Chapter I

INTRODUCTION

The future of a nation depends upon the future of its children. Proper upbringing of the children goes a long way in the development and well-being of a nation, for children are the precious source to a rich and prosperous future of a nation. The overall rating of a nation, in each and every aspect of development, will depend directly or indirectly on children. Today's children are bound to be the foundation of tomorrow's nation. Since so much is expected from little children of and for an enormous nation like India, it should be kept in mind that there are also several factors that underline the future of children. One of these several factors is motor fitness. And motor fitness alone cannot be taken for granted, for motor fitness itself is also influenced by several factors.

Children and youth need to be fit. Unless this desire is resident in each child, the way of life that results in fitness will not be achieved. By the time children leave school behind and enter into adult life, the importance of fitness in achieving personal ambitions and desires, in feeling well and happy, in living most and serving best and in contributing to a strong nation must be inculcated in every boy and girl.

Motor fitness may also be defined as a limited phase of motor ability, emphasizing capacity for vigorous work. According to Jones et al.1, "A totally fit individual has the strength, speed, agility, endurance and social and emotional

adjustments appropriate to his age, "They further stated that modern age is an age of
technology which inhibits physical activity. Machines are used to perform much of
our work and we are forced to lead a sedentary life. Our life span is increasing but
physical fitness is deteriorating. Most of our leisure time is also passed in a very inactive
way sitting in front of a television."

Motor fitness is inclusive of the underlying elements of vigorous physical activity.
Typical of these elements are muscular strength, local muscular endurance, cardio-
respiratory endurance, muscular power, speed, agility and body flexibility. Motor ability
and motor fitness are not separate entities; no line of demarcation separates them,
rather it is a zone of separation. As a concept, general motor ability indicates one's
level of ability in a wide range of motor activities, those elements underlying
performances in many motor complexes the potential for motor and athletic
competencies.

The factors of physical fitness are not directly assessed by motor fitness but,
however are reflected to a large extent. As most fitness tests actually tend to measure,
motor fitness would seem to be the aspect of a limited phase of physical fitness.

The science of growth and development has become an important aspect for
healthful living and growth and development is being studied from different angles in
order to exploit it maximally and the knowledge of growth and development is also
important to avoid harmful effects of systematic physical training, if not chosen properly,
in schools curriculum on growing children.

There are many factors which influence growth and development. Basically
heredity furnishes the frame of reference for line along which growth and development
of the individual takes place. Although heredity is very important in the growth and
development of an individual, wide limits are seen in the influence of environmental
factors as growth and development, perhaps heredity does set the boundaries but environment and the impact of nature dictate how one falls within those limits.

If a child during the elementary school years does not measure upto the required standard of fitness, there are some chances of his posture being deformed. It is found that children brought up in slum areas and other unfavorable environments do not have a correct posture. Due to malnutrition, lack of facilities etc. Children tend to be gloomy and these inturn affect their fitness. Children of parents who are well-off may also grow up with deformed postures and might deviate from required levels of physical fitness due to inactivity during their school years.

Motor development is undoubtedly the most important aspects of growth and development which has direct implications for training youth and children. Studies on motor development have revealed that certain important pre-requisites for top sports performance (eg : speed, flexibility, and co-ordination abilities) can only be optionally developed in childhood (Cratty 1979)².

Since physical education has been accepted as an integral part of the overall education process, it now bears the responsibility of an all-round development of children. More active children are usually superior to their peers in maturity, body size etc. Modernisation Urbanisation and the consequent social changes have reduced the level of fitness among children. The children of developing countries are far worse, they are without minimum basic services in health care, nutrition and education.

Fundamental to success in education or any other fact of living is good health and it cannot be achieved in youth unless growth and development takes place is on acceptable manner. A sound body is necessary for the child to activate his full

educational potential unless he has the capacity to develop the physique and physical fitness with the limit set by the heredity.

Although growth and development in general follows a pattern, there are wide variation and differences within this pattern while growth is generally viewed as increase in height, weight and size, development has to do more with functioning of the body-mass. Therefore growth represents an increase in mass, while development indicates an organisation of mass with respect to its functional abilities. They may go on simultaneously, but may also proceed independently of each other\(^3\).

It is acknowledged that persons of the same age will vary considerably in body size and shape, that individuals of the same height will differ greatly in body weight; that persons may weigh the same but the relative proportions of muscle, fat, and bone will be anything but equal. It is obvious then, that no single measure by itself is satisfactory for the purpose of classifying students into homogenous groups.

Human qualities, characteristics or abilities are qualitative, they are present in each person in varying amount and thus appropriate to all human development potentialities, with special reference to their physical, mental, emotional and social qualities. These qualities are quantitative within the organisms the rates and capabilities for development very with age and maturation. If one accepts that capacities vary, then achievement must also be considered quantitative with some constant degree of development and achievement\(^4\).

It is interesting to compare performance differences to the various ages with the

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exception of 10-13 year age. Male displayed a general superority over the females in response to speed. Generally speaking, the two sexes performs similarly until the age of sixteen, when the female level off in performance and show decrements with increasing age. Males continue to improve until the early twenties and then they too undergo declining performance.

Proper physical activities have their prime importance in the growth of the child in those years. It is necessary to have large amounts of big muscles activities during the period of elementary school years, so that various parts of the body will develop proportionately. But the need and interests of the children at different age levels vary and, the physical educators should have a clear idea about growth trends, so that it helps to develop a proper programme to the need of each child, curriculum development should be based on the adequate knowledge above the growth and development of boys and girls at different age levels. It should respect the importance of physical exercise. So that the children can develop their fullest potentialities.

**Statement of the Problem**

The purpose of this investigating was Cross Sectional Study on Age, Sex, Height and Weight in Relation to Motor Development Among Boys and Girls.

**Delimitation**

1. The study was delimited to 5000 subjects who were chosen randomly from five different zones of India i.a. South, North, East, West and Central.
2. The study was further delimited to subjects of the age between 13 to 17 years.

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*Charles B. Corbin, Becoming Physically Educated in Elementary Schools (Philadelphia ; Lea and Fabiger, 1969) :2.*
3. The study was further delimited to the following tests to measure motor fitness components.

(i) Strength
   (a) Walking on Fours
   (b) Sit ups

(ii) Power
    (a) Standing Broad Jump

(iii) Speed
     (a) Sprint

(iv) Agility
     (a) Mounting on high bench

(v) Reaction time
   (a) Zig-Zag running

(vi) Stability
    (a) Walking on Balancing Beam

(vii) Co-ordination
     (a) Backward running

Limitations

1. Many factors like diet, sleep, physical and social environment, economic conditions and life style of subjects were not controlled and was a limitation of this study.

2. Genetic factors and Racial difference was another limitation.

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Hypothesis

On the basis of the knowledge gained from available literature, research findings and the scholar's own understanding of the problem, it was hypothesized that:

1. There may be differences in motor performance of boys and girls in relation to age and sex.
2. Differences may be in motor performance of boys and girls related to height and weight.

Definitions and Explanation of Terms

Motor Fitness

Motor fitness may be defined as an individual's level of standing in terms of his readiness to involve himself in tasks requiring application of such components as speed, strength, Endurance, cardio-vascular endurance, agility and flexibility.

Motor fitness components

Strength

Jensen and Fisher define strength as "the ability of the muscles to exert force against resistance."  

Johnson and Nelson define strength as "the muscular force exerted against an immovable objects."  

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8Johnson and Nelson, Practical Measurements for Evaluation in Physical Education, p. 94.
Muscular Power

According to Clarke "Muscular power is the ability to release maximum muscular force in an explosive manner. that is in the shortest possible time".

Speed

According to Barrow and Mc. Gee "Speed is the capacity of the individual to perform successive movements of the same pattern at a fast rate".

Agility

Agility is defined as "the ability of the body or parts of the body to change directions rapidly and accurately".

Stability (Dynamic)

Barrow and Mc. Gee defined balance as "One's ability to move from one point or space to another and maintain equilibrium".

Reaction time

According to Morehouse and Miller reaction time is the time elapsing between moment of applicatin of stimulus and movement response.

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9H. Harrison Clarke, Application of Measurement to Health and Physical Education P. 173.

10Harold M. Barrow and Rosemary Mc, Gee A Practical Approach to Measurement in Physical Education (London, Henry Kimpton Publisheres, 1979); 112

11Ibid P, 113

12Ibid P, 114

13Lawarence E. Morehouse And Augustus T. Miller Physiology of Exercise (St. Louis ; The C.V. Mosby Company ; 1967) 46.
Co-ordinative abilities

Co-ordinative abilities are understood as relatively stabilized and generalised patterns of motor control and regulation process. These enable the sportsman to do a group of movements with better quality and effect\textsuperscript{14}.

Significance of the study

1. The finding of this study will add new knowledge in the field of physical education in general and Exercise physiology in particulars.

2. The finding of this study will quantify the physical fitness levels of Indian boys and girls of different age group.

3. This finding will also establish the relations of Age, Sex, Height, Weight of the Indian boys and girls of selected age groups to their respective physical fitness level.

4. The finding of this study will help the physical education teachers to handle the practical class for the respective age group of boys and girls of Indian origin.

5. The finding of this study may also help the school administrators to suitably modify the existing curriculum as well as physical education programme of their students, if need be.