Chapter – I
Introduction

Football, formally known as Association Football, having begun in England in 1848, it is now being played in more than 210 countries throughout the world and more than 150 countries being registered with FIFA (Federation International de Football Association), the international governing body, which was itself established in 1904. It is considered to be the most popular sport in the world, both in terms of participation, and as a spectator sport. It was estimated that in 1984, there were 60 million licensed, and an equal number of unlicensed players. Since that time, the game’s popularity has increased in continents of Africa and Asia.

Football has become one of the most widely played sports in the world Inklaar, (1994); Tumilty, D, (1993) and Nabhendra Singh (2010). It is characterized by short sprints, rapid acceleration or deceleration, turning, jumping, kicking, and tackling, Bangsbo, J and L.Michalsik (2002); Wisloff, U., J. Helgerud and J. Hoff (1998). Football may be played competitively or for fun, as a career, a means of keeping fit or simply a recreational pursuit Reilly, (1996). Football is popular because of the fact it is a simple game requiring very minimum infrastructure and equipment. The game consists of two equal periods of 45 minutes, with a fifteen minutes break.
between. Eleven players from each team will be on the field. The Players may be classified into four categories: goalkeepers, defenders, midfielders, and forwards. During the game, players are required to perform activities like jogging, running (forward, backward and sideways), kicking, turning, heading and throwing. Leonardo et al (2007), having studied the fitness profile of under-15 Brazilian Soccer players by field position have reported that there were no significant difference in the field position in 30 meters sprint, Squat jump and counter movement jump.

Fitness is very important to everyone on the field. Football is one of those rare games which demands not only speed but also agility, strength, power and endurance. Players in Football need not only physical fitness but also technical and tactical skills to succeed in their performances. Fitness is important at all levels of the game, while it is being essential for top level players, it is beneficial for beginners who will improve their performances through good standards of fitness.

It is generally assumed that through the years, the game has developed to become faster, with more intensity and aggressive play. Elite Football is a complex sport, and performance depends on a number of factors, such as physical fitness, psychological factors, player technique, and team tactics. During a 90-minutes Football match an elite player
covers on the average between 10 and 11 km per game, Bangsbo et al. (1991 & 2002). For example, it has been reported that male players cover 10,245 meters Van Gool, Van Gerven, & Boutmans, (1988); 9845 meters Ohashi, Togari, Isokawa, & Suzuki, (1988); 11,527 meters ‘Australian elite players’ Wither, Maricic, Wasilewski, & Kelly, (1982) and 10,335 meters, elite junior players: Helgerud, Engen, Wisloff, & Hoff, (2001). Although the distance covered by different players in same position varies, studies have shown that midfielders travel farther than defenders or attackers, probably because of their linking role in the team, Bangsbo et al. (1991). Among the defensive players, the fullbacks usually cover more distance than center backs, since they are usually more involved during the attacking phase. Although most of the movement for all players is at low or sub-maximal intensity, Bangsbo et al.(1992); Reilly, T (1994) and Reilly, T (2000), it has been estimated that the mean work rate is about 70–75% of maximum oxygen uptake and close to the anaerobic thresh-old, Bangsbo et al (1992); Reilly (2000). Midfield players cover a greater percentage of their distance at lower intensity, whereas attackers cover a greater proportion at a sprint, Ekblom (1986) and Tumilty, D (1993). This indicates that there may be a difference in the requirements between different playing positions, but whether this is
reflected by differences in fitness is not clear. Ball skills such as kicking for accuracy, kicking for distance, dribbling with change of direction, dodging with the ball, goal kicking, heading etc. are most essential skills in elite football. The performance ability of all those skills is depending upon the physical fitness of the players.

1.1. Trends in Demand of Ball Skills in Present Day Football:

Modern football players have become highly skillful and athletic with high level of physical fitness. Modern football demands technical perfection on the part of individual players as well as on team as a whole besides other aspects. Accordingly, the offensive skills of the modern football players have improved to a great extent. The quality of passing and kicking has become crucial for any Football team to successfully advance the ball up-field. Ball possession is maintained by a team by making more passes between and among the team mates, which is considered safer method than any other ball manipulation skill. As soon as the ball is received, each player is found to initiate a pass for 80% of the time and the remaining 20% time the player is found to either dribble or shoot at the goal. The research results indicate that a frequency of 3 to 5 passes is suitable to make more number of attacks and to score goals. It is also understood from the
research results that 10 to 12 shots are required to be made at the goal to score a goal in top class competitions. (Reilly P. Thomas, Christopher carling, A. Mark William (2005)) Hence, in the recent past, the principle of penetration has gained more importance than keeping possession of ball. However, the experts are found to differ in their opinions with regard to maintaining ball possession by making more number of passes between and among team members. Nevertheless, passing is accepted as one of the greatest weapons of attack in football.

Teams which are having players skillful in passing alone are not found to emerge victorious teams always. The ability of the team to score goals is accepted as the deciding factor. The analysis of the characteristics of the goals scored during the World cup matches, European Championship matches is found to reveal that greater numbers of goals are scored from the crosses made from both the sides of the mid-field. It is reported in the literature that the percentage distribution of the goals through dribbling, central penetration, crosses and set-plays were 4.3; 18.3; 27.8 and 32.2 respectively. The successful shooting techniques employed by the players for scoring the goal were found to be kicking with the front side of the foot, inside of the foot and instep of the foot besides heading. The major factors for number of goals scored during the set-play situations are known to be the speed and
accuracy in kicking. Reilly P. Thomas, Christopher Carling, A. Mark William. (2005) Many matches in recently held 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. The technical perfection in kicking for passing or for goal scoring is found depend upon abilities such as explosive strength, explosive strength endurance, specific speed endurance, run-up speed, agility etc.

1.2. Trends in Demand of Fitness Components of Present Day Football:

The fitness demands of Football have changed dramatically over the past ten to fifteen years as the nature of the game has changed. The intensity of the game, with its emphasis on running and play on at all costs, has necessitated that greater consideration be given to the physical conditioning of the players.

Footballers today may cover over 15 kilometers per game, performing many short high intensity sprint efforts over distances of between five to thirty meters. Apart from running, the player must also perform various physical activities such as kicking, marking, tackling, and jumping. These actions and the running nature of the game demand players to develop a number of important fitness attributes. To participate in
football a player must reach an adequate level in each of the following components of fitness: Speed, Agility, Quickness, Endurance, Power, Flexibility and Strength.

However, fitness is specific to each player and the individual must assess, whether they meet the general demands of the game, and the specific demands of the playing position. The specific demands of the various playing positions require that one or more of these fitness components needs to be developed for successful performance. For example, a midfielder is required to cover a greater distance in a game than a set position player and consequently needs to develop a greater capacity for endurance in his preparation. Considerable amount of researches are conducted on the physical fitness requirements of football players in Western countries. The researchers having studied the fitness level of Individual football players have reported that 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 was found, Wisloff et al. (1998). 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. 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 al. (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.

The researchers have reported that 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 goalkeepers 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, (2004) as stated by them is perhaps not surprising, because in modern Football each outfield player assumes a larger role in the overall play of the team, so the positional differences are less than previously seen.

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.

The physiological demands of football are more complex than in many individual sports since players require some of the physiological attributes of both marathon runners and sprinters. In soccer, speed plays an important role; the accelerated pace of the game calls for rapid execution of typical movements by every member in a team. The demands on players vary depending on the level of performance, positional role and style of play incorporated by a team. The various demands placed on players at all levels during a
match include, short sprints, slow jogging, walking, running backwards, sideways and diagonally, accelerating and decelerating, jumping, tackling, kicking, changing direction, contesting for possession, the ability to recover rapidly. As a result, the various components that make up the overall fitness of a player as well as their energy systems within the body (the systems that produce energy either with or without oxygen) are put under various degrees of stress, so there is a need for them to be adequately developed.

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. The ability to sustain forceful contractions is also important in maintaining balance and control. Isometric strength is possibly important in maintaining a player’s balance on a slippery pitch and also in contributing to ball control. Skills and ability can only take a player so far before the intangibles, such as strength, speed, stamina and suppleness, are severely needed. Having a great shot does no good if a player can’t get it off against faster, stronger and better fit defender. These key attributes turn marginal players into good players and good players into great players.

1.3. Impact of Physical Fitness on the Performance of Skills in Football:

According to the Dawson (2003), the large majority of sprints performed in soccer take six seconds or less to complete, over distances of only 10-30 meters, and many of the sprints involve at least one change of direction. As running speed increases, longer strides are taken. In football, speed plays an important role; the accelerated pace of the game calls for rapid execution of typical movements by every member in a team.

Strength training is found to increase the concentric and eccentric strength and kick performance of Football players,
Prins (1978); Stevans (1980); Kaneshisa and Miyashtia (1983). Taiana et al (1993) have reported that with maximal strength of lower limbs of Football 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 running economy and aerobic endurance performance, Hoff et al (2002). 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 Helgerud, J, Engen L.C, Wisloff U, Hoff J. (2001) 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; Kikuhara N; Demura S; Katsuta S; Yamanaka K, (2005) after conducting a study on the Relationship between muscle strength in various isokinetic movements and kick performance among soccer 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. Bjoern Ekblom (1986) in his book Football (Soccer) 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 exactingly, 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.

Reilly et al (2005) have reported that ‘Speed-endurance’ can help players to improve their ability to perform motor skills such as tackling, heading.

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.

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 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 soccer 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.

1.4. Statement of the Problem:

The Research Problem can be stated as follows:- “Relationship among selected football skills, physical fitness component and playing ability of inter college level male football players.”

1.5 Objectives of the Study:

a. To study the relationship between selected football skills and physical fitness component of inter college level male football players.

b. To study the relationship between selected physical fitness component and playing ability of inter college level male football players.

c. To study the relationship between selected football skills and playing ability of inter college level football players.
1.6 Hypotheses:

Based on the information gathered through the literature survey, the following hypotheses can be formulated:

a. The performance in selected soccer skills will be statistically significantly correlated with the physical fitness abilities of college level soccer players.

b. The playing ability of college level soccer players will be statistically significantly correlated with the physical fitness abilities of college level soccer players.

c. The playing ability of college level soccer players will be statistically significantly correlated with the selected soccer skill of college level soccer players.

1.7. Significance of the Study:

The findings of this study will enable us to know which football skills related to the playing ability and which physical fitness component are related to football skills and playing ability at college level football so that we will be able to develop those skills and physical fitness component following scientific training program, which will enable us to raise the standard of college level football.

1.8. Delimitations of the Study:

The study will be delimited to:

a. Soccer players are age group of 18 to 25 year of Punjab
Universities: - namely Punjabi University, Patiala; G.N.D.U. Amritsar and Panjab University, Chandigarh only.

b. The study was delimited to 180 male inter college level soccer players.

c. Soccer skill test are recommended by the Portuguese Football Federation; physical fitness test as constructed and standardized by Nagerkoti (1989) and playing ability (self-made) were adopted.

d. The period of conducted study was 2009 to 2011 in the month of September and October only.

e. Assessment of the Physical fitness abilities of the subjects will be carried out only through field tests.