Chapter I

INTRODUCTION

Today in the modern competitive era every sportsman is in a race to excel others, and competition has become a fundamental mode of human expression as it is one of the very important function by which National and International recognition and prestige is gained. From its very simple form, sports have emerged into highly organised activity of human society and it has become a complex social and cultural phenomenon.

Sports has permeated most of our social institutions, including education, economics, art, politics, law, mass communications and international diplomacy. In the present day competitive sports have developed to such an extent that millions of people take part and many more millions around the world take an interest through the media. It seems to have an increased appeal and admiration for the display of the talent, skill and achievement in any human endeavour.

At each Olympic games and international competitions the standard of performance is raised and new records are set for human skill and endurance. Partially it is due to the improvement in sports facilities and equipments and mainly due to the development of modern training methods and adoption of sports training on more scientific lines. Sports training has become more efficient and effective as a result of the applied and fundamental research in the area of mechanics, physiology, psychology, nutrition and sports medicine, besides understanding the athlete in its totality. Competition at all levels are so keen that no coach or player can afford to neglect the application of scientific training principles that can give him an advantage over or atleast keep him in pace with his opponent.

Competitive sports attain its greatest effectiveness in the process of psychological and physical perfection of man through organised training and competition. They permeate and influence all other fields of physical education to mark the way to optimum physical perfection and have a very important role to play by virtue of their influence on the society as a whole. The most prominent
feature of competitive sports are the striving for outstanding performances and records in a given discipline, the comparison of these performances and participation in competition held in accordance with fixed rules, the training and forming of the way of life of the individuals concerned.  

Modern competitive sports consists of a variety of different disciplines, which in the course of history have evolved as groups of physical exercises that have lent themselves particularly well to comparison and matches. The dynamic development of sports still continues to engender new forms. The past decade has seen a substantial increase in the number of sports in which international championships are held.

Athletic competition represents the classical test of physical, physiological and mental fitness or performance capacity. An individual's performance capacity depends upon the combined result of coordinated exertion

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3 Ibid.
and integration of a variety of functions. In order to develop champion qualities and to achieve to performance, the demands of actual event must be perfectly matched by the individual athlete.

Records and outstanding sporting achievement requires the highest standard of performance and maximum will power to achieve that standard. (The limits of physical and psychological performance are being consistently advanced through training and competition) Evaluation and analysis of world championships, olympic games etc... indicate that only those athletes will achieve impressive performance who are suited for the sports in question, who possess the necessary psychological and moral characteristics, who have an outstanding physical potential, who have perfect command of the technique and tactics of their sports and who have proved themselves over a number of years of competition. (It has become increasingly clear in the past few years that the highest standard of athletic excellence can be achieved only by those who have developed the necessary pre-requisites in their childhood and youth.\(^4\)

\[^4\text{Ibid.,p.14.}\]
Training in sports is essentially an educational process. The athlete is supervised and educated by the trainer, the sports teacher and the coach. Here it is a matter of developing the pre-requisited essential for sport in such a way that as a unity they guarantee optimal development in performance. The quality of his work must always be seen in conjunction with and in relationship to the level of his conviction, attitude, ideals and motives. Performance in sports reflects the state of development of physical and psychological prerequisites for performance.\(^5\)

To achieve an optimum level of development of an athlete's physical and psychological performance, he should be subjected to maximum training loads. But in order to do so the athlete should adapt his living habits to the requirements of his sports activities in such a way that they help him to improve his performance in the most effective way. Thus training becomes an integral part of the athletes way of life and in certain periods of life can become the determining factor. The training should

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\(^5\)Gerhardt Schmolinsky, **Track and Field** (Berlin: Sportverlag, 1983), p.17.
be organised in such a manner that the athlete's physical development in all its facets and that the interrelations existing between capacity and desire to perform well should be made use of systematically and consistently.  

Sports performance is the sum of numerous factors which can vary from individual to individual, even if ultimately they achieve similar results in competition. Deficient power can be compensated for by superior technique, inadequate sprinting speed by superior endurance or inferior technique by aggressiveness. A few centimeters and fraction of seconds decide between record performance, victory or defeat in tough international competitions. For this reason it is very important to identify and fully mobilize each individual's potential.

Some athletes are simply better suited to running faster than others. It does not mean that they are any better people, but their physiological blueprint enables

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7 Ibid.
them to start out with a physical advantage in that particular movement. But there was considerable difference of opinion as to how much their natural physique made them winner. Double olympic sprint champion Valeriy Vorzov said that his innate speed was the biggest single factor in his success, whereas baseball star Pete Rose said that only physical advantage he had was he was not born with a handicapped body.8

The age old question as to which is more important nature or nurture seems difficult to be answered fully here but there is evidence to support both point of view. One can not underestimate the substantial abilities born in their high achievers.

✓ Under modern condition especially related to training for sports and games with a focus on superior performance adequate emphasis is given for the physical structure of the athlete and body build of each individual participating indifferent variety of sports. Therefore the modern trend in the field of sports and physical

education is to assess the related components successfully as a part of total body build and size of each player and interpret how far each of these components are helpful in the performance in games and sports under competitive conditions.  

Physiological systems are highly adoptable to exercise. Each task has major physiological components and fitness, for the task requires effective functioning of the appropriate system. Involvement in systematic programme of training brings about desirable changes in the physical and physiological factors, contributing to the development of functional ability which enhances the athlete's performance in his sport.

It is apparent that a great deal more than physical gift goes into the making of a champion. Excellence is housed in all kinds of shapes, sizes, colours and cultures. It comes from all sort of systematic programme and even from no systematic programmes at all. Personal excellence is largely a question of believing in one's own capabilities and fully committing himself to this.

development. What seems most important for excelling in sports is on-site commitment. Practicing and performing must become most important when you are doing it. Outside of training and competitions other pursuits may momentarily become most important.10

Within each sports there is a disagreement with respect to the physical attributes necessary for excellence; but almost total agreement on psychological attributes. In order to excell in any field one must be committed but one also needs enough self control to perform well under variety of potentially stress producing circumstances.

In recent years sports scientists lay more emphasis on psychological aspects rather than physical preparation. Many research studies have proved this with regards to excellent performers in different sports. For example Lee Evans said that he lays more importance to the psychological build up of the athlete and he tries to toughen the mental attitude of his trainee (Buch Reynolds

World Record holder in 400 M. race) and more than one occasion Evans has found his method was proved correct.\(^{11}\)

There is a general opinion that an athlete possess unique and definite personality characteristics. One who has the desire, determination, attitude, heart and self motivation only could achieve top positions in crucial competitions.

The analysis of the highest achievers in any sports shows that excellence in sports and games are the product of different physical, physiological, psychological and sociological features. There are many detailed studies regarding the specific characteristics of athletes participating in wide variety of sports. But it is not much clear how far each of these components contribute to the achievement of top level performance.

**Statement of the Problem**

The purpose of the study was to determine the physical, physiological, psychological and sociological

profiles of the University athletes. The secondary purpose of the study was to make inter group comparison of athletes participating in selected sports.

**Delimitations**

1. The study was delimited to athletes of Kerala State who represented the university teams in the All India Inter University Competitions.

2. This study was further delimited to sprinters, cross-country runners, basketball players and volleyball players both males and females.

3. The study was confined to the following physical, anthropometric, physiological, psychological and sociological variables.

   **Physical Variables**

   a) Speed
   b) Leg Power
   c) Shoulder Strength
   d) Speed of Movement
   e) Agility
Anthropometric Measurements

a) Body Weight
b) Standing Height
c) Leg Length
d) Chest Girth
e) Thigh Girth
f) Calf Girth
g) Biceps Girth
h) Percentage of Body Fat
i) Lean Body Weight
j) Ponderal Index

Physiological Variables

a) Anaerobic Power
b) Aerobic Capacity
c) Resting Pulse Rate
d) Resting Blood Pressure
e) Haemoglobin Content
f) Vital Capacity

g) Psychological Variables

a) Personality Factors (Neuroticism and Extraversion)
b) Achievement Motivation
Sociological Variable

a) Socio-economic Status.

Hypothesis

Modern Competitive sports consists of different disciplines which are different in nature. Some sports need equipment, some are team games, some are contact games and some are individual activity. The achievement of top performances in sports requires specific characteristics which are specific to each sport. It was therefore hypothesised that the profiles of players belonging to different sports will be distinct in nature.

Definition and Explanation of Terms

Athletes

Normally, by athletes we mean one who takes part in track and field athletics i.e. running, jumping, throwing etc. but for this study the term athlete is used in a more wider sense i.e. "One who takes part in or is capable of taking part in exercises or activities requiring mental ability, endurance, strength etc." or
"one who is trained to compete either professionally or as an amateur in exercise, sports or games requiring physical strength, agility and stamina."\textsuperscript{12}

**Body Composition**

The proportion and structure of the body plays an important role in physical performance. The body weight is divided into two components; the lean body weight and the fat body weight. Lean body weight includes the muscles, bones and organs. The underlying assumption is that total body weight equals the lean body weight plus the fat weight. "Body composition is the proportion of the lean body mass with depo fat."\textsuperscript{13}

**Ponderal Index**

Ponderal index is the ratio of the standing height and the total body weight. It is closely associated with the assessment of the somatotype components.\textsuperscript{14}


Ponderal index is calculated by using the following formula:

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Ponderal \text{ Index} = \frac{\text{Height}}{3/2 \text{ Weight}}
\]

\checkmark \textbf{Socio-economic Status}

The social and financial standing of the people participating in different sports activities is different. The selection of a sporting activity by an individual is to a great extent influenced by the socio-economic status of the individual and society with which he belongs.

Socio-economic status is defined as the level indication of both the social and economic achievement of the individual or group.\textsuperscript{15}

\textbf{Profiles}

Profile studies have been employed in order to show various trait pattern. Essentially this involves placement of the individuals on test scales for a number

of characteristics. Thus the individual's strength and weaknesses can be assessed from his position on a common scale for all traits. The scale may be from norms already available or may be constructed from a sample of the population to which the subjects belong.

**Significance of the Study**

There are numerous factors which are responsible for the performance of a sportsman. The physique and body composition including the size, shape and form are known to play a significant role in this regard. The performance of a sportsman in any game or event also depends on his suppleness, skill, training, motivation and on various other factors of physiological and biochemical in nature. Normally a person starts to take part in a sports without proper guidance. It is thus a sheer chance that his choice of the sports may be suitable to his inherent capabilities. So there is a need to guide the people to a specific sports who are having the basic qualities for that particular sports for making a right choice.
Therefore the present study may help the physical education teachers and coaches in the following manner:

The study will be helpful to locate the important qualities having some influence on the performance of university athletes of selected games and sports. The data can be used as a point of reference for evaluating the result of tests on sprinters, cross-country runners, volleyball players and basketball players in future.

The data will help to determine how far, the characteristics of athletes, basketball players and volleyball players resembles and differ.

The data will give an idea of the different factors which are included in the study, to achieve a particular level of performance in different sports.

The results of the present study will help the coaches, physical education teachers and trainers in selecting their teams.

Also this information can be used in developing more suitable training programme for the selected sports.