Chapter I
INTRODUCTION
INTRODUCTION.

The performance of an athlete has become a subject matter of importance and national prestige owing to the acceptance of various national and international competitions through specialised events and the organisations of Olympic games. There are numerous factors which are responsible for the performance of an athlete. The physique which refers to the size, shape and the form of an individual is believed to be the main criterion for an athlete (Sodhi and Sidhu, 1984). The three factors are intimately linked with each other and are the manifestation of the internal structure and tissue components which in turn are influenced by the environmental and genetic factors. With the process of growth and development the characteristics of the physique undergo a marked transformation. However, at adulthood the changes are quite a few and gradual. Besides the physique, the performance of an athlete in any event also depends on skill, practice, motivation, dietary condition and other environmental factors. Moreover, the age, sex and the physical growth and one's cultural heritage of sports have also been considered to be the important aspects of the performance, although the performance of an athlete is often attributed to social, cultural and environmental circumstances. There is also a substantial influence of the temperament of the athlete (Bluss and Plumin 1975, 1984). Temperament, obviously, has a genetic component.

It is now an established fact that champions of different athletic and sportive events differ significantly in their physical structure and physiological characteristics that correspond to some extent with the particular requirements of their respective events (Carter 1982 and Sharma 1982). Physical exercise and training can improve the performance of an adult man upto a certain limit that is
set up by his genotype. The size is often a prime selective factor in all types of sports performance that improved the athletes in accelerating his body, turning it, exerting maximum force and then throwing. The relationship between body size and performance have been summarised very clearly and concisely by Astrand and Radahl (1986) and later, the studies conducted by Malhotra et al (1972; Sodhi; (1976); Sharma and Shukla, (1988) in the Indian context It may be understood that no two individuals might be alike in their measurable characteristics.

Tanner (1977), stated that not only the climatic conditions, which play important role in shaping different body shapes, the human movements, also influence variations in physique and body composition.

Anthropometry, which is the system of measuring man and studying the size, shape and proportion has been taken as an important tool for assessing the athlete’s performance. These anthropometric measurements reflect information about the various parts of the body such as lengths, breadths, girths and skinfold thickness which are suggestive of body proportion and composition. Physique is measured by different procedures. Surface dimensions, body height, weight, and dimensions of body segments are measured by anthropometry for studying the physique (Carter 1970). Thus, describing the physique or the physical structure of the different athletes of the different sportive events, from a large and selective number of measurements and correlating them each other and also studying the body proportion and composition, has advantages for the athletes of the different sports events.

Somatotyping is also one of the important aspects of studying human physique which is evaluated from a small number of measurements. However, describing the physique only through somatotyping has some limitations because of the fact that two athletes of two different sports events may fall into the same somatotype, although they may differ in terms of arm length, leg length, thigh length, trunk length, hand length, hand breadth, bi-acromial breadth, bi-trochantric breadth, chest girth etc. which play important role in different sports events.
Therefore, somatotyping method alone can not provide a comprehensive method for assessing suitable athletes. Under the circumstances, describing the physique or the physical structure from a large number of selective measurements has often found more meaningful and dependable approach (Mass 1974).

The science of anthropometry represents the typical and traditional tool of human biology, physical anthropology and of the relationship with physical education and sports sciences. Thus anthropometry is, very much related with Kinanthropometry, which concerns with the assessment of human physical performance and also to evaluate the physical structure of an individual in relation to gross function. Anthropometry is a science which precisely deals with the size, shape and proportion of the human body. When the word ‘Kin’ is prefixed (Kine means to move in Greek) to Anthropometry, it has been defined and accepted as the study of size, shape, proportion, composition, maturation and gross function, in order to understand growth exercise, performance and nutrition (Eiben 1980). Many early investigations of the physique of the Olympic athletes from 1928-1976 (Amsterdam, 1928; London, 1948; Helsinki, 1952; Rome, 1960; Tokyo, 1964; Mexico, 1968; Munich, 1972 and Montreal, 1976) were depended essentially on anthropometry. Various sport scientists tried to relate body structure to specialised functions needed for various tasks and to understand the limitations of such relationship with the help of anthropometry. Later on, the study of the measurements of structural characteristics of human beings inclusive of the study of the aspects such as nutrition, maturation and body composition has been termed as kinanthropometry (Sharma 1990).

The term ‘athlete’ is used to a group of individuals who have been subjected to a selection process through various competitive tests resulting in their identity as those physically best fit. Therefore, they provide a suitable group for the study of their morphological variations and other characteristics in the process of adaptation.
AIMS AND OBJECTS

The present study aims at studying the various physical structure and physiological characteristics of the Meitei women athletes of no. 7 (seven) Sports events such as hockey, football, weight lifting, running, throwing, cycling and gymnastics and also for a controlled grouped (non athletes). The objectives are summarised as follows:

1. To study the mean variations in the anthropometric variables, body proportion and the body compositional factors among the athletes of the 7 (seven) sports events and the controlled group. Further also to see such variations among the athletes of the sub-events of the 2 sports events of the weight lifting and the running events.

2. To make a comparison between the data of the different athletes of the 7 (seven) sports events with those of the controlled group in terms of the anthropometric variable, body proportion and the body composition.

3. To make an inter-comparison of the data of the athletes of the 7 (seven) sports events in terms of the anthropometric variables, body proportion and the body compositional factors.

4. Further also, to make an intra-comparison of the data of the athletes of the sub-events of the 2 sports events of the weight lifting and the running events of the anthropometric variables, body proportion and the body compositional factors.

5. To make an attempt to compare the data of the present study with the available data of the athletes of the national and the international competitions.

6. Besides, attempts shall also be made to assess the age and the family background information on the family size, with order and per-capita monthly income of the athletes and the controlled group.

The next chapter explains the review of literatures of the present study.