CHAPTER – II

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REVIEW OF LITERATURE

A serious and scholarly attempt has been made by research scholar to go through the literature related to the present study that has been found in different sources of reference described in this chapter. The reviews of the literature have been classified under the following sections.

2.1 STUDIES RELATED TO ANTHROPOMETRIC CHARACTERISTICS

LARSON (1941) measured and compared physical characteristics of one hundred eleven inter-collegiate soccer players by their position of play. The results showed that half-backs were markedly endomorphic, full backs were endomorphic mesomorph and forwards were found as ectomorphic endomorph.

VOTTO (1977) studied the body composition of twenty three college level football players. The mean of age, height and weight of the players were 22.1 yrs were 75.5 inch and 238.4 lbs respectively. Body fat (skin fold) percentage was 44.79 lbs. The relative somatotype interposition comparison showed the football players were markedly classified on endomorphic.

KANSAL et al. (1980) studied the physique and body composition of North Zone champion and runners up footballers of inter university tournament in India. The result revealed that the defense line players were significantly taller, heavier, well developed thighs and calves than forward line players. Forwards were having narrow hip, broader femur, lesser percentage of body fat and more of lean body mass than the
defensive players.

KAICHIN (1992) compared physical profiles of twenty four Hong Kong footballers with other international footballers. The results found that Hong Kong players had lower in height, weight and body fat percentage than English, Italian, Kuwaiti, Brazilian and Australian soccer players.

REILLY (1996) studied anthropometric characteristics of five hundred thirteen soccer players and the study found that world top class soccer players performed his best in an average age of 25–27 years with a standard deviation of 2 years and the average age of goalkeepers was higher than other positional players. The average height of goalkeepers, central defenders, fullbacks, midfielders and forwards were found 190 cm., 187 cm, 179 cm., 174 cm. and 182 cm. respectively.

MAUGHAN (1997) conducted a study on fifty one professional soccer players of two Scottish Premier League clubs. The objective of the study was to examine the anthropometrical characteristics of professional players. The age of the players ranged between 18–36 yrs. There was no statistically significant differences found in height, body mass and body fat percentage but champion team players were significantly older than the relegated club footballers.

OSTOJIC (1998) studied on structural characteristics of elite forty six Serbia professional first division national league soccer players and to make comparisons with third division soccer players. The results revealed that from first division players were significantly older, heavier and taller than the third division soccer players.

REEVES et al. (1999) investigated anthropometric and body composition of thirty two football players from St. Mary’s University team (UK) and a Malaysian
league team (Selangor). The height and body weight of the footballers were measured by using SECA digital balance with height attachment instrument and skin fold thickness was measured by using Harpenden Skin fold Caliper at four sites (bicep, tricep, subscapula and suprailliac). The UK team were found significantly heavier and taller (P < 0.05) and had a higher body fat content (P < 0.05) than the Malaysian counterpart.

CASAJUS (2001) studied on fifteen Spanish First Division (La Liga) professional soccer players to evaluate seasonal variation in anthropometric variables adopted by standard techniques (ISAK). The results revealed that there were no significant variation in body mass, although fat percentage and sum of six skin folds were significantly (P < 0.05) decreased during competition season. Mesomorphic somatotype (Health-Carter) was observed throughout the season.

COMETTI (2001) conducted a study on ninety five French soccer players (twenty nine first division, thirty four second division and thirty two amateur). The study was to assess their age, height and weight. The findings showed that first division players were older (26.1 ± 4.3 years vs. 23.2 ± 5.6 years vs. 25.8 ± 5.1 years) and taller (179.8 ± 4.4 cm. vs. 178.0 ± 5.8 cm. vs. 177.7 ± 5.1 cm.). Amateur players were heavier (74.5 ± 16.2 kg vs. 73.5 ± 14.7 kg vs. 76.5 ± 18.1 kg).

BHATTACHARYA (2003) studied sixty male footballers from West Bengal and Orissa to compare the selected anthropometric measurements in relation to position of play. The age of the players ranged between 23 to 28 years. The results of the study indicated that defenders, midfielders and attackers had no significant differences in anthropometrical measurements i.e. body weight (F = 2.31), standing height (F =
0.396), arm length (F = 0.14), leg length (F = 0.468), fore leg length (F = 2.22), thigh girth (F = 1.50), calf girth (F = 0.68), foot length (F = 3.02) to be significant at the value of required 3.17 at 0.05 level of confidence.

DURASKOVIC et al. (2004) studied on seven hundred twelve soccer players in the 2002 FIFA World Cup championship to analyze height and body mass as well as weight-height relationship. The age of the players ranged from 18 to 39 years. The average age, height and body mass of the players were 27.49 ± 3.87 yrs, 180.90 ± 6.13 cm. and 75.91 ± 6.38 kg respectively. Goalkeepers were taller and had higher body mass (185.42 ± 5.27 cm and 81.62 ± 6.30 kg) and forwards had lowered in age and body mass (25.71 ± 1.16 yrs and 73.87 ± 5.55 kg) than other positional players.

BLOOMFIELD et al. (2005) studied two thousand eighty five professional soccer players in English Premier League, Spanish La-Liga, Italian Serie A and German Bundisliga to identify the highest quality players and differences in age, statures, body mass and BMI between the different positions in different leagues. The players quality was determined by the leagues’ number of international players and their nations’ FIFA world ranking (FWR) during 2001–2002 season. The findings showed that La Liga Division contained the highest quality players followed by the Serie A, the Premier League and Bundesliga respectively. Goalkeepers were older and forwards were younger than midfielders and defenders. The Bundesliga players had greatest stature 1.83 ± 0.06 meter, body mass 77.5 ± 6.4 kg and BMI 23.2 ± 1.1, while La Liga’s players had the shortest stature 1.80 ± 0.06 meter and the Serie A players had found the least body mass 74.3 ± 5.4 kg and BMI 22.8 ± 1.1.

MONTGOMERY (2006) examined the body composition of professional
Canadian soccer players’ from 1981 to 2003 and compared with players in the 1920s to 1930s. The results of the study showed that current players were of 17 kg heavier and 10 cm taller, with BMI increased by 2.3 kg/m². The gain in BMI was not attributed to add fat mass, since percentages of body fat remained unchanged over the past 22 years from 1982 to 2003. The upper body strength at highest value was attained by the 25 to 29 year old age group and gain in body mass was significantly associated with an increase in upper body strength.

WAGNER (2006) studied the anthropometric profile of one hundred eighteen Brazilian professional soccer players of Sao Paulo State according to their field position except goal keepers. The body compositions were measured using CES CORF fold compass (tricipital, subscapular and abdominal folds). The average age, height, body mass, percentage of body fat and fat mass of the players were found 23 yrs, 180.15 cm. 76.07 kg, 11.63 kg and 8.68 kg respectively. The average lean mass of the players was revealed 66.41 kg. Stoppers were taller and heavier and side backs were lowered in height and body mass.

BANDHOPADHYAY (2007) compared anthropometric profile of forty six football and eighty two volleyball state level players. The mean age of the footballers and volleyball players were 22.00 ±1.69 yrs and 22.30 ±1.36 yrs respectively. The height, body mass and BMI of the footballers and volleyballers were 166.00 ± 4.31 cm. vs. 173.10 ± 4.19 cm., 56.53 ± 7.62 kg. vs. 58.87 ± 6.94 kg. and 20.56 ± 1.89 vs. 19.59 ± 1.57. The study found that footballers and volleyballers both were ectomorphic mesomorph.

FONSECA et al. (2007) studied on twenty five Brazilian professional soccer
players. The purpose of the study was to analyze their anthropometric characteristics. The height, body mass, fore arm, abdominal, triceps, biceps, sub scapular chest, media underarm, supra illiac, horizontal and vertical abdominal, medium thigh girth were measured in the study. The mean of age, body mass, height of the players showed 22.7 ± 4.4 year, 73.9 ± 6.6 kg and 177.8 ± 5.5 cm. respectively.

NENI and SANTOSA (2007) determined the specific morphological characteristics of male athletes compared with non-athlete in Indonesia. The study indicating that there was a considerable corpus of evidence that athletes succeeding in certain sports have distinctive body shapes that differ according to the demands of the type of sports and competitive level. Anthropometric measurements were conducted on nineteen badminton players, ninety six soccer players, seventy four volleyball players, and fifty one non-athletes. The age of the subjects ranged between 21 to 28 years. Stature, body weight, bicondylar breadths of the humerus and femur, calf and upper arm circumferences, and skinfolds (at triceps, subscapula, calf and supraspine) were measured for each subject. Heath-Carter somatotyping were determined in all the subjects. The results of the ANOVA of the body measurements showed that the three groups of athletes and the non-athletes were heterogeneous. The badminton players were lighter with greater skinfold values among the athlete groups. The soccer players were relatively smaller skinfold values and greater arm and leg girths and the volleyball players were taller with smaller elbow and knee breadths. The non-athletes were characterized by greater arm girth, elbow breadths, knee breadths, and back and leg skinfolds. In mean somatotype category, the badminton players were ‘central’ (3.3-3.7-3.7), the soccer players were ‘balanced mesomorph’ (2.7-4.9-3.0), the
volleyball players were ‘mesomorph-ectomorph’ (2.4-3.5-3.7), and the non-athletes were ‘ectomorphic mesomorph’ (2.7-5.2-3.8). Comparisons of international scope with each of the different sports showed that the Indonesian players were extremely short and light.

BOLANOS (2008) analyzed the height, weight, triceps, subscapula, anterior suprailliac, abdomen, thigh and calf girth of sixty eight Peru soccer players. The mean age, weight, height, body fat percentage, fat mass and fat free mass of the players were $27.21 \pm 4.99$yrs, $75.92 \pm 7.84$ kg, $1.78 \pm 0.06$ m, $11.40 \pm 2.94$ kg, $8.75 \pm 2.78$ kg and $67.17 \pm 6.34$ kg respectively. There was no significant difference found between playing positions (defenders, midfields, forwards) $P < 0.05$. However midfielders showed lower values of fat free mass in relation to other playing positions ($P < 0.01$).

CANTOR et al. (2008) studied on seven hundred thirty six professional soccer players from 32 teams in 2006 FIFA world cup. The purpose of this study was to identify the body mass index trends of the players. The findings revealed that team body mass index ranged 82.6% – 100% was normal. The overweight players ranged 0% – 12%. The underweight and obese players were 1% each in every team. Goalkeepers were found 85% normal with 14% overweight, defenders were 93% normal and 6% overweight, midfields 94% normal and 5% overweight, and forwards 92% normal and 5% overweight.

DEY et al. (2010) compared the anthropometric profiles of one hundred fifty male Indian national league club footballers. Footballers were chosen from East Bengal, Mohun Bagan, Mohammedan Sporting, Salgaokar, Vasco and Dempo Sports Clubs. The results found the mean age of the footballers was $23.3 \pm 3.5$ yrs. Goa
players were taller, heavier, more body fat percentage and BMI than Kolkata players.

MOGHADAM et al. (2012) studied to compare the anthropometric characteristics of eighty five elite Iranian male soccer players. The anthropometric characteristics of these players were measured by ISAK scale. The mean age of the players was 25.95± 4.91yrs. The average weight and height of the players were found 76.15± 6.48 kg and 176.08 ± 3.01 cm respectively. The results of analysis showed that the goalkeepers were significantly heavier, taller with longer limb length, limb breadth and limb girth compared with players in other positions and the study also concluded that goal keepers possessed significantly different anthropometric characteristics than other field players.

SAHA (2012) analyzed the selected anthropometric measurements and body composition between thirty inter university male footballers and thirty track and field athletes. The age of the subjects ranged between 18 to 25 years. The results of the study indicated that footballers were significantly lower in leg length, arm length and standing height than track and field athletes (P < 0.05).

2.2 STUDIES RELATED TO MOTOR FITNESS

JOHNSON (1973) investigated the effect of pre-season practice on speed, agility, cardio-vascular endurance and leg strength components of physical fitness of sixteen Emory University male soccer team. The results found that pre-season practice prior to ten weeks before participation in soccer competition was cause of adaptation on the circulatory and respiratory system that increased efficiency and improved cardio-respiratory endurance and produced significant improvement in speed, agility
and leg strength.

REDDY (1975) conducted a comparative study on selected motor ability components between college level thirty footballers, thirty hockeys, and thirty handball players. The age of the players ranged between 18 to 25 years. The results found that footballers had greater agility, speed, cardio-respiratory endurance and lesser pulse rate than hockey and handball players.

CASSEL (1979) compared the motor ability and physical characteristics of University soccer players by position of play. The results showed that fullbacks had more leg power in respect of forwards, the halfbacks were found more skillful than forwards and fullbacks. In speed forwards were significantly faster than halfbacks and fullbacks. No differences were found in agility, upper body strength and endurance ability.

THOMAS and REILLY (1979) conducted a study on thirty one English First division players. The age of the players was ranged between 18 to 29 yrs. Twenty six test items (fifteen anthropometry, two blood pressure, four muscular strength and power and five cardiac functions) were administered during the week prior to the commencement of the league season (T1). Tests were repeated after an interval of 16 weeks at mid season (T2) and again 21 weeks later (T3) after the final match of the playing season. Significant analysis was found of T1 / T2 data for resting heart rate (P < 0.01), Harvard index (P < 0.01), maximal heart rate (P < 0.01). Differences in the T2 / T3 analysis were significant for vertical jump (P < 0.01) and standing broad jump (P < 0.05).

WITHERS (1982) studied the movement patterns of twenty Australian
professional soccer players during game by video tapes. Single factor ANOVA indicated that there were no statistically significant differences found between different positional (side backs, midfielders, central defenders and forwards) players for the following distance covered by walking, jogging, striding, walking backwards, jogging backwards, moving sideward and traveling with ball. Side backs and midfielders were sprinted significantly greater than central defenders and forwards. The study found that the most of the distance covered was by striding (31.4 percent) and jogging (47.1 percent), whereas sprinting accounted for 18.8 percent of the total distances covered. The average time in stationary position of 85 sec (range = 14.9 – 198.5 sec) suggested that most of the high intensity work was initiated whilst the players were already moving.

RAMADEN (1985) examined the maximal oxygen consumption (V_{O2} max) and maximal anaerobic power of Kuwaiti world cup soccer players. The Kuwaiti teams exhibited aerobic (51.9 ml/kg min) and anaerobic (119.6 kg/m/sec) power and both values being significantly higher than national level players in Kuwait.

DUNN and FAIT (1989) conducted a comparative study on agility, speed, leg power and cardiovascular endurance of English First division defensive and offensive footballers. The results found that defensive players were taller and had more leg muscles power than offensive players. Offensive players were faster and had more endurance than defensive players. There was no significant difference found in agility between offensive and defensive players.

ALI and FARRALLY (1991) studied activities pattern on the university soccer players during match play. The twenty five match play activities were recorded in
video and analyzed using a microcomputer. The ratio found of the time spent activities for the players were 59% walking, 30% jogging, 4% cruising and 7% sprinting respectively.

BANGSBOO (1994) studied on VO$_2$ max of eighty four elite soccer athletes in relation to intensity of soccer match performance. The results of the study showed that good cardio-respiratory fitness was important to support soccer players to play as long as possible the match lasted and involved intermittent anaerobic bursts throughout the game.

BAILEY (1997) investigated different type of injury associated with elite Australian footballers occurred during competition. The study concluded that each football skill required strength, power, muscular endurance, cardio-respiratory endurance, agility and flexibility and participants in football sport needed all the components of physical fitness at greatest priority. It concerns the capacity to move the body efficiently with force or a responsible length of time.

OSTOJIC (1998) studied on functional characteristics of elite forty six Serbia Professional first division National league soccer players to make comparisons with third division soccer players. Players from first division squad were significantly higher in aerobic and anaerobic power than the third division soccer players.

HELGERUD et al. (2001) examined effects of eight weeks aerobic training on performance during soccer matches. Players were divided into training group and control group for the purpose of the study. Players were monitored by video during four matches. The training group performed significantly higher in maximal oxygen uptake (VO$_{2\max}$) capacity, lactate threshold, running economy, distance covered,
number of sprints during a match and number of involvements with the ball ($P < 0.05$) but no significant changes were found in vertical jump height, strength and quality of passes ($P < 0.05$).

YOUNG (2002) identified the relationship between leg muscles power and sprinting speed with change of direction on fifteen men soccer players in an indoor sports hall and a biomechanics laboratory. They were also tested for bilateral and unilateral leg extensor muscle concentric power output by an isokinetic squat and reactive strength by drop jump. The results found that the correlation between concentric power and sprinting speed were insignificant and the relationship between reactive strength and speed were statistically significant. A correlation between muscle power and speed during changing direction was significant. Reactive strength of leg extensor muscles power showed a significant relationship in change-of-direction.

MOHR, KRUSTRUP and BANGSBOO (2003) assessed physical fitness, match performance and development of fatigue during competitive matches on eighteen top-class and twenty four moderate professional soccer players in Germany. Computerized time-motion analysis was performed during the competitive matches. The results showed that top-class players performed 28% and 58% more ($P < 0.05$) high-intensity running and sprinting respectively than the moderate players. The top-class players were better by 11% ($P < 0.05$) on the Yo-Yo intermittent recovery test than the moderate players. The amount of high-intensity running was lowered by 35-45% ($P < 0.05$) in the last fifteen min than the first fifteen min of the game. Substitute players covered 25% more ($P < 0.05$) ground during the final fifteen minutes of high-
intensity running than the other players.

ZISI (2003) conducted a study on dynamic analysis of the ground reaction forces developed on the supporting foot during instep kicking. Forty five soccer players were participated in a series of laboratory tests to discriminate reaction time, sustained attention, depth perception, and sense of kinesthesia. Kicking performance was measured by the amount of impulse (calculated as the integral of force) developed on the supporting foot during kicking. There was a significant correlation found in the kicking impulse with choice reaction time and attention reaction time. Stepwise regression analysis indicated that choice reaction time accounted for 29% of the variation in the anterior/posterior kicking impulse and 16.4% of the variation in the medial/lateral kicking impulse.

ARNASON (2004) studied on three hundred sixty male soccer players in Ireland. The purpose of the study was to investigate the relationship between flexibility, leg extension power and VO$_2$ max with team success in soccer. The results found that players from successful team had significantly scored higher in flexibility, leg extension power and VO$_2$ max. Goalkeepers demonstrated different fitness characteristics from outfield players. They possessed more flexible in hip extension and knee flexion and had higher leg extension power and lower VO$_2$ max.

BARROS (2004) studied on fifty five first division Brazilian soccer players over twenty two matches to analyze the distance covered in 90 minutes. Data were measured by automatic tracking system (D video Companies, Brazil). The results revealed that mean distance covered in the first half was 5,173 ± 394 m and C.V = 8.5% were highly significant (P < 0.001) and greater than the mean value (4,808 ± 375
m, 7.8%) in the second half. External midfielders were covered higher and central defenders were covered lower distance in the game.

WISLOFF et al. (2004) studied seventeen international male soccer players to determine the relationship between maximal strength with sprint and vertical jump height. The mean age of the players were 25.8 ± 2.9 yrs and height 177.3 ± 4.1 cm and weight 76.5 ± 7.6 kg. The results found that there was a strong correlation between maximal strength in half squats and sprint performance and jumping height.

RAHNAMA et al. (2005) studied on forty one English professional soccer players to determine asymmetry in strength and flexibility in the legs of soccer players. The mean of age, height and body mass of the players were recorded as 23.4 ± 3.8 yrs, 1.81 ± 0.06 cm., 81.7 ± 9.9 kg respectively. In both cases knee flexors and dynamic central ratio were significantly higher of non preferred leg than the preferred leg (P < 0.005). No significant differences were found in flexibility of hip joint between the preferred and non-preferred leg (P < 0.05).

SENEL (2006) studied one hundred four Turkish soccer players age ranged between 21-32yrs to find out the relationship between auditory reaction time and visual reaction time in a 20 meter sprint test. The results showed that auditory reaction time was significantly higher than visual reaction time in this study.

COELHO et al. (2007) conducted a study to compare the performance of soccer players of different playing positions and different nationalities on sprint test. Seventy five Brazilian players of different positions were compared between themselves and twenty one first division professional Brazilian players were compared with eighteen J-league (Japan) players. No differences found in performances of
Brazilian players in different positions. But Brazilian players had significantly scored higher than Japanese players in 30 m sprint test.

SHEPPARD (2006) studied on thirty eight Australian footballers to find out the relationship of anticipation and decision-making qualities from selected motor fitness components. The results of the study revealed that agility was the most significant component among the motor fitness in response to the anticipation and decision-making movements.

DAS (2007) conducted a study to compare the pre-exercise heart rate, VO\textsubscript{2}\text{max}, anaerobic power, agility, leg muscles power between state level footballers and sprinters of Kolkata. The mean age of the subjects was 22.05 ± 1.62 yrs. The results revealed that there were no significant differences in pre-exercise heart rate, VO\textsubscript{2}\text{max} and anaerobic power. Sprinters showed significantly higher value in leg muscles power than footballers and footballers were significantly higher score in agility.

DURANDT et al. (2007) compared the physical attributes of elite South African hockey and soccer players. For the purpose of the study 10 m, 40 m sprint test, repeated sprint test, 1RM bench press and push-up test were conducted. The results showed that there were no significant differences in the 10 m and 40 m sprint times and repeated sprint test. The hockey players had significantly higher in 1RM bench press and push-up test than the soccer players.

RANDERS et al. (2007) investigated differences in match performance between successful and unsuccessful team footballers in the Danish premier league tournament. Yo-Yo intermittent recovery test, sprint test were conducted to assess the
players. Results revealed that successful team players significantly performed better in yo-yo test and high speed running in sprinting with most intense than the unsuccessful team footballers.

AGUAIR et al. (2008) studied the 12 weeks effect of two different training interventions (Intermittent versus Continuous Training) on professional male soccer players. Thirty four players were divided into two equal groups. The results showed that both training interventions were able to maintain initial values of speed and jump height. The intermittent training exhibited significantly larger improvements in repeated sprint ability. The intermittent high intensity training was significantly more beneficial to prepare soccer players according to the game cardiovascular and metabolic specific demands.

RONNESTAD et al. (2008) compared the effects of combined strength and plyometric training with strength training alone with power-related measurements on professional soccer players. The intervention was randomly divided into two groups consists of ten in each groups. Strength training group performed strength training twice a week for 7 weeks. Plyometric and strength training group performed plyometric training program in addition to strength training. The results showed that there were no significant performance-enhancing effects of combining strength and plyometric training in professional soccer players compared to strength training alone. The study concluded that heavy strength training leads to significant gains in strength and power related measurements in professional soccer players.

SPORIS (2009) examined two hundred seventy Turkey soccer players to assess different physical fitness qualities in relation to different positional roles. Players were
categorized as defenders, midfielders, attackers and goalkeepers. ANOVA was used to determine differences between fitness qualities of the players. Goalkeepers were slowest in sprinting ability. Attackers were significantly quickest player in sprint over 5, 10 and 20 m than other positional players. Defenders were significantly better in vertical jump and squat jump. Midfielders were statistically superior in VO$_{2\text{max}}$ than goalkeepers, defenders and attackers.

DEY et al. (2010) compared the motor fitness profiles of East Bengal, Mohun Bagan, Mohammedan Sporting, Salgaokar, Vasco and Dempo Sports club footballers. The study was carried out on one hundred fifty players. Results showed that Kolkata players were significantly (P < 0.001) higher in flexibility and leg power whereas Goa players were higher in agility and VO$_{2\text{max}}$. The study concluded that Indian National club players were inferior to flexibility, agility, leg power and VO$_{2\text{max}}$ to those of European, American and Australian soccer players.

SOLVO (2010) analyzed sprinting activities on seven hundred seventies elite soccer players during European Championship League and UEFA competition under Prozone$^{(R)}$, (Leeds, UK) tracking system according to playing positions. The Results showed that total sprint distance covered: wide midfielders > attacker = wide defenders > central midfielders > central defenders (P < 0.001). As well as for explosive sprints: wide midfielders = attackers = wide defenders > central defenders > central midfielders (P < 0.001) and leading sprint: wide midfielders > central defenders (P < 0.001). Wide midfielders performed a higher number of sprints than all other positions.

BOONE (2011) conducted a study on two hundred eighty nine Belgian soccer
players from six different first division clubs. The purpose of the study was to assess physical fitness of the players. The players were divided into five subgroups (goalkeepers, central backs, full backs, midfielders and strikers) according to their position on the field. The players were performed 10m sprint, 5 × 10m shuttle run, squat jumps (SJ) and counter movement jump (CMJ) and incremental running protocol laboratory tests for aerobic capacity. The results revealed that strikers had significantly shorter timing in 10m sprint and central backs were significantly scored higher in shuttle run. Central backs were performed significantly higher in jumping height. Goalkeepers had scored greater in CMJ and midfielders had significantly higher capacity of aerobic capacity than other positional players.

JOVANOVIC (2011) studied the effects of speed, agility and quickness (SAQ) training method on power performance in elite Croatia first division league soccer players. Players were divided into experimental group and control group. Power performance was assessed by a test consist of quickness (5 m sprint), acceleration (10 m sprint), maximal speed (20 m and 30 m sprint) along Bosco jump test (squat jump, counter movement jump and continuous jump with legs extended). The 8 weeks specific SAQ training programme was implemented at the beginning of the league season. The results of two ways analysis of variance indicated that experimental group was improved significantly (P < 0.05) in maximal speed and continuous jump but no significant differences were found in quickness, acceleration, squat jump tests between two groups of players.

CHANDRASEKARAN (2012) studied one hundred fifty Tamil Nadu Senior State Level male footballers to measure the selected motor fitness components. The
fitness test parameters were 12 minutes run, 50m sprint, 10 × 4m shuttle run and standing broad jump. The results showed the mean value of cardiovascular endurance, speed, agility and leg power were 2553.8 ± 135.5m, 7.73 ± 0.07s, 12.10 ± 0.03s and 50.35 ± 0.18cm respectively.

2.3 STUDIES RELATED TO FOOTBALL TECHNIQUE AND SKILL

REEP and BENJAMIN (1968) studied thirty seven British football teams to identify the ‘long-ball’ tactic in order to create goal scoring opportunities. The results found that 80% of goals scored from a passing sequence of 4 passes or less.

REILLY and BALL (1984) examined the running pattern of soccer play of English Professional soccer players. The results found that each game typically involved about 1000 changes of activity by each individual in the course of soccer play and each change was required abrupt acceleration or deceleration of the body or an alteration in the direction of motion with ball and off the ball.

SINGH et al. (1984) compared selected football matches of Asian games and World cup in 1982 to analyze number of passes, frequency of different type of passes during a single base possession, frequency of successful and unsuccessful dribbles. The study revealed that Asian teams had lowered frequency of higher number of passes in a single possession and retained ball possession for a shorter duration as compared to the European and Latin American teams. Latin American teams had made more number of passes per match and Asian teams were used a higher percentage of forward passes. European teams dribbled less frequency and marginally higher percentage of successful dribbling, whereas Latin American teams had higher
average shots in target.

BATE (1988) analyzed the 1986 FIFA World Cup and the study found that successful teams keep more ball possession than unsuccessful teams. It was necessarily effective way to control the game in favor of a team and possessional football (multipass movement) was always required numerical supremacy and utilization of free space of the field.

OSLEN (1988) studied the 1978, 1982 and 1986 FIFA world cup. The study found that football game had become faster and a player in possession of the ball gets lesser time and space due to pressure that the opposition was inserting throughout the pitch and the excitement of game hidden on moving the ball with high degree of passing accuracy to the players in the attacking third as quickly as possible.

HARGREAVES (1990) studied the thirty four English Premier League matches in 1988 season to analyze the dribbling skill of attackers. The study found that attackers were used body fents and disguises their intension, so that the defenders made a wrong move and gets off balance and in every case the defenders lean off balance to one side.

JIMSHAN et al. (1993) studied goals scored in the 14th world cup matches and the study found that the most successful shooting technique was with the instep of the foot and the most goals were made in the set-piece tactics. The study revealed that shooting with the instep of the foot (28.7%) was most successful followed by the inside of the foot (24.4%).

THOMAS (1994) studied professional and semi-professional English soccer players to identify the differences of game performance according to cognitive and
skill components. The study found that experience players were used knowledge and psychological maturity before execution of any skill in game situation and study also revealed that ability to executed specific techniques properly for specific situation did not always had a direct relationship to game performance.

GULUSTIAN (1995) studied Stanly Mathew, Karl Heinz Rummenigge, Revelino and Geoff Hurts dribbling. The study analyzed that Stanley Mathew was to fent the defender standing nearly still. Lean and hop to one side while dragging the ball with inside of the foot, when defender falls for this fake quickly push the ball with the outside of the foot in the opposite direction and go around and beat him. Rummenigge was faked by swing foot around the front of the ball and take a step to the side. This was gave the defender impression moving or passing the ball in this direction. Geoff Hurst was dribbled forward then lean back while reaching leg forward and stretched the foot ahead of the ball and pull the ball in the opposite direction and accelerate. Revelino was to fake kick the ball but instead step around it and plant the foot on the far side of the ball, then turn body slightly and took the ball in the opposite direction, using the outside of that same foot. The study finally concluded that the coordination, flexibility and fine ball touch required under full challenge while dribbling. A ball handler must be able to observe, collect and process information quickly while on the move.

GREHAIGUE et al. (1997) studied one hundred thirty six college level soccer players to assess the soccer related knowledge by using paper-pencil test in relation to soccer playing ability. The study found that relationship was insignificant measure of performance of a player with paper-pencil test due to variety of tactical awareness,
alternativeness of skills during game must be considered.

HALSEN et al. (1998) examined the practice history profiles of professional, semi-professional and amateur soccer players in Belgium. The study found that amount of time spent in team practice was the strongest discriminator across skilled groups. The professional players spend more time in individual practice than the semi-professional and amateur players into their careers. The professional and semi-professional players reached their peak performance around the age of 24±2yrs. Professional, semi professional and amateur players had accumulated total of 9332, 7449 and 5079 practice hours respectively in their 18 years into careers.

HOOK and HUGHES (2001) analyzed the European Championship matches in the year 2000. The results of the analysis found that successful teams had used more defense splitting passes compared to unsuccessful teams and ball possession was important to maintain to control the structure of matches and reduced the likelihood of conceding a goal.

HUGHES and PETIT (2001) analyzed patterns of shots executed in the 1982 and 1986 football World cups. The study found that most effective shots were strike low or on the ground and far side of the goal keepers. The most effective crosses were played early before positioning the defenders.

NEVETT et al. (2001) analyzed forty two English Premier League game in 1999 – 2000 season to identify the implementation of game strategies and instructions given to the soccer players before the match. The results found that instructions and strategies were given to the players were not thoroughly implemented in game situation and it varies but players were made their duties and responsibilities by fine
tune of motor skills, acquired tactical knowledge of past games and individual as well as team task strategies automatically to overcome the difficulty.

HORN and WILLIAMS (2002) investigated the continental game patterns for the FIFA World Cup for the last forty years dating back to the World Cup in Chile in 1962. The study found either South American or European countries were alternatively winning the competition. South American teams had won all 5 competitions played in the America, whereas European teams had won every tournament held in Europe. The study identified that climate, travel affects and pitch conditions significantly influences the playing style and varying temperaments associated with winning the competition.

TAYLOR et al. (2002) analyzed the goal scoring pattern of 1986, 1990, 1998 and 2002 FIFA World Cups. The study found that gradual increase in the number of goals scored from set pieces, e.g. 1986 World Cup (27.3%), 1990 World Cup (33.9%), 1998 World Cup (34.5%) and 2002 World Cup (48.4%). They also found the same trend in women’s 1999 World Cup football where 43% of goals were scored from set pieces.

BROWN and HUGHES (2004) analyzed attacking play patterns in offensive areas of European, South American, African and Asian teams in the 2002 FIFA World cup. The study identified that each continental teams had its own playing patterns with specific attacking technique and shooting patterns.

WARD et al. (2004) examined the practice profiles of the footballers to contribute investment of time and effort required to reach elite levels of performance. The study found that elite footballers had significantly spent more time and efforts in specific practice activities on the road to excellence.
KATIS and KELLIS (2009) analyzed fifty seven soccer players to identify the playing patterns in eighteen yards box. The study found that the smaller space results increased pressure from opponents and to overcome this situation required the numerical supremacy and extreme level of ball control, judgment, anticipation, quick changing direction and eye contact on the ball as well as the opponent players simultaneously.

THOMAS et al. (2009) studied the ball control of five hundred three professional soccer players in Netherland. The study found that dribbling had the highest skill importance associated with the team’s ability to create scoring opportunities and players had need to challenge themselves with the ball to achieve this highly developed skills.

RUSSEL (2010) studied five hundred twenty three professional footballers in England to measure the accuracy on passing, shooting and dribbling. The study found that ball touch had made the significant factor in all the cases.

2.4 PREDICTION STUDIES ON FOOTBALL PLAYING ABILITY

WARNER (1950) developed a test of soccer skills to measure the fundamental techniques of soccer on junior, senior high school and university soccer players. The test items consist of kicking for distance (both foot), corner kick for accuracy, heading for accuracy, throw-in for distance, penalty kick for accuracy and dribbling for time. The study concluded that uses of the test were to help in the grading procedure to increase interest and help the beginner to develop those techniques with both feet.

McDonald (1951) studied the use of volleying a soccer ball against a backboard
as a test of general soccer ability on college men soccer players. The results were obtained by following correlations between scores on the test and the ratings of playing ability by the coaches as 0.94 for varsity players, 0.63 for junior varsity players 0.76 for freshmen varsity players and 0.85 for the combined group.

CRAWFORD (1963) constructed a battery of soccer skill test on thirty college soccer players which consist of dribbling, passing and receiving and passing and trapping. The study found that skill test was significantly correlated with the soccer playing ability. The respective coefficients for validity and estimated reliability from split-half correlations were 0.73, 0.89, 0.84, and 0.88 respectively. The multiple regression equation for the battery was $1.5(1) + 1.8(2) + 1.32 (3)$.

JOHNSON (1963) developed a wall volleying soccer skill test for college men. The test area of the target dimensions was same as the regular soccer goal. The restraining line was 15 feet away from wall. The reliability coefficient for the test was 0.92 for consecutive trials. Validity was determined by rank difference correlation between scores on the test investigators’ rankings of soccer ability at various levels. The correlation 0.78 for college men in education classes, 0.74 for physical education major students and 0.81, 0.84 and 0.89 respectively for 3rd, 2nd and 1st team varsity soccer players.

CREW (1968) studied several soccer skills in relation to soccer playing ability for college men. The playing ability was assessed by competent judges’ during competitive matches. Correlation of skill test items with playing ability were 0.96 for ball control, 0.85 for aerial accuracy, 0.92 for dribbling and 0.88 for wall volley. A multiple correlation of 0.97 was reported with the ball control and dribbling test.
PRINCE (1968) conducted a study on college footballers to find the relationship between strength, speed and agility with football playing ability. The result showed that arm strength was not a valid predictor of football ability. Leg strength, agility and speed were the significant predictor of football playing ability.

MCDAVID (1977) constructed a battery for predicting potential of the soccer playing ability on sixty seven university soccer players. The test battery consisted of Mclay’s classification index, strength, power, agility, speed and work output. The results revealed that Mclay’s Classification Index (C. I.) had a negative non-significant correlation with the soccer playing ability. The discriminative power of the battery was evidenced by the highly significant correlation between the soccer playing ability by the coaching staffs ranking of individual players (rho = 0.840).

MICHELE (1977) developed a test battery for predicting soccer ability on the university players. The purpose of the study was to explore the possibility of developing a regression equation whereby soccer ability could be predicted from an analysis of selected orthopedic measures, strength tests, power measures, balance, standing height and body weight. The results of this study showed that tibial torsion, bow legs, standing height, body weight, anaerobic power test and knee flexion were the best measures for prediction of soccer playing ability. Strength tests using a cable tensiometer and Fleishmann’s Static balance were not good predictors of soccer playing ability.

HORAK (1978) studied the Olympic men’s Czechoslovakia soccer players and correlated strength, speed and agility of the players with the soccer playing ability. The study concluded that total strength was moderate predictors while leg
strength, agility and speed were significant predictors of soccer playing ability.

AMUSA (1979) studied on forty-six intercollegiate Iranian soccer players. The running speed, leg power, agility, VO\textsubscript{2}\text{max}, anaerobic capacity and flexibility were measured. Soccer playing ability served as a criterion and was measured by the rating of three experienced soccer coaches. Analysis of data by zero order correlation and multiple correlation analysis revealed that VO\textsubscript{2} max, running speed performance, flexibility, agility, lactate concentration and leg power were the valid predictors of soccer playing ability.

MOR and CHRISTIAN (1979) developed a skill test battery on forty five male college students to measure general soccer ability. The three test items namely dribbling, passing and shooting together were made up for the test battery with acceptable reliability and validity. Three soccer experts were rated each subject during actual match played. The multiple correlation coefficients were obtained for the test battery as 0.776 passing + 0.790 dribbling + 0.913 shooting.

CAMPBELL (1980) tested forty male members of the Springfield university footballers to investigate height, weight, 10, 20, 30 and 40 yard dash speed, vertical jump, agility, upper body strength and lateral movement of the players. In addition, each player had a game performance score assessed by three experts. The results showed significant relationships between height, weight, speed, agility, leg power and upper body strength with football performance.

BEITOR (1981) constructed a study for the prediction of football playing ability in relation to motor performance tests (strength, power, speed, agility and body composition). Multiple regression to predict coaches’ rating had produced R = 0.66.
The results of this study revealed that motor performance did not only relative indicator of success in highly skilled soccer game.

CHRISTIAN (1985) constructed a soccer skill test (passing, shooting, heading) to find out the relationship with soccer performance on forty five university soccer players. The soccer performance was measured by judge’s rating according to the performance of the subjects during game played. The reliability and objectivity of the test was determined with correlation coefficient technique. The study revealed that passing, shooting and heading as logical and statistically valid measures for soccer playing ability and the study had valid, reliable and objective assessment of passing, shooting and heading skills for men’s soccer.

CHAKROBORTY (1986) studied twenty male college level football players to assess the relationship of physical characteristics with performance in football. The physical characteristics were measured by height, weight, fore leg length, ponderal index, thigh length, shoulder width, trunk length and crural index. The results showed that physical characteristics were not significantly related to performance in football.

UPPAL and ROY (1987) conducted a study to assess the motor fitness components as predictor of football playing ability on twenty male footballers by administered speed (50 yards dash), agility (4 × 10 meter shuttle run), maximum leg strength (dynamo meter) explosive leg strength (standing broad jump) and cardio respiratory endurance (Cooper 12 minutes run / walk test). Statistical treatment of the data showed all that independent variables (speed, agility, endurance, maximum and explosive leg strength) had been found significantly related to dependent variable (football playing ability). The regression equation developed as $Y=11.72$ (standing
broad jump) + 0.52 (12 meter run / walk test) – 2.06 (4 × 10 meter shuttle run) + 4.94
(50 yards dash).

DEY and DEY (1998) conducted a study to examine the football playing
ability on the basis of skill performance. The football skill tests were conducted on
ball control, receiving, power in kicking, dribbling, ground pass accuracy, goal
shooting, heading accuracy and aerial pass accuracy. For statistical analysis multiple
correlation was made and results revealed that all test items were correlated (P < 0.05)
with football playing ability.

TUMITY (2000) find out the relationship between leg power with sprint and
striding performances on forty three international soccer players. The study showed
that vertical jump height was significantly related to short sprint and striding
performance of the soccer players.

KUMARI (2003) examined the relationship between selected coordinative
abilities of kicking ability on twenty football players. The tests items were speed
dribbling, kicking for distance, running with the ball, balance ability, differentiation
ability and reaction ability. The results of the study showed that there was significant
relationship between balance ability and dribbling ability, differentiation ability and
kicking for distance, reaction ability and kicking for distance, differentiation ability
and speed dribbling, reaction ability and speed dribbling, balance ability and kicking
for distance ability.

LITTLE and WILLIAMS (2005) studied high-speed actions and its impact on
soccer performance. The study comprised with 10m sprint, flying 20-m sprint and
zigzag agility performance on one hundred six professional soccer players. The
performances in the three tests were significantly correlated (p < 0.0005) with soccer performance. The coefficients of determination between the tests were 39\%, 12\% and 21\% for acceleration and maximum speed, acceleration and agility, and maximum speed and agility respectively. The study also revealed that acceleration, maximum speed, and agility were specific qualities and relatively unrelated to one another.

TRMINIC et al. (2009) carried out a study to defining the equation forming approach for specification of efficiency in poly structural features for footballers applied to diagnosis rational management of the sport training. The study showed that dynamic efficiency influenced by large number external and internal factors and relevant sport specific variables which had high predictive value and the high validity of efficiency model for footballers and encompassed all basic, specific features to determinant a greater part of players’ actual quality.

WONG et al. (2009) studied the relationship between anthropometric-physical fitness with ball shooting performance among seventy male professional soccer players. The result showed that body mass was significantly correlated with ball shooting and 30 meter sprint time. Body height was significantly (P < 0.05) correlated with vertical jump height and 30 meter sprint tests. BMI was significantly correlated with ball shooting and 30 meter sprint time. Significant positional differences were observed in body mass (P < 0.01), height (P < 0.01) and BMI (P < 0.01).

2.5 STUDIED RELATED TO PSYCHOLOGICAL CHARACTERISTICS

SLUSHER (1964) selected one hundred fifty high footballers and one hundred fifty non-athletes to compare differences in personality characteristics in terms of
hypochondria, depression, hysteria, psychasthenia deviation, femininity and paranoia. The study showed femininity and intelligence were significantly higher for football group when compared with the non-athletic group. The football group was characterized by a strong neurotic profile and significantly lowers in depression than the non-athletic group.

KROLL and CRENSHAW (1967) administered 16 PF questionnaires on eighty one male collegiate footballers, ninety four wrestlers, seventy one Karate participants and one hundred forty one gymnasts. Results exhibited that the footballers and wrestlers were homogeneous profiles and significantly different from gymnasts and karate participants. The gymnasts and karate participants were more self sufficient, more reserved and detached than wrestlers and footballers. Gymnasts were more relaxed than other three groups.

OGILVIE (1968) studied the personalities on college footballers, basketballers, Olympic swimmers and track and field competitors by using Cattle 16 personality questionnaire. The study found that those athletes retain motivation for competition had most of the following traits: ambition, organization, defense, dominance and aggression. Emotional maturity had complemented by self control, self confidence, tough mindedness, trustfulness, intelligence, high conscience, development and low level of tension.

BERGER and LITTLEFIELD (1969) investigated differences in personality between thirty outstanding college football athletes and thirty outstanding undergraduate students by administering California Psychological Inventory. There was no significant difference found in the scores between outstanding athletes and
outstanding non-athletes but the study revealed that participation in varsity football developed more favorable characteristics of social interaction and social living than non-participants.

COOPER (1969) administered Cattell P. F. Questionnaire to compare the male athlete and non athlete and results showed that male athlete described as aggressive, socially confident, more dominant and leader, higher in social adjustment, higher in self confidence, more competitive, more emotionally stable, greater pain tolerance ability, less anxious and less compulsive.

KROLL (1969) extensively studied the personality attributes as demonstrated significant differentiation between athletes and non-athletes or between athletes in different sports by administering Cattell P. F. Questionnaire. Results showed not only personality attributes differentiate athletes and non athletes but it also the differences on logical dimension between known levels of ability in the same sport and that participation enhances the magnitude of the trait.

RUSHALL (1970) administered the Cattle 16 personality factor questionnaire to the Indiana University football players. Results showed that no personality differences between successful and unsuccessful male footballers and no difference in personalities when comparing winning football players and losing football players at standard level of competition.

BHUSAN et al. (1978) conducted a study to evaluate personality characteristics of high and low achiever in Indian sport persons by administered the Cattle P. F. questionnaire on twenty high and twenty low achiever players. High achievers were represented country and low achievers had never achieved any
distinction in their respective games. The results revealed that the high achiever had significantly higher in dominances and surgency than lower achiever.

OMIZO (1979) studied on American world class male Olympic athlete and non athlete personalities and results found that athletes were significantly more reserved, intellectual, critical, aloof, conservative and conventional when compared to non athletes.

TRIPATHI (1980) studied male college participants of twenty each in hockey, cricket and football players by using Cattle 16.P.F questionnaire. No significant differences were found between three groups of players. Players from all disciplines were significantly more outgoing, emotionally stable, assertive, sober, expedient, shy, tough minded, practical, conservative, group dependent and relaxed when compared with 30 non-athletes.

SILVA (1981) studied optimal anxiety level on eighty six US Greco-Roman and free style Olympic wrestlers. The results showed in STAI and the IPAT anxiety trait measures that non medalists scored higher than medalists in anxiety, depression and regression personality traits.

SABRE (1984) compared the personalities between twenty men south zone inter-university and twenty state level footballers in India by using 16 P.F questionnaires. The results showed that there was no significant difference in personality traits between the two levels of footballers.

GUPTA (1989) selected thirty six India represented hockey players and thirty six non athletes from the state college of education Patiala to analyze the personality characteristics of two groups. The results of the study indicated that hockey players
had greater ability to concentrate, self confident, extraversion, tendency to worry and less intelligent as compared with the non athletes.

SHAH, SINGH and PATHAK (1990) administered Cattell 16 personality questionnaire and competitive state inventory-2 on twenty one international marathon runners to investigate extraversion, neuroticism, psychotism and state anxiety, cognitive anxiety, self-confidence. The results indicated that successful marathon runners found high mean value in extraversion, neuroticism and self-confidence scale and low mean value in psychotism, cognitive anxiety, somatic anxiety and total competitive state anxiety.

RADHA (1991) studied aggressiveness in relation to football playing ability of one hundred male university soccer players from the State of Tamil Nadu, Kerala, Andhra Pradesh and Karnataka. Aggressiveness test questionnaire (AD) developed by Rainer Martex and Smith was adopted for the purpose of the study. Experts were subjectively rated the football playing ability on a 10 point rating scale. It was traced from the results of the study that there was a negative correlation between playing ability and aggressiveness among inter-university football players.

SMITH (1996) examined the goal orientation on perceived peer relationship and motivation related responses on two hundred twenty three male soccer players. The study revealed that lower proportion of participants exhibited the achievement goal profile consisting of relatively high ego orientation. Achievement goal profile differences had found for positive friendship quality with a general friend and relatively lower task goal orientation exhibited less adaptive responses and achievement goal framework. Dispositional achievement goals showed deeper
understanding of social relationships and motivational process in football sport.

SWELL and EDMONDSON (1996) examined relationship between pre-competitive state anxiety and field position on one hundred twenty one soccer players. Pre-game state anxiety was measured by using of competitive state anxiety inventory (Martens, Vealey and Buzton, 1990). The data were collected thirty minutes before the start of university level game. Analysis of data revealed that goalkeepers had significantly higher levels of cognitive anxiety and more somatically anxious and self confident than defenders, midfielders and forwards. Midfielders and forwards were more somatically anxious than defenders, whereas midfielders were less of self confident than defenders.

STEPHENS (1996) studied the motivational dimensions of aggressive behavior on two hundred twelve soccer participants. Stepwise multiple regression analysis revealed that aggressive behavior was related to the team’s “moral atmosphere”, including team aggressive norms, players’ perceptions of team norms and coach characteristics and player’s moral motives for behavior.

KAMLESH (1999) conducted a study on one hundred ninety one inter-university athletes. Five tests namely Lorrence’s tests of creative thinking (non-verbal Form A), Standard Progressive Matrices (Adults) Raven, IPAT (Form–A) by Eysenck and A. S. Reaction study adopted by Dr. N. K. Dutt were administered. Results revealed that no significant difference found in the levels of creativity, intelligence, anxiety, extraversion-introversion, neurotism and ascendance submission performance in high and low performers.

ALITTM and SHAHRIAR (2001) conducted a psychological study on male
athletes and non athletes’ students in universities in Tehran (Iran) by using Cattle 16.P.F questionnaire. The results of the study showed that athletes had significantly higher levels of self confidence, concentration, motivation, controlling, goal setting and imagery than non athlete students.

LOWTHER (2002) investigated the competition group cohesion moods on thirty two male university soccer players in Southern England. Subjects completed the Group Environment Questionnaire (Carron, Brawley & Widmeyer, 1985) and Brunel mood Questionnaire (1999) before and post of each eight matches. Mood scores significantly higher in anger (P < 0.05), confusion (P < 0.01), depression (P < 0.01) and vigor (P < 0.05) in losing game and performance relation to win was positively related to vigor and depression.

CAKIOGLU (2003) investigated the preferred and perceived leadership and satisfaction between the offensive, defensive and midfield university soccer players in Turkey. Chelladurai and Salah’s (1980) leadership scale was used to assess preferred and perceived leadership behavior. Satisfaction was evaluated by using Satisfaction Questionnaire (ASC; Riemer & Chelladurai, 1998). All questionnaires were adapted to Turkish from English. The results of the study indicated that offensive players had greater preference for democratic behavior, positive feedback and more satisfied with individual performance. Midfielders were greater preference for autocratic behavior and more satisfied with personal training, treatment and instruction. The defensive players had higher in preference for social support and more satisfied with team performance.

KORUC et al. (2007) investigated fifty one Turkish professional soccer players
to examine the relationships between competitive anxiety and motivational tendencies. The English version Sports Competition Anxiety Test (SCAT-A), Competitive State Anxiety Inventory – 2 (CSAI-2) and Sports Motivational Scale (SMS) were employed for the purpose of study. Results showed no significant differences between SCAT-A and CSAI-2. But a significant relationship was found between competitive anxiety and motivational tendencies of the soccer players.

MASOUMESH and AMIR (2007) studied on sixty one senior and youth Iranian male national team soccer players to analyze the motivational characteristics by administering sports attitude inventory (Willis, 1982). The results indicated that motivation to achieve success was twice as much their motivation to avoid failure and senior national team players had more competitive motivation than youth players.

WEBEE (2007) conducted a study on sixty elite male soccer players to determine the personality traits in relation to heading frequency during game situation. NEO-FFI Personality Inventory was employed for the purpose of the study. Results showed that players who headed most had significantly higher extraversion scores than soccer players who headed less. Physical height was the best predictor of heading frequency but was not correlated with extraversion.

AHMADI et al. (2009) studied achievement motivation between football players of high and low ranking team players in super league of Iran. Fifty eight footballers were selected from high ranking teams and Fifty eight players were selected from low ranking teams. The results revealed that there were no significant differences found between football players of high and low ranking teams on achievement motivation, competitiveness and goal orientation. But there was
significant difference found in win orientation between of high and low ranking team players.

DUREHA et al. (2010) compared thirty national and thirty international hockey players on the selected personality tests. The results of the study showed international players had significantly more in sports competition anxiety than national players and no significant differences were found in incentive motivation, achievement motivation, state anxiety and trait anxiety between national and international hockey players.

MUDIMELA (2010) studied personality factors on six hundred twenty five football players in three different levels (inter-university, inter-district, inter-collegiate). Results showed Inter-district footballers had more aggression and motivation in relation to performance and aggression and motivation contributed significantly to performance and anxiety had negative impact on the performance.

KUMAR and DEEPLA (2011) studied the individual game sport persons and team game sport persons. The results found that individual game players had significantly more achievement motivation and anxiety than team game players.

RATHEE and SINGH (2011) examined the achievement motivation, emotional and social adjustment between international and national players of basketball, hockey, handball and football games. Results showed that international players had significantly higher levels of achievement motivation as compared to the national level players and no other significant differences were found in this study.

BEHZADI et al. (2012) compared the personality traits between basketball, soccer, volleyball, kabaddi, sepak takraw, handball, hockey, track and field, karate,
shooting, badminton and cycling players. Subjects were compared by using the NEO Five-Factor Inventory (NEO-FFI). The results showed that team athletes had significantly higher levels of extraversion and responsibility and individual athlete had higher neuroticism.

2.6 CRITICAL ANALYSIS OF THE REVIEW OF LITERATURE

A critical analysis of review of literature regarding structure of football performance indicates that the performance is very complex in nature with a large number of groups of influencing factors.

A summary of literature review reveals the following:


ii) Performance of football game has been reported to be significantly influenced by motor fitness components like speed, agility, cardio-vascular endurance, leg muscles power, flexibility, balance (McGee; 1979, Das; 1984, Carlson; 1994, Reilly; 1996).

iii) Dribbling, goal scoring ability, correct passing and receiving, heading and tackling has been described as significant determinate techniques in football game performance (Singh; 1984, Bate; 1988, Gulustian; 1995, Russel; 2010, Williams; 2002).

iv) Personalities of footballers described as more warmth, emotionally stable, rule conscious, socially bold, openness to change and perfectionist (Loehr; 1982, Chung; 2000, Hiddink; 2001, Jones; 2002, Kim; 2003,)