFA & NATIONAL LEVEL) AND STATE SOCCER REFEREES ON SELF CONCEPT

Variables	Groups	N	Mean	Standard Deviation	df	M.D.	SEd	t ratio
Self-Concept	Elite Referees	100	187.08	14.113	198	35.47	2.103	16.861*
	State Referees	100	151.61	15.600				

*Significant at 0.05 level, Tabulated t value= 1.960. df (198)

From table 3, it is evident that the obtained t ratio 16.861 is greater than the tabulated t value 1.960 at 0.05 level with df (198); therefore, there has been a significant difference between Elite Referees (FIFA & National Level) and State Referees on Self Concept. Elite Referees (FIFA & National Level) possess better Self Concept than State Soccer Referees.

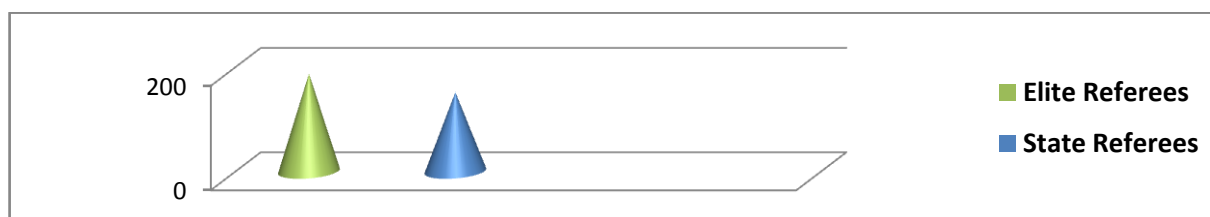


Fig. 1: Mean Scores between Elite Referees (FIFA & National Level) and State Level Referees on Self Concept

DISCUSSION

Table - 1 reveals that majority (79%) of Elite Soccer Referees (FIFA & National Level) have average self concept whereas most of the (91%) state soccer referees have low self concept. Not a single state referee exhibited strong self concept.

Remarkably, majority (94.5%) of India's soccer referees (elite and state referees combined together) have average or low self concept. Reason for this situation can be attributed to the miserable condition of soccer in India and India's poor standing in FIFA's world ranking. Soccer is not considered as high profile sport in India. So most of the time performances of good players or officials go unnoticed. They do not get the due recognition or value in media.

In comparison of State Soccer Referees Elite Referees (FIFA & National Level) have been found to be better in Self Concept.

CONCLUSION

Results of the study revealed that elite referees had better self concept than their state level counterparts. Remarkably 79% of elite referees and 91% of state level referees were found to be having average and low self concept respectively.

Only 11% elite referees possessed high self concept but surprisingly none of the state referees exhibited high self concept. Self concept is known as individual's views about oneself and how an individual perceives and values oneself. Keeping in view the unexciting scenario of soccer in India, it does not seem to be surprising to know about the poor level of self concept of Indian soccer referees.

Players and officials associated with soccer in India are not able to make big name, fame internationally. Football is not a good source of glamour, recognition or money in India which is not going to have an encouraging impact on their self concept.

Questionnaires were given to subjects personally, by mail or sent by post. Although full confidentiality of the responses was promised, still some of the subjects might have hesitated in giving genuine responses and any bias that might existed due to this should be considered as a limitation of the present study.

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INFLUENCE OF PARENTS IN YOUTH SPORTS

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ABSTRACT

This study was designed to examine the influence of parental motivation and support on the performance of their children. Given the state of the literature and the concerns about parents in youth sports it was concluded that in order to motivate and increase children's enjoyment of sporting practice, it is essential to promote parents' supportive behaviors and involvement in their children's school sports, as well as to lower parent's pressure, thereby decreasing the children's competitiveness and the emphasis on victory. Parents who put too much pressure on their children's to perform , criticize their children's performance , and are too involved in their youth's sporting activities can contribute to anxiety , stress and burnout. In order to motivate and increase children's enjoyment of sporting practice, parents should not put excess pressure, thereby decreasing the children's competitiveness and the emphasis on victory. It is essential to promote parents' supportive behaviors and involvement in their children's school sports,

Key words: Parents, Schools, Sports , Children, Competitiveness, Performance .

INTRODUCTION

Parental involvement in sports can be looked at as a continuum from not involved at all to over-involved (Stein et al 1999). It can range from low to high and from positive to negative. Positive involvement includes supporting your child through ways such as verbal encouragement, your presence at a game, allowing your child to make his/her own decisions about what sport to participate in, and providing financial and other resources that enable his/her participation. Negative involvement refers to directive behavior, and pressure to win or perform up to a parent's expectations. Recent research has shed light onto the relationship between parental involvement and the type of youth sports experience a child has.

It is most often the parent who is the first person to introduce a child to sports, and parental involvement can affect whether a child enjoys the experience or not. (Wuerth et al 2004), (Funk al. 2003) & (Stein et al 1999). Socialization into sport and physical activity can be considered a modeling process in which family members are powerful role models. Most of the studies revealed that both parents' exercise patterns and encouragement have an effect on children's exercise behavior, and that physically active parents tend to have physically active children (Sallis et al., 1999). Thus, youth sport experiences can provide opportunities for personal growth and development that extend beyond the physical domain to athletes' psychological processes (Boixadós et al., 2004; Müller and Sternad, 2004). Knight et al(2010) conducted a research with 42 Canadian tennis players aged from 12 to 15. This study was meant to identify the way athletes would like their parents to behave during competition. Data analysis uncovered one dominant theme: the players wanted their parents to be involved in and to support their sporting experience. In accordance with this, Horn and Horn (2007) explain that parents' belief and value systems (e.g., their beliefs, attitudes, values) determine their behaviors toward their child. The behaviors (e.g., modeling, providing opportunities, emotional support) then influence the child's belief and value systems, which determine the child's behavior. In other words, most young athletes believe that their parents provide them with a supportive, stable, secure and encouraging environment (Helldsted, 1995) Family participation and an active involvement in the children's physical activity promote players' greater satisfaction and positive participation in their sport career (Torregrosa et al., 2007;Wuerth et al., 2004). Consequently, children's motivation to participate in sport is a key consideration for researchers, coaches and parents (Keegan et al., 2009). Basically, if we want to engage children in sport practice from an early age and progress to reach their full potential, then it is definitely essential to have a good environment during these formative years, and parents play a very important role in this process.

There is no doubt that there is a strong connection between positive, supportive parental involvement and a child's level of enjoyment and success in the sport he or she is playing. (Hoyle et al 1997). It has also been suggested that a moderate level of involvement would be the optimum level of parental involvement (Wuerth et al 2004) theorized that over-involved parents may create high levels of pressure, while under-involved parents do not provide enough support to facilitate a child's desire to participate. But those parents who are moderately involved seem to provide just the right balance not only to facilitate enjoyment, but also to challenge the child to continue to grow and develop his/her skills. On the surface, this theory seems to hold up. Without support, especially financial and

emotional, it would be very difficult for a child to be able to participate, and the pressure felt from the parent who is over-involved could easily take out all the enjoyment of playing sports.

Therefore, motivation has emerged as a potential factor that contributes to promote an appropriate physical activity (Weiss and Ferrer-Caja, 2002). Thus, it would be interesting to determine how family behavior influences motivational aspects and other crucial psychological variables for appropriate sport practice (Gould et al., 2006; 2008). In this regard, most of the studies have not directly measured significant others (e.g., family, peers, coaches...), but they have assessed participants' perception of their coaches (Olympiou et al., 2008), peers (Smith et al., 2006) or parents (Papaioannou et al., 2008). At the same time, this research reveals new information about the relationships between parents and athletes in sport practice, and aims to examine the influence of parents' behaviors on their children's adaptive or maladaptive behaviors. This assessment was carried out using parents matched with their own children. This study is therefore unique because only a few works in the sport domain have analyzed the psychological aspects of both groups. Another important aspect of this work is that only a few works in the scientific literature have directly examined parents' perceptions of their children's motivation.

Gender Stereotypes

Greendorfer, et. al. (1996) concluded that differential treatment of play styles, toy preferences and gender labeling of physical activities continues to exist. Researchers have documented that parents are gender stereotyped in their level of encouragement and provision of opportunities in the home (Eccles, 1993; Greendorfer, 1993). Since the advent of Title ix, women have made great strides in their athletic participation, today, young girls are much more likely to be encouraged to be involve in sports. However, despite these advances, parents continue to endorse the gender – stereotypic belief that boys are more suited for sports than girls. In addition, parents continue to encourage their daughters to try certain sports (e.g., gymnastics, skating, tennis) that may also communicate gender stereotypic beliefs. Gender differences in parental encouragement of opportunities begin at a very young age. Both mothers and fathers are more likely to encourage motor activity in their sons than in their daughters, (Huston, 1983; Power & Parke, 1986). Boys are also given earlier autonomy and are less restricted in their opportunities to play outside than are girls (Huston). Fathers are also more likely to play roughly with boys and teach them motor behavior (Huston; Power & Parke) this early exposure to rough and tumble play is likely to prepare boys for the context of many athletic teams. There is also evidence that parents reward and encourage gender stereotyped play and discourage cross – typed (Caldera, Huston & O'Brien 1989. boys are more likely to be given toys that are congruent with their gender such as athletic equipments, trucks and military toys (Fisher & Thompson 1990). This differential exposure to toys and activities gives children the opportunity to develop different competencies and values. Without the opportunity to try a particular activity children will never get the chance to find out if they are good at it or if they enjoy it.

Parental differential treatment by gender continues in middle childhood and adolescence. Parents are more likely to encourage their sons to be physically active and participate in sports than they are to encourage their daughters (Brustad, 1993; Eccles, 1993; Greendorfer, 1993). Parents also report gender stereotyped differences in time use with children; they are more likely to spend time playing sports with their sons

and are more likely to take their sons to sporting events (Eccles,1993; Eccles et al 2000).these results clearly demonstrate that parents are providing different types of athletic experiences for boys and girls. An important question is how this differential treatment within the family affects children's sports participation over time.

Extent of Over-involvement

The amount of parental involvement in athletics activities helps to make a statement in the family about the relative importance of sports. According to Hellstedt (1987) , parent involvement ranges on a continuum from under – to over-involvement. Parents who are under-involved do not make much of an emotional, financial, or functional investment in their children's athletics. In contrast, parents who are over-involved emphasize winning; become angry if their children don't perform well is between these two extremes. Parent who are moderately involved support their children's participation without being excessive, leaving ultimate decisions about participations levels up the athlete. (Hellstedt, 1987). However, although the benefit of moderate involvement is an appealing idea, there is presently no empirical data to verify the relationship between over- and under-involvement and child outcomes.

There is a growing concern about parents excessive involvement in athletics. (Williams & Lester, 2000). For some parents ,their own self- esteem is tied to their child's athletic success , which results in high levels of parental involvement and an emphasis on winning at all costs(Hellstedt,1987).this over -involvement by parents can contribute to children's negative sports experience and can undermine even the best- intentioned youth sports program (Kamm,1988; smilkstien, 1980). Parents can also contribute to athlete burnout , as negative emotional outcome that is the consequence of chronic stress(Gould et al 1996; smith 1986).in his research Coakley (1992) reported that highly accomplished athletes whose parents made great commitments of time and energy most frequently experienced burnouts. However, although there is strong anecdotal evidence of the negative effects of excessive levels of parental involvements, more systematic research is needed to document the extent of this problem and differences in the athletic experiences of children with overly involved parents and those with less involved parents.

Parental Optimal Level of Involvement in Sports

However, what appears to be the most significant finding is that it may not actually be what you do that affects your child's experience. Rather what appears to be important is how your child perceives what you do (Anderson et al. 2003). For example, you might be classified by others as a parent who does not seem very involved, yet if your child perceives your support and feels that your level of involvement is just right, they would be more likely to have an enjoyable experience than another child in the same situation who did not feel like their parent's level of involvement was optimal.

Therefore, instead of behavior that pressures players to perform and succeed, they would prefer supportive comments about the positive aspects of their attitude, sportsmanship and effort. Furthermore, unless their parent had legitimate experience with their sport, the athletes did not want technical or tactical coaching from them. However, they were happy to receive practical advice. The athletes were also aware of the occasions when their parent's verbal comments were not consistent with their nonverbal signals, and of what their body language communicated (Horn and Horn, 2007).

Furthermore, Holt et al. (2008) found that parents' verbal reactions to their children's performance ranged on a continuum from supportive to more controlling

comments, including remarks such as praise/encouragement, instruction, and derogatory remarks. Regarding parental pressure, Anderson et al. (2003) pointed out that as parental pressure increased, children's reported enjoyment and satisfaction decreased. Parents may believe that expressing disappointment regarding a child's poor performance will promote the motivation for improvement, but from the child's perspective, even well meant parental pressure can backfire and may contribute to a child's lowered enjoyment and motivation. Additionally, excessive parental pressure has been linked to athlete's perceived negative affect. To avoid placing excessive pressure on a child, it is crucial to be realistic about what they can and want to accomplish in the sport (Hellstedt, 1995). According to this, Lee and McLean (1997) studied the perceptions of parental pressure in adolescent swimmers and reported that pressure was associated with perceived directive or controlling behaviors by parents. Youths' perceptions of their parents' attitudes and behaviors concerning the sport were associated with self-perceptions of ability, motivational orientation and attitudes and behaviors in sport and physical education (Brustad et al., 2001; Fredricks and Eccles, 2004)

So how do we know if our level of support and involvement is optimal? Simple – ask the child. Stein et al. (1999) recommend that you discuss with your child the ways in which you are involved, and ask your child how he or she wants you to be involved. They also recommend discussing with your child things that you might do involving their sports participation that could be perceived as stressful for your child, and also things that your child enjoys. If your child feels you are a bit over-involved, it may be difficult to hear. The best thing you can do for them in this case is to really take to heart how they feel and reduce your involvement if necessary, no matter how much it hurts.

CONCLUSION

Therefore, the main conclusion that we can reach from the study is that in order to motivate and increase children's enjoyment of sporting practice, it is essential to promote parents' supportive behaviors and involvement in their children's school sports, as well as to lower parent's pressure, thereby decreasing the children's competitiveness and the emphasis on victory. Diverse strategies can be employed, like the ones used by García-Calvo et al. (2009) or Cruz et al. (2003), who promoted teaching parents so their children could achieve adequate sporting practice, based on positive values, creating pro-social habits and an integral education in the school sport, which allowed the children to develop the sport with pleasure and to keep up their practice for a long time.

Researchers have surveyed youth athletes about what they want from their parents (Stein et al 1999; Wood & Abernethy 1991). These results support the assumption that moderate levels of parental involvement are ideal. Parents need to remember that the child's enjoyment of athletics is the paramount concern. They can enhance their child's experience by providing support and encouragement, not becoming overinvolved, and not placing too much pressure on the child (Wood & Abernethy).

Parents who put too much pressure on their children's to perform, criticize their children's performance, and are too involved in their youth's sporting activities can contribute to anxiety, stress and burnout. Parents can positively support children's athletic involvement through beliefs and behaviors. Specifically, they can support children's participation by communicating positive feedback about their children's ability, giving messages to their children about the value of participation, encouraging their children's

involvement , providing financial support for equipment and lessons , and attending their children's games and competitions. However, there can be too much of a good thing.

In the end, decisions about participation should be left up to the athletes. Finally, hope this study will provide guidelines for parents to optimize their children's socialization.

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AN ESTIMATION OF KABADDI PERFORMANCE ON THE BASIS OF SELECTED PHYSICAL FITNESS COMPONENTS

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ABSTRACT

The purpose of this study was to find out correlation between Independent Variables (Cardiovascular Endurance, Flexibility, Agility, Speed and Explosive Strength) and Dependent Variable (Kabaddi Performance). To study the joint contribution of Independent Variables in predicting Dependent variable and to establish regression equation for predicting Dependent Variable on the basis of Independent Variables. Selected Variables were Endurance, Flexibility, Agility, Speed and Explosive Strength (Independent Variables). Methodology: - for this study 30 University level male Kabaddi players from GGV, Bilaspur (C. G.) were selected. Age of the subjects was ranging between 16 to 21 years. Kabaddi Performance was considered as Dependent Variable. The selected physical fitness Variables were measured by different tests. To find out correlation between Independent Variables (Cardiovascular Endurance, Flexibility, Agility, Speed and Explosive Strength) and Dependent Variable (Kabaddi Performance), Product Moment Method of correlation was used. To study the joint contribution of Independent Variables in estimating Dependent Variable, Multiple correlation method was used. Regression equation was established for predicting Dependent Variable on the basis of Independent Variables. Findings: - There exists a significant relationship between Kabaddi Performance and Cardiovascular Endurance . Agility and Explosive Strength. There exists an insignificants relationship between Kabaddi Performance and Flexibility and Speed. Regression equation for Kabaddi Performance, Cardiovascular Endurance, Flexibility, Agility Speed and Explosive Strength was found fructiferous in estimating Kabaddi Performance on the basis of selected Independent variables (Cardiovascular Endurance, Flexibility, Agility, Speed, Explosive Strength).

Key words: Kabaddi Performance, Physical Fitness, Cardiovascular Endurance, Strength, Agility, Speed.

INTRODUCTION

Kabaddi has gained fame all over the world. Kabaddi is a attacking and defensive game. Especially of the attack is an individual effort while defence is a combined effort. Physical fitness is an inseparable part of sports performance and achievements. The quality of its utilization value is directly proportional to the level of performance. That means the greater the level of fitness. The greater the ability of a person to attain higher level of performance (J. G. P. Williams, 1962)

Kabaddi is a team game of speed, stamina, endurance, strength and skill. Although it is a team event, individual fitness plays a vital role in the success of the team. Many a times, it is a missing link of the team. During the practice, of course for winning matches, players must plan for individual fitness as well as team fitness. The individual fitness will be tailor made to meet the need of each individual separately, to suit his/her physique. Fitness consists of four parts namely 1) Physical Fitness, 2) Mental Fitness, 3) Social Fitness and 4) Spiritual Fitness. It also can be thought in terms of short time/temporary fitness and long time/permanent fitness.

Physical fitness comprises two related concepts: general fitness (a state of health and well-being) and specific fitness (a task-oriented definition based on the ability to perform specific aspects of sports or occupations). Physical fitness is generally achieved through exercise, correct nutrition and enough rest. It is an important part of life. In previous years, fitness was commonly defined as the capacity to carry out the day's activities without undue fatigue. Physical fitness, as one aspect of total fitness, is a means for development of individual personality as a whole. Physical fitness includes adequate degrees of health, posture, physique, proper functioning of vital organs, nutrition, and good health habits, along with an adequate amount of endurance, strength, stamina, and flexibility.

For performance excellence, in any activity, Anthropometric measurements, Physical fitness and psychological profiles of sports participants are three important factors besides technical & tactical efficiency and intellectual soundness. It is a well known fact that players, of one game differ from the players of other games in their body measurement, physical fitness levels and personality traits (**Carrom, 1980**)

The numerous studies were conducted in prediction of performance on major games like basketball, football, hockey, volleyball, cricket gymnastics etc. Kabaddi is an indigenous game and its popularity is less than other games. So the prediction of performance related studies in the game of Kabaddi is less. Therefore, research scholars are interested to conduct this type of study.

Objectives of the Study:

1. To establish regression equation for predicting Dependent Variable on the basis of Independent Variables
2. To find out correlation between Independent Variables (Cardiovascular Endurance, Flexibility, Agility, Speed and Explosive Strength) and Dependent Variable (Kabaddi Performance).
3. To study the joint contribution of Independent Variables in estimating Dependent Variable.

METHODOLOGY

Selection of Subjects:

For this study 30 University level male Kabaddi players from GGV, Bilaspur (C. G.) were selected. Age of the subjects was ranging between 16 to 21 years.

Selection of Variables:

Following Dependent and Independent Variables were selected:

Dependent Variable- Kabaddi Performance

Independent Variables-

1. Explosive strength
2. Speed
3. Agility
4. Flexibility &
5. Cardiovascular Endurance

Criterion Measures:

Measurement of Flexibility was measured by sit and reach test, Explosive strength was measured by Standing Broad Jump and recorded in meters, Speed was measured by 50 yard dash and recorded in seconds, Agility was measured by 4x10m shuttle run and recorded in seconds, Cardiovascular Endurance was measured by 12 minute run/walk cooper test and recorded in meters. Kabaddi performance was measured by the five experts on the basis of these five criteria like as 1) Smoothness of movements during raid and catching raider, 2) Dodging movements during raid, 3) Total number of defensive and offensive skill used, 4) Total number of out done by offender and defender, 5) Overall behave during match. For each criteria maximum 10 marks and over all 50 marks were awarded for measuring the performance.

RESULT AND DISCUSSION

To find out correlation between Independent Variables (Explosive strength, Speed, Agility, Flexibility and Cardiovascular Endurance) and Dependent Variable (Kabaddi performance), Product Moment Method of correlation was used. To study the joint contribution of Independent Variables in estimating Dependent Variable, Multiple correlation method was used. Regression equation was established for predicting Dependent Variable on the basis of Independent Variables.

TABLE 1
DESCRIPTIVE STATISTICS OF KABADDI PERFORMANCE) AND PHYSICAL COMPONENTS

Variable	Mean	Std. Deviation	N
Cardiovascular Endurance	2334.2	181.71100	30
Flexibility	14.5233	1.84833	30
Agility	8.3177	1.47907	30
Speed	8.8647	.76329	30
Explosive Strength	2.3167	.48071	30
Kabaddi Performance	31.1000	3.87165	30

TABLE 2
CORRELATION BETWEEN DEPENDENT VARIABLE (KABADDI PERFORMANCE) AND
INDEPENDENT VARIABLES (CARDIOVASCULAR ENDURANCE, FLEXIBILITY,
AGILITY, SPEED AND EXPLOSIVE STRENGTH)

Independent Variables	N	Correlation Coefficient (r)	Sig.(2-tailed)
Cardiovascular Endurance	30	.569*	.001
Flexibility	30	.224	.235
Agility	30	-.687*	.000
Speed	30	.057	.764
Explosive Strength	30	.552*	.002

***Correlation is significant at the 0.05 level (2-tailed), $r_{.05}(28) = 0.361$**

Table - 2 clearly indicates that there exists a significant relationship between Kabaddi Performance *and* Independent Variables *i.e.* Cardiovascular Endurance, Agility and Explosive strength as the correlation coefficient values were found higher than the tabulated value at .05 level of significance. On the other hand there exists an insignificant relationship between Kabaddi Performance *and* Independent Variable Flexibility and speed, as the correlation coefficient value was found lower than the tabulated value at .05 level of significance.

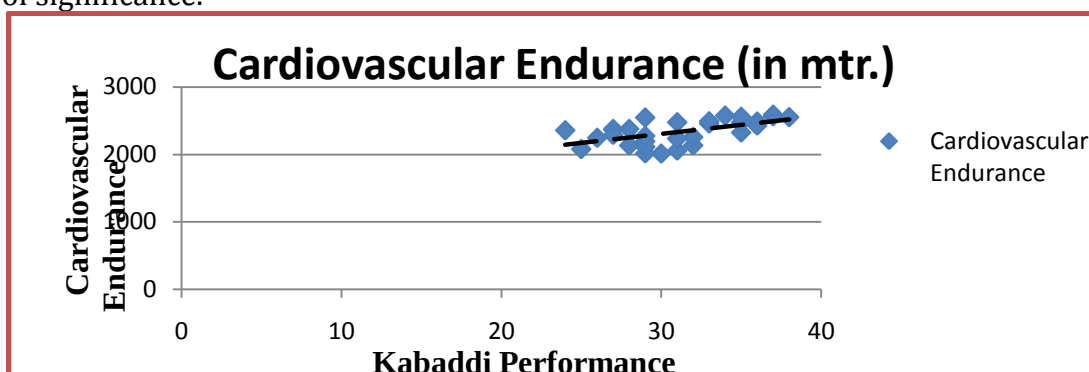


Figure 1: Correlation between Dependent Variable (Kabaddi Performance and Independent Variables (Cardiovascular Endurance)

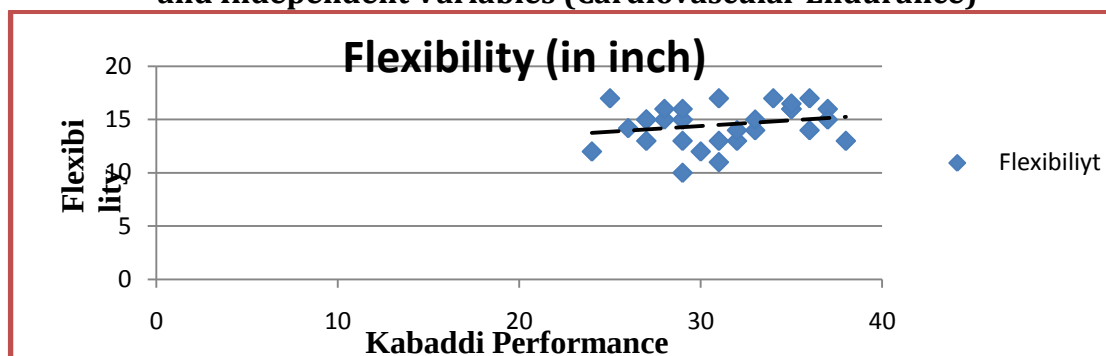


Figure 2: Correlation between Dependent Variable (Kabaddi Performance) and Independent Variables (Flexibility)

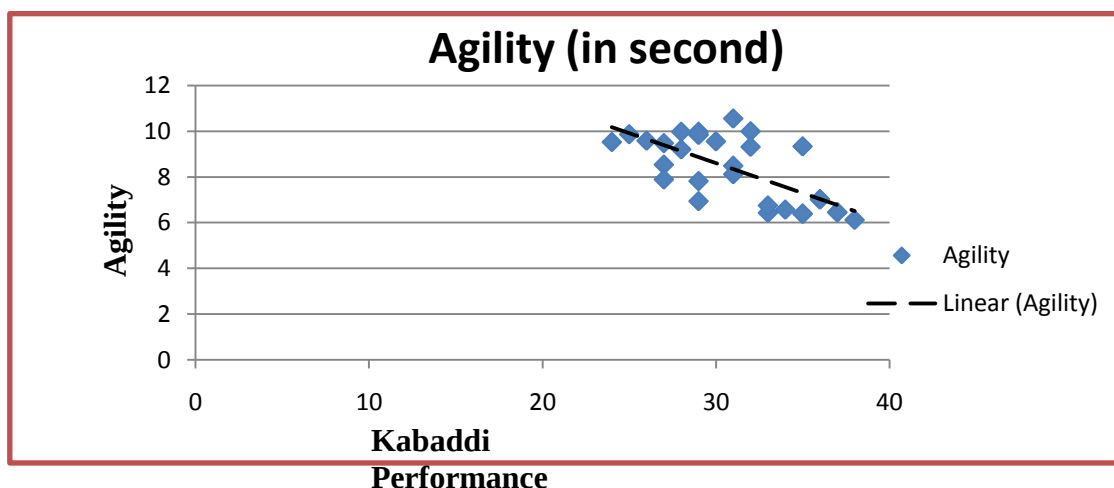


Figure 3Correlation between Dependent Variable (Kabaddi Performance) and Independent Variables (Agility)

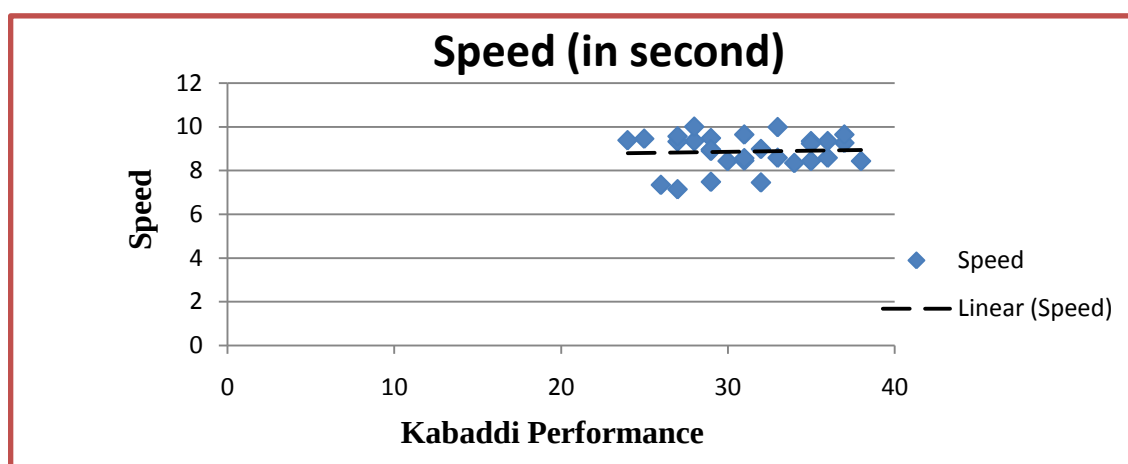


Figure 4:Correlation between Dependent Variable (Kabaddi Performance) and Independent Variables (Speed)

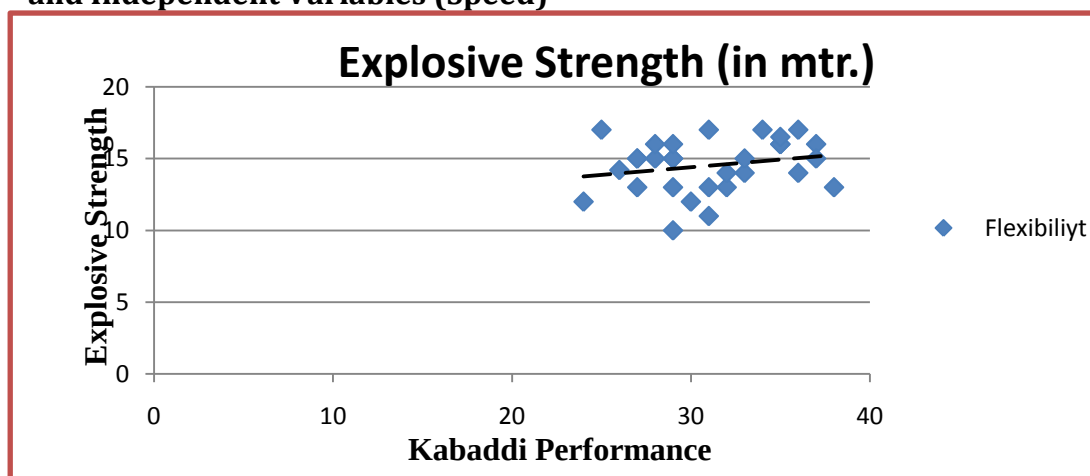


Figure 5; Correlation between Dependent Variable (Kabaddi Performance) and Independent Variables (Explosive Strength)

TABLE 3
CORRELATION MATRIX AMONG VARIABLES

Variables	Flexibility	Speed	Explosive Strength	Agility	Cardiovascular Endurance
Flexibility	1.000	.430	.378	-.208	.284
Speed	.430	1.000	.291	-.225	.186
Explosive Strength	.378	.291	1.000	-.429	.433
Agility	-.208	-.225	-.429	1.000	-.819
Cardiovascular Endurance	.284	.186	.433	-.819	1.000

TABLE 4
JOINT CONTRIBUTION OF INDEPENDENT VARIABLES IN PREDICTING DEPENDENT VARIABLE

Model	R	R ²	Adjusted R Square	Std. Error of the Estimate	Sig.
	.766 ^a	.587	.500	2.73644	.000 ^a

a. Predictors: (Constant), Cardiovascular Endurance, Speed, Flexibility, Explosive strength, Agility

Table-4 indicates that significant relationship was found between criterion variable (Kabaddi Performance) and independent variables (Cardiovascular Endurance, Speed, Flexibility, Explosive strength and Agility) as coefficient of multiple correlations (R) was found significant at 0.05 level of significance with 24 degree of freedom which is higher than the tabulated value (0.388).

The above table showed that R² was found .587 considering Explosive strength, Flexibility, Speed, Cardiovascular endurance and Agility as predictor was included in enter method, which means that 58.7% of the variance in Kabaddi performance was associated with Explosive strength, Flexibility, Speed, Cardiovascular endurance and Agility.

TABLE 6
REGRESSION COEFFICIENT OF SELECTED VARIABLE IN PREDICTING DEPENDENT VARIABLE (KABADDI PERFORMANCE)

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	SEB	β	t	Sig
(Constant)	50.116	17.150		2.922	.007
Cardiovascular Endurance	-.002	.005	-.091	-.387	.702
Flexibility	.151	.324	.072	.466	.645
Agility	-1.686	.614	-.644	-2.744	.011
Speed	-1.028	.754	-.203	-1.364	.185
Explosive strength	2.794	1.252	.347	2.231	.035

The above table displayed the values of the coefficient in the regression equation and measures the probability that a linear relationship existed between Kabaddi performance and the independent variables.

Multiple Regression Analysis

$$Y = 50.116 - .002 X_1 + .151 X_2 - 1.686 X_3 - 1.028 X_4 + 2.794 X_5$$

Where-

Y = Estimation of Kabaddi Performance

X₁ = Cardiovascular Endurance

X₂ = Flexibility

X₃ = Agility

X₄ = Speed

X₅ = Explosive Strength

Table-5

ANOVA Table of Dependent Variable (Kabaddi Performance)

Model	df	Sum of Squares	Mean Square	F-ratio	Sig.
1 Regression	5	254.986	50.997	6.810	.000 ^a
Residual	24	179.714	7.488		
Total	29	434.700			

a. Predictors: (Constant), Cardiovascular Endurance, Speed, Flexibility, Explosive strength, Agility

ANOVA tests the null Hypothesis that there was no linear relationship between the Kabaddi performance and Explosive strength, Flexibility, Speed, Cardiovascular endurance, Agility of University level players. In the above table the significance level associated with observed value of F (6.810) was found greater than the tabulated value. Thus, the null hypothesis could be rejected and we may conclude that there was a significant linear relationship between the dependent variable (Kabaddi performance) and independent variable (Cardiovascular endurance, Explosive strength, Flexibility, Speed, and Agility).

DISCUSSION

The statistical analysis of data revealed that Kabaddi playing ability significantly related to, endurance, explosive power, and agility. The findings of the study are in agreement with conclusion reached by K. Devaraju, Apparently the agility, muscular power and circulatory respiratory endurance are essential for Kabaddi players in order to give efficient performance.

Dey (2012) revealed that the game of Kabaddi requires many essential components i.e. aerobic-anaerobic capacity, strength, power, neuromuscular coordination and muscular endurance. Strength play an important components in this game. Specific fitness is achieved, when a player acquires the required motor ability at the higher level for the particular sport. In Kabaddi, specific fitness consisted of strength, speed and coordination. component (Verma, 2011).

Kabaddi favours body development with a muscular strength stamina and endurance; attributable to breath holding, which correspond to cardio-respiratory endurance. Individual needs to move faster in such a small area of 20'--30'[10-12mts], need to develop the flexibility and agility which indicates the player's eyes and body movement become quicker. If your body is flexible then only, you can kick, swirl grapple with ankle legs and things. Speed acceleration is also a important parameter through which strong leg muscles give more punch to the player. Agility and stamina are also very essentials. These findings are in accordance with the Jadhav, 2011.

The other characteristics of the game of Kabaddi is the multiplicity of skills involving movement running forward, sideways and backwards with or without halt, dogging and body severs. Modern Kabaddi demands that the player are not only masters all

these movements and understands exactly when to use them but also that he can perform quickly and as accurately as possible and when demanded. Agile and sprightly players who are capable of following each situation as it arises by skillful and quick movement have a great advantage over those players, who, for instance are not agile enough to shake off the man who is marking them out of game, or to do the same to an opposing forward for a player to be able to escape from a man marking him or for a defender to be able to mark his opposite number out of game, the player, apart from being a top class agility and cardiovascular endurance qualities that are displayed in sudden stops, unexpected change in direction, body revenue etc. which occur repeated every second of match. Because of such demands Kabaddi playing ability has been found to be significantly related to agility and cardiovascular endurance.

CONCLUSIONS

1. Significant relationship was found between Kabaddi Performance and Cardiovascular Endurance ($r = .569, p < .05$).
2. Insignificant relationship was found between Kabaddi Performance and Flexibility ($r = .224, p > .05$).
3. Significant relationship was found between Kabaddi Performance and Agility ($r = -.687, p < .05$).
4. Insignificant relationship was found between Kabaddi Performance and Speed ($r = .224, p > .05$).
5. Significant relationship was found between Kabaddi Performance and Explosive Strength ($r = .552, p < .05$).
6. Significant relationship was found between criterion variables (Kabaddi Performance) and Independent Variables i.e. Cardiovascular Endurance, Flexibility, Agility, Speed, and Explosive Strength, ($R = .766, p < .05$).
7. Regression equation (Kabaddi Performance = $50.116 - .002$ Cardiovascular Endurance + $.151$ Flexibility - 1.686 Agility - 1.028 Speed + 2.794 Explosive Strength) was found fructiferous in estimating Kabaddi Performance on the basis of selected variables (Cardiovascular Endurance, Flexibility, Agility, Speed, Explosive Strength).

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A COMPARISION OF ANTHROPOMETRIC AND PHYSIOLOGICAL PARAMETERS OF MALE AND FEMALE RUNNER

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ABSTRACT

The purpose of the study was to compare and investigate the anthropometric and physiological parameters of male and female runners in the state of Chhattisgarh. Eighty adult male (N=44) and female (N=36) runners from different districts of Chhattisgarh were selected for the purpose of study. All the male and female runners of 200m, 400m, 800m and 10,000m were the members of respective district teams participating in open state athletic competitions (M/F). To compare the male and female runner on physical and physiological parameters: means, standard deviations and t-ratios were computed. The results of study revealed that the female runners were found taller, heavier and more fatty in comparison of male counter parts. Similarity was observed between male and female runners in their body mass index (BMI). Male runners were found to have greater in amount in all physiological parameters except peak flow expiratory rate (PFIR) than their counter parts. where as female runners were found to have greater degree of peak flow expiratory rate than did male runners. Male and female runners did not differ significantly in systolic blood pressure, pulse pressure and pulse rate parameters of physiology. Where as male and female runners had variation in diastolic blood pressure, mean arterial pressure (MRP) and peak flow expiratory rate (PFIR) parameters of physiology.

Keywords: Anthropometry, physiology, sexes, Runners, Parameters.

INTRODUCTION

Physical activity by sportsmen has been shown to increase muscular strength, reduce body fat and increase lean body mass, thus keeping BMI within physiological limits [Phillips, 2012].

Physiology of exercise has become an increasingly important topic for research and discussion over the past few years. Exercises are being prescribed either to prevent the disease or as an adjuvant to a patient during convalescence and rehabilitation. Lack of exercise is linked to cancer, diabetes and cardiac disease causing around ten percent of death in the planet. Approximately 2 million deaths per year are attributed to physical inactivity, prompting WHO to issue a warning that a sedentary lifestyle could very well be among the leading causes of death and disability in the world [Prakash, 2013].

Exercise has shown to increase muscular strength, reduce body fat and increase lean body mass, potentially decrease resting systolic and diastolic blood pressure, increase maximal oxygen consumption (VO₂max), improve in cardiovascular / cardio-respiratory function(heart and lungs), increase maximal cardiac output, increase blood volume and ability to carry oxygen, increase blood supply to muscles and ability to use oxygen (Doyle, 1997).

Height and weight variable may be useful, when they are identifying future athletes for training. A strong positive relationship between the height and weight of sports athletes and moderate positive relationship between the height and BMI in athletes was observed at the Australian Institute of Sport.

Body mass index (BMI), calculated as weight (kg) divided by the square of height (m²) is an important index which can be used as a measure of percentage fat in an individual (Ani, Nku, Nna and Nwangwa, 2014; Ode, Pivarnik, Reeves and Knous, 2007). The formula had already been proposed by the Belgian mathematician, Adolphe Quetelet, in the nineteenth century. The index has been used until today; it was previously named after its inventor but since 1972 it has been known as the "body mass index". Underweight BMI (<18.5) indicate that that your weight maybe too low, which can decrease your body's immune system, which could lead to illness. Normal BMI (18.5 - 24.9) range possess the ideal amount of body weight, associated with living longest, the lowest incidence of serious illness, as well as being perceived as more physically attractive than people with BMI in higher or lower ranges. Overweight BMI (25 to 29.9) range are considered overweight, which increased risk for a variety of illnesses. For live in healthy ways, lower their weight, through diet and exercise. Obese BMI (>30), which is also called physically unhealthy condition. The higher your BMI, the higher your risk for certain diseases such as heart disease, high blood pressure(hypertension), type 2 diabetes (High blood glucose), High LDL cholesterol, High triglycerides, Physical inactivity, gallstones, breathing problems and certain cancers.

Exercise has been documented to increase muscular strength, reduce body fat and increase lean body mass, potentially decreasing resting systolic and diastolic blood pressure [Doyle, 1997].

Blood pressure is defined as the force of blood pushing against the artery walls as blood circulates throughout the body. Blood must circulate at an appropriate pressure in order to sustain life. A healthy adult normally has a blood pressure of less than 120/80mmHg (millimeters of mercury). The first number is the systolic pressure which represents the pressure when the heart contracts. The second number is the diastolic pressure which is the pressure when the heart is resting between beats. Even though blood

pressure varies within an individual, those with a pressure of 140/90mmHg or more for a sustained period of time is said to have high blood pressure, also known as hypertension. A person with high systolic pressure and normal diastolic pressure is classified as hypertensive and the same applies for a person with high diastolic pressure and normal systolic pressure.

Blood pressure is a vital cardiovascular variable which has been documented to have an abstract association with body mass; a relationship that is poorly understood [Stamler, 1991].

The fundamental parameters defining hypertension in both adults and children do not differ in athletes. In the adult, hypertension is defined as a systolic BP ≥ 140 mmHg or a diastolic BP ≥ 90 mmHg "based on the average of two or more properly measured, seated BP readings on each of two or more office visits.

The mean arterial pressure (MAP) is a term used in medicine to describe an average blood pressure in an individual (Zheng, Sun and Li, 2008). It is defined as the average arterial pressure during a single cardiac cycle. It is believed that a that is greater than 70 mmHg is enough to sustain the organs of the average person. is normally between 65 and 110 mmHg (Dnurse, 2007). If the falls below this number for an appreciable time, vital organs will not get enough Oxygen perfusion and will become hypoxic (A condition called ischemia). Pulse pressure is the difference between the systolic and diastolic pressure readings. It is measured in millimeters of mercury (mmHg) (Zheng, Sun and Li, 2008).

Pulmonary functional status was assessed by recording peak expiratory flow rate (PEFR). PEFR was selected because it is widely accepted as a reliable parameter of pulmonary functions and is simple to perform as a bed-side test. Hadorn introduced PEFR in 1942 and it was accepted as a parameter of pulmonary function test (PFT) in 1949 (Jain et.al., 1983; Kaur et.al., 2013; Sembulingam et.al., 2013).

The PEFR has been defined by the European Respiratory Society as the maximal flow which is achieved during expiration that is delivered with maximal force starting from the level of maximal lung inflation. (Ebomoyi, and Iyawe, 2015). The peak expiratory flow rate (PEFR) is a person's maximum speed of expiration. It measures the airflow through the bronchi and thus the degree of obstruction in the airways. The peak expiratory flow rate (PEFR) is a test that measures how fast a person can exhale. PEFR is affected by changes in broncho-pulmonary structure and function. (Phillips, 2012). Swaminathan et al. (1993) measured the Peak expiratory flow rate in healthy South Indian Children aged 4-15 years using the wright's Mini peak flow meter. They found lower PEFR values in Indian children which could be due to an effect of lower lung volumes due to a smaller chest size. A study by Rastogi et al. (2009) in children having recurrent respiratory tract infection found altered PEFR in 67.6 percent patients. They also observed PEFR to be the most sensitive parameter to detect alteration in lung function. Gundogdu Z, Eryilmaz N (2011) revealed that PEFR values were lower in obese children than in non-obese children. There were also significant differences between girls and boys. The association of higher BMI with lower PEFR may indicate that obesity is an important risk factor for reduced airflow or lung function in children.

The purpose of the study was to compare and investigate the anthropometric and physiological parameters of male and female runners in the state of Chhattisgarh.

METHODOLOGY

Selection of Subjects:

Eighty adult male (N=44) and female (N=36) runners from different districts of Chhattisgarh were selected for the purpose of study. All the male and female runners of 200m, 400m, 800m and 10,000m were the members of respective district teams participating in open state athletic competitions (M/F) held at South East Central Railway (SECR) Cricket Play Ground from 11/06/2016 to 13/06/2016 and volunteered to participate for this study. The average age of male and female runner was 22.78 ± 2.26 and 21.32 ± 2.08 respectively.

Experimentation :

All participants were contacted at the site of their competition venue as well as staying place during competition and underwent for the measurement of anthropometric variables and physiological parameters. Oral and written informed consent was taken from all the participants, coaches and managers of the respective teams before testing them.

Measurement of Weight and Height: After all outer clothing and shoes were removed, the body weight and height were measured by using digital weighing machine and height with stadiometer to the nearest 0.1 kg and 0.1 cm, respectively.

Determination of Body Mass Index (BMI): BMI of each subject was obtained mathematically using the formula: $BMI = \text{Weight (Kg)} / \text{Height (m}^2\text{)}$. where underweight was $< 18.5 \text{ kg/m}^2$, normal $18.5\text{--}24.9 \text{ kg/m}^2$, overweight $25.0\text{--}29.9 \text{ kg/m}^2$ and obese $\geq 30.0 \text{ kg/m}^2$ (World Health Organization, 2006).

Measurement of Blood Pressure: Resting blood pressure (RBP) was measured three times at five minutes intervals using a digital blood pressure monitor according to standardized guidelines. The children were seated with the arm cuff and zero indicators on the monitor at the level of the examiner's eye. All the readings were taken in triplicate on the right arm. Each subjects reading was obtained thrice after which the average was used as the subject's blood pressure.

Determination of Mean Arterial Pressure and Pulse Pressure From the BP measurements, the mean arterial pressure (MAP) was derived using the formula: $MAP = DBP + \frac{1}{3} (SBP - DBP)$. Pulse pressure (PP) was calculated as the difference between SBP and DBP (Zheng, et. al., 2008).

Measurement of Pulse Rate : The pulse rate was also taken by palpating the radial artery at the wrist for one minute using the stopwatch.

Measurement of Peak Expiratory Flow Rate : Peak expiratory flow rate was measured using the JSB peak flow meter (JSB Health Care Pvt. limited, New Delhi). The subject was asked to inhale deeply and then exhale maximally through the mouth piece of the device. The reading was taken thrice, after which the highest of the three readings was recorded as the PEFr.

Data Analysis:

Statistical analysis was done using SPSS version 16.0. Values were analyzed based on age, sex, BMI, and PEFr. The t- test was used to compare the mean for male and female at $P < 0.05$. The ANOVA was used to compare the various mean for the BMI group at $P < 0.05$.

RESULTS AND DISCUSSION

To compare the male and female runner on physical and physiological parameters: means, standard deviations and t-ratios were computed. The level of significance was set at .05 level and data pertaining to this has been presented in Table 1 to 4.

TABLE 1
DESCRIPTIVE STATISTICS OF ANTROPOMETRIC PARAMETERS OF MALE AND FEMALE RUNNER OF CHHATTISGARH

S.No.	Variables	Sex	N	M	SD
1.	Age (yrs)	Male	22	22.78	2.26
		Female	18	21.32	2.08
2	Height (cm.)	Male	22	156.23	4.39
		Female	18	163.06	8.66
3	Weight (kg.)	Male	22	48.05	4.79
		Female	18	55.61	5.51
4	Body Mass Index	Male	22	19.00	4.79
		Female	18	20.53	2.62

The mean scores of male and female runner of Chhattisgarh state on anthropometric parameters have been depicted in figures 1 to 4.

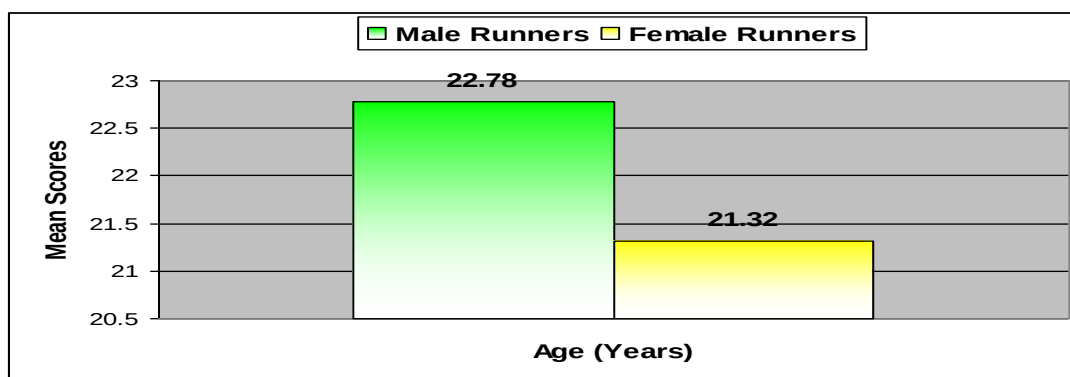


Figure:1-Mean Scores of Age of Male and Female Runners of Chhattisgarh State

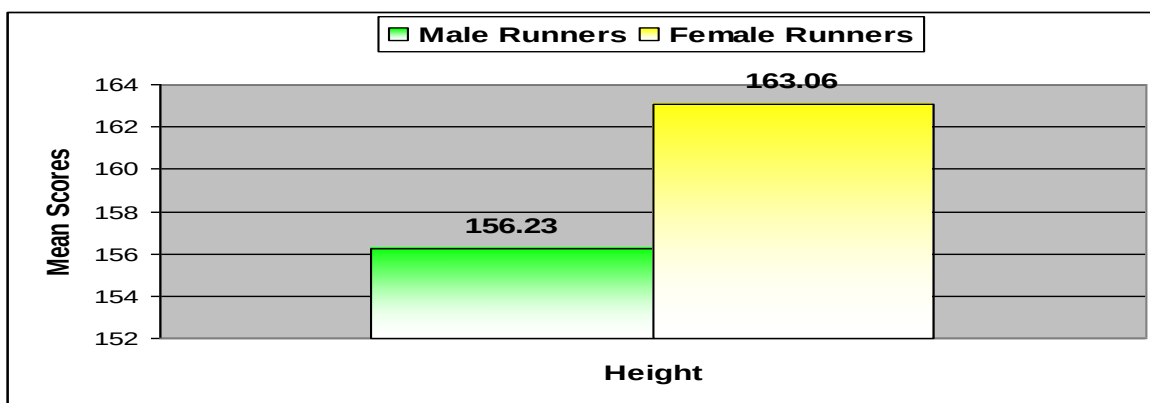


Figure:2-Mean Scores of Height of Male and Female Runners of Chhattisgarh State

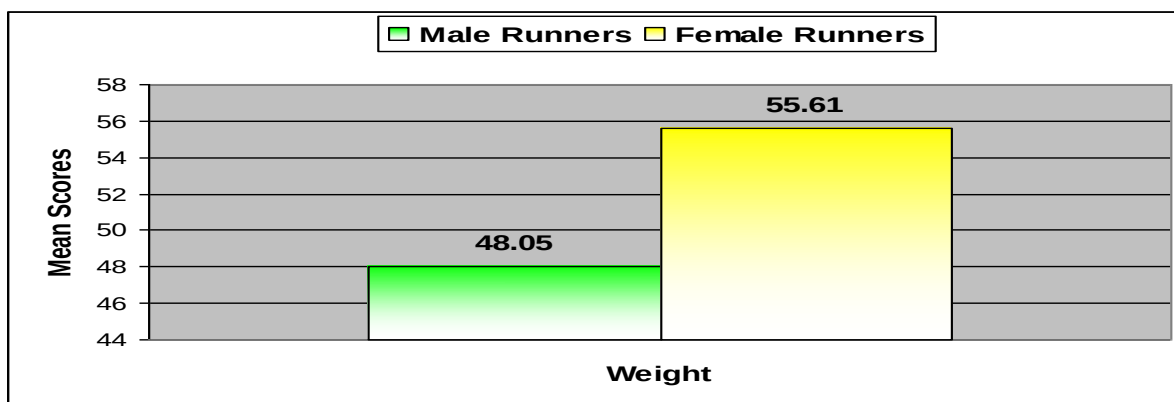


Figure:3-Mean Scores of Weight of Male and Female Runners of Chhattisgarh State

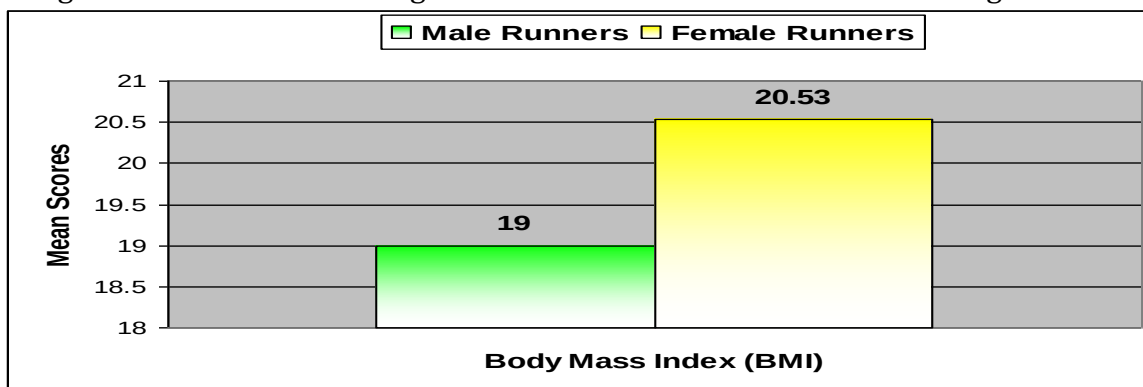


Figure:4-Mean Scores of BMI of Male and Female Runners of Chhattisgarh State

TABLE 2
SIGNIFICANCE OF DIFFERENCE BETWEEN MALE AND FEMALE RUNNERS OF CHHATISGRH ON ANTHROPOMETRIC PAPRAMETERS

S. No.	Variables	Sex	Mean	MD	σ_{DM}	t-ratio
1.	Age (yrs)	Male	22.78	1.46	0.48	3.04*
		Female	21.32			
1.	Height (cm.)	Male	156.23	6.83	2.24	3.23*
		Female	163.06			
2.	Weight (kg.)	Male	48.05	7.56	1.62	4.65*
		Female	55.61			
3.	Body Mass Index (BMI)	Male	19.00	1.53	.083	1.84
		Female	20.53			

*Significant at .05 level

t.05 (38) = 2.02

It is evident from Table 2, that statistically significant differences were found between male and female runners on age, height, weight, and BMI, as the obtained t-values of 3.04, 3.23, and 4.65, respectively were higher than the required value of t.05(38)=2.02. But the significant difference was not found between male and female runners on body mass index, as the obtained t-values of 1.84 was less than the required value of t.05(38)=2.02.

TABLE 3
DESCRIPTIVE STATISTICS OF PHYSIOLOGICAL PARAMETERS OF MALE AND FEMALE RUNNER OF CHHATTISGARH

S. No.	Variables	Sex	N	M	SD
1	Systolic Blood Pressure (mmHg).	Male	22	128.00	10.18
		Female	18	118.11	15.99
2	Diastolic Blood Pressure (mmHg).	Male	22	78.09	7.79
		Female	18	69.28	12.69
3	Mean Arterial Pressure (mmHg).	Male	22	75.81	28.38
		Female	18	93.54	8.87
4	Pulse pressure (mmHg).	Male	22	48.83	10.67
		Female	18	47.91	8.19
5	Pulse Rate (Beat/Minute)	Male	22	95.23	13.81
		Female	18	94.39	15.08
6	PEFR (Peak Expiratory Flow Rate) -LPM	Male	22	309.95	44.59
		Female	18	436.00	54.28

The mean scores of male and female runner of Chhattisgarh state on physiological parameters have been depicted in figures 5 to 10.

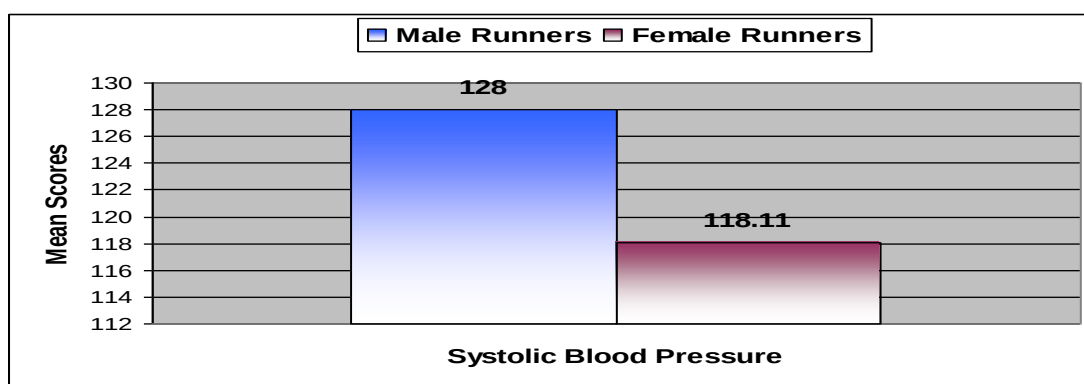


Figure:5-Mean Scores of Systolic Blood Pressure of Male and Female Runners of Chhattisgarh State

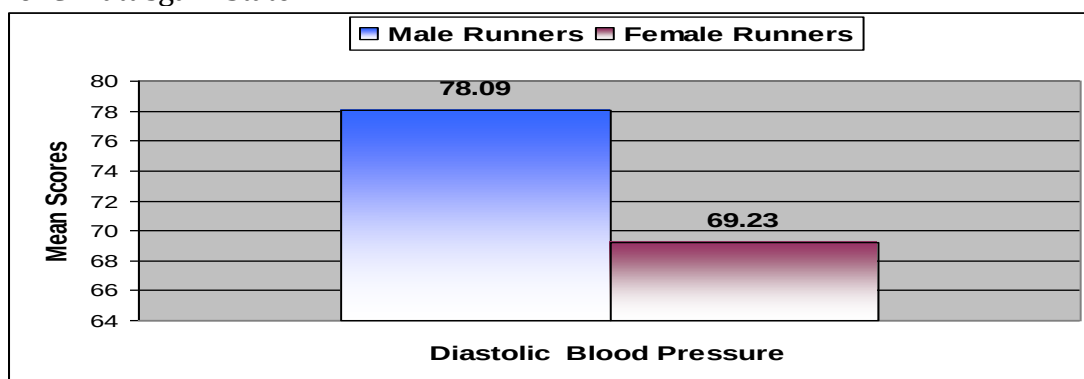


Figure:6-Mean Scores of Diastolic Blood Pressure of Male and Female Runners of Chhattisgarh State

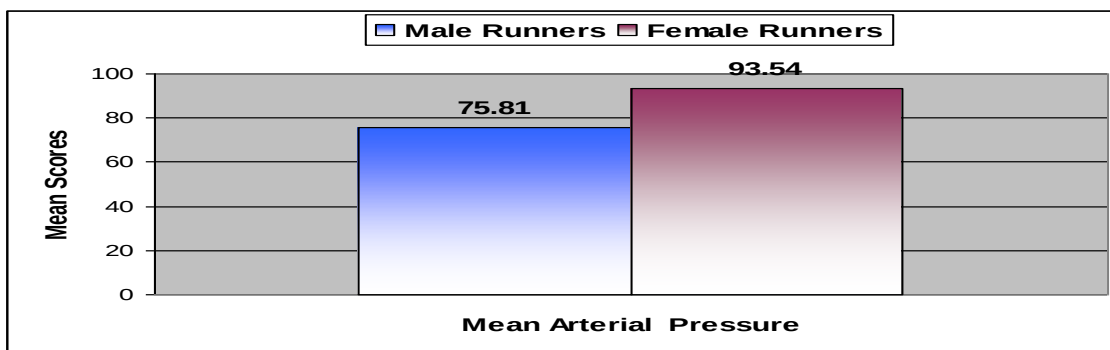


Figure:7-Mean Scores of Mean Arterial Pressure of Male and Female Runners of Chhattisgarh State

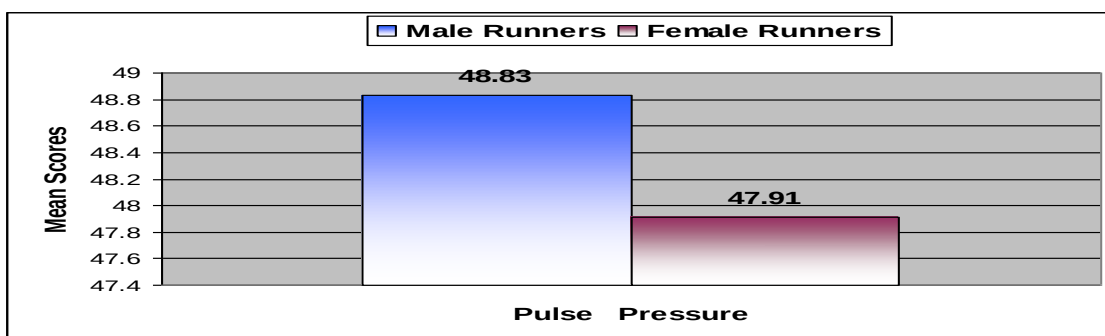


Figure:8-Mean Scores of Pulse Pressure of Male and Female Runners of Chhattisgarh State

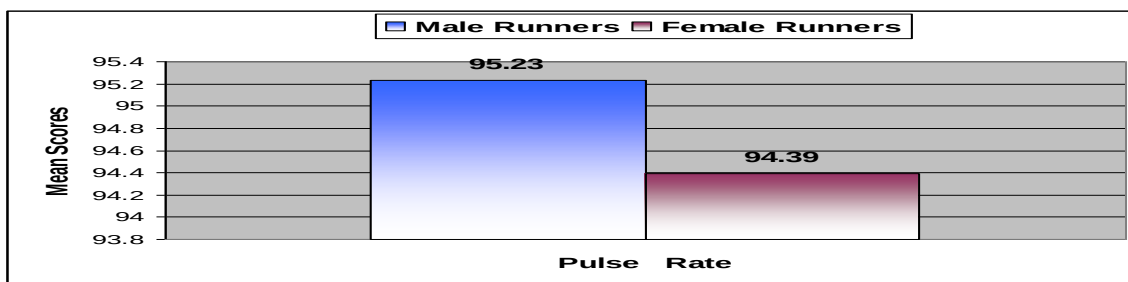


Figure: 9-Mean Scores of Pulse Rate of Male and Female Runners of Chhattisgarh State

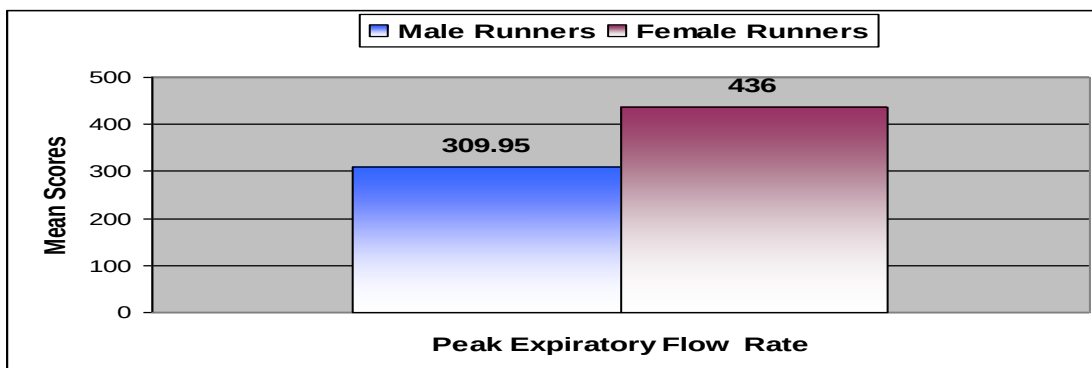


Figure: 10-Mean Scores of Peak Expiratory Flow Rate of Male and Female Runners of Chhattisgarh State

TABLE 4
SIGNIFICANCE OF DIFFERENCE BETWEEN MALE AND FEMALE RUNNERS OF
CHHATISGRH ON PHYSIOLOGICAL PAPARAMETERS

S. No.	Variables	Sex	Mean	MD	σ_{DM}	t-ratio
1	Systolic Blood Pressure (mmHg).	Male Female	128.00 118.11	9.89	4.16	1.89
2	Diastolic Blood Pressure (mmHg)	Male Female	78.09 69.28	8.81	3.27	2.69*
3	Mean Arterial Pressure (mmHg).	Male Female	75.81 93.54	17.73	5.98	2.96*
4	Pulse pressure (mmHg).	Male Female	48.83 47.91	0.92	2.98	0.31
5	Pulse Rate (Beat/Minute)	Male Female	95.23 94.39	0.84	4.57	0.18
6	PEFR	Male Female	309.95 436.00	126.05	15.62	8.07*

*Significant at .05 level

t.05 (38) = 2.02

It is evident from Table 4, that statistically significant differences were found between male and female runners on diastolic pressure, mean arterial pressure and peak expiratory flow rate, as the obtained t-values of 2.69, 2.96 and 8.07 respectively were higher than the required value of t.05(38)=2.02. But the significant differences were not found between male and female runners on systolic blood pressure, pulse pressure and pulse rate, as the obtained t-values of 1.89, 0.31 and 0.18 respectively were less than the required value of t.05(38)=2.02.

DISCUSSION

The descriptive statistics for anthropometric parameters i.e. age, height, weight, and body mass index (BMI values) was computed in a sample of 40 subjects from state of Chhattisgarh and presented in table-1. The mean values of age and height for the male runners were 22.78±2.26 yrs and 156.23±4.39 cm respectively while that for male runners were significantly higher (p<0.05) than their female counter parts. Weight mean value for male runners (48.05± 4.79 kg) was significantly lower than that for female runners 55.61± 5.51 kg making an overall mean difference in weight of 7.56. BMI kg/m² mean value for female runners (20.53±2.62 kg/m²) were higher than that for male runners (19.00±4.79 kg/m²) making an overall mean difference in BMI of 1.53 kg/m². The male and female runners were found to have a normal BMI values. BMI is a useful measure of overweight and obesity. It is calculated from your height and weight. BMI is an estimate of body fat and a good gauge of your risk for diseases that can occur with more body fat.

To find out the significant difference between male and female runners in their anthropometric parameters, t-ratio was computed and data pertaining to this has been presented in table2. The results of the data analysis revealed the statistically significant differences between male and female runners on age, height and weight. But the significant difference was not found between male and female runners on body mass index

The descriptive statistics for physiological parameters i.e. systolic blood pressure, diastolic pressure, mean arterial pressure, pulse pressure and peak expiratory flow rate, was computed in a sample of 40 subjects from state of Chhattisgarh and presented in table-3.

The mean values of diastolic pressure (78.09 ± 7.79 mmHg) and mean arterial pressure (75.81 ± 8.38 mmHg) for the male runners were significantly higher ($p < 0.05$) than their female counter parts. But the mean value for male runners of PEFR (309.95 ± 44.59 LPM) was significantly lower than that for female runners (436.00 ± 54.28 LPM). Mean arterial pressure (MAP) is the perfusion pressure felt by organs in the body. A person has a MAP of 80. The MAP falls below 60 significantly below this number for an appreciable time, vitals organs will be under perfused and will become ischemic. The mean values of systolic blood pressure (128.00 ± 10.18 mmHg), pulse pressure ($48.83.00 \pm 10.67$ mmHg) and pulse rate (95.23 ± 13.81 beat/minute) for the male runners were also higher, but insignificant than their female counter parts. An increased pulse pressure from 40 may occur during exercise or in individuals with atherosclerosis of the larger arteries due to increased SBP. A decreased pulse pressure may be found in cardiac failure or hypovolemia.

To find out the significant difference between male and female runners in their physiological parameters, t-ratio was computed and data pertaining to this has been presented in table 4. The results of the data analysis revealed the statistically significant differences were found between male and female runners on diastolic pressure, mean arterial pressure and peak expiratory flow rate. But the significant differences were not found between male and female runners on systolic blood pressure, pulse pressure and pulse rate.

CONCLUSIONS

1. Female runners were found taller, heavier and more fatty in comparison of male counter parts.
2. Male and female runners were found free from health hazards.
3. Significant difference was found between male and female runners on age, height, weight.
4. Insignificant difference was observed between male and female runners in their body mass index (BMI).
5. Male runners were found to have greater in amount in all physiological parameters except peak flow expiratory rate (PFIR) than their counter parts.
6. Female runners were found to have greater degree of peak flow expiratory rate than did male runners.
7. Male and female runners did not differ significantly in systolic blood pressure, pulse pressure and pulse rate parameters of physiology.
8. Male and female runners had variation in diastolic blood pressure, mean arterial pressure (MRP) and peak flow expiratory rate (PFIR) parameters of physiology.

FUTURE DIRECTION FOR RESEARCH

1. Present investigation may be conducted on athletes of team, individual and combat games.
2. Study may be replicated on more population of runners at their participation of different levels.
3. Correlation study may be conducted between anthropometric and physiological parameters of male and female runners.

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**PLAYERS PERCEIVED COACHING LEADERSHIP STYLES AS RELATED TO
PLAYERS SATISFACTIONS AMONG ADDIS ABABA
BASKETBALL CLUB**

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ABSTRACT

The main goal of the paper was to deal with players perceived coaching leadership styles as related to player's satisfactions among Addis Ababa basketball club. We designed a cross-sectional research and mixed research approach. Among eight (8) basketball clubs found in Addis Ababa City four (4) of them were selected using stratified simple random sampling. From (66/80) players and eight (8/8) coaches were selected as a subject for this study. Leadership Scale for Sport (RLSS) by Zhang, Jensen and Mann (1997) and Athlete Satisfaction Questionnaire (ASQ) by Chelladurai and Riemer (1997) were used as a tool of data collection. The descriptive analyses of the data were analyzed using means, frequencies, percentage, standard deviations and Pearson's product moment correlation coefficient. Quite convincing conclusions can be drawn: more than majority of players were satisfied, more than half of coaches leadership preference were often exercising their duties and significant relationship between basketball players' satisfaction level and coaches' leadership preference.

Keywords: Leadership, Performance, Players and Satisfaction

INTRODUCTION

Leadership is a topic of continuing popular and debatable. For many decades, the study of leadership has been critically important to understand the performance and effectiveness of the basketball players. The study of leadership continues to increase in importance as a determinant of effective functioning of the basketball club (Kent & Chelladurai, 2001).

There seem to be growing numbers of books and thousands of articles on leadership, which have increased our understanding of leadership. There are also almost as many different definitions as there are persons who attempted to define the concept (Bass, 1990). Most definitions of leadership contain a reference to the behavioral process of influencing individuals or groups toward setting goals and achieving these goals (Stogdill, 1974; Barrow, 1977). Additionally, for Bass (1985) leadership is “an interaction between two or more members of a group that often involves a structuring and restructuring of the situation and the perceptions and expectations of the members”. Rosenberg and Taylor (1993) identified that “leadership is all about getting people to work together to make things happen that might not otherwise occur or prevent things from happening that ordinarily would take place.”

The most important success factor of a coach is to help athletes to improve their athletic skill in a wide range of tasks from sequential development and mastery of basic skills, to the more specialized physical, technical, tactical and psychological preparation. Sport organizations are critical places where players are well skilled, and coaches bear a heavy burden of responsibility for their athletes. Coaches in sport organizations are the same as leaders in other organizations, and inevitably face the challenge of maintaining the goals of institutions. According to Smith, Kendall and Hulin (1969) as cited on Mikias (2012), coaches and administrators need to be concerned with making the athlete's experiences enjoyable and satisfying. To achieve improvement in athletic performance, it may be necessary for the coach to engage in coaching behaviors' to which the athlete is receptive. Thus, the researchers pointed to explore Coaching, Leadership Styles and Players Satisfaction among Addis Ababa Basketball Club relationship between leader's behavior and athlete's satisfaction in Ethiopia.

METHODS AND MATERIALS

Selection of Sample:

Addis Ababa Water supply basketball club population (sample) 20 (16), Addis Ababa House rent agency basketball club 20 (16), BGI Ethiopia 20 (17) and Addis Ababa University 20 (17) were selected using Krejcie & Morgan (1970) & Hill (1998) sample size determination. More importantly, players were selected using simple random sampling. Moreover, four of the clubs were selected based on stratified sample selection technique. The list of the selected subjects has been presented in Table 1.

Collection of Data:

Addis Ababa city administration is one of the capital city of both Oromia Region and Federal democratic republic of Ethiopia. No basketball clubs were founded in Jimma town. Therefore, the researchers were forced to collect data from Addis Ababa basketball clubs players. There are eight basketball clubs were found in Addis Ababa city administration. As a result, four different clubs were the target population.

TABLE 1
SAMPLE SIZE DETERMINATION OF SUBJECTS

No	Name of the clubs	Population	sample
1	Addis Ababa Water supply basketball club	20	16
2	Addis Ababa House rent agency basketball club	20	16
3	BGI Ethiopia	20	17
4	Addis Ababa University	20	17
Total		80	66

Krejcie & Morgan(1970) & Hill(1998)

Research Design:

The researcher was use cross sectional research design in order to collect data once from some selected Addis Ababa basketball clubs.

Instrument:

Two instruments, revised version Leadership Scale for Sport (RLSS) by Zhang, Jensen and Mann (1997). RLSS instrument consisted of 40 questions with a five point Likert type scale; 1 (Never), 2 (Seldom), 3 (Occasionally), 4 (Often) and 5 (Always) then this questionnaire was filled by their basketball coaches and assistant coaches (See, Appendix A). Similarly, the ASQ instrument contained about 56 questions with a five point Likert type scale: 1 (not at all unsatisfied), 2 (unsatisfied), 3 (undecided), 4 (satisfied) and 5 (extremely satisfied).and Athlete Satisfaction Questionnaire (ASQ) by Chelladurai and Riemer (1997) was used to in order to gather data from basketball players(See, Appendix B).

Statistical Analysis:

The data were analyzed using Statistical Package for Social Science (SPSS). The descriptive analysis of the data were analyzed using means, frequencies, percentage, and standard deviations for each item were found in males, females and each level of sport involvement. For the purpose of correlating, Pearson's correlation coefficient was used. The correlation was done with leadership style against athlete satisfaction. The level of significance was set at $p < 0.05$.

RESULTS AND DISCUSSION

Results:

The overall measurement results of basketball players' satisfaction level are summarized in Table 1. As a result indicate that 48.8%, 29.9%, 8.7%, 11.2% and 1.8% of players agreed that they were extremely satisfied, satisfied, undecided, unsatisfied and not at all satisfaction respectively.

As can be seen from Figure 1: Majority of Basketball players were satisfied and extremely satisfied with leadership style offered Basketball players Clubs. While,few members of the players were unsatisfied.

The above analysis were very much clear that players were happy with leadership of Basketball clubs, where as, small member players were to the reverse.

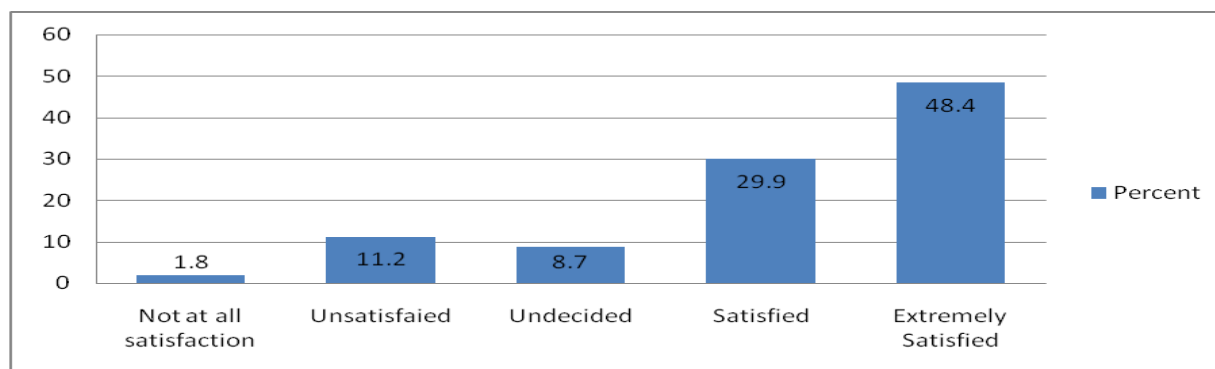


Figure 1: Basketball players satisfaction level

Coaches' leadership has been found that 21.9%, 44.6%, 14.9%, 8.7% and 9.9% the coaches always, often, occasionally, seldom and never exercising their coaches leadership duties respectively as mentioned in figure 2.

Figure 2 shows that more than half of coaches leadership levels were resulted often and always. It has been found that coaches in often and always cases, they were exercising good leadership for their respective Basketball players.

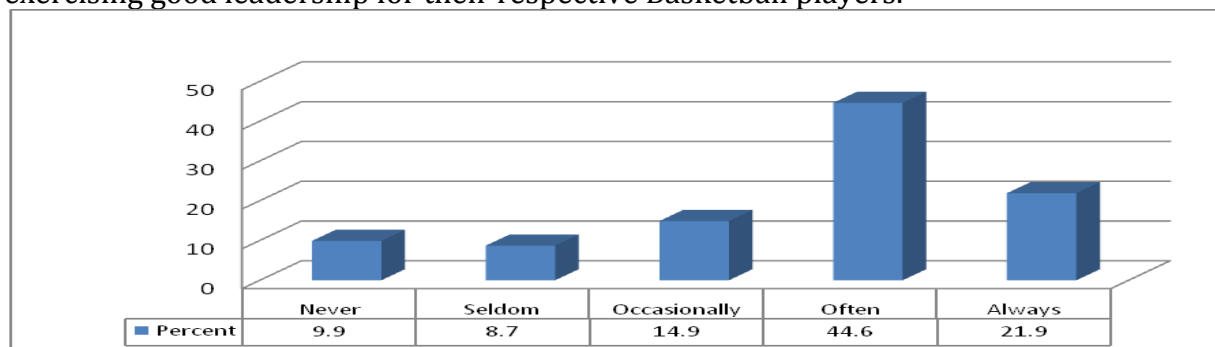


Figure 2 : Coaching leadership level

TABLE 2
RELATIONSHIP BETWEEN PLAYER'S SATISFACTION AND LEADERSHIP LEVEL OF COACHES

Coaches leadership scale	Players' Satisfaction
Pearson Correlation	.895**
**. Correlation is significant at the 0.01 level (2-tailed).	

The results of table -2 shows the significant relationship between basketball players satisfaction level and coaches leadership duties, $r = 0.895^{**}$, $P < 0.05$.

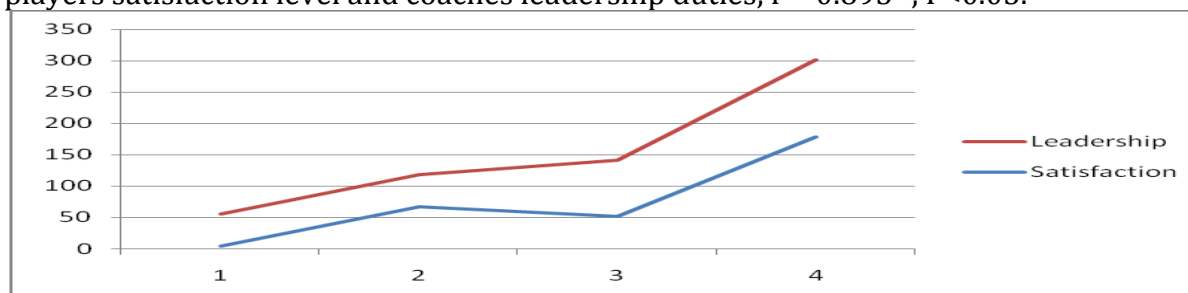


Figure 3: Relationship between coaches leader preferences and players satisfaction.

Figure3 indicates the relationship between coaches leadership preference and players satisfaction .The previous sections have showed that basketball players were very much satisfied with coaches leadership preferences they were exercising.

Discussion:

To our knowledge, this is the first study to deal players perceived coaching leadership style as related to players satisfactions among Addis Ababa Basketball clubs. The originality of our solution lies in the fact that more than majority of players were satisfied. One other study, to our knowledge, has come up with an athlete's level of satisfaction can be seen as a reflection how well the athletic endeavor meets the athlete's own personal standard (Riemer & Toon, 2001). With this connection, Chelladurai and Riemer (1998) note that athlete satisfaction is important for three reasons. First, an athlete's satisfaction with his or her sport should naturally be linked to his or her performance in that sport. For example, an athlete who is more satisfied will put out more effort and persistence during competition. The second reason that athlete satisfaction is important is because satisfaction can be seen as a precursor or outcome in the conceptual frameworks of other constructs, such as cohesion. The final reason, which is central to the rationale behind this study, is because athletic satisfaction is a key concern in athletic programs.

This study presented that significant relationship between basketball players' satisfaction level and coaches' leadership duties. Previous research has been documented positive affective state resulting from a complex evaluation of the structure, processes and outcomes associated with athletic experience (Chelladurai & Riemer, 1997 & 1998). Along this side, performance and satisfaction are jointly affected by congruence among the required, preferred and actual leader behavior (Chelladurai, 1990).

As well as Riemer & Toon (2001), reported only players satisfaction and leadership preference had significant linear relationship. This could have the implication of satisfaction was greatest when perception were greater than perception. Other research output reported by Baharami, Zardoshtian & Jouryesh (2011), the leadership of coach behavior can effect on players satisfaction as well. This can be happen directly or indirectly.

Similar research result has been suggested by Carron (2010), the most vital performance of a team refers to the leadership responsible for achieving all team's targets & purposes to be developed as well.

CONCLUSIONS

The findings of our investigation are quite convincing, and thus the following conclusions can be drawn: more than majority of players were satisfied, more than half of coaches were often exercising their duties and significant relationship between basketball players' satisfaction level and coaches' leadership duties.. First, an athlete's satisfaction with his or her sport should naturally be linked to his or her performance in that sport. For example, an athlete who is more satisfied will put out more effort and persistence during competition. The second reason that athlete satisfaction is important is because satisfaction can be seen as a precursor or outcome in the conceptual frameworks of other constructs, such as cohesion. The final reason, which is central to the rationale behind this study, is because athletic satisfaction is a key concern in athletic programs. This study presented that significant relationship between basketball players' satisfaction level and coaches' leadership duties. Previous research has been documented

positive affective state resulting from a complex evaluation of the structure, processes and outcomes associated with athletic experience.

RECOMMENDATIONS

The finding of this study was very interesting that further research will be needed to validate this research output.

This study presented that significant relationship between basketball players' satisfaction level and coaches' leadership duties so; Coach's should implement proper leadership styles.

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COMPARISON OF BASKETBALL AND KABADDI PLAYERS IN RELATION TO SELECTED ANTHROPOMETRIC VARIABLES

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ABSTRACT

Purpose of the present study was to find out difference between Basketball and Kabaddi players in comparison to selected anthropometric variables. For this purpose of study, total sixty inter-university male players (Basketball players=30, Kabaddi players=30) were selected as the subjects from G.G.V. Bilaspur(CG) , age ranged between 18-25 years. The height, weight, arm length and forearm girth parameters of anthropometry were selected by the researcher. Mean, S.D. and t-ratio were computed to compare the Basketball and Kabaddi players in relation to selected anthropometric variables. The results of the study showed the significant difference between Basketball and Kabaddi players in their selected anthropometric parameters i.e. height, weight. arm length and forearm girth.

Keywords: Males, Basketball players, Kabaddi players, anthropometric variables.

INTRODUCTION

Anthropometry (from Greek anthropos, "man" and metron, "measure") refers to the measurement of the human individual. Anthropometry involves the methodical measurement of the physical properties of the human body, mainly dimensional descriptors of body size and shape. Anthropometry is the measurement of the size, weight, and proportions of the human body. Anthropometric measurement are a set of noninvasive, quantitative technique for determining an human size, shape, proportion, composition by measuring, recording, and analyzing specific aspect of the body such as height and weight, skin fold thickness, length of upper and lower extremities and bodily circumference at waist ,hip ,and chest. The ability of a fast bowler to achieve superior ball release speeds has been suggested to be related to a bowler's anthropometry (Glazier et al., 2000; Loramet al., 2005; Portus et al., 2000; Pyne, Duthie, Saunders, Petersen, and Portus, 2006).

Anthropometry has a rich convention in sports sciences and sports medicine. In different times, various terms were used like dynamic anthropometry, sports anthropometry, biometry, physiological anthropometry, anthropometrical, kin anthropometry etc. by scientists to establish some relations between the body structure and the specific functions required for various tasks (Koley, 2006). In fact, it is well established that each individual is unique. The extent of human variability is so enormous that no two persons can ever be accurately the similar. There are two basic causes for this difference. One is the genes inborn from parents and the other is the infinity of surroundings which acts upon individuals from cradle to grave. Therefore, scientists have always been enthralled by the fact of human dissimilarity. In the populations, the law of probability operates as a whole and people in general tend to fall along a curve of normal distribution on all traits (Koley & Sandhu, 2005).

Kabaddi is the game which is combative in nature. Kabaddi player require more energy and strength to perform different skill efficiently and effectively. Anthropometric variables play a very important role to give the best performance in the competitions such as height, weight, arm length, and forearm girth. If a player has good height and arm length he can take advantages during the game by increasing the reach level of the players to touch the opponent's players. If a player has more weight he can take advantages by increase the stability and strength during performing the defensive skills.

Basketball is one of the fastest games among all speedy game in the world. Players requires enough energy to play with full of energy and give the best performance. Anthropometric parameters such as height and arm length are most important and advantageous for the players to perform any skill easily and accurately. Players can take advantages during shooting and passing the ball during the match in the dodging of opponents.

The purpose of the study was to find out difference between Basketball and Kabaddi players in their selected anthropometric variables i.e. Height, Weight, Arm Length and Forearm Girth. It was also hypothesised that there will be significance difference between Basketball and Kabaddi players in their selected anthropometric variables.

METHODOLOGY

Selection of Subjects:

For purpose of the present study total sixty (N=60) inter university male players (30 Basketball players and 30 Kabaddi players) were selected as subject from G.G.V. Bilaspur Chhattisgarh. The age was ranging between 18-25 years. The mean and S.D. of the subjects was 22.310 and 1.929. The purposive sampling technique was used to select the subjects.

Selection of Variables:

Following Anthropometric Characteristics of upper extremities were selected:

1. Height
2. Weight
3. Arm length
4. Forearm Girth

Criterion Measures:

TABLE 1

SELECTED ANTHROPOMETRIC VARIABLES, MEASUREMENT EQUIPMENT AND MEASUREMENT UNITS

Sr. No.	Variables	Measurement Equipment	Measurement Units
1.	Height	Stadiometer	Centimetres
2.	Weight	Weighing scale	Kilogram
3.	Arm Length	Measuring tape	Centimetres
4.	Forearm Girth	Measuring tape	Centimetres

Administration of the test:

All the data were taken in one day under the direction and supervision of researcher with the help of two helpers. Before the test aim and objectives of the study and proper instructions about the procedure of data collection were explained by the researcher.

RESULTS

To know the nature of the data descriptive statistics (Mean, S.D., Std. Error of mean) was applied and to compare the Basketball and Kabaddi players in relation to selected anthropometric variables (Height, Weight, Arm Length and forearm Girth) independent sample t-test was used. Level of significant set at 0.05. All the statistics has been done by the SPSS 16.0 software.

TABLE 1

DESCRIPTIVE AND COMPARATIVE TABLE OF BASKETBALL AND KABADDI PLAYERS IN RELATION TO HEIGHT

Group	N	Mean	SD	σ_{DM}	t- value
Basketball Players	30	180.07	2.132	.389	9.723
Kabaddi Players	30	172.17	3.906	.713	

Table-1 shows the mean of the Basketball and Kabaddi players is 180.07 and 172.17; S.D. is 2.132 and 3.906 in relation to height. The obtained t-value is 9.723 that shows significant difference was exist in relation to height.

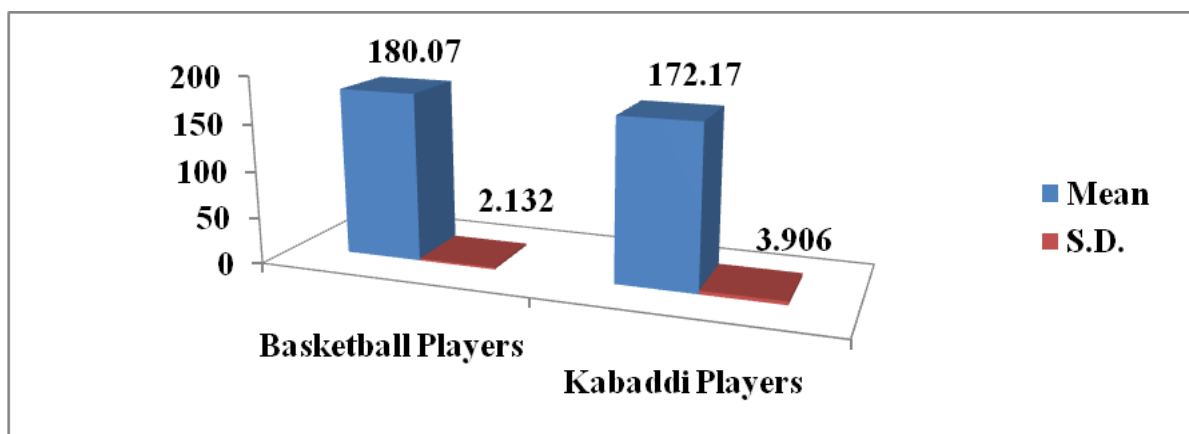


Figure-1 :Comparison of Basketball and Kabaddi player in relation to Height

TABLE 2
DESCRIPTIVE AND COMPARATIVE TABLE OF BASKETBALL AND KABADDI PLAYERS
IN RELATION TO WEIGHT

Group	N	Mean	SD	σ_{DM}	t- value
Basketball Players	30	73.175	4.087	.746	5.628
Kabaddi Players	30	78.603	3.346	.610	

Table-2 shows the mean of the Basketball and Kabaddi players is 73.175 and 78.603, S.D. is 4.087 and 3.346. The obtained t-value is 5.628 that shows significant difference was exist in relation to weight.

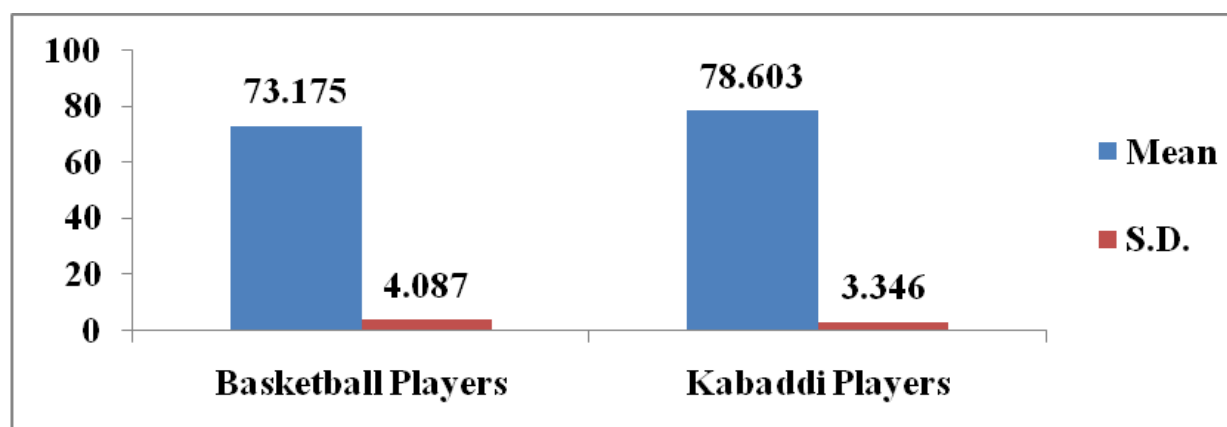


Figure-2: Comparison of difference between Basketball and Kabaddi players in relation to Weight

TABLE 3
DESCRIPTIVE AND COMPARATIVE TABLE OF BASKETBALL AND KABADDI PLAYERS
IN RELATION TO ARM LENGTH

Group	N	Mean	Standard Deviation	Std. Error Mean	t- value	p-value
Basketball Players	30	66.685	1.710	.312	7.436	.000
Kabaddi Players	30	63.079	2.031	.370		

Table-3 indicates the mean of the Basketball and Kabaddi players is 66.685 and 63.079, S.D. is 1.710 and 2.031. The obtained t-value is 7.436 that shows significant difference was exist in relation to Arm Length

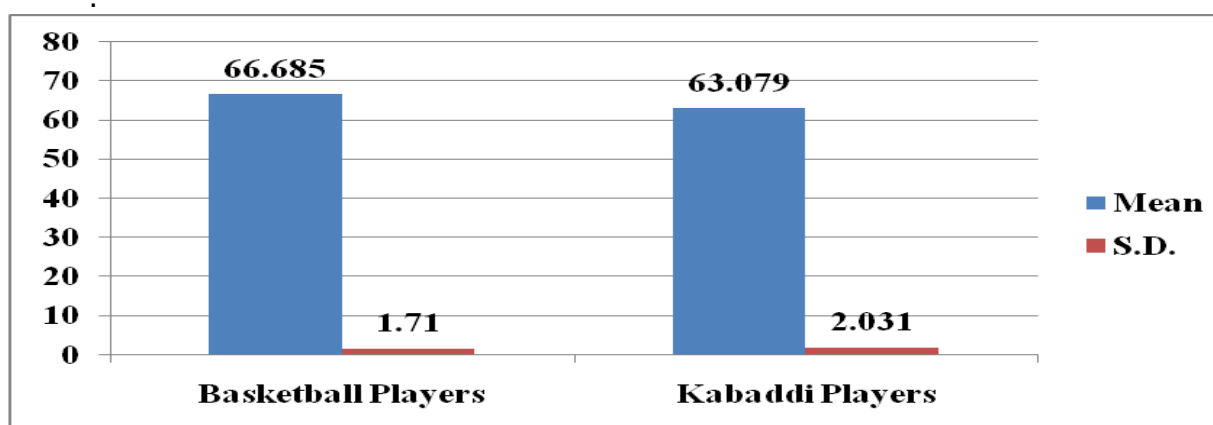


Figure-3: Comparison of difference between Basketball and Kabaddi players in relation to Arm Length

TABLE 4
DESCRIPTIVE AND COMPARATIVE TABLE OF BASKETBALL AND KABADDI PLAYERS
IN RELATION TO FOREARM GIRTH

Group	N	Mean	S.D.	Mean Difference	t- value
Basketball Players	30	24.543	1.542	.281	3.228
Kabaddi Players	30	25.823	1.528	.279	

Table-4 shows the mean of the Basketball and Kabaddi players is 24.543 and 25.823, S.D. is 1.542 and 1.528. The obtained t-value is 3.228 that shows significant difference was exist in relation to Forearm girth.

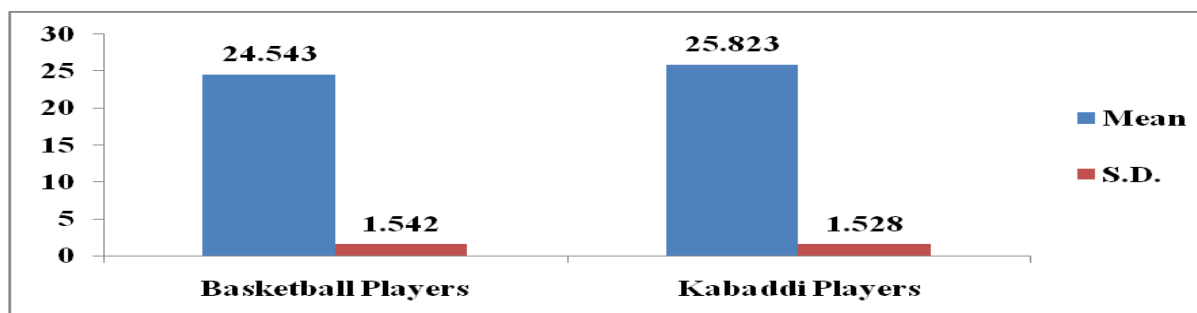


Figure-4: Comparison of difference between Basketball and Kabaddi players in relation to Forearm Girth

DISCUSSION

The mean of the Basketball and Kabaddi players is 180.07 and 172.17, S.D. is 2.132 and 3.906 in relation to height, and the obtained t-value is 9.723 that shows significant difference was exist in relation to height. The mean of the Basketball and Kabaddi players is 73.175 and 78.603, S.D. is 4.087 and 3.346, and t-value is 5.628 that shows significant difference was exist in relation to weight. The mean of the Basketball and Kabaddi players is 66.685 and 63.079, S.D. is 1.710 and 2.031, and t-value is 7.436 that shows significant difference was exist in comparison to Arm Length. The mean of the Basketball and Kabaddi players is 24.543 and 25.823, S.D. is 1.542 and 1.528 and t-value is 3.228 that shows significant difference was exist in relation to Forearm girth.

Basketball and Kabaddi both game comes under the category of combative games. Anthropometric variables play a very important role all types of sports according to the type and nature of the sports. In comparison to Kabaddi players, basketball player are more height, arm length and length of upper and lower extremities because of the players who have greater height and length of upper and lower extremities or more beneficial in basketball game in comparison to Kabaddi players. On the other hand the players who have more weight and strength of upper and lower body parts are more beneficial compare to basketball players.

Initially it was hypothesized that there will be no significant difference between Basketball and Kabaddi players in their height, weight, arm length and forearm girth is not accepted at 0.05 level of significant.

CONCLUSIONS

On the basis of findings of the study, following conclusions are drawn:

1. Significant difference was found between Basketball and Kabaddi players in relation to height ($t = 9.723$, $p < .05$).
2. Significant difference was found between Basketball and Kabaddi players in relation to weight ($t = 5.628$, $p < .05$).
3. Significant difference was found between Basketball and Kabaddi players in relation to arm length ($t = 7.436$, $p < .05$).
4. Significant difference was found between Basketball and Kabaddi players in relation to forearm girth ($t = 3.288$, $p < .05$).

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CORRELATION BETWEEN PHYSICAL FITNESS AND ACADEMIC PERFORMANCE OF SCHOOL GOING CHILDREN

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ABSTRACT

The purpose of this study was to investigate the relationship between physical fitness and academic achievement of male and female children. One hundred (Males=50, Females= 50) subjects were selected. The President's Challenge Physical Fitness test is designed to assess students based on five areas of physical fitness abdominal/core muscle strength and endurance (sit-ups), upper body strength and endurance (pull-ups), flexibility (sit and reach), agility (shuttle run), and cardiopulmonary endurance (mile run). The academic achievement was based upon the current academic year of each student in form of total mark obtain in the five subjects at 7th examinations. The mean age of male and female subjects were 13.40 ± 0.57 and 13.28 ± 0.64 respectively studying in 7th class. Results of the study concluded that this study provided varying correlations between physical fitness and academic achievement among male and female students. Academic achievement of female children did not correlated with the five test items of President's Challenge Physical Fitness. Male children were found to have significant relationship between academic achievement and upper body strength followed by flexibility and other fitness components did not.

Keywords: Physical Fitness, Academic Achievement, Children, Students, Sex

INTRODUCTION

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 co-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 practical shape to the education process.

Children are becoming more and more immobile with health concerns which include being overweight, childhood obesity, high blood pressure, depression, and other diseases and trepidations. These health concerns can linger for long periods of time, if not for a lifetime.

Health and educational professionals believe that physically active students perform better in the classroom. One study found a statistically significant relationship between fitness and academic achievement (Chomitz, Slining, McGowan, Mitchell, Dawson, & Hacker, 2009).

Promoting physical fitness and increasing opportunities for physical activity has implications to support academic achievement. Results from animal studies have shown that physical activity stimulates the neural development in the brain (Studenski, et.al., 2006).

The benefits of physical fitness are widely acknowledged and extend across many domains of wellness. The association between fitness and academic achievement, however, remains to be clarified, especially in young children. Therefore, the purpose of this study was to examine the relationship between fitness and academic achievement in pre-adolescence male and female children.

Castelli, et. al. (2007) examined 259 public school students in third and fifth grades and found that field tests of physical fitness were positively related to academic achievement. Martin and Chalmers (2008) indicated the statistically significant relationships between fitness and academic achievement, though the direction of causation is not known. Eveland-Sayers, et. al. (2009) find out a link between specific components of physical fitness and academic achievement in elementary school children. Roberts (2009) found statistically significant relationships between physical fitness and two of the three measures used for academic achievement: STAR Math Percentiles and GPA's. Physical fitness and academic achievement influence each other in ways that are still vague. Rodenroth. (2010) did not found a significant relationship between physical fitness scores based on the President's Challenge Physical Fitness Test and academic performance based on Grade Point Averages for fourth and fifth graders at the participating school. Du Toit, Pienaar & Truter (2011) found a positive relationship between physical fitness components and academic achievement was found with more significant correlations among girls than boys, as well as among older boys and girls.

The purpose of this study was to investigate the relationship between physical fitness and academic achievement of male and female children.

METHODOLOGY

Selection of Subjects:

The present study was based upon the male and female children of 7th class. One hundred (Males=50, Females= 50) subjects were selected to conduct the President's Challenge Physical Fitness Test and recording of academic achievement. The mean age of male and female subjects were 12.15 ± 0.57 and 13.01 ± 0.64 respectively studying in 7th class.

Selection of Instrument:

The student's physical fitness was assessed according to the President's Challenge Physical Fitness Test i.e. Abdominal strength and endurance (sit-ups), upper body strength and endurance (pull-ups), flexibility (sit and reach), agility (shuttle run), and cardiopulmonary endurance (mile run). This instrument was developed in 1953 to help promote a basic level of physical fitness for students. The President's Challenge Physical Fitness Test is a nationally recognized program and is a valid assessment tool that determines physical fitness levels.

The academic achievement was based upon the current academic year of each student in form of total mark obtain in the five subjects at 7th examinations. Average scores were calculated from current year achievement of student in English, Hindi, Mathematics, Science, and Social Studies.

RESULTS AND DISCUSSION

To find out the relationship between academic achievement and five physical fitness components of adolescence male and female children, Pearson's Product Moment Correlation coefficients were calculated to reach at the final result of the study. The results were also compared with the adequate significant value at .05 level of confidence. and data pertaining to this have been presented in Table 1.

TABLE 1
RELATIONSHIP BETWEEN ACADEMIC ACHIEVEMENT AND PHYSICAL FITNESS
COMPONENTS OF AMONG MALE AND FEMALE CHILDREN

S.NO.	Variables Correlated	Males	Females
1.	Academic Achievement V/S Sit-up	-.121	-.179
2.	Academic Achievement V/S Pull-ups	-.309*	.167
3.	Academic Achievement V/S Sit & Reach	-.404*	-.133
4.	Academic Achievement V/S Shuttle run	.018	-.188
5.	Academic Achievement V/S 1 Mile run	-.190	.159

*Significant at .05 level, $r_{.05}(48) = .279$

Table 1 shows that there is statistically significant correlation existed between academic achievement - Pull-ups followed by Sit and reach components of physical fitness among male children, as the Pearson's Product Moment Correlations ('r') of -.309, and -.404, respectively were higher than the required value to be significant. But significant correlation did not existed between academic achievement- Sit-ups followed by shuttle run and 1 Mile run components of physical fitness among female children, as the Pearson's Product Moment Correlations ('r') of -.121, .018 and -.190 respectively were found lesser than the required value of $r_{.05}(48) = .279$.

In case of Female, significant correlations was not found between academic achievement - Sit-ups followed by Pull-ups, Sit and reach (abdominal strength) shuttle

run and 1 Mile run components of physical fitness among female children, as the Pearson's Product Moment Correlations ('r') of -.179, .167, -.133, -.188 and .159 respectively were less than the required value of $r_{.05(48)} = .279$.

DISCUSSION

Findings of the Pearson's Product Moment Correlations indicated the significant relationship between academic achievement- pull-ups (Upper body strength and endurance) followed by flexibility among male respondents. But, they did not have significant correlation between academic achievement -sit-ups followed by shuttle run and 1 mile run physical fitness scores based on the President's Challenge Physical Fitness Test. But the results of this study provided varying correlations between physical fitness and academic achievement among male students,

In case of female children, there was no significant correlation between academic achievement based on Grade Point Averages and physical fitness scores based on the President's Challenge Physical Fitness Test.

The results of this study differ from other studies that involved physical fitness and academic achievement, in that numerous studies have found a significant correlation between physical fitness and academic achievement, and this research study did not in case of female children.

CONCLUSIONS

1. Female children did not have any significant correlation between academic achievement and all components of Physical fitness.
2. Male children were found to have significant correlation between components of physical fitness i.e. academic achievement and two pull-ups and sit and reach test.
3. Results of this study provided varying correlations between physical fitness and academic achievement among male and female children.
- 4.

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EFFECT OF SELECTED YOGIC PRACTICES, PHYSICAL EXERCISES AND PHYSIOTHERAPY TREATMENT ON PERSONAL CARE OF LOW BACK PAIN PATIENTS

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ABSTRACT

The purpose of the study was to investigate the effect of selected yogic practices physical exercises and physiotherapy treatment on personal care (washing and dressing) of low back pain patients. One hundred low back pain patients are taken from the Thavanur town, Kerala. The age, height and weight of the subjects ranged from 30 to 40 years, 158 to 169 centimetres and 55 to 70 kilograms respectively. The selected subjects were randomly assigned into five equal groups of 20 subjects each. Group I underwent Yogic practices, group II underwent physical exercises, group III underwent physiotherapy treatments, group IV yoga and physiotherapy treatments and group V acted as control. Prior to and after the training the subjects were tested on personal care (washing and dressing) of low back pain patients through the Oswestry low back pain disability questionnaire. Analysis of covariance was used to determine the significantly difference existing between pre test and post test on personal care (washing and dressing) of low back pain patients. The result of the study proved that due to twelve weeks of the experimental training was reduced back pain while personal care (washing and dressing) for the low back pain patients.

Key words: Personal Care, Low Back Pain, Yogic Exercise, Physiotherapy, Patients

INTRODUCTION

Low back pain is not a specific disease but rather a complaint that may be caused by a large number of underlying problems of varying levels of seriousness (Borczuk, 2013). The majority of low back pain does not have a clear cause but is believed to be the result of non-serious muscle or skeletal issues such as sprains or strains. Obesity, smoking, weight gain during pregnancy, stress, poor physical condition, poor posture, and poor sleeping position may also contribute to low back pain. Women may have acute low back pain from medical conditions affecting the female reproductive system, including endometriosis, ovarian cysts, ovarian cancer, or uterine. Nearly half of all pregnant women report pain in the lower back or sacral area during pregnancy, due to changes in their posture and center of gravity causing muscle and ligament strain.

Increasing general physical activity has been recommended, but no clear relationship to pain or disability has been found when used for the treatment of an acute episode of pain. For acute pain, low to moderate-quality evidence supports walking (Hendrick and others, 2010). Treatment according to McKenzie method is somewhat effective for recurrent acute low back pain, but its benefit in the short term does not appear significant. There is tentative evidence to support the use of heat therapy for acute and sub-chronic low back pain but little evidence for the use of either heat or cold therapy in chronic pain. Exercise therapy is effective in decreasing pain and improving function for those with chronic low back pain. It also appears to reduce recurrence rates for as long as six months after the completion of program and improves long-term function.

METHODOLOGY

Selection of Subjects:

One hundred low back pain patients are taken from the Thavanur town, Kerala. The age, height and weight of the subjects ranged from 30 to 40 years, 158 to 169 centimetres and 55 to 70 kilograms respectively. The selected subjects were randomly assigned into five equal groups of 20 subjects each. Group I underwent Yogic practices, group II underwent physical exercises, group III underwent physiotherapy treatments, group IV yoga and physiotherapy treatments and group V acted as control. Prior to and after the training the subjects were tested on personal care (washing and dressing) of low back pain patients through the Oswestry low back pain disability questionnaire. Analysis of covariance was used to determine the significantly difference existing between pre test and post test on personal care (washing and dressing) of low back pain patients.

Training Protocol:

The Group I performed Yogic practices three sessions per week on alternative days for 12 weeks and each session lasted from 20 to 40 minutes. The following yoga was performed Naukasana, Dhanurasana, Bhujangasana, Uttanapadasana, Salabhasana, Janusirasana, Pavanamuktasana and Yog Mudra. The recovery period between asana was fifteen seconds and between sets one minute. The sets and repetition was increased in progress. Group II underwent physical exercises programme three sessions per week on alternative days for 12 weeks and each session lasted from 20 to 40 minutes. The recovery period between exercises was sixty seconds and between sets three minutes. The following physical exercises are performed by the subjects straight leg race, single knee to chest stretch, hamstring stretch, hip flexes stretch, lower trunk rotation stretch, prone lumbar extension and pelvic tilt. Group III underwent physiotherapy treatments for 12 weeks. The

following physiotherapy treatments are given to the subjects. 10 min ice therapy, hot moist packs, ultra sound therapy, short wave diathermy, infra red radiation and wax bath. Group IV underwent the yoga practice and physiotherapy treatments for twelve weeks. Group V acted as control.

Research Design:

The experimental research design used in this study was random group design involving 100 subjects, who were divided at random in to five groups of twenty each. All the five groups were selected from the same population.

Statistical Technique

The data collected from the five groups prior to and post experimentation on personal care (washing and dressing) was statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). Since five groups were involved, whenever the obtained 'F' ratio for adjusted post test means was found to be significant, the Scheffe's test was applied as post hoc test to determine the paired mean differences. In all the cases level of confidence was fixed at 0.05 for significance.

RESULTS

The pre and post test data collected from the experimental and control groups on personal care (washing and dressing) of low back pain patients were statistically analysed by ANCOVA and data pertaining to this, has been presented in Table I.

TABLE I
ANALYSIS OF COVARIANCE ON PERSONAL CARE OF EXPERIMENTAL AND CONTROL GROUPS

	Yoga Practice	Physical Exercise	Physio-therapy	Yoga and Physio-therapy	Control Group	S O V	SS _s	df	MS	F-ratio
Pre test Mean	4.60	4.80	4.85	4.90	4.75	B	1.06	4	0.26	0.26
SD	1.09	1.01	0.93	0.91	1.02	W	94.10	95	0.99	
Post test Mean	4.05	3.25	4.50	4.01	4.70	B	25.10	4	6.27	7.10*
SD	1.19	1.11	0.60	0.85	0.80	W	83.90	95	0.88	
Adjusted Post test Mean	4.06	3.24	4.49	3.99	4.71	B	25.13	4	6.28	7.07*
						W	83.46	94	0.88	

*Significant at .05 level, $F_{.05}(4, 95)=2.47$ & $F_{.05}(4, 94)=2.47$

Table-I shows that the pre test mean and standard deviation on personal care of low back pain patients of yoga practice, physical exercise, physiotherapy, yoga and physiotherapy and control groups are 4.60 ± 1.09 , 4.80 ± 1.01 , 4.85 ± 0.93 , 4.90 ± 0.91 and 4.75 ± 1.02 respectively. The obtained 'F' ratio value of 0.26 for pre test means on personal care low back pain patients of yoga practice, physical exercise, physiotherapy treatment, yoga and physiotherapy treatments and control groups were less than the required table value of 2.47 for the degrees of freedom 4 and 95 at 0.05 level of confidence. It reveals that there is statistically insignificant difference among the yoga practice, physical exercise,

physiotherapy treatment, yoga and physiotherapy treatments and control groups during pre test period.

The post test mean and standard deviation on personal care of low back pain patients of yoga practice, physical exercise, physiotherapy, yoga and physiotherapy and control groups are 4.05 ± 1.19 , 3.25 ± 1.11 , 4.50 ± 0.60 , 4.01 ± 0.85 and 4.70 ± 0.80 respectively. The obtained 'F' ratio value of 7.10 for post test means on personal care of low back pain patients of yoga practice, physical exercise, physiotherapy treatment, yoga and physiotherapy treatments and control groups were higher than the required table value of 2.47 for the degrees of freedom 4 and 95 at 0.05 level of confidence. It reveals that there is statistically significant difference among the yoga practice, physical exercise, physiotherapy treatment, yoga and physiotherapy treatments and control groups during post test period on personal care.

The adjusted post test means on personal care of low back pain patients of yoga practice, physical exercise, physiotherapy, yoga and physiotherapy and control groups are 4.06, 3.24, 4.49, 3.99 and 4.71 respectively. The obtained 'F' ratio value of 7.07 for adjusted post test means on personal care of low back pain patients of yoga practice, physical exercise, physiotherapy treatment, yoga and physiotherapy treatments and control groups were higher than the required table value of 2.47 for the degrees of freedom 4 and 94 at 0.05 level of confidence. It reveals that there is statistically significant difference among the yoga practice, physical exercise, physiotherapy treatment, yoga and physiotherapy treatments and control groups during adjusted post test period on personal care.

Since, the adjusted post test 'F' ratio value is found to be significant the Scheffe's test is applied as post hoc test to determine the paired mean differences, and it is presented in table-II.

TABLE II
SCHEFFE'S TEST FOR THE DIFFERENCE BETWEEN THE ADJUSTED POST
TEST PAIRED MEANS OF PERSONAL CARE

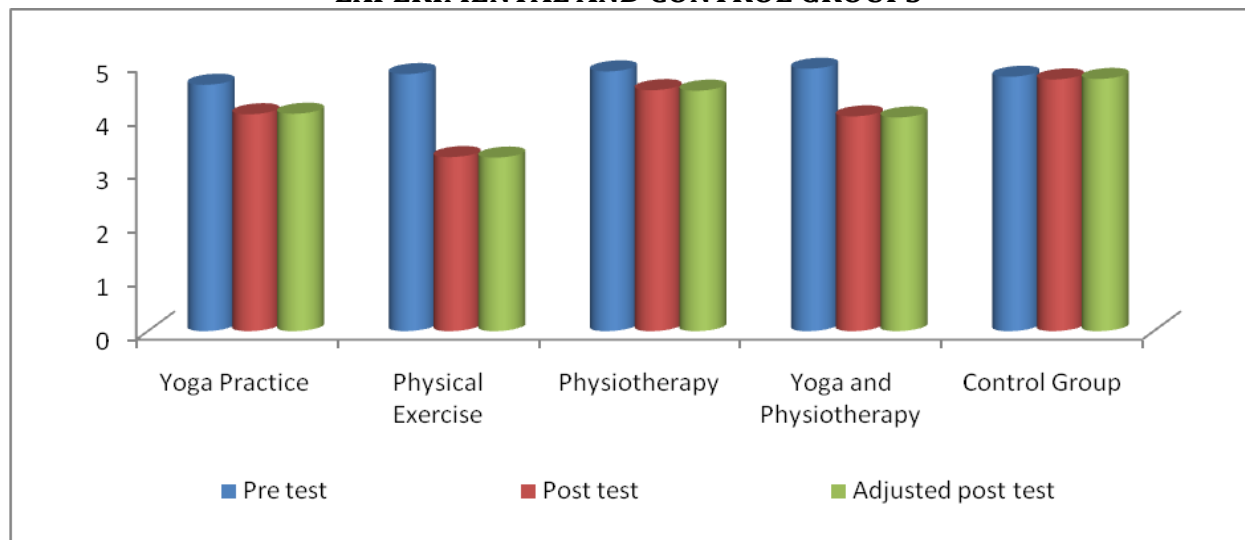
Yoga Practice	Physical Exercise	Physiotherapy	Yoga and Physiotherapy	Control Group	MD	CI
4.06	3.24				0.82*	0.65
4.06		4.49			0.43	0.65
4.06			3.99		0.07	0.65
4.06				4.71	0.65*	0.65
	3.24	4.49			1.25*	0.65
	3.24		3.99		0.75*	0.65
	3.24			4.71	1.47*	0.65
		4.49	3.99		0.50	0.65
		4.49		4.71	0.22	0.65
			3.99	4.71	0.72*	0.65

Table-II shows the Scheffe's test results that there is significant difference exists between the adjusted post tests means of yoga practice and physical exercise groups; yoga practice and control groups; physical exercise and physiotherapy groups; physical exercise and control groups; physiotherapy and control groups; yoga & physiotherapy and control groups on personal care (washing and dressing) of low back pain patients. And also there is no significant difference exists between yoga practice and physiotherapy groups; yoga

practice and yoga & physiotherapy treatments groups; physiotherapy treatments and yoga & physiotherapy treatments groups; physiotherapy and control groups.

Figure – I

**CYLINDER DIAGRAM SHOWING THE MEAN VALUE ON PERSONAL CARE OF
EXPERIMENTAL AND CONTROL GROUPS**



DISCUSSION

The result of the study showed that yoga practice, physical exercise, physiotherapy treatments, yoga & physiotherapy treatments and control groups had significant difference on personal care (washing and dressing) of low back pain patients. However physical exercises group is better influence to reduce the low back pain while personal care (washing and dressing) than other experimental groups. The following studies are supporting with my study results. Exercise therapy is effective in decreasing pain and improving function for those with chronic low back pain (*Guild, 2012*). Elastic resistance band exercises resulted in significant improvement in pain reduction (*Nitsure, et al., 2015*). The results suggest that individuals with low back pain should refrain from specific back exercises and instead focus on nonspecific physical activities to reduce pain (*Hurwitz, et al., 2005*).

CONCLUSION

The conclusion of the study stated that physical exercise are influenced to reduce the low back pain while their personal care (washing and dressing) of the subjects.

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