Chapter – V
Summary, Conclusion, and Recommendations

5.1. Introduction:

Football, formally known as Association Football, having begun in England in 1848, is now being played worldwide, with more than 200 countries being registered with FIFA (Fédération International de Football Association), the international governing body, which was itself established in 1904. At present, after the 2000 Ordinary FIFA Congress, FIFA has 204 members in every part of the world. 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) and Tumilty, D, (1993). It is characterized by short sprints, rapid acceleration or deceleration, turning, jumping, kicking, and tackling, Bangsbo, J; L. Michalsik (2002); Wisloff, U., J. Helgerud and J. Hoff (1998). During the game, players are required to perform activities like jogging, running (forward, backward and sideways), kicking, turning, heading and throwing. 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.

Strength training is found to increase the concentric and eccentric strength and kick performance of football players, Prins (1978); Stevans (1980); Kaneshisa; Miyashtia (1983) and 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 football players 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, Helgerud, and Hoff J. (1998)

Niv Orlian, in his article, "How to improve football 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, and Yamanaka K (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. Bjoern Ekblom in his book Football has reported that Strength in the
lower limbs is of obvious concern in football, the Quadriceps, hamstrings 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.

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 (Hoff J. and Helgerud J. 2004).
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 demand of the various playing positions requires 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 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) and Wisloff et al. (1998).

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

Hoeger et al (2002) The ‘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 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 football players 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 was 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.
5.2 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."

5.3 Objectives of the Study:

a) There will be significant relation between selected football skills and physical fitness component of inter college level male football players.

b) There will be significant relation between selected physical fitness component and playing ability of inter college level male football players.

c) There will be significant relation between selected football skills and playing ability of inter college level football players.

5.4 Hypotheses:

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

a) The performance in selected football skills was found statistically significantly correlated with the physical
fitness abilities of college level football players.

b) The playing ability of college level football players was found statistically significantly correlated with the physical fitness abilities of college level football players.

c) The playing ability of college level football players was found statistically significantly correlated with the selected football skill of college level football players.

5.5 Delimitations of the Study:

The study was delimited to:

1. Football 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.

2. The study was delimited to 180 male inter college level football players.

3. Football skill test are recommended by the Portuguese Football Federation; physical fitness test as recommended by Nagerkoti (1989); Bala (2000) and Tarlok (2001) and playing ability (self-made) were adopted.

4. The period of conducted study was 2009 to 2011 during inter college competition only. only.

5. Assessment of the Physical fitness abilities of the subjects will be carried out only through field tests.
5.6 Limitations of the Study:

1. No Special motivational technique was used during the test, therefore, the difference that may occurred in performance due to lack of motivation was recorded as the limitation of the study.

2. The investigator was unable to control their daily routine, training and competition schedules.

3. The data on all the volunteered subjects cannot be collected at the same time, as the Universities were having competition matches on different dates.

4. The investigator did not control other variables such as interest, attitude, co-operation, home environment, genetic makeup, socio-economic, cultural, religious educational background and diet which might serve as the limitation of the study.

5.7 Significance of This Study:

The findings of this study will enable us to know which are the 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.
5.8 Sampling of Data Collection:

The Study will be conducted by selecting 180 football players of inter college level of three Universities from Punjab namely, GNDU Amritsar, Panjab University Chandigarh and Punjabi university Patiala.

For the collection of research data, the football skill tests were administered outdoors on a playing field. The players were instructed to get warmed-up in the usual manner before a practice session (stretching and jogging), and also rested between tests. The tests were administered in a station format and not in any specific order. Similarly the physical fitness tests were administered on two different days and on the first day the sprint test, explosive strength test, agility test were administered and on the second day, the flexibility test and endurance test were administered. All the tests were demonstrated to the subjects once and they were also allowed to have one or two trials to get themselves oriented with the test requirements and the subjects were motivated to give their best performances in the tests.

5.9 Research Methodology:

In this analytical correlation study, the relation between selected physical fitness variables and selected football skills and between these variables and actual game performance of
college level football players was studied. For this all the research subjects were administered the selected physical fitness tests and football skill tests and the relation between the performances of the subjects in the physical fitness tests and football skill tests was analyzed through computing correlation coefficient between these variables and also their relation with the game performance was analyzed.

For this analytical study, the following physical fitness tests and football skill tests were selected:

A) PHYSICAL FITNESS:

i) -Hop step test;-for assessing Explosive Strength Endurance of legs.

ii) -Sprint test;-for assessing sprinting speed.

iii) -Shuttle run test;-for assessing the agility of the subject.

iv) -2.4Km run:-for assessing the endurance level of the subjects.

v) -Bend and reach:-for assessing the flexibility of the subjects.

B) FOOTBALL SKILL TESTS:

The tests, which are recommended by the Portuguese Football Federation and are traditionally used in Portugal, Seabra et al. (2001; Coelho e Silva et al. (2004) were adopted
for this study after calculating their reliability and validity on
the selected sample:
  i) Ball control with the body.
  ii) Ball control with the head.
  iii) Dribbling with a pass.
  iv) Dribbling speed.
  v) Passing.
  vi) Shooting.

C) ASSESSMENT OF PLAYING ABILITY:

The Playing ability of the subjects was to be judged by
three experts, who have enough knowledge and experience in
football coaching on seven point scale and the average of all
three scores, was to be taken as playing ability score of the

5.10 Statistically Analysis:

The data collected were analyzed through computers to
get the mean score and standard deviation of the score in each
test and the correlation coefficient between each physical
fitness test and football skill test and also between physical
fitness tests and playing ability score and also between
football skill tests and playing ability scores were computed
and analyzed to know the existence of relationship among the selected component.

The relationship between foot-ball skills, physical fitness component and playing ability were established, for each parameter by computing Pearson's product moment coefficient of correlation i.e.

\[
\begin{align*}
    r &= \frac{\sum_{i=1}^{n} X_i Y_i - (\sum_{i=1}^{n} X_i)(\sum_{i=1}^{n} Y_i)}{\sqrt{\left[\frac{1}{n}(\sum_{i=1}^{n} X_i^2) - (\sum_{i=1}^{n} X_i)^2\right]\left[\frac{1}{n}(\sum_{i=1}^{n} Y_i^2) - (\sum_{i=1}^{n} Y_i)^2\right]}}
\end{align*}
\]

Where \( X \) and \( Y \) are raw sources for independent and dependent variable, \( n \) is the number of Subjects, by analyzing the data through computer.

5.11 Discussion of Results:

It can be seen from Table 4.3, The performance 5 hops with right leg was significantly correlated with the performance in Slalom dribble, pass, Shooting and dribbling with pass. However, the performance in 5 hops with Right leg was not correlated with the performance in Ball Juggling with feet and body and the performance ball juggling with head. (Taiana et al. 1993; Niv Orlian; Ekblom Bjoern 1986; Masuda K, Kikuhara N, Demura S, Katsuta S, Yamanaka K 2005 Thomas 1964)
It can be seen from Table 4.4 that the performance in Physical Fitness Test 5 hops with left leg was not related with the performance in football skill tests ball juggling with feet and body and ball juggling with head tests. It is further observed that the performance in physical fitness 5 hops with right leg was significantly related with the performance in football skill tests namely Slalom dribble, passing, shooting and dribbling with pass. Taiana et al. (1993); Niv Orlian; Ekblom Bjoern (1986); Masuda K, Kikuhara N, Demura S, Katsuta S, Yamanaka K (2005); Thomas (1964).

The results presented vide Table 4.5 reveal that the performance in Ball juggling with feet & body, ball juggling with head, Passing, Slalom dribble and Dribbling with pass was significantly co-related with the performance in 40 meters sprint test however, Shooting test was not correlated. (Hoeger et al (2002); Reilly et al (2005); Thomas (1964).

The results presented in Table 4.6 reveal that excepting the shooting test all the skill tests, were significantly related with the performance in ‘Shuttle run’ test which indicates that football players required to possess ‘agility’ to a higher level. Reilly et al (2005); Hoeger et al (2002); Thomas (1964).

The results presented vide Table 4.7 reveal that the performance in endurance test was related with the performance in Ball juggling with feet & body, Ball juggling
with head, dribbling with pass, Slalom Dribble and Passing however, the performance in shooting was not related with the performance in 2.4 K.M. running. Reilly et al (2005); Helgerud, J, Engen L.C, Wisloff U, Hoff J. (2001); Thomas (1964).

The results presented vide Table 4.8 reveal that the performance in ‘Flexibility’ test was significantly related with the performance in ‘Ball juggling with feet and body’ and Ball ‘juggling with head’ and ‘Slalom Dribble’ tests. It was not related with other skill tests. (Ekblom Bjoern (1986); Thomas (1964).)

The results presented vide Table – 4.9 reveal that the playing ability of the subjects was significantly related with the performance in all physical fitness tests, Ball juggling with feet & body, Ball juggling with head, dribbling with pass, dribbling speed (Slalom dribble), Passing and Shooting. Thomas (1964); Uppal and Roy (1986); Saha (2008); Juan M. Cortell et al (2013); Buvanendiran P et al. (2013), Durai Arokiaraj et al (2013).

The results presented vide Table – 4.10 reveal that the playing ability of the subjects was significantly related with the performance in all football skill tests namely, Ball juggling with feet, ball juggling with head, dribbling with pass, dribbling speed (Slalom dribble), passing and shooting. Tiryaki et al.
According to Reilly P. Thomas, Christopher carling, A. Mark William (2005); Thomas (1964).

5.12 Conclusions:

Based on the findings of this study, it can be safely concluded that:

a) Performance in football skills of College level players is dependent on the physical fitness abilities of the players.

b) Playing ability of the college level football players is depended on the physical fitness and football skill of the players.

c) The performance in ball juggling of college level players is dependent on agility, speed, endurance and flexibility.

d) The slalom dribble and passing skill is depending on all physical fitness components.

e) The performance of shooting skill of college level soccer players is dependent on flexibility and explosive strength.

f) Motor fitness component agility is affecting all the soccer skills.

g) The dribbling with pass was dependent on endurance, agility, speed and explosive strength.
5.13 Suggestions for Further Research:

After completing this study the investigator thought of many related problems which may be selected for further research work. Even the findings of the study may serve as guiding principles for the researchers in the fields of sports sciences. The following suggestions may be given for further research:

1. Similar studies may be conducted on the football players in the college sports wings run by the state government and also on the players selected for sports hostels in the game of football run by sports authority of India.

2. It is felt necessary to study the relationship between football skills performance and actual competition results.

3. Similar study may be conducted on College level female football players.

4. It is felt necessary to study the relationship between performance in physical fitness tests and actual competition results.

5. Similar study may be conducted on University level male football players.