Chapter – II  
Review of Related Literature

Football, accepted as one of the most popular games in the World consisting of ball skills and body movements with deception, anticipation as well as physical fitness ability. Most of the related literature in this field was collected from the various libraries from within Punjab, which are well known in the field of physical education and sports. The libraries of N.I.S Patiala, Govt. College of Physical Education Patiala and Punjabi University, Patiala were consulted to find out the previous research work done by the researches. After reviewing the related literature in Research Quarterlies, Dissertation Abstracts International, various thesis and many other Journals as well as unpublished research works of N.S.N.I.S. Masters course students, it was found that a lot of research work had been carried out in advanced countries on the relation between soccer performance and Soccer Skills and Physical Fitness levels of players. A review of the available studies related to the present problem is presented in this chapter under the following headings:

a) Relation between performance in Football skills and physical fitness variables.

b) Relation between performance in Football Playing ability and physical fitness variables.
c) Relation between performance in Football Playing ability and Football skills.

2.1. Relation between Football Skills and Physical Fitness Variables:

The relation between physical fitness measurements and skill performance is still a widely discussed topic in sports research.

Thomas (1964) has pointed out that the only way to improve skills is to build-up requisite strength and endurance. He had further stated that strength ensures to elevate the skills to higher levels of performance. According to him, the physical requisites of soccer players are endurance, speed, agility, strength, power and balance. The muscles of the arms, shoulders, back and legs must also be strengthened and their movements are co-ordinated in split second to maneuver in ball control and tackling the opponent. He further added that average level skills can never assure victory.

Nabhendra Singh, (2010) Balance is involved to some degree with all motor performances and some performances heavily depend upon balance. Dynamic and stable both are of great importance in all body contact sports such as sports and games athletics, football, Soccer, baseball and hockey.
Nabhendra Singh, (2010) is the ability to change the direction of body or its parts rapidly’ is dependent on strength, reaction time, speed of movement and muscular coordination. Quick start and stops and quick changes in direction are fundamental to good performance in Football.

In general terms, fitness of football players is often referred to as being made up of four S’s, namely, a) strength, which enhances the performance and execution of many football players. Every skill that a player must perform against resistance will benefit from the improvement of strength. b) speed, which is not only all speed work about quick sprints, but often includes concentrated intensive spells lasting much longer than a few seconds, such as fullbacks making an overlapping run, then running back to get into defensive position, c) stamina, scientific studies have shown that enhancing aerobic (with oxygen) endurance in Football players can improve their performance by increasing the distance covered, the work intensity and the number of sprints and episodes involved with the ball during a game. d) suppleness (or flexibility), the flexibility requirements of football players vary depending on the position and role of the player in the same way as it varies between sports.
Prins (1978); Stevans (1980); Kaneshisa and Miyashtia (1983) Strength training is found to increase the concentric and eccentric strength and kick performance of Football players.

Cabri et.al. (1988) conducted a study on eleven soccer players and a control group of ten adult non-football players to find the impact of strength on the kick performance and found that the kick performance was greater in football players which lead to conclude that greater muscular strength will result in a greater kick performance. The findings of this study indicate that kick performance correlates significantly with concentric strength of the knee extensions and eccentric strength of the knee flexors.

Taiana et al (1993) have reported that with maximal strength of lower limbs of Soccer player’s speed in kicking performance was increased. Though it is widely accepted that speed and accuracy in kicking for goal shooting and passing are depend upon explosive strength, which is also known as power of lower extremities, it is reported by other experts that kicking performance is not affected by different kinds of strength (De Proft et al, 1988).

It is also reported by Trolle et al (1993) that high resistance strength training did not improve the speed in kicking performance. Maximal strength training enhances

Helgerud et al (2001) Enhanced aerobic endurance in soccer players improved soccer performance by increasing the distance covered, enhancing work intensity, and increasing the number of sprints and involvements with the ball during a match.

Niv Orlian, in his article, “How to improve soccer dribbling skill” has mentioned that there are several types of dribbles that have different purposes in the game and by types of dribbles the author did not mean specific moves, or specific tricks, but rather game mechanics involving dribbles that have a certain end-goal and he has further stated that “Strength” is a major factor in receiving dribbles and positional ones, since it allows the player to use his body as a wall between the ball and his opponent, repositioning him or her so he/she create an advantage towards the enemy goal.

Masuda K et al (2005) after conducting a study on the Relationship between muscle strength in various isokinetic movements and kick performance among Football players and have concluded that different approach angles would alter the requirement on muscle strength potential of both kicking and supporting leg during kicking. Especially an angled approach to the kick direction could require greater hip extension and
abduction strength on the supporting leg for a higher capability for stabilizing body balance. Besides, skill level may alter the importance of muscle strength requirement to kick performance.

Ekblom Bjoern (1986) in his book Football (Football) has reported that Strength in the lower limbs is of obvious concern in football, the Quadriceps, hamstrings and triceps groups must generate high forces for jumping, kicking, tackling, turning, and changing pace. The ability to sustain forceful contractions is also important in maintaining balance and control. For Goalkeepers almost all the body’s muscle groups are important. For outfield players, the lower part of the trunk, the hip flexors and the planter and dorsi flexors of the ankle are used most exactly. Upper body strength is employed in throw-ins and the strength of the neck flexors could be important in forcefully heading the ball. At last a moderate level of upper body strength should prove helpful in preventing being knocked off the ball, concluded the author.

(Hoeger et al 2002) have reported that ‘Power and speed’ are needed to propel the body of the football player into the air, and fitness tends to do better and players are able to learn faster when performing a wide variety of skills.
Reilly et al (2005) have reported that ‘Speed-endurance’ can help players to improve their ability to perform motor skills such as tackling, heading in football.

Nabhendra Singh, (2010) The twin combination of both skill and physical fitness is indispensible for a player without either of which he will not be able to achieve much, specifically in order to play any ball game competently.

2.2. Relation between Physical Fitness Variables and Game Performance in Football:

Uppal and Roy (1986) conducted a study on assessment of motor fitness Components for prediction of Football playing ability. The 33 male Football players attending coaching camp prior to inter-university competitions were taken as subjects. Five motor fitness components namely, speed (50 mt. dash), agility (4 x 10 mt. shuttle run), maximum leg strength (leg dynamometer), explosive leg strength (standing broad 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 co-efficient is higher than zero order correlation coefficients, therefore,
further better performance in Football all the independent component chosen must be considered.

Saha, (2008) studied the Football playing abilities of the players between 16-19 age group. For this a battery of 13 tests were selected which measure Football abilities objectively. The test items were :- 1) Ball-juggling 2) Heading 3) Kicking for distance and accuracy 4) Dribbling 5) Shuttle run with ball 6) Shooting at goal 7) 300-yards run 8) Trunk flexibility 9) Throw in 10) Agility run without ball 11) Bent let sit ups 12) Three consecutive hop with one leg (R & L) 13) 2.4 km run. On the basis of the results obtained, it was reported that there was no significant difference as far as Football abilities were concerned between 16, 17, 18 & 19 years.

Enhanced aerobic endurance in Football player's improved Football performance by increasing the distance covered, enhancing work intensity, and increasing the number of sprints and involvements with the ball during a match. Wisloff U, Hoff J.Helgerud, J (1998) during soccer games, many actions affect the result of games. These actions are characterized by intermittent and multi-directional movements, as well as the movements of changing intensity and time. Reilly and Ball (1984) stated that each game typically involves about 1000 changes of activity by each individual in the course of play, and each change requires abrupt acceleration or deceleration of the body or an alteration in the direction of motion.
Wisloff et al. (1998) found significant difference in endurance (maximal O2 uptake, 13% difference) and leg extensor strength (1-RM squat, 22% difference) between the best and the worst teams of the Norwegian elite division. However, the only difference found by Arnason et al (2004) in their study while comparing the team averages between divisions was that the teams in the elite division were taller than in the first division. According to Arnason et al, if the individual test results of the players were compared instead of the team averages, peak O2 uptake was also found to be 2.4% higher among elite players than in the first division. However, when examining the relationship between the team average fitness indices and team success within divisions, the only significant correlation observed was for jump height (CMJ and SJ), although trends were seen for leg extensor power and body composition, as well.

Akgun, (1996) Explosive power, together with reaction time, decides the results of competitions in the first 2–3 meters. Since soccer requires 1–3-second explosive sprints, the importance of this feature becomes much more obvious in the performance of players. Research has shown that speed can be improved by strengthening the muscles (Akgun, 1996). To enhance explosive muscle power and dynamic athletic performance, complex agility training can be used. Because of
that agility exercises are usually used at the start of the main part of a training session when the body is at full work rate Goran Sporis et al., (2010).

Helgerud et al (2001) conducted a study involving nineteen male elite soccer players of age 18.1 +/- 0.8 years carried out the specific aerobic training consisted of interval training, four times 4 minutes at 90-95% of maximal heart rate with a 3 minutes jog in between, twice per week for 8 week found that enhanced improvement in aerobic endurance in soccer players improved soccer performance.

Few other studies have been conducted in which physical fitness levels of different levels of Football players were compared, Cometti et al(2001); Rosch et al (2000); Russo et al (1992). Some of these studies indicate that Football players playing at a higher level have a significantly higher vertical jump than players at a lower level Gauffin et al (1989); Rosch et al (2000), but not all studies have confirmed this finding, Wisloff et al. (1998); Cometti et al (2001). The researchers were not able to measure sprint speed, but studies have shown that there is a close correlation between jump height and running speed, Gauffin et al (1989), as well as leg extensor strength, Ekblom (1986); Wisloff et (1998).

In accordance with another findings, the main physical difference between elite and non-elite Football players is their
sprinting speed, Davis, J.A. et al (1992); Ekblom (1986). A subsidiary explanation could be that the best teams were more homogenous than the lesser teams in their physical fitness level. However, when variation within each team was analyzed, no trend toward a greater variance among the lower placed teams was observed.

Arnason, A. et al (2004) after conducting a study on “Physical fitness, injuries and Team Performance in Soccer”, have stated that the present results on player age, height, weight, body composition, standing jump, and peak O2 uptake are in accordance with previous studies on elite soccer players, whereas the countermovement jump height results were in the lower range reported before by AL Hazzaa, H. M Et Al (2001); Arnason, A.,(1996); Bangsbo, J., And F. Lindquist (1992); Casajus, J. A (2001). The researchers have also reported that other test variables such as flexibility, strength, and power tests are more difficult to compare between studies because of differences in the test methods used. According to them, the comparison between different playing positions showed that the goalkeepers had different characteristics from the outfield players, a reflection of the difference in requirements between these player groups. The researchers have further stated that in accordance with Davis et al.
(1992), the goal keepers have a lower peak O2 uptake, indicating that running ability is less important for them and they were taller and heavier than outfield players, and displayed a greater leg extension power. Because the important tasks of a goalkeeper are to react and move quickly, to jump or dive to save or deflect shots, and to cover a large perimeter, the researchers also expected to find a difference for jumping ability. According to the researchers, they had observed very few differences between the three groups of outfield players, defenders, midfielders, and strikers. Defenders were significantly taller than midfield players, which can be taken as an indication that size is an advantage in this position—to be able to reach high balls in their defensive role and perhaps to increase their reach in tackling duels, as well. They did not find a difference in peak O2 uptake between midfield players and strikers or defenders, as has been suggested by other earlier researchers. The small differences observed in physical fitness between players in different player positions by Arnason et al, as stated by them is perhaps not surprising, because in modern soccer each outfield player assumes a larger role in the overall play of the
team, so the positional differences are less than previously seen.

The researchers also concluded that ‘The main finding... was that surprisingly few differences were observed in the team average test values between or within the two highest male Football divisions in Iceland. Moreover, the relationship between team average performance on the various tests and team success expressed as final league standing was generally weak. Finally, goalkeepers appeared to have a different fitness profile from the other player positions, whereas the three groups of outfield players were similar in their performance on the tests.’ The researchers conclude that their limited ability to predict team performance from physical fitness tests suggests that other factors may be more important, such as player technique, team tactics, psychological factors or injuries. ‘This does not mean,’ they hasten to add, ‘that a team with superior fitness would not have a definite advantage when playing an opponent with less physically fit players... Nevertheless, the ability to transform this fitness advantage to a real performance advantage would depend on a number of other factors, such as motivation, and technical and tactical skills.

It is also understood from the literature review that experts differ in their opinions about the impact of strength
on kicking performance of football players and no clear evidence is available in the literature about the impact of strength on the performance of kicking in football at College level Football Players. College level football players may not be getting trained on scientific lines throughout the year and as such they might not have developed the physical fitness parameters to optimum level and their ball skills also may not be to the level of elite footballers of professional clubs or national and international level players. No scientific research has also been conducted to find out the relation between physical fitness parameters and performance in Football skills at college level football in India and reported in Literature. Hence, it is felt necessary to carry out a study to find out the relationship between physical fitness components and playing ability of inter college level male football players.

2.3 Relation between Football Skills and Game Performance in Football:

Players in Football need not only physical fitness but also technical and tactical skills to succeed in their performances.

According to Reilly P. Thomas, Christopher carling, A. Mark William (2005) many matches in Federation Cup Tournament (FIFA) and also in EURO 96 competitions were decided by penalty shoot outs and the goal kicking from the
spot with speed, power and accuracy. They have further reported that major factors for number of goals scored during the set-play situations are known to be the speed and accuracy in kicking.

According to Tiryaki et al. (1996), the modern Football relies on the ability of all players to attack and defend whenever necessary. Therefore, it is important that all players achieve a high level of performance in the basic skills of kicking, passing, trapping, dribbling, tackling and heading and the game performance mainly depends upon the level of these skills.

Guha (1993) has found that the performance ability in basketball can be assessed by the performance in modified AAHPERD (1984) skill tests namely speed spot shooting, passing, control dribble and defensive movement’s tests.

According to Harrison (1969), performance abilities in basketball are depend upon four main areas in skills namely shooting, passing, dribbling and jumping.
2.4. **Summary:**

It is evident from the review of literature that the performance in football is dependent on the skills, which is dependent on the physical fitness abilities of the players.

It is also understood from the literature review that experts differ in their opinions about the impact of strength on kicking performance of football players and no clear evidence is available in the literature about the impact of strength on the performance of kicking in football at college level football. College level football players may not be getting trained on scientific lines throughout the year and as such they might not have developed the physical fitness parameters to optimum level and their ball skills also may not be to the level of elite footballers of professional clubs or national and international level players. No scientific research has also been conducted to find out the relation between physical fitness parameters and performance in Football skills at college level football in India and reported in Literature. Hence, it is felt necessary to carry out a study to find out the relationship among the selected football skills, physical fitness component and playing ability of inter college level male football players.