CHAPTER-II

REVIEW OF RELATED LITERATURE

Keeping in view the objectives of this study a review of related literature has been taken up in this chapter. Various studies, which have been completed, serve as a guideline not only to provide knowledge with regard to the quantum of work already done in the field but also serve as a pointer to the gaps and lacunae that still exist in the concerned field of research.

The literature, which is stored either in the form of books or in the form of monographic and journals etc. proves to be of the great help when they acquaint us of the methods to collect required information, statistical techniques employed and the evident outcomes of the researchers done in the past. “Practically all human knowledge can be found in books and libraries; unlike other animals that must start a new with each generation man builds upon the accumulated and recorded knowledge of the past.” Mauley (1964) pointed out that “man is the only animal that does not have to begin a new in every generation, but can take advantage of knowledge which has accumulated through the centuries”. The importance and need of the study of old literature for healthy and proper guidance is clearly understood by many more investigators and research workers in various fields. We are fully agreed with this opine because we must be well aware of the various facts and
foundations of our field in the same manner as the competent physician must keep abreast of the latest medicine and newer technologies and the students of educational researches should become familiar with the location and use of sources of educational information.

2.1 Anthropometry and performance in sports

*Cureton (1951)* studied champion athletes and found that typical trackmen are light in skeletal framework with a relatively longer upper leg ratio and long trunk relationship. He also noted that most good sprinters have narrow hips and that the more ponderous men with longer and larger trunk, but with relatively short limbs, are most likely to succeed in weight lifting, wrestling, gymnastics and diving.

*Bookwalter (1952)* conducted the study to show the relationship of physique and shape to physical performance. The Indian motor fitness test was carried on which comparing of four test items straddle chin-ups, push-ups, squat thrust and vertical jump. The data were studied from the standpoints of distribution of boys by physique and according to their development level. The physical fitness scores by physique group, the physical fitness scores by developmental level and physical fitness scores by combined grouping of physique and developmental levels. He concluded that – (i) the size and shape had an influence on physical performance, (ii) the thin and medium in physique that were large performed equally well physically. The same could be said about the smaller group.
**Harold’s (1953)** The study investigated the following aspects: first the size and shape seem to have an influence on physical performance. Second the very obese are poorest performance and third the maximum size, body shape does not provide maximum physical fitness. It concluded that the large and fatty body varies in physical performance than the normal and thin boys.

1. There is no significant relationship between height and selected motor tests of the age group of thirteen years.
2. There is positive and significant relationship between height and body weight of all age groups except 13 years group.

**Mohr and Haverstics (1956)** conducted tests on 102 subjects over a period of 8 week volleyball course. The researchers gave them repeated volley tests at 3 feet and 7 feet restraining lines. Their heights were taken and were made to undergo tests of agility, combined running and rolling and vertical jump and reach test. Correlations were computed between volleyball tests and other factors. From the comparative study of these correlations, a significant relationship was found to exist between jumping and volleying, between agility and volleying and also between height and volleying.

**Hindmarch (1960)** administered the following tests to 100 Canadian born white boys, anthropometric height, weight, height-weight ratio, arm length, sitting height and leg length, performance in one minute sit-ups, standing broad jump and one minute squat thrusts, trunk flexibility criteria-Leighton
trunk and hip extension-flexion test, Cureton trunk flexion test, modified Scott French Babing test and Kraus-Weber flexion test. The correlation between the anthropometric variables and performance tests and the flexibility criteria were low, the highest was .36 between the standing broad jump and the Scott French test. The Kraus-Weber test correlated .687 with the Scott-French test .830 with the Cureton test and 779 with Leighton’s test.

*Pearson (1961)* investigated the relationship between body size and speed. Twenty one untrained subjects were selected on the basis of body built, their measurement of height, weight, speed of sprint ‘start, RT as an adjunct of the ‘start’ and sample RT in the laboratory. The analysis of data permits the conclusion that the speed with which a person can get into action has little relation to his height, weight and calculated body fat as lean body mass for the population represented by the sample tested.

*Wear and Miller (1962)* studied the relationship of physique and development by the Wetzal grid. To performance in fitness tests, or junior high school boys, they found that subjects who were medium in physique and normal in developments to be the best performers and the subjects of heavy physique to be the poorest in performance.

*Espenschada (1963)* investigated the relationship of age, height and weight to the performance of boys and girls on performance test, low correlations were found between performance and height and weight when age was held constant.
Correnti and Zauli (1964) measured 166 Olympic track field competitors and eight swimmers at the 1960 Rome Olympic. The important findings are as follow (a) Difference was observed in age, height and weight among the various events (b) within certain events body shape & form was similar but size varied.

Parizkova, as referred by Johl (1964) of the physical culture research institute in Prague studied the body composition of the Czechoslovakian national gymnastics team for men and women before and after their competitions at the Olympic Game in Rome in 1960. Measurements of body density and total skin fold thickness, yielding information on excess fat and body weight indicated an extremely favorable state of training of champion gymnasts several months before the contests. However, this highly selected group of athletes continued to improve during the maximally intensified exercise period immediately prior to the games. Their body density increased, skin fold thickness regressed and technical proficiency improved still further.

Hirata (1966) collected anthropometric data for 31 variables on 457 athletes, 309 males in 20 sports and 148 females in 10 sports. The descriptive statistics was used for 12 male sports and 5 female sports. The physique of athletes was analyzed through examination of absolute and relative size, somatotype, body composition and factor analysis of Montreal (1976), Mexico (1968) Olympics athletes. The male athletes from Montreal are larger than those from Mexico City on most
measures of body size. The mean somatotype of the athletes from both Olympic samples was almost identical. Male and female students are smaller than the athletes on most size variables, except that the male athletes are older, have narrow hips and smaller skin folds.

Garry (1966) studied the relationship of college footballer’s strength, speed and agility to the ranking rate by the coaches and divided the players in two groups. Correlations were computed between them through subjective evaluation and strength, speed and agility. It was concluded from the findings of the study that the arm strength and agility were not the valid predictive of football ability. Total strength and ‘T’ scores were moderate predictive of football playing ability whereas the leg strength and speed were the significant predictive of football playing ability.

The athletes of both sexes are less endomorphic and more mesomorphic than the students. In term of proportions, male athletes compared to students have similar mass and tend to have slightly longer limb segments, greater bone breadths (but narrow hips) and upper body girths lower skin folds and greater bone muscles and residual masses. The exceptions are greater proportional mass in judo competitors, weight lifters and wrestlers, as well as few differences between fencers and field hockey players when compared with the students. Among the female sports canoeists, rowers and swimmers have similar proportions, masses to the students but track and field athletes
and gymnasts are proportionally lighter. The female athletes have proportionally narrow hips, larger girths (except for jumpers) and smaller skin folds but larger muscles mass than the students.

*Read (1967)* found that the better gymnasts (male) averaged significantly shorter in sitting height and arm span than other two lower ability group of gymnasts.

*Smith (1969)* carried out research work on three groups of volleyball players at different levels of play comprising 66 beginners, 11 varsity players respectively. His findings revealed that the vertical jump correlated 0.35 with the Brady Test, 0.55 with the judges evaluation for the beginners. The ‘r’ between the vertical jumping ability of the varsity players and a potential playing ability ranking by their coaches was -.36. It was concluded that the vertical jump was not an accurate predictor of volleyball playing ability.

*(Carter, 1970)* Generally, it is considered that success in team game is more related to knowledge of the game strategies, technical efficiency, and performance capabilities. Therefore, it becomes difficult to predict potentially talented players. There are number of factor which affect the performance of sportspersons, such as age, sex, physical growth, physiological, biochemical, genetically, anthropological and psychological *(Carter, 1970)*. Among these factors, the size, shape, physique, proportions, somatotype, fitness skill efficiency level also play significant role in better performance.
3. Height of 10 and 11 years groups is found to be significantly related to body weight, 30 meters run, medicine ball put, standing vertical jump and standing broad jump test performance.

\textit{Shondell (1972)} studied the relationship of selected motor performance and anthropometric traits to successful volleyball performance. The problem of this study was to identify the physical and anthropometric traits possessed by successful volleyball players and upon determination to develop a physical performance test battery that would prove valid, reliable and practical when used to identify potentially successful collegiate volleyball players. Statistical techniques utilized provided inter-correlation coefficient between the independent variables and the dependent variables; stepwise regression coefficient provided the square of the multiple coefficients of all items were computed by using inter-class correlation techniques. Within the limitation of this study and based on the findings, the following conclusion was made: Cross validation procedure employed supported the validity of the six item battery as a predictor of expected volleyball performance.

\textit{Sodhi et al. (1974)} conducted a study on the physique of hockey players and reported the mean height, weight and age with respect to the field position of the players. The back were found to be tallest followed in a descending order by the half backs and the forwards. However, in respect of weight, the forwards were lighter and the backs were heaviest, the body fat
which increased gradually towards the halves, backs and goalkeepers.

_Martin (1976)_ conducted a study by comparing the selected anthropometric measurements and physical performance between Mexican American and Anglo American adolescent boys. He also compared the body size, body structure and physical performance between the subjects at adjacent age level within each individual racial group. The body size was assessed by standing height and body weight measurements. The body structure was interpreted as upper arm girth, chest girth, abdominal girth, thigh girth and calf girth measurements. The physical performance was determined by selected motor ability tests. It was concluded that the Anglo American subjects were significantly taller than the Mexican American subjects. It was also concluded that excluding standing height, the Mexican and Anglo American subjects did not differ in body size and body structure and these two races did not differ in physical performance.

_Diez (1978)_ studied the relationship among selected anthropometric variables and relative body fat on inter college level women. The subjects were enrolled in physical education classes at university of Illinois. The percentage of body fat was estimated by densitometer using underwater weight, skin folds sites, eight body circumferences and seven body diameters were evaluated as predictors of body density. The results indicated that simple anthropometric measurements could be used to
predict body density and body fat in college level women but that the use of regression equation developed on other samples of college level women are somewhat less predictive of fat contents.

Bhatnagar (1980) conducted a study on 23 rural sportsmen (athletics=8, volleyball=8, kabaddi=7) of Madhya Pradesh (India) pertaining to their weight, height, sitting height, subcutaneous tissue folds of biceps, triceps, sub scapular and suprailliac region. They were found to be lighter, shorter and with less amount of fat as compared to sportive activities indicated that volleyball players were lightest, shortest with maximum of fat as compared to kabaddi players were heaviest and tallest among all the rural sportsmen of Madhya Pradesh.

Gangadharan (1981) conducted a comparative study that the selected anthropometric measurements height, chest girth, upper arm girth, calf girth and weight of 60 athletes of different sports and concluded that volleyball players significantly differed from the basketball and hockey players. The group did not differ significantly in any other anthropometric measurements under taken this study.

Mathur and Salokun (1985) conducted a study on 150 female subjects; found that the athletes were significantly taller, heavier and had larger bi-acromial and bicristal diameters as compared to non athletes. The percentage of fat was significantly higher in non athletes. The significant difference between the anthropometric variables and body composition of university and national level athletes were observed. The measurements were
significant between athletes and non athletes and between athletes of different sports i.e. volleyball, basketball, throwers, sprinters and distance runners. The differences in various measurements within the group have been attributed to physical demand of each sport.

Uppal and Ray (1986) have introduced in their study that body fat is considered to be a liability in the performance of motor performance. However very few objectives of the study have been which could establish a direct relationship between body fat and the performance of various motor activities. Direct evidence of this nature would be a very useful in demonstrating to both athletes and non-athletes that excess of body fat has adverse effect on motor performance.

Chauhan M.S. (1986) studies the relationship between selected anthropometric variables and endurance running performance. He concluded that height, leg length, thigh length, total arm length, shoulder length, chest abdomen, hip and knee girth, thigh and calf skin fold and lean body mass had significant and negative correlations with 1500 meter endurance running performance whereas 10000 meters running performance had statistically insignificant correlation with linear segments girth and diameter measurement except with skin fold measurements (Triceps, Supra iliac, Midailary thigh and calf skin fold) and body composition variables (body density, fat percentage, fat weight and lean body mass). Multiple correlation of 1500 meter running performance with combination of
selection anthropometric variables were significant. Similarly the multiple correlations of 10000 meter running performance with combination of selected skin fold and body composition variables were significant but the multiple correlations were not of sufficient size to put them into the prediction equation.

*Kansal et al. (1987)* conducted a study in which the anthropometric measurements were taken of 23 football players and 15 volley ball players who attend an inter-university coaching camp with a view to study their physique and body morphology. They also studied 100 control subjects. The differential anthropometric variables including linear, circumferential and skin fold measurements were taken. The body physique was calculated from skin fold using Heath-Carter Method (1969), and fat was computed from skin folds using Durnin and Womersely (1974) equations. It is found that the footballers were of average height however, the volley balers were taller than their counterparts. The footballers had larger trunks and smaller lower extremities than the volley balers who did not differ much from the controls in this relationship. The volley balers and footballers had linear physique and large limb girths but less body fat than controls indicated their relatively more muscularity. The anthropometric somatotype of volley balers and footballers were 2.16, 23.3, 9.7 1.87 and 3.59 respectively indicating less endomorphic components than controls. When compared with Olympic level players, the players of present study were found shorter and lighter.
Day et al. (1987) made an attempt to find out whether at certain levels of achievement, sportsmen participating in different games and characterized by distinct anthropometric measurement, and to find out proportionate ratio of segmental and total body measurement required for a sportsmen for a particular game. For this study, 12 players from each sport viz. swimming, basketball, handball, and table-tennis were selected from the top first four standing teams of national games schools. The result of the study have indicated that: a) basketball players have significantly higher height, arm length, leg length, thigh length and weight length than those of the handball, swimming, and table tennis players: b) handball players possess more height, leg length, thigh length and weight as compared to swimmers and table tennis c) arm length, arm girth or swimmers are more as was no significant difference between table tennis players and players of other games in the selected anthropometric measurement.

Chauhan (1988) conducted a study on the correlation of anthropometric variables with success in putting the shot by college women. He concluded that age, height and biacromial diameter had positive and significant correlation with success in putting the short, whereas sub scapular, thigh and calf skin folds, body density and fat weight had negative and significant correlation with the success in putting the shorts of College women. Further the multiple correlation (R=.575, p< .50) of the combination of selected anthropometric variables i.e. age, height,
total arm length, foot length, hip girth, thigh girth and biacromial diameter with success in putting the short of college age women was found significant at 5 percent level, but the multiple correlation was not of sufficient size to put in the prediction of success in putting the sort.

Show (1990) compared 38 athletes of Delhi University on selected kin anthropometric variables by using analysis of variance. The result showed that, the long and middle distance female runners of Delhi University having long upper and forearm length in comparison to sprinters, though middle and long distance runners did not differ in upper and forearm length. The short, middle and long distance runners did not differ significantly in height, weight, arm length, hand length, foot length, hip girth, calf girth, biceps skin fold, triceps skin fold, sub scapular skin fold, sum of skin folds, height, leg length ratio, fore arm and upper arm length ratio and Pondera index.

Dey (1991) conducted a study of anthropometric measurements and body composition of high and low cardio-respiratory fitness boys and observed that in secondary schools belonging to high cardio-respiratory fitness, fitness group possesses significant small abdominal girth measurements, lower percentage of body fat, less fat weight, higher lean body mass as compared to low cardio-respiratory fitness groups. Multiple correlations of absolute variables from both high and low cardio respiratory fitness groups reveal that both the groups possesses a peculiar physique and absolute anthropometric
variables among themselves maintain certain amount of proportions which is quite unique in itself.

Singal et al. (1993) conducted a study on the intersportive differences in anthropometric measurements and body composition of national level women. While comparing with controls, they found that sports women of all games generally taller, with bigger trunks, broader shoulder, wider elbows, wrists, knee and ankles except gymnasts. The circumferences were larger; the subcutaneous tissue was lesser in all categories of players as compared to controls. The body fat and percent body fat were lesser in players and the lean body mass (LBM) and percent lean body mass were found to be more in all sportswomen. Inter-sportive difference for sportswomen indicated that basketball women were found to be taller, heavier with bigger trunk and broad diameters than all the other sportswomen. Body fat, percent body fat and lean body mass were found to be more in basketball players and percentage of lean body mass in gymnasts.

Kumar (1995) studied the relationship between selected anthropometric variables and performance in athletics programme of high school and senior secondary school students. He concluded that performance in all running events 100 meters, 200 meters, 400 meters, 800 meters 1500 meters, 5000 meters and 10000 meters events have significant relation with age, body weight height, leg length, thigh length, shoulder,
chest, abdomen, hip, upper arm, thigh, calf girth, femur bycondylar, biacromial, fat weight and lean body mass.

**Thomas** *(1999)* studies the relationship of motor components and anthropometric variables to the velocity of basketball throw. Motor fitness component chose were wrist, strength, waist and shoulder flexibility, speed of movement of arm and length arm length with height, sitting height, weight and leg length. 25 male basketball players in the profession of physical education were chosen as the subjects for the study. Analysis of the data showed that there is a significant correlation between the velocity of long and hook basketball passes and the anthropometric variables.

Thus these traits should be considered in judging individual potential for participating in physical activities of different types, Performance in sports depends upon certain factors physique and body composition being one of the most important.

**Damsgaard, R. et al., (2000),** studied the effect of genetic factors, birth weight, early childhood growth, sport, hours of training, and pubertal status on the stature and body mass index (BMI) of children aged 9-13 participating in sports at a competitive level, 184 children (96 girls, 88 boys), competing in swimming, tennis, team handball, and gymnastics, were investigated, assessing their height, weight, pubertal development, and BMI. Of these, 137 (76 girls, 61 boys) returned a questionnaire, which enabled us to determine height and BMI
at age 2-4, birth weight, and parental heights. Significant differences in standard deviation scores (SDS) for actual height and for height at age 2-4 were found in both sexes between the four sports. In girls, BMI SDS was significantly different between the four sports, whereas no difference was found in boys. Each sport investigated separately showed no change in height SDS and BMI SDS between ages 2-4 and 9-13. A regression analysis showed that target height, height at age 2-4, and pubertal status had a significant impact on actual height. Interestingly, the type of sport and hours of training per week had no effect on height SDS. In boys, BMI at age 2-4 and pubertal status had a significant effect on actual BMI, whereas in girls, only BMI at age 2-4 was significant.

**Rasnus, D., et al., (2001),** conducted a study in which he primarily to investigate anthropometric variables, body composition and pubertal development in children aged 9–13 participating in competitive sports. Secondly, the influence of age, sport, training hours and pubertal development/maternal menarcheal age on body composition and pubertal development was explored. A total of 183 (96 girls, 87 boys) children performing swimming (Sw), tennis (Te), European team handball (TH), and gymnastics (Gy) took part in the study. Anthropometric measurements and pubertal development were determined. The participants completed a questionnaire regarding hours of training per week and maternal menarcheal age. Significant differences in stature (z-scores) were found in both boys
In girls, sum of skin folds in millimeters (Sw=33.4; Te=33.3; TH=41.0; Gy=27.2, \( P<0.02 \)) and body mass index z-scores (SW=0.00; Te=-0.27; TH=0.35; Gy=-0.25, \( P<0.001 \)) were different between the sports. A regression analysis revealed that in girls, age and maternal menarcheal age were significantly associated with pubertal development (\( P<0.005 \) and \( P<0.01 \)), respectively, and sport was associated with the sum of skin folds (\( P<0.05 \)), in boys, only age was significantly associated (\( P<0.005 \)). In conclusion, anthropometric and body composition differences exist in athletes of both sexes from different sports but are more evident in females. Most importantly, we did not find any effect of training on body composition or pubertal development, confirming previous data that children in competitive sports are selected due to constitutional factors.

Singh, S., Singh, J. and Singh, H. (2002) studied on the relationship of body height and body weight with selected physical fitness variables in untrained female children of 10 to 14 years age groups with body height and weight, standing board jumps, thirty meters sprint, medicine ball put, six into ten meters shuttle run. Standing vertical jump and eight hundred meters run test were used to assess to the fitness level. They concluded that:

Chauhan et al. (2003) determined the prediction of sprinting ability in relation to anthropometric variables and
concluded that age, body weight, height, leg length, lower leg length, total arm length, shoulder, chest, abdomen, hip, thigh and calf circumferences biacromial diameter, bicristal diameter, fat weight and lean body mass have negative and significant relationship of senior secondary school boys. Multiple correlation of a combination of three anthropometric variables i.e. leg length; biacromial diameter & lean body mass with sprinting ability performance is significant at .01 level. The multiple correlations of sufficient size and hence the regression equation drawn can be put into prediction of sprinting ability of schoolboys

**Chauhan et.al (2003)** The aim of the study was to describe the relationship between anthropometric variables and middle running performance and concluded the age, linear measurement i.e. height, leg length thigh length, shoulder, chest, abdomen, hip, thigh, knee girths, ankle diameter and calf skin fold have positive and significant correlations. The multiple correlation of combination of anthropocentric variables i.e. height thigh girth, biacromial diameter thigh skin fold with middle distance running performance is significant at .01 level, but multiple correlation is not of sufficient size, so the regression equation cannot be put in to prediction of running performance.

**Roland, T. et al., (2004),** studied 'the relationship between maximum isometric strength, anthropometry and maximum velocity in over arm-throwing for male and female
handball players. Twenty male and 20 female handball players were tested. The mean ball velocity was 23.2 ms$^{-1}$ and 19.1 ms$^{-1}$ for male and female handball players respectively. For males and females, similar correlations were found between maximal isometric strength and throwing velocity (men, $r=0.43$, $p=0.056$; women, $r=0.49$, $p=0.027$). Univariate analysis of variance between isometric strength and throwing velocity for men and women showed no significant effect of gender ($F_{2.36}=0.116$, $P=0.89$). Body size had a strong positive effect on the throwing performance and isometric strength. Throwing velocity appeared to be affected by gender when size was expressed by mass or height ($p<0.001$). However, this dependence was completely explained by size differences when expressed as fat-free body mass (FFM). For strength, no gender effect was found at all, i.e., all gender differences were explained by size differences irrespective on how his was expressed. The finding that strength and velocity show a gender independent relationship strengthens the notion that gender difference is based on difference in muscle bulk. Conclusively FFM, as an approximation for skeletal muscle mass is the best measure to express body size when related to physical performance.

Chauhan and Chauhan (2005) demonstrated the correlations of explosive arm strength of volleyball players with height, leg length, total arm length, fore arm length, shoulder girth, thigh and calf girths. Biacromial, biotrochantric and elbow diameters and sub scapula skin fold highly significant and the
regression equation developed by four anthropometric variables predicting the explosive arm strength of volleyball players. They further elaborated that height, biacromial and elbow diameters, and lean body mass are very good ingredients for the prediction of arm strength.

Leyk, D. et al., (2007), assessed the hand-grip strength has been identified as one limiting factor for manual lifting and carrying loads. To obtain epidemiologically relevant hand-grip strength data for pre-employment screening, determined maximal isometric hand-grip strength in 1,654 healthy men and 533 health women aged 20-25 years. Moreover, to assess the potential margins for improvement in hand-grip strength of women by training, we studied 60 highly trained elite female athletes from sports known to required high hand-grip forces (judo, handball). Maximal isometric hand-grip force was recorded over 15 s using a handheld hand-grip ergometer. Biometric parameters included lean body mass (LBM) and hand dimensions. Mean maximal hand-grip strength should the expected clear difference between men (541 N) and women (329 N). Less expected was the gender related distribution of hand-grip strength: 90% of females produced less force than 95% of males. Though female athletes were significantly stronger (444 N) than their untrained female counterparts, this value corresponded to only the 25th percentile of the male subjects. Hand-grip strength was linearly correlated with LBM. Furthermore, both relative hand-grip strength parameters
(F\textsubscript{max}/body weight and F\textsubscript{max}/LBM) did not show any correlation to hand dimensions. The present findings show that the differences in hand-grip strength of men and women are larger than previously reported. An appreciable different still remains when using lean body mass as reference. The results of female national elite athletes even indicate that the strength level attainable by extremely high training will rarely surpass the 50\textsuperscript{th} percentile of untrained or not specifically trained men.

The purpose of the Chauhan, M.S. and Ramchander, (2009) investigations was to describe the correlation between the selected anthropometric variables and explosive leg strength and also to develop the regression equation for the prediction of explosive leg strength of volleyball players between the ages of 18 to 24 years. The data was collected from Inter collegiate volleyball players taken as subjects of the study by using anthropometric rod, skin fold caliper, vernier caliper and steel type the product movement method for correlation and regression equation were used. Linear measurements i.e., height, trunk length, lower leg length, total arm length, foot length and foot breadth, girth measurements i.e., biceps, triceps, sub scapular, supra iliac, mid-auxiliary and thigh skin fold measurements and fat percentage, fat weight and lean body mass have been found highly significant and hence the developed equation can be used in the prediction of explosive leg strength of volleyball players.
Mohan L. & Sharma, Y.P. (2009) tested a total of 334 volleyball players from different colleges of Himachal Pradesh to judge their skill efficiency in relation to their performance. The purpose of the study was to find out significance differences of skill efficiency variables of volleyball players of Himachal Pradesh. To achieve the objectives of the study, Helmen volleyball Skill test consisting of three test items face pass, forearm pass and wall spike was used to measure the skill efficiency level of volleyball players. Test of significance of the differences was applied in the present investigation to tackle the data. Significance of data was judged at .01 and .05 level of significance. The analysis of data shows that winner volleyball players are better in ball control with the finger pads (set) control the ball with forearm pass, and spike the ball with controlled power and accuracy as compared to their loser counterparts.

The study by Singh Simarjeet and Singh Dharampal et al., (2009) showed a relationship of scoring skills i.e., spike, black and serve, with maximum spike jump and maximum block jump test performance and selected anthropometric variables, in an international level competition. The subjects for the study were players from 16 countries who participated in the men's senior Volleyball World Championship, at Tokyo, in Japan, from 17 Nov. to 3 Dec. 2006. the data of these subjects was collected from http://www.fivb.org/web site and processed by the investigators. The data of 36 Volleyball players, from 44matches,
was analyzed, ensuring that every player must have made minimum 10% total attempts made by the team. It was concluded that a non-significant relationship exists between age, height, weight and scoring skills. A non-significant relationship between scoring skills and jump reach in spike and block exists. An overview of success rate in scoring skills at 5 centimeters interval of height indicate that the players having the height between 201 to 205 centimeters have the height success rate in spike; whereas players with height between 190 to 195 centimeters have better success rate in serve and block.

Singh and Chauhan (2010) found in their research that body weight and linear measurements, i.e., height, sitting height, trunk length, leg length, thigh length, total arm length and upper arm length; body girth i.e., chest, abdomen and hip; body diameter i.e., elbow and hip; skin folds, i.e., biceps, subscapular, thigh and body composition variables. i.e., fat weight and lean body mass have positive and significant correlation with explosive arm strength had been found significant at .01 level of significance. The size of the multiple correlation with also sufficiently large and hence regression equation developed is useful for the prediction of the explosive arm strength of Basketball players.

Singh and Chauhan (2011) examined the correlation between the selected kinanthropometric variables and explosive leg strength and also to develop the regression equation for the prediction of explosive leg strength Basketball players between
the age range of 18 to 25 years. They found that height, sitting height, trunk length, leg length, thigh length, shoulder, chest, abdomen, hip girth, elbow, hip, knee diameters, biceps, subscapular skin folds, fat weight and lean body mass have positive and significant correlation with explosive leg strength at .01 level of significance. The size of the multiple correlation was also sufficiently large and hence regression equation developed for the prediction of the explosive leg strength of Basketball players.

A study conducted by Singh and Chauhan (2011) shows that body weights, standing height, sitting height, trunk length, total arm length, upper arm length, leg length, thigh length, lower leg length, hand length and hand breadth; elbow, shoulder and hip diameters; shoulder, chest, abdomen and hip girths; biceps, triceps, sub scapular and calf skin folds; lean body mass, fat weight and motor fitness components i.e., speed, arm strength, flexibility and leg strength and significant correlations with shooting accuracy skill efficiency of Handball players. And the multiple correlation (R=.833) of arm strength, leg strength, sitting height, total arm length, leg length, elbow diameter, chest girth, sub scapular skin fold and lean body mass with shooting accuracy skill efficiency of Handball players was significant and the value of multiple correlation of determination (R²=.694) indicates that 69.40 percent of variance of performance scores can be predicted on the basis of prediction equation.
Nelson and Longer (1963) examined some of the psychological variables present among athletes in competitive situations. They assessed anxiety levels of the team members by using Taylor’s Manifest Anxiety scale. The results showed that performance of athlete with extremely high levels of anxiety was poor. It was also found that athletes who scored extremely low level of anxiety did not perform well. In a comparative study of psychological profiles of professional physical education male students belonging to high and low fitness group, Bhattacharjee concluded that there were significant difference between the high and low fitness subjects in personality factors. The high fitness group was lean towards factors A (Out-going), C (Emotionally stable), E (Assertive), H (Venturesome), L (Suspicious), N (Shrews), O (Apprehensive), Q (Experimenting), Q2 (Self-Sufficient), where low fitness group was lean towards the factors B (Less intelligent), F (Sober), G (Expedient), I (Tough-minded), Q3 (Undisciplined Self-concept), Q4 (Released) impersonality profiles. The high fitness group had better physical Self-concept than that of low fitness group. The high and low fitness groups did not differ significantly in other self-concept dimensions that are social, temperamental, educational, moral and intellectual although the total self concept of high fitness group was significantly higher than that of low fitness group.

Hayberg (1979) et al., determined the psychological characteristics of national class American cyclists using Eysenck
personality inventory. The result indicated that the cyclists were more introverted than normal adults. This is in contradiction to what has been found for elite marathon runners, but agrees with trait of introversion found in marathon runners of other competitive level.

**Patil (1991)** studied the selected psychological variables of female hockey players of India with the purpose to select a profile of National hockey players, to compare the status of National and International and finally to form the individual profiles for International players who have represented the country in the recent International tournaments. The variables selected for the study were incentive motivation (consisting of seven different systems), achievement motivation, state and trait anxiety, sport competition anxiety and extraversion introversion and neurotism. For the collection of data, Albera Incentive Motivation Inventory, the sports Achievement Motivation Test, State and Trait Anxiety Inventory, Sports Competition Anxiety Test and Eysenck Personality Inventory were administered during 23rd Senior National Hockey Championship. Mean and SD on all the variables for both the groups were calculated and 't' test was used to find the significant difference in the mean scores. The group and individual profiles were sketched on the model developed by Watson et al. On the basis of results, following conclusions were drawn.

1. National and international female hockey players of India had a moderate motivational profile.
2. The level of achievement motivation was just moderate.
3. Both were beset with high trait and state anxiety.
4. Low competition anxiety was perhaps a great asset with both of them.
5. International players were found to be stable, introverts whereas National players had leaning towards ambiversion and neurotism.

**STUDIES RELATED TO ACHIEVEMENT MOTIVATION**

*Wall (1965)* conducted a study on motivation in improving low physical fitness index scores. 15 Springfield College male fresh men with PFI below 85 were interviewed with a motivation inventory developed by the investigator through a pilot study using 15 other students drawn at random from the student body. Using the interview plus observation, nine students were classed as motivated and six were non-motivated. A 5 week developmental exercise program was given to all subjects an they were rested on the PFI. Analysis of covariance gave an F-ratio for adjusted final means, which failed to approximate significance. The motivated group did not improve its mean PFI significantly more than the non-motivated group.

*Wilkinson (1966)* conducted a study on effect of motivational conditions upon the performance of boys of different age levels. Eight boys were randomly selected from each of four age levels (7-8, 10-11, 13-14, 16-17 years). The subjects were tested for muscular endurance of the right arm with ergograph. The results were used to equate 3 treatment groups and a
control group. The test was repeated 3 weeks later. The ‘praise’ groups were given verbal encouragement and the ‘reproof’ groups were subject to verbal discouragement during the latter part of the test. The ‘aspiration’ groups set hoped for goals after being total their initial scores. The control groups had the initial instructions repeated. Analysis of a Covariance showed that verbal encouragement, verbal discouragement, and level of aspiration were all highly effective (0.1) motivators for 7-8 and 10-11 years olds. No motivational variable was significantly effective with the other 2 groups. No significant difference was found between the variables, so they seemed equally effective motivators.

Gorsuch (1969) showed that achievement motive is an important component in the psychological makeup of the group of 3 non-athletes, 30 team sport athletes and 30 individual and administered to them McClelland’s The matic Apperception Test. Data resulting from McClelland’s 4-picture test and a modified 6-pictures test was included. There was no significant difference among the need for achievement response scores of the three groups.

Singh (1970) conducted a study on the effects of two motivational techniques on the performance of the girls on selected items from the AAHPER physical fitness test. He found that there was no superiority of medal or verbal motivation on the composite score. Verbal motivation did seem to have a
positive effect over verbal command on selected test: terms when used with seventh grade girls.

The data on achievement motivation was collected by administering the sports achievement motivation test by Kamlesh to the Judokas one day before the competition. The data on pre-competition anxiety was collected by administering Sports Competition Anxiety Test (adult form) one hour before the competition.

Pearson’s product moment method of correlation was used to find out the relationship between achievement motivation and pre-competition anxiety and the percentile scale was used to determine the high and low pre-competition anxiety groups.

Further ‘t’ test was used to find out the difference in the level of achievement motivation of high and low pre-competition anxiety groups of Inter-varsity level Judokas. He concluded that:
1. There is significant relationship between achievement motivation and pre-competition anxiety of inter-varsity level male Judokas.
2. There is no significant relationship between achievement motivation and pre-competition anxiety of inter-varsity level female Judokas.
3. There is no significant difference in the level of achievement motivation of high pre-competition anxiety group and pre-competition anxiety group of inter varsity level male Judokas.
4. There is no significant difference in the level of achievement motivation of high pre-competition anxiety group and pre-
competition anxiety group of inter varsity level female Judokas.

*Weinberg (1973)* compared the resultant achievement motivation of athletes and non-athletes. The study included male athletes and non-athletes from three small colleges and two large colleges. The instrument used to assess resultant achievement motivation (N.Ach.) was the male form of Mehrabian Achievement Scale (MAS). The MAS was administered to all the subjects under relaxed conditions. Individuals were classified as athletes if they earned a college varsity award or as non-athletes if they had failed to earn an athletic award in high school as well as college. Based on this criteria 857 athletes and 673 non-athlete were included in this study. The athletic sample consisted of individuals representing 13 different sports. The resultant N. Arch. Levels of athletes and non-athletes were analyzed by a two factor fired effect analysis of variance. The results showed that: (1976) (1) Athletes demonstrated a high N. Ach. Than non-athletes, (2) Individual sport athletes had higher N. Ach. Level than team sports athletes, (3) The large college athletes and small college athletes demonstrated similar resultant similar resultant N. Ach. levels.

*Mesug (1978)* conducted a study to determine whether a relationship existed between an athlete’s level of achievement motivation and gymnastics performance. A secondary purpose was to determine if the level of achievement motivation differed between male and female gymnasts. The McClelland and
Thematic Apperception Test (MTAT) were administered to measure the levels of achievement motivation among male and female members of the intercollegiate gymnastics team. Subjects gymnastics meet score were taken as the major proficiency in gymnastics. Using Pearson’s ‘v’ it was found that no significant relationship existed between achievement motivation and gymnastics meet performance among men and women. It was also found that a significant difference existed between scores attained by men and women on the MTAT.

Fox (1978) administered Achievement Motivation Scale to 176 male and female Canadian Swimmers, constructed by him, which measured level of motivation to approach success or avoid failure in athletic conditions. The results of the study failed to demonstrate any practical relationship between levels of achievement motivation and swimming performance. At best, in the case of the females alone. The scale could predict swimming performance.

Weinberg (1978) studied the effect of resultant achievement motivation on the efficiency of motor performance and also to find out that under achievement oriented conditions persons with high achievement need perform better than person with low achievement need. Based on scores from Mehrabian Achievement Scale 20 male college students were classified as low in resultant achievements and 20 male college students were classified as high in resultant achievement. Twenty participants within each motive group were randomly assigned wither
through relax or achievement oriented conditions. 27 traits each of 10 records duration were administer on rotor pursuit task. Each trail was followed by 1 second interval. The results were as follows:

1. During first session, high resultant achievement motivation participants performed significantly better than low resultant achievement motivation under achievement oriented conditions with the pattern of results being reversed for relaxed conditions.

2. Following the 10 minutes rest period no performance difference were found among the motive groups.

3. The asymptotic value for high resultant achievement motivation group was significantly better than that of low achievement group under achievement oriented conditions.

4. The low achievement groups demonstrated significantly are reminiscence than high achievement group under achievement oriented conditions.

**Dockstader (1979)** conducted an investigation to explore the relationship between need achievement and locus of control with regard to realistic goal setting, atypical and typical shift strategy, varying conditions of success and failure. Subjects manifesting different levels of need achievement (higher and low) and control scale (Rotter 1966) and Mehrabin tendency to achieve scale (1967%). The study involved a series of 2x2x10 factorial design defined by level of achievement and control ideology over a series of ten trails. The sample consisted of 149
male high school students between the age of 14 and 17 years, attending a week long summer cross country training camp. The results were mixed and support for the underlying hypotheses that locus of control and achievement motivation were two independent measures that interact two enhance prediction of achievement behavior could not be unequivocally maintained. The discussion of the results included some speculation about possible casual relationship among the measures.

Brown (1982) conducted a study the inter relationship androgyny, self esteem and achievement motivation of female athletes. Subjects were 75 female selected from English classes. On the basis of scores on two personality inventories, the Mehrabian test for achievement tendency for females and the short form of PREANDRO scale the 101 subjects were categorized into three achievement groups.

Regression ANOVA and chi-square were used in the analysis of data. The self-esteem was also recorded. Female athletes were more androgynous than the non-athletes. There was no significant relationship between self-esteem and achievement motivation.

Vimal (1985) in her study on track performance of secondary school students in relations to achievement motivation indicated a positive relationship between achievement motivation and performance.

Conducted a study to find relation between achievement motivation and performance in competitive swimming. The
Mehrabian test for achieving tendency and a survey of swimming achievement instrument designed by investigator were given to 44 college swimmers (29 males 15 females) from four universities. The results obtained were as follows:

1. There were significant positive ‘v’ between the scores of the achievement motivation questionnaire and the swimming success survey.

2. College simmers achieved significant higher score on the Mehrabian measures of achieving tendency than the norms for college students in general.

3. Female swimmers obtained significantly higher level of achieving tendencies than the level of the male swimmers.

**Bujurke (1989)** administered sports achievement motivation (Kamlesh, 1978) questionnaire and the attribution questionnaire to fifth male athlete who participated in the inter-university athletic meet. Analysis of data revealed significant relationship of achievement motivation to performance of the athletes in 100 mts. And 800 mts. whereas 5000 mts. such throw and long jump performance were not found to be statistically significant.

**Sangwar (1989)** administered Achievement Motivation Test (Bhargava’s, 1984) to 603 sprinters. The results revealed that high proficiency sprinters scored significantly higher on achievement motivation as compared to low proficiency and middle proficiency sprinters.
Nair (1992) studied the variation in achievement motivation based on reward and level of performance of the sports persons and tested 120 subjects who participated in various games and sports of the Kerala state and were scholarship holders, non-scholarship holders, position holders and non-position holders.

Swain ad Jones (1992) conducted a study on relationship between sport achievement orientation and cognitive anxiety, somatic anxiety and self-confidence in a sample of male (n=60) track and field athletes. Subjects responded to the Competitive State Anxiety Inventory-2 (CSAI-2) on five occasions during the pre-competition period and also completed the Sports Orientation Questionnaire (SOQ). In the case of cognitive anxiety, the high competitive group although reporting higher levels of self-confidence throughout the experimental period, reported reduced self-confidence on the day of competition. The low competitive group examined in self-confidence.

By administering the Sports Achievement Motivation Questionnaire developed by Kamlesh the data on achievement motivation was collected. Analysis of date revealed significant relationship of achievement motivation among position holders and non-position holders. However, the relationship was not found significant at 0.05 level among scholarship holders and non-scholarship holders.

Basumatry (1992) tried to find out relationship between achievement motivation and pre-competition anxiety among
inter-varsity level Judokas. A secondary purpose was to compare high and low pre-competition anxiety groups on achievement motivation. 50 male and 30 female Judokas who participated in the All Indian Intervarsity Judo Championship, 1992 held at Delhi were randomly selected for this study. The Judokas were going through their under graduates and post-graduate courses and were from thirty different universities of India. Their age ranged between 17 years to 24 years.

*Kjormo & Halvari (2002)* studied on model tested among 136 Norwegian Olympic-level athletes yielded two paths related to performance. The first path indicated that self-confidence, modeled as an antecedent of competitive anxiety, is negatively correlated with anxiety. Competitive anxiety in turn is negatively correlated with positively correlated with group goal-clarity, which in turn is positively correlated with performance. Competitive anxiety mediates the relation between self-confidence and performance, whereas group goal-clarity mediates the relation between group cohesion and performance. Results from multiple regression analysis supported the model in the total sample and among individual sport athletes organized in training groups n (=100). Among team sports athletes (n = 36), personality and group measures are more strongly intercorrelated than among individual sports athletes, and the relation with performance is more complex for the former group. The interaction of self-confidence and competitive anxiety is related to performance among team sports athletes.
STUDIED RELATED TO PERSONALITY

La Place (1954) employed Minnesota Multiphase Personality Inventory to measure the degree of existence of various personality traits of 49 major league players as compared to “non-success” group of 64 minor league players. He found that the dominant trait in the personality pattern of major league players was strong drive which expresses itself as ambitiousness, aggressiveness and vigorousness; ability to exercise self discipline and initiate.

Bendig (1954), Komorita (1963), Peabody (1962), These questions, the reliability issue has been the most widely researched, but conflicting results have been produced. For example, Jahoda, Deutch, and Cook (1951) and Ferguson (1941) report that reliability increases as the number of response categories increases. and Matell and Jacoby (1971) have found reliability to be generally independent of the number of response categories. Komorita and Graham (1965) found an increase in reliability with an increase in number of categories only for scales with relatively homogeneous items. Masters (1974) reported a relation only for a scale that had an initial low total score variation. It is difficult to resolve these differences because (1) different test instruments were used in the various studies and (2) different methodologies were employed.

Lakie (1962) administered Omnibus Personality Inventory (OPI) to male athletes (N=230) representing a state university, a private university, and two state colleges. These athletes were
members of intercollegiate teams in basketball, football, tennis, golf, track and wrestling. When the athletes from the four scholars were grouped according to sport, no differences in personality were noted. Significant differences in sports were observe, however when analysis were performed within schools, it was also found that certain sport groups not only differ from other sport groups at their respective school, but they were also found differ from the same sport groups at other institutions.

Radha studied the selected psychological variables namely anxiety, aggression motivation and personality traits in relation to basketball performance. Among the psychological factors, aggression is highly correlated with the playing ability ($r=0.94$). Further it is noted that the co-efficient of multiple ($r=0.98$) revealed that psychological factors put together play an important role in the basketball performance.

**Comrey, (1970)** Traditionally, structured personality inventories have employed a two-choice item format(e.g., true-false, agree-disagree, a forced choice between two alternatives). The reasons are primarily practical: (1) ease of administration (i.e., simplicity of instruction for subjects); (2) reduced administration time; (3) ease of scoring; and (4) avoidance of scaling issues. The recent Comrey Personality Scales are one of the few exceptions to this trend, employing a Likert-type seven-choice item format. The present study investigates the value of the multicategory approach, based on the reasoning that such items will permit the subject to make finer distinctions and,
therefore, will provide more precise and meaningful responses. This should result in (1) increased item and scale reliability, (2) more favorable subject reactions to the inventory, and (3) a clearer and more accurate indication of the test structure.

**Williams et al. (1970)** conducted study in which thirty female fencers who participated in the 1968 national championship were tested by on 16 PF and EPPS. The successful and unsuccessful fences were found to differ on dominance but this was perhaps due to chance since the groups were similar on the remaining 39 variables. It was found, however that these fences differed from established norms on a number of 16PF and EPPS variables. These fencers tended to be reserved, self-sufficient, autonomous, assertive and aggressive and they scored below the norms on nurturance and affiliation.

**Kenneth (1985)** conducted a study on prediction of performance from selected personality traits, and state anxiety levels of competitive male and female gymnasts. Subjects for the study were 21 male and 36 female gymnasts, aged 9 to 23 who competed in either sectional or national qualifying meets in the United State and Canada. Path analysis, a multiple regression technique was used in the treatment of data. Based upon the findings and within the limitations of this study, the following conclusions were drawn. (1) The personality anxiety model was supported by explaining over 51 percent of the variability in the criterion, (2) pre-competitive anxiety was not a statistically significant prediction of gymnastics performances, (3) the
hypothesis related to the personality performance relationship were not supported since the model explained only 38.1 percent of the total variability in gymnastics performance.

*(Lewis et al., 2002)* In its preliminary version, the Eysenck personality theory involved neuroticism-stability and extraversion-introversion dimensions; subsequently, the psychoticism dimension was added to the theory *(Lewis et al., 2002).* As the extraversion dimension represents sociality and impulsivity, individuals in this dimension were defined as enjoying social interactions, energetic, and preferring social situations to loneliness. It was proposed that the neuroticism dimension indicated emotional instability and reactivity, and that individuals who score high on this dimension tend to be anxious, depressive, overly emotional, shy, and have low self-esteem. The psychoticism dimension highlights more bizarre personality characteristics, such as being distant, cold, insensitive, absurd, and unable to empathize.

*(Saucier & Goldberg, 2001)* Since the development of Eysenck personality theory, various measures were developed in order to assess the various personality traits. One of the consequences of this process has been a progressive increase in their length. The early Maudsley Medical Questionnaire (MMQ) contains 40 items (Eysenck, 1952), the Maudsley Personality Inventory (MPI) contains 48 items (Eysenck, 1959), the Eysenck Personality Inventory (EPI) contains 57 items (Eysenck & Eysenck, 1964a), the Eysenck Personality Questionnaire (EPQ)
contains 90 items (Eysenck & Eysenck, 1975) and the Revised Eysenck Personality Questionnaire (EPQR) contains 100 items (Eysenck, Eysenck, & Barrett, 1985). This increase in length can be accounted for by the introduction of an additional dimension of personality within Eysenck's scheme (Eysenck & Eysenck, 1976) and by the psychometric principle that greater length enhances reliability (Lord & Novick, 1968). Neuroticism and extraversion, especially, appear in most trait models of personality (Matthews et al., 2003). An important part of the validation of any trait-based model of personality and its associated measurement instrument is to investigate its applicability to other cultures. This tends to be done in two ways: emic and etic. Emic research typically uses the lexicon of the local culture to investigate the structure and content of the personality-related terms (Saucier & Goldberg, 2001). Etic research applies personality measures devised in one culture to new cultures and asks whether they show the same psychometric structure and reliability and validity (McCrae, 2001). A large amount of etic research has been completed on the Eysenck Personality Questionnaire. The research has been done mostly on the original 90-item EPQ. Generally, its psychometric structure has been well-reproduced in at least 34 countries (Barrett & Eysenck, 1984; Barrett, Petrides, Eysenck, & Eysenck, 1998).

Anton Aluja a, F. García c (2002) This study was carried out in order to study the psychometric properties of the Spanish
version of the EPQ-RS. The factor structure is investigated through exploratory factor analysis (EFA) and structure equation modelling (SEM). Both orthogonal and oblique rotation procedures have been conducted. EFA results show that the EPQ-RS has a very robust four-factor structure. Also, these factors are found to be fairly congruent with the normative Spanish version (Eysenck, H. J., & Eysenck S. B. J. 1997). In spite of this, SEM shows a misfit of the four-factor simple structure model. However, modification indices show nine-item pairs with high correlations between their error terms. A content analysis reveals that these item pairs are quite redundant. After deleting seven of them, a respecified model of 41 items was tested yielding an appropriate fit. SEM techniques are suggested as a useful procedure to improve construct validity and dimensionality of the EPQ-RS. # 2003 Elsevier Science Ltd. All rights reserved. Keywords: Eysenck Personality Questionnaire Revised; EPQ-RS; Structural equation modelling; Exploratory factor analysis; Neuroticism; Extraversion; Psychoticism; Construct validity

**Crede M, Bashshur M, Niehorster S (2010)** Reference-group effects (discovered in cross-cultural settings) occur when responses to self-report items are based not on respondent’s absolute level of a construct but rather on their level relative to a salient comparison group. In this article, we examine the impact of reference-group effects on the assessment of self-reported personality and attitudes. Two studies illustrate that a
reference-group effect can be induced by small changes to instruction sets, changes that mirror the instruction sets of commonly used measures of personality. Scales that specified different reference groups showed substantial reductions in criterion-related validities for academic performance, self-reported counterproductive behaviors, and self-reported health outcomes relative to reference-group free versions of those scales.

STUDIES RELATED TO SELF EVALUATION

(Doorthy V. Harris, 1964) Self-evaluation experience, which is accumulated knowledge of one’s gone through past, is the focal point of human psyche. Starting from early childhood an individual goes through various experiences and accumulates the memory, which becomes the basis of his behavior in all future situations. An individual develops an idea or an image about himself in terms of his physique, appearance etc. Through his interaction with other as well as through self evaluation. It is basic to complex of his idea about himself is called his form of an ideal self human nature to project this self evaluation in the form of an ideal self and then to attempt for the realization of this projected self. What an individual thinks himself is therefore of vital significance as he would strive to become in reality what he conceives to be in thought

Cloyton (1968) found several low but significant correlation between attitude towards physical activity and some of the personality factors and significant correlation between
scores of the personality factors and three of the self-concept variables.

From the above mentioned review of literature it is analyzed that Psychological Characteristics i.e. Sports Achievement Motivation, Anxiety, Personality Traits and Self Concept have significant impact on the performance of the Junior Cricket Players. Hence we cannot ignore their variables for achieving better performance.

*Sturkic (1973)* conducted study and determined that there was a relationship between self-concept and physical performance among related college females. For the purpose of this study, self concept was defined as self regarding attitudes consisting of four primary factors: self description, self acceptance, ideal self and discrepancy. These factors were measured by the index of adjustment and perform varied status and athletic events. This factor was measured by the Scott motor ability test which consists of four second dash, the standing broad jump, the basketball throw for a distance, the wall pass and the obstacle race.

The total number of students who completed the listing program was 323 correlation coefficients were computed for the scores derived from the Scott motor ability test and the index of adjustment and values. The results of this study indicated that there was not a significant (0.05 level) linear relationship between physical performance and self concept among the group tested. The result also indicated that there was not a significant
(0.05 level) relationship between physical performance and self description. Physical performance and ideal concept and physical performance and discrepancy score.

**Mason (1979)** administered the “How I see My Self Scale” and “Lindsey Physical Fitness Test” on white, Indiana and Black University Women. Result indicates that all groups were more alike on feelings about themselves than they were different. All bad positive feelings about themselves and were about average on physical fitness but physical fitness variables were not related to self-concept.

**Cone (1980)** studied and found no significant relationship of somatotype percentage boys fat, physical fitness and motor ability with self-concept as measured by Tennessee self-concept scale.

**Mary L. young, 1981** Self evaluation may be defined as the sum total of the view which an individual has of himself or herself it is a unique set of perception, ideas and attitude one has of oneself the important dimensions of the self evaluation are body self, social self, cognitive self and self esteem. It the self evaluation is viewed as self theory, the self can be both subjective and objective, emotions and cognitions become important as growth is considered. However whether self evaluation is viewed as a basic, component of personality or as self theory its importance is unquestioned as it affects the emotional, physical, social and cognitive life of the individual.
The self evaluation is a highly complex component of behavior composed of both cognitive and effective dimension and has at least four orientations. The real self, the perceived self and the ideas to self and the self as perceived by other. The flexibility of these orientations of the self offers concerning exploring situational specific behavior with in the sports frame work. Further attitude, real or perceived can be obtained from a variety of perspective from both athletes and other.

Young (1981) administered the AAHPER youth fitness test, Tennessee self concept scale and questionnaire concerning academic achievement, estimation and perception to grade seventh and nine grade boys and girls in his study on relationship among achievement, physical fitness and self-concept. Significant correlations were reported between various sub scale scores of Tennessee self-concept scale and dependent variables. A significant (P 0.05) relationship between self-concept and physical fitness was indicated for indicated for seventh grade boys (v=0.41) but not for girls or ninth grade boys.

Zacks (1982) studied the self concept of women who graduated from college in their early 205 and who are now between the ages of 55 women, 26 of whom were graduates Harper College, Ohio and 27 from Mother College. An investigation by mans of questionnaires and in-depth interviews of them regarded midlife as a time of revaluation and change which, for their parts generated turmoil and conflict, self
concept in its different aspects provided to be a major issue in the participants life during this period.

*Singer (1984)* poster latest that self evaluation is learned by an individual’s inference from his unique experience. The individual’s perceptions, feeling of other toward him strongly influence his self image. In turn self evaluation may prove the most powerful motivation for specific Behavior. The Type of behavior depends upon what one feel is capable of and appropriate to his need. Thus self evaluation and unique behavior pattern of an individual is the relationship between egg & chick.

In the context of physical education and the all round development of men self evaluation acquires a position of considerable importance as it forms the basis of all his behavior. Self evaluation is another most important single attribute and a key to understanding the behavior of an individual. The important role of self evaluation as a determinant of human behavior and its acceptance of a concise measure and critical factor of personality are increasingly realized.

A physical educator plays an important role in enhancing player’s self evaluation. There is a highly positive relationship between self evaluation and physical achievement. As the individual learns to move more skillful he or she also tends to develop a stronger self-evaluation. In general self-evaluation means those perceptions, belief, attitudes and feelings. Which the individual views as part of characteristics of himself. It is his
own evaluation of his health and physique, intersexual, abilities, mental health, habits and behavior, emotional tendencies and socio-economic status etc.

The psychological aspect of sports is gaining attention among sports administrator, and coaches who can communicate that is conductive to motivate performance and develop favorable self evaluation self evaluation is the most improved single attribute and key to understanding the behavior of an individual. The importance of role of self evaluation as a determinant of human behavior and its acceptance as a concise measure and critical factor of personality is increasingly realized. Adjustment, academic achievement and general behavior are among the development features of an individual. It would seen to be of interest to coaches and physical educators to determine whether individuals who participate in specific aspects of sports have self evaluation, which distinguish them from others.

**Krishana and Nageswaran (1999)** studied to analyzed the similarities and differences in achievement motivation, competitive trait and state anxieties, sports womenship and self concept among Inter University Kabaddi Women Players. For the purpose of the study 180 Kabaddi players from various universities who participated in the All India Inter University Kabaddi Tournament for women held at Manomawiam Sundaranar Universit. The data collected has analyzed using ‘t’ test. Study concluded that there was no significant difference between low and achievers in sports achievement motivation,
sports competition anxiety and competition state anxiety (somatic). There was significant difference between low and high achievers in competition state anxiety (self confidence and cognitive).

Aktop A (2010) conducted the study and analyzes the physical fitness, self-concept, attitudes toward physical education, and academic achievement of Turkish elementary school children by socioeconomic status. 198 (101 boys, 97 girls) students from Grades 7 and 8 completed the Children’s Attitude Inventory towards Physical Education, the Piers Harris Children’s Self-concept scale, and Eurofit Physical Fitness Test Battery. Significant differences were found between the groups of Low and High socioeconomic status (SES) in terms of physical fitness and academic achievement. While the Low SES group had higher mean scores on physical fitness, mean differences in height, self-concept, and children’s attitudes toward physical education by socioeconomic status were not statistically significant. Particular attention should be paid to physical fitness in children of high socioeconomic status and the academic achievement of children with low socioeconomic status.