Chapter I

1. INTRODUCTION

1.1 GENERAL INTRODUCTION

Soccer (association football) is a ball game played by two teams, each of 11 players. The object of the game is to put the ball into the opponent’s goal, and the winning team is the one that scores the greater number of goals. The game of football is also called soccer. It requires lot of strength and skill. It is an interesting game for both of the players and the spectators.

The game of football is both an art and science. It involves techniques of running, passing, kicking, tackling, blocking, heading, and dribbling. All these activities have obtained to be performing a great speed. Though the individuals’ skills are very important but it should not be forgotten that it is a team game and the players have to work together during the match offence and defense. A player must, therefore, develop his skill and understanding for his contribution in favor to the demands of team game.

The skill can therefore, be best developed by working in a competitive situation though individual practice is needed. The game of football contents with physical challenges. Though two players may equal in their skills because of differences in physical and mental response there may be much differed in their performance.

A player must be quick in assessing a situation and in his response. During the middle age it spread from Greece to Rome. It was also played in one from or another by the Chinese, the Japanese, and the Aztec Indians. There was not much of rules and regulations and no limit to the number of players. So, it was also called mole football.
The game was very rough and sometimes dangerous and the players used to sustain injuries. It did not involve any passing of ball one player to another.

The game was not played with the ball. Sometimes a bag stuffed with straw or an air-field animal bladder was used. It was maintained that the Romans Legions introduce this type of game to Britain about 2000 years ago. There is, however, evidence of the game being played in Britain in the twelfth century. A team in Derbyshire, England has still today an animal game in which most of the People of the town participate.

Games and sports, as a part of human education, have always existed in the human society. Before the dawn of civilization and culture, physical exercise was very important as a part of human existence. In the primitive society, "the necessity for survival" motivated man to keep himself more physically fit and strong enough in comparison to stronger forces of nature.

Sports science has made rapid progress in the last few decades. Theory and the methods of sports, training was a subject of central importance among the various disciplines and it has developed rapidly. The growing sophistication of soccer has placed proportionately greater demands upon the players and the coaches. Modern coaching and training methods have focused on the development of basic components of the soccer and the greater importance is given to aerobic kind of development.

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Sports training are essentially a preparation of the individual so that he can withstand competition stress. In the case of games, players training are geared to prepare for match play and involve the whole team as an integrated unit.3

Soccer is often called the “Universal Game”, what hockey is to India, Soccer is to the best of the world. It is difficult to determine how many millions of people play the game, but it is estimated that the number of fans may reach over 800 millions. In many parts of the world, crowds of 100,000 or more at a single match are not uncommon. In Brazil, a stadium built solely for soccer game seats 200,000 Spectators. The game is played in more than 180 nations and enjoys a long history.4

One should remember that weight training is not a substitute for athletics, but merely and adjunct which can be conveniently used, especially off season, weight training may even be done without weight.5

With the constant demand for high sports performance, the concept of soccer today has been changed. The concept of “total soccer” applies skill development, technical development, development of all-important motor components and physiological parameters which are

Closely associated and contribute to performance in soccer. Not only in the technical, physiological and physical development, are the

3 Ibid. pp. 3-4
Sports Scientists also making efforts to develop the intellectual ability of soccer players.\(^6\)

The game of soccer requires considerable amount of physical fitness and mastery in skills. Now the question arises in front of every individual, what do the term physical fitness deal with fitness is very specific to the sports or activities which a person does for e.g. the fitness required to be a 100 mts. Sprinter is entirely different to that needed to be a marathon runner. Similarly, the fitness required to play soccer is different to the need of rugby, hockey or squash. Soccer players must have good endurance, good lower and upper body strength, good flexibility, agility and speed.

Strength training is one form or the other is an integral part of sports and physical fitness culture. Strength training is utilized by the young and old for a variety of purposes. Almost all athletic programmed rely on the benefits of increased strength for improvement in athletic performance.\(^7\)

In sports activities some amount of resistance (if not external then One’s own body weight) have to be overcome. The strength therefore is an important factor on which the sports performance depends. Depending upon the magnitude and type of resistance to be tackled in various sports, the sportsman of different sports need different levels and types of strength to achieve good performance. The greater, the resistance, the stronger should be the sportsman. Strength is needed not only for competition but also for successfully

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carrying out the training programmed. A high level of speed, endurance, techniques tactics and other coordinative abilities is impossible if the sportsman lacks the requisite amount of strength.\(^8\)

Physiological changes in the human body may be brought about by different type of conditioning programs such as jogging, calisthenics, sand running, circuit training etc. These activities bring about changes in certain physiological parameters if they are carried out of certain duration to time.

Changes in respiratory response to exercise take place during training. As a result, for a standard amount of exercise the pulmonary ventilation is reduce and the amount of breathing decreases in the trained subject even at rest the depth of breathing is greater than the respiratory rate may fall from about twenty to eight breaths per minute.\(^9\)

Now-a-days, sports have become a part and essential of life. Millions of fans follow different sports events all over the world with an enthusiasm bordering on devotion. Many people participate in sports and games for fun, happiness, pleasure for health and fitness. Increased participation in sports has result in competition which has become an important element of modern life. Competition provides the means by which one can show one’s worth successfully.\(^10\)

Today, sports and physical education are considered as a great force contributing to international understanding and universal brotherhood. In the present politically conflicting times, the sports are

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also considered as one of the major adhesive force in developing the world peace.

Therefore, stresses on the promotion of physical education and sports for pre-schools to old age should be treated as one of the fundamental human right by national government.\textsuperscript{11}

All countries try to show their supremacy over others by success in the international sports competition. Each and every country develop its own innovation and techniques, tactics and strategies for exhibiting top level performance so as to emerge winners and champions of sports.

In the perspective of sports stratification soccer previously considered was a game played by lower class people. Upper class people were reluctant to play soccer perhaps for frequent body – contact and rough tackling which are invariably involved in this game. But now the situation is completely changed.

Of all 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 arts and the sciences, but a simple ball game – a soccer match. On a day in June, 1978 it was claimed that more than a thousand million people turned up in the world cup final between Argentina and Holland. This means something like one quarter of the entire world population stopped whatever they were doing and focused their attention on a small patch

of grass in South America where 22 bright clad figures were kicking a ball with a frenzy of effort and concentration.\textsuperscript{12}

Soccer has become a very popular game in the world. Almost all of the nations play the game both for enjoyment and competition. Modern soccer is very fast by its nature. The spectators and the players enjoy the game of soccer with a great amount of merriment. It is a game of constant action and requires continuous adaptation to changing situation by the team as a whole as well as by the individual players although it is a team game, there is ample room for players to display their brilliance through individual performance with the ball as well as through team play involving improvisation and tactical knowledge.

It is a game that sends people all over the world into frenzy, creates National and International heroes to as like Pele the great, Socrates, Zico, Bebeto, Romario of Brazil, Johan Cruef, Gullit, Busten, Richard of Holland, Diego Maradona, Gychochia, Batistuta of Argentina, Lothar Mathws, Ruddy Vohler, Klinsman of West Germany, Veldona, Asprilla of Colombia, frank Borousi, Baggio of Italy and so many others. As a result there is a constantly increasing demand for more knowledge and better training means to coach the game. Sports scientists, coaches and Physical Education teachers are changed with the responsibility of training and teaching their players soccer techniques and tactics, to develop teams who perform at the maximum level of effectiveness.\textsuperscript{13}

It is apparently one of the ancient sports and it is the direct ancestor of American football, Canadian football, Rugby and several

\textsuperscript{12} Desmond Moris, Soccer Tribe (London : Jonathan Cap Ltd. ; 30 Bedford Square, 1981), P. 7.

\textsuperscript{13} George Beim, \textit{Principles of Modern Soccer}, (London : Houghton Mifflin company, 1977), P. IX.
others similar sports. Soccer can be treated back directly to eleventh century A.D. in England.

This is a sport in which the largest number of players and a great number of clubs are registered. Millions and millions of people enjoy this game all over the world. As in other countries, in India also this sport has attracted millions of people and stands above all. The reason is, it is considered as the sports of ordinary people and it can be understood by each and everyone owing to its simple and easily understanding rules.

Indian soccer is now one of the downhill in the international arena in relations to the soccer played about four decades back (early fifties) in India. If we read the pages of history of India soccer, it is quite evident that India occupied a very covetable position in world soccer at that time.

1948, the year when some unknown Indian soccer players moved to the west beyond the sues to London to take part in the Olympic games a thrill, a dream, an aspiration of all sportsman come true for Indian soccer players. In 1951, in Delhi further glory was attached to Indian soccer when they rose to pick of their height and own the Asian Gold.

Gone were those days when Indian soccer had its height and health, name and fame to talk about. The constant deterioration in Indian soccer is still mystery. The miserable failures of India soccer in grooming up of youngsters and the negligence in cultivating required level of physical fitness, modern means and method of training and knowledge of its changing nature to uplift the total performance.\footnote{Karl H. Heddergott, \textit{New Football Manual} (Bad Humburg, Limbert Verlag 6 mbn, 1973), P. 7.}
The game of soccer requires tremendous physical fitness, as the duration of the game is ninety minutes in which basic movements such as kicking, running, jumping, throwing, dozing etc. are involved. Endurance plays a vital role in order to play continuously for ninety minutes. Strength is also essential for powerful kicking, tackling, throwing, heading and so on. For dribbling frequent and rapid change of body direction i.e., agility is an essential element. Flexibility plays a major role for reducing the chance of injury as well as perfection of skills. Speed, coordination, reaction time and balance are also important exhibiting the modern skillful soccer performance.

“Soccer is a game which calls for strenuous, continuous thrilling action and therefore, appeals to the youth the world over. The skills involved in the game are simple, natural and yet are highly stimulating and satisfying to any one who participates in the game.” The skills includes kicking, running, jumping, throwing, dozing and so on.15

In many sports like football the skill in top performance may call for 60 kinds of mobilization of energy. Football is for instance, an endurance activity as it is played for 45 minutes duration at a stretch in each half of a match. At the same time the play involves short sprint and powerful kicks frequently and this involves sprint and explosive activities. Then an athlete may require aerobic training or anaerobic training, and most often, 60 kinds of training in different proportions depending upon sports for which he is being trained to play high competitive level.16

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A football player needs “speed” to reach the ball quickly and to pierce through the defense. On the other hand, a defender needs speed of recovery to guard his goal and even a goalkeeper needs speed of movement to control the ball as quick as possible.

Especially in one to one situation, speed is the most important factor to decide who will beat whom in the struggle for possession of the ball.

The requirement of speed in soccer is beyond question. The tempo of a soccer game is set not only by how fast individual players run but how quickly they move the ball around to one another as well as up and down the field. How quickly they manage to control the ball and overtake an opponent without any waste of time. Thus all the techniques and skill training an individual undergoes can benefit his speed. Therefore it is needless to elaborate the requirement of speed training for better soccer performance further.

Strength deserves considerable attention for soccer player. Players need to produce power when kicking the ball, throwing the ball for a long distance or tackling a powerful shooting at the goal, while accelerating quickly or jumping. Soccer players can and must work for improving their strength and power to play more effectively.  

In soccer it is vital that the players should have endurance. It is useless to dominate a match in the beginning because the players with superior skill may lose it as in the long run they become exhausted and can no longer perform well. A lack of endurance results in fatigue which diminishes several elements of good performance such as training, coordination, reaction time, general alertness and concentration. Since increased endurance delays the

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onset of fatigue, it therefore improves the overall performance during the match.\textsuperscript{18}

In the recent years greater stress has been laid on the quality rather than the quantity of training. The sports scientists and experts of sports want their sports man to extract maximum achievement from their training procedures without causing too much strain on them. This is possible only if coaches and teachers of physical education apply the most economical method for enhancing the performance of athletes\textsuperscript{19}

Even through the best training to improve sport performance is to practice the movement at the same rate and intensity as during an Actual game situation, there are other types of training activities which are supplementary for improving performance. A football athlete may not be able to increase his speed in lateral movements no matter how many times the move is practiced because the limiting factor in performance is muscle strength rather than skill. The athlete’s body weight is not heavy enough to overload the hip and leg muscle for an optimum improvement in strength. In this situation, weight training should supplement football training in order to build up greater force of contraction in the running muscle.

Football enables a person to develop speed, strength, endurance, agility, neuromuscular skill and coordination’s of all parts of the body. Football is a complex activity involving the “total response” of the individual. A good player must process certain emotional, organic and neuromuscular qualities. Thus playing football

\textsuperscript{18} Ibid. PP. 194-195.

brings about an all round development of the individual i.e. mental, physical, social, and emotional development of the individual.

The rate of development of performance is closely dependent on the amount and the rate of increase of the training load. But the Quality of the way the training is organized will also be crucial for converting high loads into higher athletic performance. The methodical aspect relate primarily to selecting the right objectives and tasks with a view to improving athletic proficiency and individual performance factors. These factors will depend on the individual level of training and on the specific requirements posed by the sports, the choice of correct proportions of exercise and methods. They will involve the correct relationship between scope and the intensity of the training, between training and relaxation and dynamic changes in training. The training of leading international athletes is characterized not only by hard training, but also by effective planning.20

As sport has developed into a distinct scientific discipline in itself and each nation is vying with the other to produce top class players to win laurels in international competition, considerable research is devoted to identify that will be predictive of achieving high level of skill in giving sports with proper coaching.21 22

Sharma conducted study on effect of interval training on endurance and playing ability of soccer players of tenth, eleventh and twelfth standard students of Kendriya Vidyalaya, Gwalior pre and post test was conducted on 12th minutes run and walk for endurance and

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McDonald soccer test for performance measure. He conducted interval training (without ball) and interval training (with ball) for experimental group. The result of study reveals that interval training group performance with ball proved to be better method in order to improve the endurance and playing ability of the soccer players.23

Weight training programmed is specific in several ways. Strength development is specific not only to the muscle groups that exercise but also to the movement patterns they produce. In other words, weight resistance training appears to be motor skill specific. This means that exercising the muscle group involved in a particular movement in order to develop strength that may be directly applied during the execution of the movement, will be most effective if the pattern of the movement is stimulated as closely as possible. Thus, if you wish to increase your strength for purpose of improving your skill in the soccer kick, the weight training programmed, must involve those muscles working through the movement pattern associated with the soccer kick.24

To play to his fullest ability, a player must be prepared both mentally and physically to give his best effort throughout the match. This is as true of the professional playing ninety minutes, as it is playing of school boy’s short duration matches. To be able to perform need proper training to ensure proper development of foundation and the fundamental of the sport.

Training is usually defined as a systematic process of repetitive, progressive exercise of work, involving also the learning processes and

acclimatization. Through the use of systematic work increments, improved voluntary responses by the organs are attained: through constant repetition. The conscious movement becomes more automatic and more reflexive in character, requiring less concentration by the higher nerve centers and thus reducing the amount of energy expended, through the elimination of movement unnecessary for performance of the desire task.25

The game of soccer requires considerable amount of physical fitness and mastery in skills. Now the question arises in front of every individual, what do the term physical fitness deals with? Fitness in every specific to the sports or activity which a person does soccer Players must have good endurance, good lower and upper body strength, good flexibility, agility and skill.

The exiting literature in the field of soccer so that endurance, speed, agility, maximum leg strength, upper body strength, leg power, muscular endurance, flexibility, co-ordination and reaction time are important pre requisites for efficient soccer performance.26 27 28

Participation in soccer is both enjoyable and beneficial. To play the game well one must develop physical stamina and excellent neuromuscular co-ordination, intellectual alertness and the ability to

make adjustment to rapidly changing situation, and emotional control
gentlemanly conduct and social grace that promote interpersonal relationship.\textsuperscript{29}

Hence physical fitness can be considered as an inseparable part of the sports performance and achievement of sportsman. Soccer is vigorous and first game for the well condition sportsman, who must possesses strength, speed, agility, balance, flexibility, endurance, co-ordination and many others undefined quality.\textsuperscript{30}

One of the most significant principles in modern sports training is that athletic must keep in good physical condition not only during the competitive season but through the year in order to perform at peak efficiency. Physical qualities are basic requirement for participating in all kinds of game and sports. It is essential that all should learn to attain and appreciate a high degree of physical development so that foundation of skill sports and other activities are engaged with the confidence pleasure, success come when the pupil chooses the participate in vigorous physical activities.\textsuperscript{31}

Even through muscles training has been practiced since time immemorial, and obviously with remarkable success, one may be surprised to discover that even now there is no complete agreement as to the best method for muscle training the usually accepted idea has been that one has to give all he has in order to get a maximum


\textsuperscript{31} Arpad Csanadi, \textit{Training and Condition of Soccer Player: A Soccer Book} Vol.2 (Hungary; Athenacum Printing Hall Budapest, 1960), P.66.
development. The effect of muscle training is changes in structure, in strength in endurance and in speed.\textsuperscript{32}

Soccer, the most popular in the world has apparently one of the ancient sports. The present day soccer demands new and contractive changes in the methods technology and skill development. The present soccer is one of the down hills in the international arena, in relation to the previous soccer (early fifties) in India. It we see the history; it will see that once it occupied a large position in the world soccer. In 1949 it was the first time India moved west world to take part in the Olympic game held in London.\textsuperscript{33}

The best way to develop strength is through an organized programmed of weight training. Today only a small number of coaches are using weights on an organized basis to supplement their athletic programmed.\textsuperscript{34}

Weight training has become an integral part of football training programmed; both in an out of session and those of us who cannot get their player into the programmed are certainly going to be disadvantage.\textsuperscript{35}

Research indicates that the greatest strength increase results from weight lifting programmed that requires completion of from two to ten repetitions of a particular movement. Berger suggests that six to eight repetitions are most effective. Once that goal is achieved the

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overload is adjusted by increasing the weight, not the repetition intensity rather than duration is the critical factors.36

Weight training is a scientific and systematic process to develop the muscular strength and muscular power. Weight training is not only through of as an end in itself, but as a means to an end. The primary objective is not to learn but to lift as many weights are application to the relevant sports. If a person does not do the weight training with a sincere effort, there will be a little or no game in strength.37

A successful athletic programmed is based on round foundation. No team can excel in soccer without a sound foundation and all athletes need proper training to ensure proper development of foundation and the fundamentals of the sports.

Competitive sports are an important part of modern physical education in our nation. It comprises competitive sports for leading sportsmen and Competitive sports for the rising generation of athletes. Children young people and adult strive for the highest standards of performance in a particular sport, take part in systematic training and shape their way of life accordingly.38

Competitive sports make tremendous demand on the physical condition, vitality, endurance and mental power of the participant. Only athlete in the finest condition can with stand they were and tear of a competitive session; only the fittest can play to the best of their ability. Athletes not in condition are prone to injury or “going stale”,

37 Hooks, Application of Weight Training to Athletics, P.19.
and might never make the team. Thus, proper conditioning is not only necessary in preparing for sports participation, but is at great importance in preventing injuries. The athlete who is properly trained and conditioned will sustain a lower incidence and severity of injuries and a higher level of performance. Individual who are obese, awkward, considerably under weight, or ill-trained suffer the greatest number of injury. The athlete who is properly conditioned rarely requires the joint effort of the physicians, coach, trained and athlete.39

Special care is required if the ball is in goal area and the ground is heavy. The ball is liable to stick in a pool, and both attackers and defenders should reckon with this possibility. Since the ball becomes greasy on a muddy or slippery ground, the goalkeeper is bound to heavy difficulty in clutching and holding.40

“In soccer it is vital that the players have endurance, for it is useless to dominate a match in the beginning because at superior skill only to lose it eventually because the players become exhausted and can no longer perform well”. A lack of endurance results in fatigue which diminishes several elements of good performance such as timing coordination, reaction time, general alertness and concentration. Since increased endurance delays the onset of fatigue, it therefore improves the overall performance during the match.41

Strength deserves considerable attention for soccer players. Players need to produce power when kicking a ball for long distance or shooting at the goal, when changing direction against their own momentum or that for an opponent, when accelerating quickly or

41 Beim, Principles of Modern Soccer. P.P.194 – 195
jumping. Unfortunately, many people associate strength development and weight training with muscle-bound individuals who are slow and have every limit flexibility. Research in the area of muscular development has shown this to be a misconception. Soccer players can work at improving their strength and power to play more effectively.\textsuperscript{42}

There is some evidence that simultaneously training for strength and endurance will interfere with strength development. In one study there were three exercise groups compare of adult males and females: A strength training group the weight trained 30 – 40 minutes per day, 5 days per week, and endurance training group that did stationary bicycle ergometer for 40 minutes per day, six days per week, and a combination strength and endurance group did both work-out each day. After 10 weeks the strength group showed no improvement in vo2 max and the endurance group showed no improvement in strength. The combination group showed improvement in vo2 max at 10 week and in strength up to the 7\textsuperscript{th} week. Thereafter strength gains leveled of an actually declined during the 9\textsuperscript{th} and 10\textsuperscript{th} weeks. Simultaneously training for both strength and endurance reduces the subject’s capacity to develop strength, but did not affect their ability to improve their cardio respiratory endurance.\textsuperscript{43}

In respect of physical fitness, the Indian players are lagging far behind in comparison to western players. It is no denying of ‘the fact that’ they are naturally gifted with the climatic condition and normal physique. But eastern countries like Korea and China have

\textsuperscript{42} Harold M. Barrow and Rosemary Mac – Gee \textit{A Practical Approach to Measurement in Physical Education} (Philadelphia: Lea and Febiger, 1971) P.123.

proved that through continuous and scientific training those barriers can be tackled and considerable physical fitness necessary for playing soccer may be achieved.

In India, football is most popularly played in West Bengal, Goa and Kerala. In West Bengal the competitive soccer is mostly played during the rainy season on resisted surface although the players are trained in winter and summer. West Bengal as a state is slightly ahead in football than other states. The Gowaness uses to play football in almost sand surface. Playing on different resisted surface e.g. on dry sand, wet sand and natural turf either during training or during competition may increase the physical ability which in turn may contribute to some extent to total soccer performance.

Coaches are still in search of different methods of training for development of speed, strength, endurance, flexibility, power and agility to increase the performance level in soccer.

Due to lack of high modern technology and sophisticated instrument in India high level of training programmed now stands still far behind than western countries.

Hence the research scholar felt the need to investigate the effects of Harness Running, Sand Running, Weight Jacket Running and Weight training are the four important methods of strength training. But it is still unknown whether this training method brings any significant improvement in soccer skills and the superiority of one method over the other in improving the performance of selected soccer skills. Hence, it is thought worthwhile to undertake this study to determine the effectiveness of selected training methods for improving the performance of selected soccer skills.
1.2 STATEMENT OF THE PROBLEAM

The purpose of the study is to the effects of Harness Running, Sand Running, Weight - Jacket Running and Weight training on the performance of soccer skills in relations to the level of physical fitness.

1.3 DELIMITATION

1. The study will be delimited to the hundred male students of 14-18 years of age.

2. The study will be further delimited to the following soccer skills.
   - Kicking for distance
   - Dribbling
   - Shooting at the goal.

3. The study will confine six test items related to physical fitness components of speed, power, agility, abdominal strength, muscular strength and cardio respiratory endurance.

4. The study will be delimited of Burdwan district school level soccer players.

1.4 LIMITATION

1. As the subject will be selected for the study will not within a residential camp, the factors like diet, life - style daily routine, habits etc. This might affect the result of the study and will not be controlled.
1.5 HYPOTHESIS

It is hypothesized that –

H1. There will be significant difference between training on harness running, sand running, weight - jacket running and weight training on physical fitness and selected soccer skills variables.

H2. There will be significant effect of different training programmes on physical fitness level of the subjects.

H3. There will be significant improvement of soccer playing ability due to different training programmes.

H4. There will be significant improvement of the relationship between physical fitness variables and soccer playing ability variables.

H5. There will be highest improvement of physical fitness variable due to weight-jacket running training programme among other training programmes.

H6. There will be significant improvement of strength, due to weight- training among other training programmes.

H7. There will be significant relationship in pre and post test data of physical fitness variables and soccer skills variables of different groups.

1.6 DEFINATION AND EXPLATION OF TERMS

SOCcer

Soccer is a football game, playing under teams of 11 players on a side and using a round football. The designation “soccer” is derived from “Association Football” to distinguish from American football,
Canadian football, Rugby and several other sports in the historical development of the game. It is now played under the overall supervision of the federation international de football Association. It is popularly known as football in India.44

**TRAINING**

Training is a program of exercise and other physical activities designed to improve physical development and condition and performance in motor skill.

**HARNESS RUNNING**

For the purpose of this study the meaning of Harness Running may be as one of the training means in which resistance is to be carried by subject is in the form of dragging weight.

For the purpose of the study the meaning of Sand Running may be as one of the training means in which the subject has to run on sand by the side of river.
**Weight –Jacket Running**

For the purpose of the study the meaning of Weight –Jacket Running may be as one of the training means in which the subject carries extra weight on his body using a weight Jacket.

![Weight –jacket Running](image)

**Figure-3**
WEIGHT TRAINING

This terms refers to the exercise phase of the activity where weight in the form of barbells and dumbbells, is used to condition and later the size of various segment of the body. This is undoubtedly, the most popular phase. Here the under develop individual strives for average or about average size in terms of muscular bulk and body weight and size, the athlete strives for increased strength and condition to become a better performer in chosen sports.

Weight training is defined as those exercises that are designed to strengthen specific muscle by causing them to overcome affixed resistance, usually in the form of barbell or dumbbells.\(^{45}\)

INTENSITY

It is the weight percentage used in strength training in relation to maximum performance capacity. Absolute strength indicates the 100 percent intensity.\(^{46}\)

DURATION

It is in terms with total stimulus of the strength for a particular training session.

Time utilized in each set may be added to find the sum.


DENSITY

It is denoted by the recovery intervals in between the sets and also for the change of the exercise.

NUMBER OF SETES

Each exercise is performed with a few numbers of sets for a thorough build up of a particular muscle group.

1.7 SIGNIFICANCE OF THE STUDY

The world of games and sports is ever expanding and progressing at rapidly. It is dynamic in nature and progressive in outlook. It is not confined to “what has been”, its target is to “march ahead”.

Through different types of research findings and scientific advancement in basics sciences, and their application in the field of sports and in particular to specific games and sports have undergone revolutionary changes and crossed many mile stones.

The main factor responsible for this improvement is the development of new training methods based on scientific principle.

Soccer skills have varied application in the field of games and sports. Particularly in soccer game the skills are vital factor in winning the matches.

The coaches and physical education teacher, quite some time have been trying to find out the way and means which will help them to train most economically and efficiently keeping the importance of soccer in games and sports, particularly in soccer game situation. The research scholar felt the need to investigate the comparative effects of
different training methods, i.e. Harness Running, Sand Running, Weight - Jacket Running, and Weight - training dominated by physical fitness components of muscular strength, abdominal strength-endurance, agility, speed, cardio respiratory endurance and power on soccer skills performance.

For the reasons stated above the result of the study may play a vital importance in the following ways:

1. The study will help the physical education teachers and coaches by informing them about the training effects produced by the different training means i.e. Harness Running, Sand Running, Weight-Jacket Running and Weight- training.

2. The result of the study may reveal which of the training means employed in the study are superior to the others in improving the performance of selected soccer skills.

3. The findings of the study may highlight the different effects produced by the four types of training methods, selected for this study on Physical fitness components and soccer skill variables.

4. The physical education personnel and coaches will be able to select as to what type of training will be suitable best for their athletes.

5. Based on the result of the study, physical education teachers and coaches will be able to organize their training programmed effectively.