A great deal of attention has been paid to the relationship of psychological factors especially personality variables with sports performance, and delineating personality traits of athletes, differentiating among individuals by sport, level of success etc. In fact, a major dimension of the study of psychological aspects of sports is concerned with inquiries into the personality of sportsmen. There are numerous theories about the personality of athletes. But only a limited amount of research has been undertaken to support these theories. However there are certain studies related to the differences in the personality traits of athletes. In an attempt to study personality traits, Cooper (1969), found differences between athletes and non-athletes and described the athlete as: (i) more outgoing and socially confident; (ii) more socially aggressive, dominant, and leading; (iii) having higher social adjustment, prestige, social status and self-confidence; (iv) stronger competitors; (v) less compulsive; (vi) less impulsive; (vii) having greater tolerance to pain; (viii) having lower feminine and higher masculine interests. Speraling (1942), who used six assessment instruments to study college athletes and non-athletes, found results similar to those of Cooper (1969).

Using the Minnesota Multiphasic Personality Inventory (MMPI), Booth (1958) found that the non-athletes scored higher than the athletes on anxiety and depression and scored lower on other areas of MMPI.
Malumphy (1968) used the Cattell’s 16PF to compare the personality traits of 120 women: (77 athletes and 43 non-athletes) and found that athletes who played individual sports were more extroverted than those who played team sports.

Niblock (1960) found female athletes to be more energetic enthusiastic efficient as possessing more leadership potential and were optimistic and more extroverts.

Chadwick (1972) found that female athletes were significantly more tough minded, practical, group dependent, suffered and less intelligent than non-athletic females. On the other hand Ogilvie (1971) found male competitors to be basically emotionally healthy persons who tend towards extraversion. They were tough minded, self-assertive and self-confident with a high capacity to ensure the stress involved in high level competition.

William and her associates (1970) found that the male and female competitive race car drivers tend to be reserved, self-sufficient and have scored below average on affiliation and nurturance.

Gruber and Pekins (1978) found women who competed in inter-collegiate competition to be significantly higher on the factors CF (sober) than non-participant group.

Williams (1978) reported that the successful female competitor generally tends to be more assertive, dominant, self-sufficient, independent, aggressive, reserved, achievement oriented and have an average low emotionality than the unsuccessfully female competitor.
Sperling (1942) Scluscher (1964) and Cooper (1969) have tried to find personality differences between sportsman and non-sportsman. Majority of the investigations have indicated that Sportsmen differ from Non-sportsmen on a number of personality traits.

Newmann (1968) suggested that participation in high level athletic competition provides and adds a dimension to one’s personality. He found that athletes were more sociable, more aggressive in their approach to problems, more self confident, more critical of themselves and more extroverted than Non-athletes. Barger and Littlefield (1969) compared the personality of football players and Non-athletes. They found insignificant differences between outstanding football players, non-outstanding, athletes and non-athletes. Schendel (1965) found that the 9th grade athletes differed from the non-athletes on 8 of the CPI scales. Differences existed on 4 scores for the 12th grade sample and nine differences were observed for the colleague subjects. Hence, he supported the view that athletes and non-athletes differ in personality structure.

In a study done by Malumphy (1968) the sports participants were found to be more conscientious and tough – minded but less imaginative and less venture some than the non-sport participants.

Berhran and Kroll (1967) and Dardin (1972) have indicated that determination drive, nerve for aggressive instinct are the qualities that are expected to be found extra ordinarily in champion athletes. They have also
shown that athletes of one sport differ from those of other sport and man athletes in their personality characteristics.

Yeates (1977) showed that a group of Inter collegiate Basket Ball players were more tough minded and group dependent than non-athletes.

Mohan et al. (1979) found that the players were more extroverted than non-players and low on Neuroticism implying more stability of emotionality.

Golas (1971) found athletes to be significantly more extroverted than the non-athletes and the sport groups did not differ on E dimension and none of the groups differed on the Neuroticism stability dimension too.

Dureha (1987) concluded that the sportsmen and non-sportsmen differ in their personality characteristics in some factors like “emotional stability and realism about life, cheerfulness and frankness, tender mindedness and practicability and great control over emotions and greater regards for self-respect and social reputation.

Many other investigators have also reported that athletes could be differentiated from non-athletes with respect to their self-control (Bird, 1970), self-sufficient (Ogilive, 1968), extraversion (Peterson et al., 1967; Bushan and Aggrawal, 1978), Dominance (Ammodit et al., 1982), locus of control (Mckelvie and Hushand, 1980), death anxiety (Kumar et al., 1985), self esteem (Kumar et al., 1985) and mental health (Kumar et al., 1985).

Thakur and Thakur (1980) studied personality characteristics of athlete and non-athlete Indian college males using projective method of
personality assessment and found that the characteristics associated with the athlete were happiness, cordial and affectionate, anxiety, achievement, dominance and superior organization capacity whereas the characteristics associated with the non-athlete were guilt acquisition, passivity, rejection, superior, imagination.

Singh and Singh (1986) found that the neuroticism tendency was significantly higher in the non-sports groups of students whereas no significant difference was observed in extraversion scores between the two groups. Little (1969) found that the athletic group was highly extroverted and sociable while the non-athletic group was characterized by introversion and lack of sociability.

According to Pierce (1969) athletes display fewer neurotic symptoms than non-athlete and concluded that athletes have constantly been found to differ from non-athletes on a number of personality traits.

Fletcher (1971) reviewed research on the personality characteristics of the participants and non-participants in sports. The findings were re-examined in a study with 950 males who were enrolled in a physical education course. A negative relationship was found between activity level and difference order, abasement and endurance.

Koanig (1969) found that personality differences existed between athletes and non-athletes. Similarly, Mc-Clanney (1969) got significant difference between two groups of college men namely high fitness group and low fitness group in different personality factors. Kroll and Grandshaw
(1968) investigated personality differences between sportsman and non-sportsman.

Effects of sex and group behaviour on personality of athlete have been revealed in a number of studies (e.g., Peterson et al., 1967; Rushall, 1967; Meredith and Harris, 1969; Foster, 1972). Rushall (1967) while comparing personality characteristics of male swimmers with female swimmers found that females were socially bold, noisy and unrestrained in their behaviour, whereas males appeared to be self centred and individualistic. It was also found that novice female swimmers were, in general, more introverted than a control group of female athletes, not primarily engaged in swimming (Meredith and Harris, 1969).

Considerable data have been presented regarding personality traits of female athletes. The personality structure of women athletes has been studied in the various sports such as fencing (Williams et al., 1970), basketball and golf (Johnson, 1972), lacrosse (Mushier, 1970), swimming (Ibrahim, 1967; Kane; 1966; Ogilvie, 1968), track and field (Kane, 1968) and field hockey (Acampore, 1971; Johnson, 1972). These researches compared personality traits across sports groups as well as compared team with individual sport participants (Hein, 1954; Niblock, 1960; Malumphy, 1968); studied outstanding athletes (Neal, 1963) and compared the women athletes with non athletes (Foster, 1969; Kane, 1966). The results of these studies have generally shown that a few similar traits are being possessed by women athletes in various sports. Women in athletic competitions appear to be more

Mushier (1972) found that female athletes are significantly more reserved, intelligent, assertive, happy go-lucky and tough-minded than female non-athletes.

Gruber and Perkins (1978) found women who competed in inter-collegiate competition to be significantly higher on the factors F (sober), and I (tough-minded) when compared to the non-participant group. Williams (1978) reported that certain personality traits are frequently associated with the elite female athletes, and specifically, the successful female competitor generally tends to be more assertive, dominant, self-sufficient, independent, aggressive reserved achievement-oriented and have average emotionally than the unsuccessful female competitors. Evans and Quartermen (1983) found that the female basketball players (successful and unsuccessful) scored significantly lower on factor I than the non-athletic female group towards the tough-minded side of the scale. On factor L, the unsuccessful basketball players scored significantly lower than the successful players, indicating that unsuccessful players are more trusting group.
By considering team sports separately by categorizing athletes into one of three classes i.e., offensive, centre and defensive players, Kirkcaldy (1982) found that males in attacking positions (offensive players) were substantially higher in psychoticism (touch-minded, dominant, aggressive), and extraversion as compared to mid-field (centre), players, there being no difference between offensive and defensive participants. The attacking player was significantly more neurotic (emotionally unstable) than either centre or defensive player. The forward, offensive players were less easily differentiated from defensive players, the latter group exhibiting a more emotionally stable pattern than the offensive athlete. In females, the trend was somewhat reversed i.e., attacking players were less extraverted and more neurotic than players from other positions. No significant differences were found in the personality profiles of female athletes between different positions. Singh (1986) also found no sex difference in extraversion and neuroticism traits of personality in the athletic as well as hockey group.

Uppal and Gill (1986) found that highly skilled male badminton players were more suspicious, as compared to poorly skilled male badminton players who were less intelligent and tough-minded. On the other hand, highly skilled female badminton players were tough-minded, suspicious and hard to fool as compared with poorly skilled female badminton players.

There are several areas common to psychology and sports psychology. Both the discipline converses to closely upon a common set of
problems that it is some-times neither possible nor desirable to isolate one from another.

As per Spielberger (1966), anxiety has two forms; trait anxiety and state anxiety. Trait anxiety is a tendency to respond emotionally to a wide range of non-treating stimuli. It refers to a predisposition to respond with heightened arousal to certain class of stimuli. State anxiety, on the other hand, is the actual feeling of tension and nervousness. According to Spielberger (1972), two distinct concepts of anxiety should be distinguished viz., trait anxiety and state anxiety. The former concept refers to a general disposition of individual to respond psychological stresses with more or less intense anxiety reactions. The latter reactions, which are evoked at particular moments in response to specific situations, are referred to as state anxiety. Whether trait anxiety is a relatively stable personality characteristic, state anxiety is considered to be a transitory emotion state.

Johnson and Hutton (1955) investigated changes in what they termed “neurotic signs” and suggested that wrestlers displayed increased “neurotic signs” right before the match and then returned to normal the day after the contest. Morgan (1970) reported that the anxiety levels of varsity wrestlers were lower prior to a match than at a pre-season measure. A subsequent study (Morgan and Hammer, 1974) however, indicated that the anxiety of wrestlers increased one hour before a match.

Oxendine (1970) suggested that football blocking and tackling and weightlifting require extremely high A-states, that basketball, boxing and
soccer require moderate A-states, and that archery, bowling and golf require low A-states for optimal performance. Participants in dangerous physical activity usually experience high levels of anxiousness and arousal. Recent research has shown that this phenomenon occurs, in beginning SCUBA students (Griffiths, Steel and Vaccaro, 1978). Oxendine (1968) noted that learning and performance are impaired when arousal levels are out of control. This syndrome has been reported as occurring among sky divers (Fenz and Epstein, 1969), Egstrom and Backrach (1971) have noted that overwhelming levels of anxiety among divers may lead to panic thus causing an increase in underwater accidents.

Soustroem and Bernardo (1982) studied intra-individual pre-game state anxiety with basketball performance and found significant A-state effects for both composite game performance (PERF) and total point (TP). Although A-trait predicted absolute A-state levels extremely well, it failed to achieve a significant relationship with performance. Moreover, high A-state scores were found to be associated with poorest performance in all the three trait groups.

Martens and Gill (1976) reported that subjects’ A-state levels on the Spielberger STAI increased as a number of games won on a motor maze task decreased. Both high and low A-trait subjects increased in A-state after failure, but remained relatively low in A-state after success. Scanalan (1977) contended that successful outcomes reduce threat of potential negative evaluation, whereas failure outcomes maximize threat. His investigation of
attribution of high Vs low, A-trait subjects relative to success-failure on a competitive motor maze task clearly indicated that success-failure was an important factor affecting the perception of threat, as measured by A-state levels. Hall (1980) reported that external were significantly higher on A-trait than intervals, and there was a significant relationship for A-trait and pre-and post-performance A-state, as well as for relationship of post-performance A-state to number of internal attributions.

Radha conducted a study on psychological factors and soccer performance of South Indian University players. Modern sports training give greater emphasis on preparing the athletes psychologically than physically though both play significant role. Several investigators have revealed that apart from somatic and physiological variables, higher-level performance is dependent upon an athlete’s psychological make up. In this study, psychological factors namely competition anxiety and aggressiveness was studied in related to soccer playing ability. Accordingly 100 South Indian Inter University Soccer players from the State of Tamil Nadu, Karnataka, Andhra Pradesh and Kerala were selected. Sports Competition (AQ) developed by Rainer Martens and Smith to measure the anxiety and aggressiveness were adopted experts subjectively rated the soccer playing ability on the subjects (0 to 10 point scale).
PHYSICAL FITNESS

Angyan, L., Teczely, T., Zalay, Z., Karsai, I. (2003) investigated the importance of the athletes motor capabilities in success in sport. More precisely, the association of anthropometrical and physiological attributes, as well as motor abilities of elite basketball players with play elements of basketball. The subjects were seven elite basketball players. At the end of the competitive season, the anthropometrical and physiological features were measured to establish the physical fitness of the subjects. Both general and sport specific motor tests were done. The coach estimated the performance of each player during the games of the competitive season. The coach’s data sheet incorporated 14 parameters of the game. Regression analyses indicated significant correlation between certain variables of the laboratory tests and the data of the coach’s estimation statistics. Knowing these relationships provides us with valuable predictive information about players capabilities in sport.

Indu Mazumdor and Edwin (2000) conducted a study in the modern game of basketball player is required to continuously be in movement over a certain period of time (40 minutes) varying his pace from fast to slow or medium and vice versa, many a time hopping, jumping and changing directions while in movement this puts a great deal of demand in terms of physical effort on the part of each player. In the area of international competitions one can hardly differentiate the top notch contenders from one another in terms of their levels of fitness. However, the deciding factor
sometimes remains with fitness. The worlds top most sporting nations are very much conscious of these facts and concentrates on the development of the basic physically fitness components and the related components. Cardio vascular endurance is one of the major physical fitness components required for basket ball as this game is fast and exciting and it involves continuous movements and actions with or without the ball, since basket ball requires almost instant movement over a longer period of time one most try to attain higher levels of muscular and cardio vascular endurance. Besides physical fitness, technical training also plays an important part in the total training process of the sportsmen. It has been fully recognized by all experts and sports scientists that performance in basket ball teams not only directly depends on the mastery of skills but also on the optimum development of physical and psychological factors of players.

Patel, Gohel and Ali (2011). Relationship of physical variables, physiological variables and body compositions to the sprint-starts. The purpose of the study was to determine the relationship of physical variables i.e., standing broad jump, flexibility) physiological variables (anaerobic capacity, resting pulse rate, vital capacity) and body compositions (lean body mass, total body weight, height, biceps, triceps, sub scapula and supra iliac skin fold) to the sprint starts. Twenty male students of under graduate and post graduate classes of L.N.I.P.E., Gwalior, were selected as subjects. For measuring these physical, physiological variables and body compositions following tests were employed: sprint starts were measured
upto 50 m from starting line and the performance was recorded in seconds; explosive strength was measured by the standing broad jump, and the performance was recorded in centimeters; flexibility was measured with the help of seat and reach test and the performance were recorded in inches; anaerobic capacity was measured by the help of Margarita Calamine power test in the unit of kg. m/sec; resting pulse rate was measured by the help of stop watch and recorded in number of beats per minute; vital capacity was measured by the help of wet spirometer in the unit of liters; lean body mass was calculated by subtracting the fat weight from the total body weight; total body weight was measured by the help of weighing machine in the unit of kilograms; the height was measured with the help of height steadiometer in centimeters; body fat was estimated by the help of skin fold caliper (biceps, triceps, sub scapula and supra iliac) and the fat weight was measured by calculating percentage of the body fat with the help of skin fold caliper, taken namely biceps, triceps, sub scapula and supra iliac in millimeters and then weight of the fat was calculated on the basis of the total body weight of the individuals subjects. Product movement correlation was used to compute correlation between sprint starts (50 m run) and each of the selected independent variables i.e., explosive strength, flexibility, anaerobic capacity, resting pulse rate, vital capacity, lean body mass, body weight, and height. For testing the hypothesis, the level of significant was set at 0.05 level. The finding of the study indicated that standing broad jump (explosive leg strength) had significant relation to the sprint starts and co-
efficient of correlation was 0.611. Further, the co-efficient of correlation between sprint starts and flexibility, anaerobic capacity, resting pulse rate, vital capacity, lean body mass, body weight and height were 0.260, 0.413, 0.275, 0.229, 0.308, 0.181 and 0.260 respectively, these values indicated insignificant relationship.

Ibrahim and Gwari (2011). A study of achievement motivation of low and high level volleyball players. The aim of the study was to examine the relationship of sports achievement motivation of volleyball players. A group of (N=50) male subjects divided into two groups (N=25 high performers) and (N=25 low performers) were selected for this study from rural games mela held at Mendhar tehsil of Jammu and Kashmir state. Their age range of the subjects was 25 to 30. It was hypothesized that there may be significant differences with regard to achievement motivation among low and high performers. The ‘t’ test was used to analyze data. The achievement motivation scale by Kamlesh (1990) was used to assess the differences among the low and high performers. The level of $p < .05$ was considered significant. Results indicated that significant relations were found between high/low performers. On the basis of the result of the present empirical investigation it is concluded that significant relations were found between sports achievement motivation and low and high performance of volleyball players. These results may be corroborated with the findings of Rathee and Singh (2011) they observed that the differences between the two performance levels i.e., national and international have been found to be
significant. These results provided evidence that high achievement motivation is an important factor that distinguishes high level performers (Butt and Cox, 1992).

Verma, Rana and Singh (2011). To develop physical profile of Kabaddi players: The descriptive study. The purpose of study was to develop the physical profile of Kabaddi players. 100 male Kabaddi players were selected from west zone Inter University championship as the subjects of the study. Their age ranged between 18 to 23 years. Keeping the feasibility in mind speed, agility and explosive power had been selected for this study. Speed and agility were assessed by administering 50 yard dash and the performance was recorded in seconds and shuttle run respectively. To determine for the explosive power, standing board jump was used and the reading was recorded in meters. To develop the physical profile of Kabaddi players, descriptive analysis was applied. The results of study indicates that in case of 50 yard dash, standing broad jump and shuttle run Kabaddi players were having average in scores. In case of standing broad jump kabaddi players scored above average. It was concluded that west zone university kabaddi players were average in speed and shuttle run and in case of standing broad jump were above the average. In this light of the findings, it was concluded that west zone university kabaddi players were having average timing in speed. It was concluded that west zone university kabaddi players scored average in agility. And it was also concluded that west zone university kabaddi players scored above the average in explosive power.
Prasad, Yadav and Sajwan (2008) compared the study on motor fitness components among different match practice groups. Motor fitness is most often used synonymously with the physical fitness by the coaches but it is very important for the physical education students to understand the basic difference between physical fitness and motor fitness. Physical fitness is used to denote only the five basic fitness components (muscular strength, muscular endurance, cardiovascular endurance, freedom from obesity and flexibility), whereas motor fitness is a more comprehensive term which include all the ten fitness components including additional five motor performance components (power, speed, agility, balance and reaction time), which are important mainly for success in sports. To compare the motor fitness components among different match practice group. The research scholar chose 50 male students of L.N.I.P.E., Gwalior and 10 students of each match practice group. The performance of the subject in 50-yard dash, shuttle run, standing broad jump, sit ups, 600 m run/walk and pull-ups were taken as a criterion measure for the study. The study was delimited to the male students of different match practice group of L.N.I.P.E. The one way analysis of variance (ANOVA) was applied to finding out the difference in various motor fitness components at 0.05 level of significance. Motor fitness comparison between different match practice groups i.e., hockey, basketball, football, volleyball and track and field which was not significant as calculated ‘f’ ratio 0.19 was less than tabulated ‘f’ ratio 2.57. With the limitation of the study it may be concluded that their was no
significant difference between the different match practice groups i.e., basketball, hockey, volleyball, football on track and field in relation to their motor fitness when the subjects were involved in similar type of daily routine.

Lalit Mohan (2008) conducted a study on an investigation of selected motor fitness and skill efficiency variables of volleyball players of Himachal Pradesh. The present investigation was conducted to assess the fitness and skill level of volleyball players of Himachal Pradesh. 374 volleyball players aged, 18 to 25 years were selected randomly from different colleges of Himachal Pradesh. To achieve the objectives of the study, AAHPER youth fitness test batter consisting of six test items pull up (arm and shoulder strength), sit up (abdominal strength), standing broad jump (explosive power of legs), shuttle run (speed and agility), 50 yard dash (speed) and 600 yard run/walk (endurance) was used to measure fitness level and Helmen volleyball skill test consisting of three test items face pass (set, pass and control the ball with the finger pads of both hands), fore arm pass (control the ball with the correct fore arm pass) and wall spike (hit the ball with power and accuracy) was used to measure skill efficiency level of volleyball players. The analysis of data shows that winner volleyball players are better in their fitness and skill efficiency components as compare to their loser counterparts.

Wisloff et al. (2004). Conducted the study to determine whether maximal strength correlates with sprint and vertical jump height in elite
male soccer players. Seventeen international male soccer players (mean (SD) age 25.8 (2.9) years, height 177.3 (4.1) cm, weight 76.5 (7.6) kg, and maximal oxygen uptake 65.7 (4.3) ml/kg/min) were tested for maximal strength in half squats and sprinting ability (0.30 m and 10 m shuttle run sprint) and vertical jumping height. Result showed that there was a strong correlation between maximal strength in half squats and sprint performance and jumping height. They concluded that maximal strength in half squats determined the sprint performance and jumping height in high level soccer players and high squat strength did not imply reduced maximal oxygen consumption and also elite soccer players should focus on maximal strength training, with emphasis on maximal mobilization of concentric movements, if they want to improve their sprinting and jumping performance.

Gorostiaga et al. (2004) conducted the study to determine the effects of simultaneous explosive strength and soccer training in young men. They selected 8 experimental (S) and 11 control (C) players, aged 17.2 (0.6) years, for testing before and after an II week training period with respect to the load vertical jumping curve (loads of 0-70 kg (counter movement jump CMJO -70), 5 and 15 m sprint performances, sub maximal running endurance and basal serum concentrations of testosterone, free testosterone and cortisol. The results showed, in the 5 groups, the 11 week training resulted in significant increases in the low force portion of the load vertical jumping curve (5.14% to CMJO-30, P<0.01) and in resting serum total testosterone concentration (7.5%, P<0.05), whereas no changes were
observed in sprint running performance, blood lactate during sub maximal running, resting serum cortisol and resting serum free testosterone concentrations. In the C group, no changes were observed during the experiential period. In the S group, the changes in CMJO correlated (P<0.05-0.01) with the changes in the 5 m (r=0.86) and 15 m (r=0.92) sprints, whereas the changes in CMJ40 correlated negatively with the changes in the testosterone; cortisol ratio (r = 0.84, -0.92, respectively, P<0.05). The data indicates that young trained soccer players with low initial strength levels can increase explosive strength by adding low frequency, low intensity, explosive type strength training.

Arnason et al. (2004) studied on physical fitness, injuries, and team performance in soccer. To investigate the relationship between physical fitness and team success in soccer, and to test for differences in physical fitness between different players positions. Participants were 306 male soccer players from 17 teams in the two highest divisions in Iceland. Just before the start of the 1999 soccer season, the following variables were tested; height and weight, body composition, flexibility, leg extension power, jump height, and peak O₂ uptake. Injuries and player participation in matches and training were recorded through the 4 month competitive season. Team average physical fitness was compared with team success (final league standing) using a linear regression model. Physical fitness was also compared between players in different playing positions. A significant relationship was found between team average jump height (counter
movement jump and standing jump) and team success (P = 0.009 and P = 0.012, respectively). The same trend was also found for leg extension power (P = 0.007), body composition (% body fat, P = 0.07), and the total number of injury days per team (P = 0.09). Goalkeepers demonstrated different fitness characteristics from outfield players. They were taller and heavier, more flexible in hip extension and knee flexion, and had higher leg extension power and a lower peak O₂ uptake. However, only minor differences were observed between defenders, midfield players, and attackers. Coaches and medical support teams should pay more attention to jump and power training, as well as preventive measures and adequate rehabilitation of previous injuries to increase team success.

Young, James and Motogomery (2002) made a study to identify the relationships between leg muscle power and sprinting speed with changes of direction. The study was designed to describe relationships between physical qualities and a component of sports performance. Testing was conducted in an indoor sports hall and a biomechanics laboratory. 15 male participants were required to be free of injury and have recent experience competing in sports involving sprints with changes of direction. Subjects were timed in 8 m sprints in a straight line and with various changes of direction. They were also tested for bilateral and unilateral leg extensor muscle concentric power output by an iso-kinetic squat and reactive strength by a drop jump. The correlations between concentric power and straight sprinting speed were non significant whereas the relationships
between reactive strength and straight speed were statistically significant. Correlations between muscle power and speed while changing direction were generally low and non significant for concentric leg power with some moderate and significant (P < 0.05) coefficients found for reactive strength. The participants who turned faster to one side tended to have reactive strength dominance in the leg responsible for the push off action. The relationships between leg muscle power and change of direction speed were not consistent. Reactive strength as measured by the drop jump appears to have some importance for lateral change of direction speed, possibly because of similar push off actions. It was concluded that reactive strength of the leg extensor muscles has some importance in change of direction performance but the other technical and perceptual factors than influence agility performance should also be considered.

Prakash, Kumra and Munireddy (1999) conducted a study, which aimed to identity difference, if any, between achievement motivation and selected personality traits of university volleyball and cricket players. For this purpose Mangalore University volleyball (n=15) and cricket (n=16) players who were attending final coaching camp at university campus before the inter university competitions well chosen. Both the teams had creditable performance record. Essence personality inventory (EPI) and Kamlesh’s sports achievement motivation test (SAMT) were administrated to the subjects. The element of sports specific personality characteristics were not observed with the university players considered for the study.
Data analysis shows no significant difference between personality characteristics and achievement motivation of university players participating in different sports activities. The following conclusions were drawn from the study, University level sports persons did not differ much in relation to personality traits and achievement motivation. Sports achievement motivation should be viewed as a separate concept instead of viewing with one’s personality.

Singh et al. (1994) conducted a comparative study of ability of attacker and set upper in volleyball. The 44 male volleyball players (33 attackers, 22 set uppers) of university and state levels were taken as subjects. Ten motor ability tests, along with age, body weight and standing reach were taken separately for the two groups, attackers and set uppers. The mean, standard deviation and ‘t’ test were used as statistical tool. It was found that attackers are significantly younger, heavier and taller than set uppers. The attackers and set upper do not differ significantly in test except basketball throw. But attackers are better in 40 mt. sprint, standing vertical jumps, 9-3, 6-3-9 meter agility and 2.4 km. run. Set uppers are better in block jump, forward bend reach and bend knee sit-ups.

Sukkasem and Vijit (1989) conducted a study to measure and compare height, weight, weight residual, skin folds thickness, % of body fat, 11 body circumferences, strength, flexibility, reaction time and the resting electro cardiogram of 80 Oklahoma state University male students between 20-31 years of age from middle east, east and south east Asian countries who
were selected by stratified random sampling. The results were compared with the United States population norms. A comparison was also made among the foreign students who had been in the United States less than one year and more than 3 years. Multiple t-tests were used to determine if any differences existed between the groups in the selected physical fitness variables at the 0.05 confidence level. The result of the above study showed that the United States had a significantly higher mean value of height than the Middle East students and also had significantly higher than mean values of height and weight than the east and south East Asian students. The Middle East had a significantly higher mean value of the sum of the six sites of skin folds thickness than east and south East Asian students. The Middle East has a significantly higher mean value of the body circumference of shoulder, chest, buttock, thigh, forearm and ankle than those of the east and south East Asian students. The Middle East had a significantly higher mean value of the circumferences of shoulder, biceps, wrist and ankle than the United States. The east and south East Asia had significantly higher mean values of shoulder circumference than the United States. The United States had significantly higher mean values of the circumferences of the shoulder, chest, abdomen, buttock, forearm, thigh, knee and calf than south East Asia. The United States had significantly higher mean values of left and right arm grip strength than the Middle East and South East Asia.
Ramasekar (1989) undertook a comparative study to compare the leg explosive power of the Soccer and Kabaddi players at the college level. The result of this study indicated that the soccer players had better leg explosive power than Kabaddi players at college level.

Singh and Gill (1988) conducted a study to examine the physical and physiological characteristics of volleyball, football players and cross country runners. Members of Punjab University Men’s Volleyball team (N=12), Football team (N = 16) and cross country runners (N = 15) were taken as subjects. Age, weight and height were recorded, skin fold measurements were taken to calculate percent body fat and lean body weight. Under physiological variables vital capacity, maximum breath holding capacity, maximum expiratory pressure, heart rate, systolic and diastolic blood pressure were taken and a dynamic cardio pulmonary index was calculated. Results showed that volleyball players were taller and heavier than footballers and cross country runners and had higher cardio pulmonary index.

Bucher (1987) states that trained individual is in a better state of physical fitness than the person who follows a sedentary inactive life when two persons are trained and one untrained of approximately the same build are performing the same amount of moderate muscular work evidence indicates that the trained individual has a lower oxygen consumption lower pulse rate longer stroke volume per heart beat less cell counters, slower rate of breathing, lower rate of blood pressure and heart rate. The heart becomes
more efficient and is able to circulate more blood while breathing less frequency.

Uppal and Roy (1986) conducted a study on assessment of motor fitness compound or prediction of soccer playing ability. The 33 male soccer players attending coaching camp prior to inter-university students were taken as subjects. Five motor fitness compounds speed (50 mt. dash), agility (4x10 mt. shuttle run), maximum leg strength (leg dynamometer), explosive leg strength (standing board jump) and cardio-respiratory endurance (Cooper’s 12 min. run/walk test) were administered on graded subjects out of 50 marks in playing ability by three judges: Result showed that independent variable (speed ML strength, EC strength and cardiovascular strength) were significantly related to dependent variable. Since the multiple correlation coefficient is higher than zero order correlation coefficient, therefore, further better performance in soccer all the independent component chosen must be considered.

Sukkasem and Vijit (1984) conducted a study to compare height, weight, weight residual, skin fold thickness, percentage of body fat, 11 body circumferences, strength, flexibility, reaction time and the resting electrocardiogram of 80 Oklahoma State University male students from Middle East. East and Southeast Asian countries who were selected by stratified random sampling. The results were compared with the United States population norms. A comparison was also made among the foreign standards who had been in the United States less than one year and more
than three years. Multiple t-tests were used to determine if any differences existed between the groups in the selected physical fitness variables at the 0.05 confidence level. The results of the above study showed that the United States students had a significantly higher mean value of height than the middle east students and also had significantly higher mean values of height and weight than that the East and South East Asian students. The Middle East student had significantly higher mean value of the sum of six sites of skin fold thickness than the East and Southeast Asian students. The Middle East students had a significantly higher mean value of the body circumferences of shoulder, chest, buttocks, thigh, forearm, and ankle than those of East and Southeast Asians. The Middle East had significantly higher mean values of the circumferences of shoulder, biceps, wrist and ankle than the United States students. The East and Southeast Asian students had a significantly higher mean value of shoulder circumference than the United States. The United States students had significantly higher mean values of the circumferences of shoulder, chest, abdomen, buttock, forearm, thigh, knee and calf than Southeast Asians. The United States students had a significantly higher mean values of left and right grip strength than the Middle East and Southeast Asians.

Dureha (1984) compared the selected motor components such as speed, agility, explosive strength and endurance with selected anthropometric variables such as height, weight, leg length, arm length, thigh girth and wrist diameter of offensive and defensive hockey players at
college level. Subjects were fifty male students from college of Gwalior in the academic session of 1983-84. Statistical analysis of data employed the ‘t’ test so as to compare the offensive and defensive players. It was concluded that there was no significant difference between offensive and defensive players of hockey in selected motor and anthropometric variables.

Chauhan (1984) conducted a study to compare the selected general motor ability components, i.e., speed, agility, flexibility, muscular endurance, balance, leg strength, arm and shoulder strength, and coordination of women basketball and volleyball players. The subjects chosen were women basketball and volleyball players of Lakshmibai National College of Physical Education, Gwalior. Fifteen players in each game were selected and the components were tested on the players. The data collected in all the tests were statistically compared by using ‘t’ ratio at 0.05 level of significance. The analysis showed that the women Basketball players were comparatively superior to volleyball players in arm and shoulder strength. But there were no significant differences between the two groups in speed, agility, trunk flexion, abdominal endurance, balance, leg strength and hand eye coordination.

Debanath (1982) compared selected physical fitness components, i.e., speed, extend flexibility, leg explosive strength, gross body coordination and cario-respiratory endurance of football and basket ball players were comparatively superior to football players in extend flexibility and dynamic
flexibility. The football players were found superior in leg explosive strength, abdominal strength and gross body coordination.

Gladden and Colacino (1978) studied the height, weight, skin folds, vertical jump and maximal anaerobic power of 88 female participants of the 1974 United States Association National Tournament. The volleyball players were (172.2 cm) tall with (68.5 kg) of weight, with regard to total skin folds. The players were very lean when compared to the national population of females. The final standing in the tournament was significantly correlated with age, height, vertical jump and maximal height on jump. The partial rank correlation showed that height and vertical jump were the major factors correlated with final standing.

Gupta and Banga (1976) studied extroversion, neuroticism and physical fitness. One hundred male students of four personality tests as distinguished by “Maudsley Personality Inventory” of Eysenck, belonging to the same age and academic achievement groups were tested to determine the difference of physical fitness as measured by the modified form of “Harvard Step Test” among the personality types. Results indicated that a extrovert group was significantly the highest on physical fitness as compared to all other groups; b. neurotics group was significantly the lower on physical fitness than all other personality groups; c. no significant different was found between extrovert group and normal group; and in the majority of comparison made in this investigation, significant differences of fitness among the personality types had been found.
ANTHROPOMETRIC MEASUREMENT:

Koley; Singh and Sandhu (2010). Anthropometric and physiological characteristics on Indian inter university volleyball players. The purpose of its study was of two folds, firstly, to evaluate the anthropometric profile of Indian inter university volleyball players and secondly, to search the correlation of body mass index, % body fat, hand grip strength (right dominant) and VO\textsubscript{2}\text{max}, with other anthropometric characteristics studied. Eleven anthropometric characteristics, four body composition parameters, two physical and two physiological variables and nine arm anthropometric characteristics were measured on randomly selected 63 inter university Indian volleyball players (38 males and 25 females) aged 18-25 years from Guru Nanak Dev University, Amritsar, Punjab, India with adequate controls (n = 102, 52 males and 50 females). The results indicated that male volleyball players were taller (6.63%) and heavier (7.31%) and female volleyball players were slightly taller (0.31%) and lighter (3.74%) than their control counterparts. One way analysis of variance showed significant (P ≤ 0.004 – 0.000) between group differences in all the variables (except hip circumference) between volleyball players and controls. In volley players, significantly positive correlations were found with BMI and other 19 variables, with percent body fat and 6 variables, with right hand grip strength and 20 variables and with VO\textsubscript{2}\text{max} and other 19 variables, and significantly negative correlations were found with percent body fat and other 16 variables, with right hand grip strength and other 7 variables and
with VO$_2$max with other 8 variables. The findings of the present study might be useful in future investigation on player selection, talent identification in volleyball and training program development. Anthropometric and morphological characteristics play a vital role in determining the success of sportspersons (Rico-Sanz, 1998; Wilmore and Costill, 1999; Keogh, 1999). Specific physical characteristics or anthropometric profiles are required for the highest level of performance in a specific sport (Claessens, Lefevre, Beunen, and Malina, 1999; Baurgois et al., 2000; Reilly, Bangsbo and Franks, 2000; Gabbett, 2000; Ackland, Ong, Kerr and Ridge, 2003; Slater et al., 2005).

Koley, Singh and Kaur (2010). A study of arm anthropometric profile in Indian university basketball players. The purpose of this study was threefold: firstly, to evaluate the arm anthropometric profile of Indian inter-university basketball players; secondly, to search for the correlations among these arm anthropometric characteristics; and thirdly, to search for the association of handgrip with arm anthropometric characteristics in Indian inter-university basketball players. Three anthropometric characteristics, nine arm anthropometric characteristics, and grip strength of both right and left hand were measured on randomly selected 60 Indian inter-university basketball players (35 males and 25 females, aged 18-25 years) of six universities, who participated in the inter-university championship organized at Guru Nanak Dev University, Amritsar, Punjab, India. An adequate number of control subjects were also taken from the same place for comparisons. The results indicated statistically significant ($P \leq 0.05$ -
differences between the male basketball players and the controls in height, right handgrip strength, upper found between the female basketball players and the controls. Highly significant (p ≤ 0.01) sex differences were found in the basketball players in almost all the variables studied (except BMI and arm fat area). Significant positive correlations were noted among the arm anthropometric characteristics studied (expect arm fat area and arm fat index), and with right and left handgrip strength. Among these, physical abilities exert marked effects on the skills of the players themselves and the tactics of the team. In the basketball game, the upper arm and the forearm generate adequate force with the contraction of the shoulder and arm muscles. Arms act like a leverage and the integrity of the shoulder and elbow complexes completes the desired task. There is more movement possible at the shoulder joint than at any other assumed by the shoulder. The price to be paid for such an extreme range of movement is an inherent lack of stability. To achieve peak performance during overhead activity, there must be optimal balance mobility and stability.

Kanwaljeet, Mandeep and Mandeep (2010) investigated on anthropometric measurements, body composition and physical parameters of Indian, Pakistani and Sri Lankan field hockey players. This comparative study was conducted to determine the anthropometric measurements and body composition of field hockey teams of India, Pakistan and Sri Lanka. A total of 53 field hockey players from three teams were studied. The participants height was measured using the standard anthropometric
rod, while their weight was measured with a portable weighing machine. Widths and diameters of body part were measured using digital caliper. Girths and lengths were taken with a steel tape. Grip strength was measured with a hand dynamometer. Skin fold thickness measurements were taken using the Harpenden caliper at 4 sites (biceps, triceps, subscapular and supralliac). The percentage of fat was calculated from the sum of 4 measurements of skin fold thickness. It was found that there was no significant differences in height and weight among the three teams, with the Pakistani players recording a slightly higher weight. The Pakistan team had a significantly higher upper arm length (p< 0.05) and bi-humerus diameter (p<0.05) as compared to the India and the Sri Lanka teams. The Sri Lanka team had significantly less wrist circumference (p<0.05), hand width (p<0.05) and lean body mass (p<0.05) as compared to the India and the Pakistan teams. The India team had significantly less % body fat (p<0.05) than the other two teams. More data would be of interest to document the changes in anthropometry and body composition during the season and out of season and also to attempt an analysis of characteristics specific to field positions.

Rami and Silawat (2009). A study of the psychological factors, anthropometric measurement and physical fitness of selected university players in Gujarat, Shodh, Samiksha aur Mulyankan. The players are creating and breaking new records in today’s competitive sports. Traditionally the motto of Olympic festival is faster, higher and stronger is
still alive in the field of physical education and sports. The aim of games and sports is fastly suited with every field. The old records are not remaining on boards they are establishing time to time. The level of physical fitness and motor ability is increasing day to day because of development of science and technology. Today’s athletes are trained scientifically the equipments of training are also developed scientifically the ‘dand-bethak’ and ‘akhadas’ activities become out dated and hi tech gymnasium and health centers takes its place. Now a day in training the physiotherapist entered with traditional ‘gurus’. With the help of physiotherapist and psychologist fitness of individual players is modified increase. The modern coaching methods are prepared for the development of physical fitness, psychological ability and anthropometry. From the study of psychological parameters revealed that, the players of all games were seen reserved, critical, cool, emotional, mild, easily upset, conforming, accommodating, sober, prudent, serious, shy, timid, trusting, tough minded, confident serene, self reliant, affected by feeling. In parameters if psychological factors kabaddi’s players were shown more significant as compared to other games, while volleyball players were for away from these factors. The results from the analysis of anthropology measurement the players of Kabaddi’s highest in height, weight and circumference of chest, upper arm, thigh and calf, were as players of kho-kho’s has shown lower in above sighted variables. The results revealed from analysis of physical fitness athletics players were superior as compared to other games, where as basketball players were lowest.
Ali and Sharma (2009) studied on a comparative study of anthropometric variables between medalist and non-medalist football players. The present anthropological investigation was conducted on inter college and inter university male football players. The study was made an attempt has been to evaluate twenty one anthropometric measurements on inter college and inter university football players. A ratio of subjects was, 85 inter college level football players and 80 inter university level football players in this research. Results shows statistically significant differences P<0.05 in body weight (t=2.14), lower extremity height (t=2.54), and highly significant difference P<0.01 in femur biepicondylar diameter (t=3.71) between medalist of inter college and inter university football players and significant differences P<0.05 in body weight (t=2.62), BMI (t=2.21), chest circumference (t=2.76), hip circumference (t=2.70), and highly significant difference P<0.01 in thigh circumference (t=3.79), femur biepicondylar diameter (t=3.88).

Chauhan (2003) conducted the relationship between anthropometric variables and middle distance running performance. 56 middle distance runners which having 2 to 4 years running experience were selected as subject. There are 32 anthropometric measurements i.e., 13 linear measurements, 8 girths, 4 diameters and 7 skin folds measurements within the age group of 18 to 30 years. An anthropometric variables such as anthropometer, vernier caliper and Lange’s skin fold caliper and body composition variables such as body density, lean body mass (LBM), fat
weight and fat percent were utilized and calculated by using equations respectively. Substantial correlations were obtained between the anthropometric variable and middle distance running performance are presented. The multiple correlation of the selected anthropometric variables collectively (i.e., height, thigh girth, biacromial diameter and thigh skin fold) with running performance is significant but the size of the multiple correlation is not sufficient, so it cannot be used in the prediction equation of the middle distance running performance.

Madialagan (2002) conducted a study on comparison of selected physical physiological and anthropometrical variables among swimmers and non swimmers of Karnataka state. Anthropometrics variables were selected as height, body weight, shoulder width, arm span, the study was conducted on 50 swimmers 50 non swimmers involved in other sports and 50 non sports persons in the age group of 7-8, 9-10, 11-12, and 14-15 years, girls from Karnataka state were selected as the subjects for the study.

Toriola, Adeniran and Ogunremi (1987), comparatively assessed the body composition and anthropometric characteristics of elite male basketball (n=15) and volleyball (n=15) players and male non-athletes (n=20) at the University of life, Nigeria. The ages of the subjects ranged from 19 to 29 years. Analysis of variance and Newman – Keuls post hoc method were used to determine significant differences in the physical characteristics of the groups. The basketball players were significantly taller and had markedly larger humorous width than the volleyball and non-athletic groups (p<0.05).
The non-athletes had significantly higher percent body fat values than both the groups of athletes (p<0.05). The basketball (4.30) and volleyball (4.40) players who were predominantly ectomesomorph had significantly higher ectomorphic component (p<0.05) than the non-athletes (2.5). The differences observed between the athletic groups are related to the morphological factors which influence the basic components of competitive sports performance.

Dey (1984) in his study on selected anthropometric measurements and physical fitness components of offensive and defensive football players concluded that offensive players possess higher cardio-vascular endurance and explosive strength than those of defensive players. Defensive players have significantly higher leg length, thigh girth, height, weight and curial index as compared to offensive players. The group did not differ significantly in speed, calf firth and poderal index.

Martin (1975) conducted a study by comparing the selected anthropometric measurements and physical performance between Mexican American and Anglo-American adolescent boys. Also comparison of body size, body structure and physical performance were made between the subjects at adjacent age levels with in each individual racial groups. The body size was assessed by standing height and body weight measurements. 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 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 also these two races did not differ in physical performances.

Nemour (1971) did a comparative study of anthropometric measurements of Caucasian and Negro boys and girls to find out the differences in anthropometric measurements and at the same time differences in standing broad jump, medicine ball put, and zig-zag run performance of the boys and girls of both races. A total of 900 subjects were taken. Subjects were of different age groups of six to ten years. Anthropometric measurements were standing height, sitting height, weight, length of arm, length of fore arm, length of the hand, length of the upper extremity, length of the thigh, length of the leg and length of the lower extremity. He found that at the age of six to eight and ten years, boys differed from girls in most anthropometric measurements. However, there were no differences in standing height, leg, and lower extremity length, Negro boys and girls were not superior in the events of power and agility.