Chapter-I

INTRODUCTION

Physical education, as a part of human education has always existed in the human society in one form or other. Since time immemorial, even before the dawn of civilization and culture, physical exercise has been a very important aspect of human existence. In the primitive societies the necessity for survival i.e. protection against hostile environment and wild beasts, motivated man to keep himself physically fit and strong enough in comparison to stronger forces of nature. His life was hard most of his working hours were devoted for hunting animals for food. In those days there were no machines to help man in his work. That is why he has to depend solely upon his physical powers and physical skill. He considered his body to his prize possession and its maintenance and protection were his primary concern. Survival of the fittest was the order of the day. Man lived in such a state for thousands of years. There was neither any organisation nor system. Most acts were learnt by the young generations by virtue of imitation rather than instruction. Experience latter gave rise to individualized instruction as a tradition from father to son and from mother to daughter gradually leading to enforcement of hard discipline and rigorous training.¹

Sports by their very nature are enjoyable, challenging, absorbing and require a certain amount of skill and physical condition. In the order of human values conquest in field of sports hold a unique place. It is a combination of success, victory, triumph and domination of some over other team mates and friends. The sublimity of competition lies in the loser’s acclaim for the winners, which along with the friendly and shake acknowledge both defeat and triumph.

Change and challenges are the twin laws of nature as they affect every aspect of human life. Changes are taking place all around and because of this changes new challenges present themselves. Man is constantly trying to meet these challenges and excel his previous performance every time.

Technology covers all aspects of life and sports in no exception to it. Sports science has enabled modern youth to develop physical capacities beyond any time imagined. Sports have become highly competitive and records are being broken with greater rapidity.

Today the preparation of an athlete for top notch achievement is a completely dynamic state characterized by a high level of physical and physiological efficiency and degree of perfection of the necessary skills and knowledge, technique and tactical preparation. An athlete arrives at this stage only as a result of appropriate training. Thus, athletes training today is a multisided process of expedient use of aggregate factor so as to influence the development of an athletes and ensure the necessary level of participation.  

Performance in physical activity or sports not only demands systematic training to develop physical and physiological variables but also demands training and consideration of psychological characteristics for success in this field. The success or failure of an individual athlete depends on the blending of physical ability, conditioning, training mental preparation and the ability to perform well under pressure. It is not uncommon to hear coaches and athlete express disbelief on how poorly their team performed against a certain opponent or how they field in the crucial situation. 

Athletes for superior performance in any sports is selected on the basis of his physical structure and body size, which has proved to be appropriate for high performance in the given sports.⁸

After an intensive study of anthropometric measures of Olympic athletes, Garay, Levine and Lindsay Carter⁹ concluded that level of performance in a particular event demand a particular type of body size and shape, other aspect being similar, they established high relationship between structure of an athlete and the specific task (event) in which he excelled.

For competitive sports or for selection of a particular sports, one has to consider the measures of human body and the physical fitness, which play a dominant role at higher level of sports competition.

Anthropometric measurements were central concerns of the first phase of the scientific era of measurements, which have been began in the 1860's current, interest in anthropometric measurements focus in three areas, girth measures, body type and body composition. The assess of such measures include classification. Prediction of growth patterns

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and prediction of success in motor activities as well as assessment of ability.\textsuperscript{10}

Within certain limits body types may be used as an indication of athletic ability. For example, the pyknic type usually will be interested in a sports such as football or hockey. Where as the athletic type will choose running or tennis classifications based on body types, however, there are not always reliable and physical educations should be careful as to how much they rely on them as a basis for classifying groups for physical education activities, age, physiological maturity, interests, skill size, strength physical fitness and others similar criteria should be used with the various body type classification in making such judgement.\textsuperscript{11}

The existing literature in the field of football shows that endurance, speed, agility, maximum leg strength, upper body strength, leg power, muscular endurance, flexibility, coordination and reaction time are important pre-requisites for efficient football performance, where as excess body fat proves to be a hindrance.\textsuperscript{12}

\textsuperscript{10} Allen Philips and James E. Harnek, \textit{Measurement and Evaluation in Physical Education}, (New York : John Wiley & Sons, 1979), P. 223


A football player needs "speed" to reach the ball quickly and to penetrate through the defence, on the other hand the defender needs speed of recovery to guard his goal and even the goal-keeper needs speed of movement to control the ball as quickly as possible, specially in a one to one situation, speed is the most important factor to decide who will beat whom in the struggle for possession of the ball.

Strength deserves considerable attention for football players. Players need to produce power when kicking a ball, throwing the ball for a long distance or taking a powerful shoot at the goal. While accelerating quickly or jumping, football players can and must work for improving their strength and power to play more effectively.\textsuperscript{13}

In football, 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 performances such as timing, coordination, reaction time, general alertness and concentration. Since increased endurance delays the onset of fatigue, it is therefore improves the overall performance during the match.\textsuperscript{14}


\textsuperscript{14} Ibid, PP. 194-95.
Agility plays a vital role in football because when a football players participates in the game of football, he has to change directions and movement of various parts of the body while dribbling the ball, tackling the opponent and in the case of the goalkeeper to save the goal.\textsuperscript{15}

Sports scientists and physiologists have been of the view that anthropometric and physical components of an athlete have a lot to do with the performance, more than the techniques and tactics of a player or a team. The research findings show that a high level of technique perfection alone has nothing to do with the success in the competitive sports. Most of the games demand a greater amount of speed, strength, endurance, flexibility, coordination and maximum fitness of the organism.\textsuperscript{16}

Various sports seem to put varying intensity and amount of physical stress on the players depending open the area of the playfield, fundamental skills of running, jumping, kicking, throwing etc. involve in sustained movement or movement interrupted by brief periods of rest etc. obviously, they should make different influence on the fitness of the players.


Even in a particular game/sports depending upon the particular position such as offensive and defensive position, the work demand and subsequently the physiological make up varies.

Football is essentially a team game. It has developed into a fast and highly skillful area. In football generally players are divided into two categories. Offensive and defensive players are meant for scoring by combining their techniques, tactics and efforts and different times.

All physical and anthropometric measure are required for offensive and defensive football players without which it is impossible for a player to play efficiently. It may be said that the dominance of different fitness factors varies from players to players. Generally it is assumed that defensive football players should be tall and heavy with more muscular power, whereas ideal offensive players should be short, light, agile, fast and have more endurance. Offensive players need agility to dodge the opponents, speed to reach the ball, strength for performing the skill efficiently and good height and weight to keep themselves steady in the field.

Football is the most popular and most attended spectacular game in the world. It is not merely a game, it is a part of one’s life. It is a vigorous, fast and skilled game for the well conditioned sportsmen, who
must posses strength, speed, agility, balance, flexibility, endurance, coordination and many other undefined qualities required for dribbling, kicking, passing and shooting at the goal. For playing better football, physical fitness is needed, but there is need for good strength in respect of good height and weight.

In the modern game of football a team maybe defending with 6,7 and 8 players one minute and then setting up counter attack with 4,5 and 6 players the next.

The modern 4:4:2, 3:5:2 and 5:4:1 systems mean that the midfielder players must have exceptional stamina with high skill. The defender must be possessed with a dense of great anticipation for tackling an opponent. The attackers should have the quality to penetrate and dodge the defenders with a great control for shooting at goal.

Football game has two main systems, namely the defence zone system and the man-for-man system. The zone play calls for each players to guard a definite area. Any opponent who enters this particular area, with or without the ball, becomes his responsibility. The zone play requires a high degree of understanding between the defenders. This is especially so when attacking players pass from one zone to another. The zone system reverts to man-for-man in the penalty area, where the
vast majority of goals are scored. The nearer the goal the tighter must be the guarding. However when the defenders are outnumbered, the defenders can not guard man-for-man. Even than, the man with the ball can be closely guarded in many cases.

Man-for-man guarding calls for a player to follow his assigned opponent whenever he goes in the field of play. This is as per the strict interpretation of man-for-man guarding. Well organized teams will place a tighter guard on the opponent in possession of the ball, while continuing to play under zone system with the remaining defenders, who, in turn, will place defensive cover on the non-ball side (s). In essence, a degree of man-to-man defences is mixed with zone defence system.17

In modern game, it is imperative that the midfield players should work as unit and cover as much ground as possible. To achieve this, dual defensive and attacking functions the players must strike a sensible midfield balance. Since some midfielders attack more than others, they must aim at a high percentage of completed passes, besides a good amount of attacking runs (often without the ball) and shoot at goal. The others who are not so adopt at going forward, they should compensate

through defensive availability. An optimum mixture of both attacking and defensive midfielders is beneficial for the team.\textsuperscript{18}

Attacking play, like soccer, has witnessed tremendous change in the last 30 years, the attacker does not passively wait at the up field for the ball to come for him to score goal, he has to create openings for his team-mates. He has to defend when necessary, as well as score goals. By all definition the modern striker is for more of a team player than in years past, which is good because the work load becomes more evenly distributed.\textsuperscript{19}

To score goal, the team in possession must to seek to advance toward (attack) their opponent’s goal with the ball. Advancement without penetration, however, is usually ineffective, because the attacking team fell to pressure their opponents by getting man or the ball behind defenders, thereby attempting to take them out of immediate play.\textsuperscript{20}

Penetration with the ball is an important aspect of the game that every team must work at. Without penetration, a team becomes fairly easy to guard, because the ball will usually be played in front of the opposition defenders, enabling them to easily see the man and the ball.

\textsuperscript{18} Ibid, P. 74
\textsuperscript{19} Ibid, P. 86
\textsuperscript{20} Ibid
in front of their goal. They are not turned and pass in front of them offer time for defensive organizations and consolidation. But penetration is not easily obtained.\textsuperscript{21}

Unfortunately the Indians still believe in magic formulas for transforming limited trained (technically as well as tactically) Players in to World class champions. This limitation can only be reached through proper selection of players and research findings.

In this present advanced and computerized world, the research and product oriented sports authorities, throughout the world would very much prefer to investigate, analyze and find out the various components desired to be developed in young athletes for various sports competitions from club to International level.

In this study research scholar is keen interested to find out the comparison of selected anthropometric measurements and motor fitness components of football players in relation to positional play.

\textsuperscript{21} Ibid, P. 87
STATEMENT OF THE PROBLEM

The purpose of study was to compare the selected Anthropometric measurements and Motor fitness components of Football players in relation to positional play among defenders, midfielders and attackers.

DELIMITATIONS

1. The study was delimited to the male national level football players of eastern region (West Bengal and Orissa).
2. The study was delimited to sixty male football players (i.e. 20 defenders, 20 midfielders and 20 attackers).
3. The study was further delimited to the following parameters:-
   A) Anthropometric measurement:
      i) Body weight
      ii) Standing height
      iii) Arm length
      iv) Leg length
      v) Fore-leg length
      vi) Thigh girth
      vii) Calf girth
      viii) Foot length
B) Motor Fitness Components

i) Speed

ii) Agility

iii) Power

iv) Cardio-respiratory endurance.

LIMITATION

The subjects were from different and socio-economical conditions, their ways of living, food habits, daily routine was considered as limitation of this study.

HYPOTHESIS

On the basis of the available literature and discussion with different experts and own understanding of the research scholar it was hypothesized that there may not be significant differences among anthropometric measurements and motor fitness components of football players in relation to different positional play.
DEFINITION AND EXPLANATION OF THE TERMS

Anthropometry

Anthropometry is the science of measuring the human body and it’s parts. It is used as an aid to the study of human evaluation and variations.

According to Philips and Hornok the measurement of the structure and proportion of the body is called anthropometry.22

Motor Fitness

Motor Fitness has been defined as the readiness or preparedness for performance with special regular for big muscle activity without undue fatigue.23

Speed

Speed is the ability to execute motor actions, under given conditions, in minimum possible time.24

Agility

Agility is the capacity to change the directions quickly and control body movements.25

Muscular Power

It is the capacity of the individual to bring into play maximum muscle contraction at the fastest rate of speed.26

Cardio-respiratory Endurance

The ability of the lungs and heart to take in and transport adequate amount of oxygen to the working muscles, allowing activities that involve large muscle masses to be performed longer duration.27

Significance of the Study

1. The findings of the study will help to compare anthropometric measurements of football players in relation to positional play.
2. The results of the study will also help to compare the selected motor fitness components with the football players in relation to positional play.
3. The study will further help to compare the selected motor fitness components among the defenders, midfielders and attackers of football players.

27. Ibid
4. The study will help to critically examine the selected anthropometric and motor fitness components of different football players, who plays at different positions (i.e. defenders, midfielders and attackers).

5. The findings of this study might act as guide to the coaches, experts to select the young stars who will be more suited or competent towards the particular position of play in football.