CHAPTER I

INTRODUCTION

Today, sports have become a part and parcel of our culture. It is being influenced and does influence all our social institutions including education, economics, arts, politics, law, mass communication and even international diplomacy. In fact its scope is awesome. They attract the masses either for recreation or physical fitness or as a full time profession. The world is so advanced that Science dominates every aspect of life, sports is not an exception to it. Technology has forever changed our world, and in the process significantly increased the importance measuring and controlling performance relevant to physical, physiological and anthropometrical parameters.

The body is the temple of soul, and to reach harmony of body, mind, and spirit, the body must be physically fit. Hence where there is a sound body there we can ensure a sound mind. Research has shown that the physically fit person is able to withstand fatigue for longer periods than the unfit; that the physically fit person is better equipped to tolerate physical stress, that the physically fit person has a stronger and more efficient heart; and that there is a relationship between good mental alertness, absence of nervous tension, and physical fitness.
Sport is an activity that is governed by a set of rules or customs and often engaged in competitively. *Sports* commonly refer to activities where the physical capabilities of the competitor are the sole or primary determinant of the outcome (winning or losing), but the term is also used to include activities such as mind sports (a common name for some card games and board games with little to no element of chance) and motor sports where mental acuity or equipment quality are major factors. Sport is commonly defined as an organized, competitive and skillful physical activity requiring commitment and fair play. Some view sports as differing from games based on the fact that there are usually higher levels of organization and profit (not always monetary) involved in sports. Accurate records are kept and updated for most sports at the highest levels, while failures and accomplishments are widely announced in sport news.

The term sports is sometimes extended to encompass all competitive activities in which offense and defense are played, regardless of the level of physical activity. Both games of skill and motor sport exhibit many of the characteristics of physical sports, such as skill, sportsmanship, and at the highest levels, even professional sponsorship associated with physical sports.

1.1 GAME OF FOOTBALL

Football is not a matter of life and death. It is much more important than that. Almost all the countries play it and of course millions of people watch it.
It is apparently one of the ancient sports and it is the direct ancestor of American Football, Canadian Football, Rugby and several other similar sports.

The game of football is one of the most popular games in the world. The game began in England in the 12th century but Edward II banned it in 1324. His successor Edward III in 1349, Richard II in 1389 and Henry IV in 1401 as also the Scottish rulers forbade people from playing football. In the beginning there were no definite rules of the game. Each team played with its own rules. An attempt was made by Thring and Dewinton to frame a uniform set of rules and the first set of football rules were framed in 1862 and revised in 1863. The football Association of England was formed and new rules of this game were framed in 1864.

An international football match for the first time was played between England and Scotland. Considering the growing popularity of the game, delegates from seven nations met on May 21, 1904 to form the Federation International de Football Association (FIFA). FIFA organized the world football championship for the first time in 1930 at Montevideo. Football has spread itself all over the world and now there are more than 200 countries affiliated with FIFA.

Football, as it is seen today has undergone a tremendous improvement since its birth. Of all the events in human history, the one to attract the largest
audience was not a great political occasion nor a special celebration of some complex achievement in the art or science but a simple game, a football match.

If we examine it more carefully we could soon realize, that each football match is a symbolic event of complexity. One of the greatest strength of the game is, its simplicity. At its crudest level all that are needed is a ball and an open space with something to act as a goal post. No other sport is so easily available and so immediately inspiring.

The most exciting quality of football is that it is a quick moving and fast flowing game. The simplicity of the rules and familiarity of the tactical moves make every moment to play immediately unpredictable to the watching eyes. Despite this no-body can ever be sure what will happen next. The player is never able to relax for a second. In an instant every thing can change.

Football has come a very long way and it shows no sign of retreating to the play room shelter of its number regions. As long as the human race is able to concern itself with more than survival, the football will have its place (Morries, 1981).

In football, a team of eleven men or women seek to advance a round inflated ball towards and between the opponent goal posts and under it’s cross bar by dribbling, kicking, striking or pushing the ball which is legally played.
The game football was introduced in India by the British. It was popular among the masses. The All India Football Federation (AIFF) was founded only in 1937. The very first football tournament was conducted by those people in 1880. It was called Durand Football tournament and was changed to Indian Football Association Sheild in 1893. The national football championship for the Santhosh Trophy was started in the year 1941 and the competition were conducted in different places of the country every year. The Federation Cup Football Tournament was introduced in the year 1977.

The popular tournaments in India are Durand Trophy, Rowers Cup, Delhi Cloth Mills Cup, Stafford Challenge Cup, Bangalore, G.V.Raja Memorial Cup, Trivandrum, Nehru Trophy, Santhosh Trophy, Junior National Championship and Sub Junior National Championship tournaments. (Thomas, 1964)

Football is truly an International sport. The conditioning of the football player is similar to that for an athlete who participate in other contact sports that require running, speed, agility, neuromuscular coordination and endurance. Strength and power in the muscles of the legs are more important. Daily exercises for the abdomen such as sit ups with the soles of the feet flat on the ground are most important to develop muscular endurance.

Football players must work with strength training programme as it brings about beneficial changes on the adaptation process. The vertical jump
has been employed as measure of explosive leg strength which is associated with the kick performance in football.

An essential for successful performance in many motor activity is speed. In football the lighter team win because it is the faster team. The frequency of sprints in football players is 11% of their total movement in a full game. The frequency of sprint tend to be greater in strikers and midfielders than on backs. They tend to sprint often to collect the ball or to defend the ball.

Football players must manage both his body and the ball with his feet and have to move with varied speed and direction. Agility is highly dependent upon or inter related with speed, strength, balance and co-ordination.

Women's football has not had the relative head start over the rest of the world that the men's game has had, and also has not had the chance to spread through the country like its male counterpart. When India became affiliated with FIFA in 1948, the team was formed. Since then, India has showed strong performances in the AFC Asian Cup and in World Cup qualifiers. Although the team has never qualified for a World Cup, this may partially be due to such strong teams as China and Japan sharing a qualifying bracket with them. The game was administered by the Women's Football Federation of India (WFFI) from 1975 until the early 1990s when they were absorbed into the AIFF. However, there are complaints that women's football is treated as a poor relation
to the men’s game leading to (unfulfilled) plans to de-merge the WFFI (Pulasta Dhar, 2009).

The women's game, like the men's game, also has its early pioneers in the state of West Bengal. The large Kolkata teams, East Bengal and Mohun Bagan, started women's club sides in the 2000/01 season, and they participate with other teams in the Calcutta Women's Football League. However, it has been seen recently that players from Manipur have made advances in the game. Players from these two states make up a large part of the India women's national football team.

The main women's national competition is played on a state vs. state basis in the Senior Women National Championship. There are also similar national championships for junior teams: Junior Girls National Championship (for under 19s) and the Under-17 Girls National Championship.

1.2 ESSENTIAL SKILLS IN FOOTBALL

In the development of the game of football, skills have come into play an increasingly vital role in the quest for victory. Top level teams perfect the skills and change them into a highly refined and sophisticated art and are constantly searching for better training. There are number of skills involved in the game of football like dribbling, kicking, ball control, volleying, trapping and application to different situations. Perfection of these skills and execution of
them successfully are having direct impact on the total performance in the game.

1. Passing
2. Dribbling
3. Shooting
4. Heading
5. Trapping
6. Chipping
7. Throw-in

1.2.1 Passing

In football the most valuable possession is the ball. To score and win a game is possible only when a team keeps possession of the ball. Therefore, the main foundation for the game of football is the skill of passing. Passing is simply moving the ball from one player to the next, maintaining possession and trying to work your team into scoring opportunity. The ability to pass the ball between nearby players accurately and in a timely manner, as well as to direct it to players farther away is essential in order to keep the possession of the ball. Passing is also important as many goals are scored as a result of it. Teams that aim to retain control of the ball over longer periods of time, in the process making a large percentage of passes that gives low risk of losing the ball, are said to play possession football. If successful, it will tire the opponents because
they have to run and tackle more. Therefore, the skill of passing ought to be of utmost importance to a player. (Rees Roy and Meer Der Van Cor, 1997)

1.2.2 Dribbling

In football dribbling refers to the maneuvering of a ball around a defender through short skilful taps or kicks with either of the feet. The purpose of such an action is to bring the ball past a defender legally and to create opportunities to score. Dribbling is one of the most difficult ball skills to master and one of the most useful attacking moves. In typical game play, players attempt to propel the ball toward their opponents' goal through individual control of the ball, such as by dribbling (running with the ball close to their feet). The ability to dribble is often invaluable especially in the third part of a pitch or at the wings, where most attacks take place. Dribbling creates space in tight situations where the dribbler is marked closely by a defender, and the dribbler can either score or create scoring chances after a successful dribble. However, dribbling, if poorly mastered and used, may result in the loss of possession either when the ball is intercepted or tackled by a defender. When used appropriately, a good dribbler is often hard to dispossess; unsuccessful tackles may result in a useful free kick situation, a yellow card for the offender, or both. A good dribbler is a great attraction to the spectators and a great asset to the team. (Rees Roy and Meer Der Van Cor, 1997)
1.2.3 Shooting

The most important skill in football is shooting. A good striker is one who is hungry to score. Attitude and the hunger to see the ball ripple the back of the net are the driving force. A great striker is one who might miss five chances but is never afraid to take the next one should it come his way. The beauty of football is that everyone can score and football is played for scoring goals. In a game of ninety minutes, very few chances would come to a player to try the post and if a player is ill equipped to take a shot at the goal, the entire effort by the team goes waste which has toiled to create a scoring opportunity. In every situation when a shooting chance is on, there must be a determination, hunger, and an urgency to get the ball into the back of the net. The best places to aim are the corners, and wherever the goalkeeper "isn't" standing. Kicking with power is just as important as with accuracy. Even if you kick accurately, a ball with no power is easy for the goalkeeper to stop. You have to shoot to score goals, and you need to score goals to win. It is important to shoot accurately to improve your chances of scoring. So it is highly necessary that all the players in the team need to have mastery over the skill of shooting at the goal. A player needs to strike a balance between being too eager and too reluctant to shoot. Shots should ideally be both accurate and powerful, although it is easier to achieve one of these at a time. Whether one should choose one or the other depends on the situation. (Rees Roy and Meer Der Van Cor, 1997).
The choice of the part of goal to aim at is a contentious issue and depends on how many players are covering the goal. When only facing a goalkeeper, shots should be placed close to one of the posts. Ideally, a shot should also be placed just under the crossbar, but it is less difficult and also effective to shoot along the floor, towards the lower corners.

1.2.3 Heading

Football is played with head to toe and that is why they say it is a beautiful game. Football is one of the few games in the world where you are asked to get your head into the path of a moving object. Every other game reflex takes your head out of the way. But in football heading is a skill that is useful from passing to scoring a goal. The most difficult balls to handle in football are the high balls and if a player is good at heading he can effortlessly face and use the high balls for passing, scoring, clearing and at times even for trapping. A good jump coupled with a perfect timing at the goal mouth can beat any number of defence and the goal keeper to score a goal. So it is very essential that football players should learn the correct heading techniques. (Rees Roy and Meer Der Van Cor, 1997)

1.2.4 Trapping

Players should be able to bring any ball that comes to him into his control. Simply stopping the ball is usually the easiest way and in these cases
the ball should be put in the ideal position for the next touch. Advanced players may use the first touch to make the ball move in the direction they themselves plan to move. Also, the ball may be passed at one touch. Abruptly avoiding the ball instead of receiving it may trick opposing defenders, and thus be an offensive weapon in some situations. Trapping is one of the most important parts of playing football. Once you have it down, you can take hard passes, block shots, dribble better and score more. It is usually not a good idea to compare today's football with what was going on around the game in its early days, but when it comes to football receiving you simply cannot avoid a comparison. Today's game emphasizes a lot more on correct and dynamic football ball receiving than ever before, since spaces are tighter and the pace is higher, meaning that a player will have to develop this skill thoroughly if he or she is ever going to stand a chance on the pitch. In the 1930s for example, trapping the football ball with perfection was mainly important for attackers, in order to throw the other team's defence off balance, but today everyone from the goalkeeper to the winger is practically forced to have great receiving skills, since pressing is a constant factor for the other team in most cases. It is rather difficult to judge football receiving skills the same way other fundamentals skills of football are judged. For example, when trying to improve the passing ability, emphasis should be given to passing precision, power and timing. However, trapping a football ball requires a lot of smaller factors, which are all equally important. (Rees Roy and Meer Der Van Cor, 1997)
1.2.5 Chipping

Chipping a ball is using your foot as a wedge to strike the ball low with the toe of the striking foot contacting the ball low imparting arc and backspin. The knee is locked at impact. A 'chip' is when the football travels in a high arc. Usually a quick kick is used to send the ball up and over a short distance, rather than in a long, soaring flight. In football it is always difficult to pass the ball behind the defence players. To achieve this, the players need to constantly switch positions to create space between the defence players to receive the ball. It takes a lot of effort and time to make such passes behind the defence players. Chipping is an ideal skill to put the ball behind the defence players. A correctly executed chip gives time for the receiver to control the ball. Moreover, balls from chip are easy to control.

In set plays also chipping is highly useful. Statistically for example, if the goal average of a match was 4-5 in the 1960s, as of the 1980s the average dropped to 2-3 goals per match. Therefore, facing a tighter defence with each opponent, coaches and players struggle to find an alternative for scoring from direct play. This is how set pieces gained the important status they hold today. A chip with a descending curve that should fall somewhere between the penalty spot and the six yard keeper protection box is the most dangerous place a free kick can land, since it is out of reach from the goalkeeper and close enough to the goal that a slight deflection with the head would push the ball into the net.
For purpose of this study skill performance variable, kicking, dribbling, passing, heading, and shooting are considered. (Rees Roy and Meer Der Van Cor, 1997)

1.3 SPORTS TRAINING

The goal of sports training is to enhance the sports performance in competition to make more successful in chosen sport. It is the combination of both physical fitness and the sports skills. They are based on sound scientific principles and proven training techniques to create a customized, effective workout plan. Such a program, combined with hard work, will increase quickness, speed, strength, agility and stamina. And also improve vital sport-specific skills like heading, dribbling and throw in. In order to assess the individual ability in terms of fitness and skill acquisition the battery of tests were established. When analyzing the demands of any sport, it is important to examine the necessary skills involved within the movements of that particular sport.

Techniques, or sport-specific technical skills, are a central component in the development of young athletes in many sports, including football. A variety of tests has been developed to evaluate ball control with the body (trapping), head (heading) and feet (dribbling), passing (short and long), shooting accuracy, throwing and kicking for distance, agility and volleying, among others. The focus is often on the validity of the tests, changes in performance with age
among youth players, comparisons of skills in youth and professional players classified by level of competition or expertise, and occasionally relationships between skill tests and outcomes of match-play. Several studies have considered the kinematics of specific skills and the strength and flexibility of players of different skill levels in soccer, and the physical fitness and soccer skills of youth players and non-players.

The effect of specific training programmes on sport specific skills, including jumping and kicking, has also received consideration. Studies of youth soccer players have not systematically considered the potential influence of variation in growth and biological maturity status upon sport-specific football skills. Youth soccer players classified as elite and non-elite, or as being high and low in football ability, for example, differ in body size and maturity, and in strength, flexibility and soccer-specific skills. Unfortunately, individual differences in size and maturity are not considered in the comparisons of such select samples.

1.4 FUNCTIONAL TRAINING

Training for a specific position or area of the field (like forwards, outside midfield, etcetera). Functional training involves training or practicing the specific demands of a position or a role. This can be for an individual player, or for a unit (such as defense). For example, A soccer coach may run a functional training session for forward play, dealing specifically how two
forwards work together in the attacking third. Functional training should take
place in the area of the field where that scenario would occur in a real game.

Functional movement training has garnered lots of publicity over the
past few years. Since strength and conditioning was first introduced about 30
years ago, training has evolved dramatically. We are in an exciting time, where
specificity of training has led to great improvements in sport performance.

Used properly, functional movement training can be the difference
between becoming a good athlete and an exceptional one. The premise of this
type of training is to train movement, not muscles. For example, for football
players, a Front Squat would be considered a functional movement exercise,
whereas Leg Extensions would not. Both exercises increase the quad strength,
but only one—the Front Squat—trains the muscles while standing and
supporting on the football field. It also strengthens other muscles, like the core
and glutes, which are important for sprinting and tackling. On the other hand,
Leg Extensions (from a seated position) are not considered functional because
they do not match the biomechanics of any movement you perform on the field.

Thus, functional movement is the ability to produce and maintain a
balance between mobility and stability along the kinetic chain while performing
Any time one lack the proper mobility and stability combination for sport, the efficiency goes down and the risk decreased performance and increased chance of injury. These are referred to as energy leaks. To perform the best, one need to have all of the energy going towards the task at hand, not dispersed into never-never land.

For example, to run 100 yards, would one be faster running in a straight line or running in a zig-zag pattern? Running in a straight line, the body will be performing optimally. Running left and right, one will have "energy leaks."

Thus, functional training is not recruiting the correct muscles and coordinating firing patterns in an inappropriate way to generate greater speed, acceleration and power. Doing a set of 30 Power Cleans does not translate to greater force, speed, and power. This is an example of improperly using an exercise designed for power as an aerobic conditioning tool.

1.5 GRID TRAINING FOR SOCCER PLAYERS

A football field is called a gridiron because the markings on the field resemble that type of grill that can be used to cook food over a fire. Besides the yard markings every five yards on the field; during the early days following the introduction of the forward pass, longitudinal lines were added so that the field became a series of rectangles or squares. The football fathers of that time thought the forward pass was just a little too much of a good thing and so in an
effort to limit the impact you could only pass the ball from your square to an adjoining one. The additional lines truly made the field appear to be a gridiron.

The faster player will succeed more often in soccer when compared with the slower one. Players can give themselves more chances for success by improving their sprinting ability, as it not only gets the player to more loose balls but also gives them the chance to create space. Players in open space will get more wide-open looks at the goal or more time to make productive passes. On defense, better sprinting ability will prevent the opposition from having space to make plays.

Speed and agility drills need to be done with a ball and without a ball in rhythmic settings, reactive settings, repetitive settings and speed settings with young developing players. We need to broaden the foundation and fix the little flaws in movement, while they understand how to apply this movement to the game. Grid drills incorporate the ball into speed/agility-based fitness. This drill can last for 30-60 seconds and can be a great way to build fitness with a simple focus on crisp passing, drop step or triangle agility and reacting to played balls with speed. The player’s focus should be on the ball and not simply running to each cone. We want to get them using the shuffle to prepare their body to react with speed and precision. (Rees Roy and Meer Der Van Cor, 1997).

Thus, organising practices around random and variable schedules can offer significant learning benefits in comparison to blocked and constant
practices. However, further benefits might also be possible by combining random and variable practice. For example, a cricket training session could include practicing two or more different skills (throwing and catching) in random order that included constantly changing parameters (different distances, different trajectories, etcetera). Recently, researchers resented a good example of how these types of practice can be used for progressive learning in football. An example of blocked/constant practice for early learning is that of grid practices utilizing a single skill. Blocked/variable practice could consist of grid practices involving multiple skills. Random/constant practice might consist of a conditioned game that focuses on single skills. Finally, theoretically the most beneficial, providing the learners are sufficiently competent, involves match play in small-sided games and is a combination of random and variable practice.

1.6 PERFORMANCE RELATED FITNESS

Fitness is a key to enjoy life. Exercise is an important of a total fitness programme. Modern living has taken all the exercise out of our lives and so in order to get fit and have to put it back again, regular exercise is necessary to develop and maintain an optional level of health, performance and appearance. It makes feel good, both physically and mentally. It gives psychological lift and strengthens a sense of accomplishment. Looking young is a reflection of good health. Regular physical exercise enhance the function of the joints; increase the sense of physical well-being and promotes a sense of feeling good; increases
physical working capacity by increasing cardiorespiratory fitness, muscle
strength and endurance and decreases the risk of serious diseases that could lead
to early disability and death.

Ukoho (1988) express that exercise has shown to improve health
prospects in various ways. It helps to reduce body fat and overall weight and
reduce blood pressure. Exercise ensures better digestion, respiration and
efficient blood circulation. Proper exercise programme can reduce the
probability of injuries among older people as well as back injuries among
certain occupational group. Exercise tolerance is increased, risk factors are
controlled and even progression and regression of coronary artery disease can
be influenced by training and diet. Psychological effects include lessened
depression and reduced anxiety. Regular physical activity is important for
maintenance of health and may lead to a better quality of life. Training has to
be followed not less than two to three hours per week in at least three sessions at
an intensity corresponding to 60 to 85% of maximum heart rate achieved in a
symptom limited maximum exercise test. Cardiac patients at high risk should
exercise at lower intensities. Exercise occupies a leading role in keeping
persons fit. It will be quite difficult to adjust one’s life in term of stress, diet
sleep and so on without proper exercise. Exercise means using and tuning the
body. Exercise builds and maintains physical fitness. (H.U. Niederhauser,
1996)
Every individual must know the need of physical exercise. In other words one must have fundamental knowledge of Anatomy and Physiology. This fundamental knowledge enables a person to understand physical fitness. Physical fitness is the capacity of a person to function steadily and smoothly when a situation arises.

Physical exercises makes one mentally sharpen, physically comfortable and ease with his body and better able to cope with the demands that everyday life makes upon him.

Increased physical fitness not only improves health but improves performance at work. Hundreds of American companies have back this idea financially by employing full time directors of fitness for their work.

Physical exercise helps an athlete to possess a high degree of physical conditions. In schools there is compulsory activities programme for all girls and boys. So it would be interesting to find out which of the physical fitness components have significantly contributed for the athletic ability of the runners. The following performance related fitness variables, which were more associated with the football playing ability were considered for this study:

1. Agility
2. Speed
3. Explosive Power
4. Flexibility
1.7 REASONS FOR SELECTION OF TOPIC

Better performances can be the product of a number of factors. This product is primarily the outcome of efficient technique, the progression of speed and the maturing competitive attitude on a sound basis of general endurance, all round strength and general mobility. Coaching and training for young athletes’ is very interesting but at the same time it must be based on some standard procedures and specific scientific principles. Physical and physiological variables are major concern for coaches and athletes. Understanding these variables helps coaches and athletes prevent injury and overtraining while trying to maximize their physical ability, and analyze the strengths and weaknesses related to their specific training programmes. If we failed to establish correct training patterns for young athletes, unfortunately, goes way back.

Most of the techniques and methods being used in football originated in track and field. Functional training and Grid trainings in football are specific types of facilitation and overload. They are concepts that are widely used in other types of training such as whole body vibration (facilitation) and weight lifting (overload). Although facilitation training and grid training has been around for many years, there is very little scientific research that has been conducted in this area. Further these points to our concerns for mechanics being
a greater focus for sprint speed development. Anecdotal comments from coaches and trainers range from high praise for functional training and grid training to claim that these techniques aren’t worth the time and effort to fit them into a normal practice. Football requires unique movement skills, taps exclusive energy mechanisms and necessitates training methods that will enhance multi-directional proficiency. However, there were lack of researches making a comparative effect of functional training and grid training in on selected performance related fitness and playing ability.

Hence an experiment of these methods of training, namely functional training and grid training on selected performance related fitness and playing ability among interschool players of West Bengal was undertaken in this research. Among the many performance related fitness, the investigator selected, speed, agility, leg explosive power, endurance, flexibility and upper body explosive power were selected. Further to determine the effects of functional training and grid training overall playing ability of the interschool football players were assessed for this study.

1.8 STATEMENT OF THE PROBLEM

This experimental study was designed to find out the effects of functional training and grid training on selected performance related fitness variables and playing ability among interschool football players in West Bengal.
1.9 HYPOTHESES

After going through related researches and on the basis of opinion of soccer experts and also from the experience of the scholar as a trained soccer player, for the purpose of the present investigation, the following were hypothesized:

1. It was hypothesized that there would be significant effect on selected performance related fitness variables such as, speed, agility, leg explosive power, endurance, flexibility and upper body explosive power due to functional training, grid training and combined training among inter school football players in West Bengal.

2. It was hypothesized that there would be significant effect on overall playing ability due to functional training, grid training and combined training among inter school football players in West Bengal.

3. It was hypothesized that there would be significant improvement on selected performance related fitness variables such as speed, agility, leg explosive power, endurance, flexibility and upper body explosive power due to combined training than the isolated functional training and grid training.
4. It was hypothesized that there would be significant improvement on playing ability in football due to combined training than the isolated functional training and grid training.

1.10 SIGNIFICANCE OF THE STUDY

The present investigation will contribute significantly to the field of physical Education and sports in the following ways.

1. This study may help the Coaches and Physical Educators to train the football players to improve the performance related fitness components, playing ability.

2. The findings of the study would highlight the importance of functional training for the overall playing ability of football players.

3. The study would highlight the importance of experimental protocols functional training and grid training, for the inter school football players.

4. The findings of this study would be helpful to pinpoint which of the experimental treatment, whether functional training or grid training is helpful which of the performance related fitness variable and playing ability of the interschool football players.
5. This research may help the sports scientists to suggest ways and means to improving better standard in sports through these functional training and grid training.

6. This study will provide an opportunity to test players in the possible performance related fitness components and overall playing ability of inter school football players in West Bengal.

7. This study will give a clear conception to the researcher, whether the functional training or grid training, if so, which type would be more beneficial to alter selected criterion variable of football players.

8. This study also helps to find those, involved in research especially in sports and games.

9. This study stimulates the players’ interest in activities through self evaluation of the performance they do and the importance they show.

10. This study may provide clear guidelines in better performance to be groomed for higher levels of competition.

1.11 LIMITATION

Uncontrollable factors associated with the study were accepted as limitation and the following were considered as limitation of the research study:
1. Certain factors like rational habits such as life style, daily routine, diet and climatic conditions were not taken into account in the study.

2. The influence of vigorous academic activity of students could have discouraged or motivated the subjects during training and during testing period.

3. The heterogeneous characters of the subjects in hereditary and environmental factors were recognized as a limitations.

4. The subject’s body type and socio economic status of the students were not taken into consideration.

1.12 DELIMITATION

This research will be delimited to the following areas:

1. 120 inter school football players were randomly selected as subjects.

2. The age of subjects for the study between 14 to 16 years and all the subjects were football players who represented their schools in inter school level competitions.

3. Experimental period was for 12 weeks.
4. Functional training also known as functional movement training consisting of selected defending functional drills and attacking functional drills were considered for this study.

5. Grid training, otherwise known as small sided games, consisting of 2 v 2, 3 v 3 and 4 v 4 were considered for this study.

6. To test the hypothesis the following parameters were analysed.

**Performance Related Fitness Variables**

1. Speed
2. Agility
3. Leg explosive Power
4. Flexibility
5. Cardiovascular Endurance
6. Upper body Explosive power

**Playing Ability**

1. Overall football playing ability
1.13 DEFINITION OF TERMS

1.13.1 Training

Training has been explained as programme of exercise designed to improve the skills and increase the capacities as resting heart rate (Hardayal Singh, 1991).

1.13.2 Functional Training

Functional training is the ability to produce and maintain a balance between mobility and stability along the kinetic chain while performing fundamental patterns. (Magill, R. A. (2011)

1.13.3 Grid Training

The training provided to football players by drawing small court with lesser number of players, such as, 3 vs 3, 4 vs 4, 6 vs 6 etcetera is considered as grid training for the purpose of the study.(Roy and Cor, 1997)

1.13.4 Speed

Speed is the ability of an individual to make successive movements of the same kind in the shortest period of time.

Hardayal Singh (1984) defined speed as “ability to execute motor actions under given conditions in minimum possible time”.

Mackenzie (1999) defined that speed as “the quickness of movement of a limb, whether this is the legs of a runner or the arm of the shot putter”.

1.13.5 Agility

Agility is the ability to change directions quickly and control body weight movement (Singh, 1991).

The speed with which an individual may change his body positions or fastness in changing directions while moving is known as agility (Mackenzie, 1999).

1.13.6 Explosive Power

It is the capability of the individual to relax maximum force in the shortest period of time (Mathews, 1981).

Baungarther (1987) states that the explosive power is the ability to relax maximum muscular force in the short test as in executing a standing jump.

1.13.7 Upper body

Upper body is defined as the part of the body above the waist (Yobu, 2000).

1.13.8 Upper Body Explosive Power

Upper body explosive power is defined the ability to relax maximum muscular force of the upper part of the body above the waist. (Yobu, 2000).
1.13.9 Flexibility

Flexibility is the range of motion around a joint. Good flexibility in the joints can help prevent injuries through all stages of life (Johnson and Nelson 1988).

1.13.10 Endurance

Endurance is the ability to do sports movements, with the desired quality and speed under conditions of fatigue. (Hardayal Singh, 1991).

1.13.11 Cardiovascular Endurance

Cardiovascular endurance is the power, strength or the ability of the heart to supply enough oxygen to muscles during a physical activity for a prolonged period of time. It is essentially how strong one's heart is and can potentially add years to their life. (Hardayal Singh, 1991)