CHAPTER I
INTRODUCTION

More than ever, education today is going through many changes. New issues come up for consideration involving considerable thinking on the part of educationists formulating plans. Physical Education is no exception to this change that has characterised the pattern of general education, not only here in India but also elsewhere in the world.

In the past, the fitness movement had placed an emphasis on sports activities, which then broadened to encourage physical activity for all perspective. Although the progress was positive, the focus was still too narrow, creating a mind set that viewed physical activity as a prescription against heart disease and failed to capture the mental, social and spiritual aspects of physical activity.

A number of authors and reports have suggested that Physical Education programmes can make a great contribution to the overall health and wellbeing of children. The 50 or 60% reduction in coronary heart disease in Australia in the last 25 years has been mainly due to people's concern over health, lifestyle and environment which was made to be revolutionized by the organisation called Australian Council for Health Physical Education and Recreation and has not been due to the medical profession. Fixing up people
with heart ailments has not made the impact, but in fact, has come from prevention, change of lifestyle, change of environment etc.

'Quality of Life' has become one of the major aims of contemporary societies. Although, the term covers a broad range of meanings which differ from country to country or even within the very same society. Health and physical fitness was considered as integral components of quality of life and hence, in this sense, the regular practice of physical activity can be considered as a means to realize both individual and social values.

Recently, more and more physical educators are adding weight control, or freedom from obesity, as components of physical fitness. The impetus for this no doubt came from medical profession, as the many medical problems associated with obesity call for cooperative effort between the medical field and Physical Education. Although, the causes of obesity are complex, lack of physical activity is a major behavioural characteristic held in common by a large percentage of obese persons. Moreover, regular physical exercise has been shown to be an effective means for reducing fat and maintaining sufficient muscle mass. Physical fitness is sometimes defined in terms of the capacity to do work and for this, obesity is definitely a negative factor and thus the avoidance of obesity has qualified as a viable component of health-related physical fitness.
health-related fitness is defined by three general components: (1) cardio-respiratory function (2) body composition (leanness/fatness) and (3) abdominal and low back hamstring musculo-skeletal function. The essential characteristic of health-related fitness is that, exercise has a positive influence on these three components and that an adequate level of development is necessary for the maintenance of health.

A growing body of research indicates that, many diseases that are overtly manifested only in adults are the result of chronic disease processes that begin in childhood. Animal model research data suggest that childhood obesity, which is likely to persist into adulthood, is significantly related to exercise and nutritional habits during early stages of growth and development. Thus, it seems clear that primary prevention of such diseases must begin with proper health habits during childhood.

In recent years, health professionals have embraced the concept of health promotion through adoption of positive personal health behaviours. If this concept is considered in light of the evidence that links regular exercise to health maintenance, the obvious conclusion is that health-related physical fitness is relevant to all children.

The increased recognition of the importance of health-related physical fitness of school children compelled the research scholar to conduct this study.
It is a discourse of the quality of life that says that anyone can practice self-betterment, if they put their mind to it or if they are prepared to "pull themselves up by their boot straps". In the contemporary era, it is the body that has become a symbol of such self-betterment. Doing something about our lives means doing something about our bodies (biological self-betterment). In this fashion, fitness and health practices are not, despite appearances, apolitical and retreatists. They form part of what is a very contemporary consciousness.

The aim of Physical Education, as part of the general educational process, is to develop and foster the physical fitness of the individual, to contribute to his/her health to form a harmonious personality with proper social behaviour and to prepare him/her to perform efficiently his/her roles in the society in studies, work, defence and at leisure time.

Physical fitness of children and young adults of school age has always been a priority in the United States and presumably in other countries as well. During the late 1950's and early 1960's and then again in the late 1970's to the present, enormous emphasis was devoted to physical fitness promotion by school educationists, exercise scientists, the sports medicine cognoscenti and various governmental agencies. The concept of fitness was reconceptualised during the 1980's, and today is perceived as a health-related component necessary for a healthy lifestyle.
So much emphasis has been placed on this phenomenon that much of Physical Education and sport in North American schools is viewed synonymously with health-related fitness, as health and physical wellbeing of youth through the vehicle of exercise has become a common concern of educationist.

The increasing recognition of the importance of health in the global socio-economic development is reflected in its conclusion in the United Nations Development Programme's Human Development Index, the World Health Organisation's formulation of health as a conditionality of economic development and World Bank's call for an increased role for health in developmental activities and investing in health.

Fundamental to success in education or any other facet of living is good health and it cannot be achieved in youth unless growth and development takes place in an acceptable manner. A sound body is necessary for the child to achieve his/her full educational potential. Unless he/she has the capacity to develop his/her physique and physical fitness within the limits set by heredity, many of the objectives of education cannot be attained.

Physical Education programmes must go beyond an orientation which emphasizes sports skills to one which focuses on the acquisition of active lifestyles. There are many natural cooperative and collaborative partnerships between promotive active living school-based health promotion, Physical
Education and intramural activity. Comprehensive School Health (CSH) is a viable adhesive that makes appropriate connections and provides as the factor for uniting all key players and it is a framework for supporting quality, daily physical activity and Physical Education. Besides, it was a help to teachers and schools, so as to initiate changes in the school which would support and implement quality Physical Education.

Health and social problems are current issues which are prevalent in schools today. Aids, drugs, child abuse, youth violence and suicide are a few of the many factors contributing to the pressures health and physical educators are faced with in the education of the students. Due to the severity of this situation, one must accept that schools can no longer work alone to each children about the many issues which may threaten their health and in this regard, schools must utilize the support of community groups and parents to help respond to these important challenges.

In the past few years, several health, community and education organizations have joined forces to collect a comprehensive approach to respond to these needs and challenges. This approach integrates the efforts of teachers, health and social service professionals, government, parents, youth and community organizations. The intent is not just to promote the importance of health, but to help change the environments in which we work and live.
As part of the development of the CSH framework, the psychological, social, academic and cultural value of physical activity and an active lifestyle was realized by decision makers and physical educators. This led to the development of the concept of active living, a paradigm seen as being parallel to health promotion and another step on the continuum along which physical educators have been moving for some time.

A number of authors and reports have suggested that Physical Education programmes can make a great contribution to the overall health and wellbeing of children. At the same time, however, it has been reducing the instructional time required for Physical Education. This has happened to the point where Physical Education instruction in schools is not sufficient to achieve an adequate level of fitness among students.

The small changes in physical or social environment may eventually assist an individual and as of now a lot of people need to reduce their cholesterol for a long time, inorder not to have a fatal heart attack. This does tells what happens to populations or to large group of people and how very small changes can have a large effect on the community. It may not make any difference to an individual, but is certainly a significant public health impact over the whole population and that is why building environments for a healthy future are really important, because there are a lot of things which a responsible member of the society will have to do, whether it is teaching
school kids or whether it is training the trainees. And in fact, some of the things that one does may or may not work. Although, the extend to which, a particular thing is going to work or influence the environment out there is not known, as both the social and hopefully the physical environment as well, may ultimately will be going to effect our physical health in subtle ways.

Following development of automation, physical demands changed from work requiring movement and physical effort to occupations requiring almost no physical activity at all. The process of mechanization has shortened the working day, which in turn has affected leisure-time activities of workers, as abundant research has shown connection between lifestyle at work and character of leisure time activities.

The movement lacking lifestyle of the industrial workers, employees, office executives, etc. is also characterized by mental and nervous tensions such as anxiety, hostility and depression inflicting pressure on positive muscles and other parts of the body, besides the heart and blood vessel. On the other hand, epidemiological research indicated that, more active a person, the lower the mortality rate connected with heart and lung related malfunctions. This has affected lack of job satisfaction, estrangements, stress and erosion, which in turn have caused decreased worker employee fitness and thereby lowering efficiency as a result of faulty functioning, besides increases in the number of absentees mainly due to illness.
The species, Homo sapiens, emerged in Central Africa some 50,000 years ago and the genetic information indicates that ancestors spread across the face of the earth as hunter-gatherers. Agriculture emerged some 10,000 years ago and throughout this period, through migration and until recently, by necessity the humans have lived an active life. But that has changed, slowly at first until the last few decades when humans accelerated their transformation to sedentary ways. Now, less than 30% of the populations gets the minimum amount of exercise associated with health, as a small percentage (10%) engages in sufficient activity to improve fitness and achieve additional health benefits of the active life as they understand and appreciate the pleasure and benefits of an active life.

Sports psychologists William Morgan (2001) suggests that the reason why people don't start or drop out of exercise programme is that, the physical activity presented to the population lacks purpose and the exercise prescription focuses on measuring heart rates and duration instead of enjoyment or accomplishment.

As many as 250,000 lives are lost annually, because of lack of regular, moderate physical activity and is now considered as much a contributor to heart disease as are high blood cholesterol, high blood pressure and cigarette smoking, not because inactivity is more potent, but because so many of us are inactive or sedentary. Activity can reduce heart disease and control heart
disease risk factors - elevated cholesterol, high blood pressure, diabetes and obesity as inactivity contributes to a substantial number of the death annually.

Poor food choices contribute directly to overweight, obesity, heart disease, diabetes and cancer and indirectly to other psycho-social problems such as depression. The world is fatter but not felt better - just because gaining weight by people does not mean that the world is better felt or healthier. Healthy food choices help an individual to maintain or loose weight, decrease the cholesterol level, thereby reducing the risk of heart disease, cancer and other ills making physical activity more enjoyable.

The active life is not a hodgepodge of unrelated habits, it is a highly integrated family of behaviour that become more potent in combinations than each is individually.

Professionals who have worked in the health and fitness field for many years are well aware of the importance of integrating physical activity into their individual life. A certain level of fitness not only protects the individual from a number of chronic diseases but also makes it easy for performing the many tasks of daily life, as well as making the participation in a variety of sports and recreational activities considerably easier. A number of psychological benefits can also be derived from regular participation in physical activity, including emotional well-being, enhanced cognitive function and a higher perceived quality of life. The costs of physical
inactivity among the older adult population will place increasing demands on medical and social services and the public health system in general.

In addition to physiological and psychological benefits, physical activity also has significant benefits for the social functioning of older people. Among the social benefits of physical activity is the empowerment of older adults to play a more active role in society. Because of the factors such as the death of friends and loved ones, retirement, financial hardship, health and isolation, many older adults are forced to systematically relinquish many of the roles that they consider as a meaningful part of their identity.

Research trends strongly support the need for health-related youth fitness programmes. A reason for supporting the need is that adulthood characteristics and behaviour are influenced by childhood behaviour. This is especially true for body composition and it has been estimated that from 80%-86% of adulthood obesity has its roots in childhood. It is further estimated that, the cure rate for adulthood obesity is under 20% - much lower than the cure rate for most cancers. Besides, it is generally accepted that the most effective approach is to prevent adulthood obesity rather than trying to cure it and hence reducing obesity in youth is viewed as a major step in lowering the prevalence of adulthood obesity.

An effective lifestyle during childhood does certainly direct the health both during adulthood and at old age. But due to the modern way of living
and technological developments (e.g., cars, elevators, computers and television), both children and adults have become less physically active. In certain cultures, inactivity and the resultant obesity and diseases have reached 'crisis proportions'. New research shows that Indians are genetically more likely to get heart attacks than any other ethnic group in the world. One out of five Indian had high levels of Lipoprotein as compared to the Japanese, Chinese, Caucasians and Hispanics (Enas EA, 1998, 2000). However, genes alone do not explain the sudden spurt in heart disease among the youth. The answer, in a word, is lifestyle. "Genetics load the gun, lifestyle pulls the trigger" is how Enas describes (Dr. Enas K. Enas, Director, CADI). WHO predicts that, India will have 100 million (10 crores), or 60 per cent of the world's heart patients by 2010 (India Today, June, 2001). It shows that the declining level of exercise has the potential to increase the burden of chronic diseases in our population, directly as an independent risk factor and indirectly through increased obesity. Lifestyle choices have never been more important in determining the outcome of a national problem.

One of the most important goals of the Physical Education programme in schools and colleges is to develop physical fitness and to promote lifelong physical activity behaviours. For this, the children and youth must be introduced to the principles of regular physical exercise and recreational activities at an early age. Schools at all levels must develop and encourage positive attitudes towards physical exercise by providing ample
opportunities to learn physical skills and perform physical activities, especially those that can be enjoyed for lifetime.

Besides, the benefits of exercise, the development and maintenance of a healthy lifestyle and a positive attitude towards exercise conditioning throughout life should be promoted in schools. But, unfortunately the present system of education do not have a structured Physical Education programme. In most of the schools, majority of the students are not exposed to any type of Physical Education programmes. Always, the school authorities do make the selection and impart training only to those gifted students. The school authorities cannot be blamed for such an attitude, because paucity of manpower and infrastructure facilities, lack of proper motivational techniques, failure to make awareness among the parents are some reasons which have contributed to such a phenomenon.

Regular physical activity in adolescence will reduce the risk of obesity and hyper lipidemia (i.e., high levels of fat in the blood), which, in turn, have been known to be associated with lower adult onset of coronary heart disease and certain cancers. Regular physical activity will also help to build greater peak bone mass, thereby reducing adult risk for osteoporosis. Involvement in physical activity, exercise and sport promotes psychological well-being; the therapeutic use of physical activity and exercise for improving the mental
health of adolescents goes beyond traditional treatment and most of the mental health programmes.

One of the major benefits of physical activity is that it helps people to improve their physical fitness. Fitness is a state of well-being that allows people to perform daily activities with vigour, thereby reducing their risks for health problems. Five basic components of fitness which are found to be important for good health are, cardio-respiratory endurance, muscular strength, muscular endurance, flexibility and body composition (percentage of body fat). The essential characteristic of health-related physical fitness is that exercise has a positive influence on these components, and that an adequate level of development in the above said components is necessary for positive health.

![Figure 1. Components of Fitness](image-url)
Since the concern for positive health extends to all ages, it is recommended that all persons to be tested periodically on health-related fitness components. Periodic testing places emphasis on the importance of an active lifestyle to maintain low amount of fat, high levels of cardio-respiratory function, achieve sufficient muscular strength, muscular endurance and flexibility in the lower trunk and posterior thigh areas for a healthy low back function (AAHPERD, 1980).

Moreover, evaluation will help to understand the present levels of educational performance in physical and motor fitness domains. Thus, the results will enable us to compare the students performance with normative community standards, to determine whether there are sufficient differences to indicate an educational need. It goes without saying that a raw score is meaningless in the absence of a comparative data. Such reference scales can only be established when a representative group of people has performed the tests under strictly controlled and standardized conditions. Any individual's raw scores can then be referred to the distribution of the scores of the representative sample, in order to find out his or her position vis-à-vis age and sex. Because of the important variations in physical fitness during growth and between the sexes, separate reference scales need to be established for boys and girls.
Many research scholars are putting efforts to assess the fitness status and in the construction of norms in connection with their Ph.D. studies in different population. The physical fitness status of school children in Kerala was not known till 1995. Hence, in this context, the scholar felt a need to systematically assess the present health-related physical fitness status of the school children of Hilly and Coastal regions of Kerala state, so as to inculcate a lifetime leisure and physical activity behaviour among the school children in Kerala.

**STATEMENT OF THE PROBLEM**

The purpose of the study was to find out the differences in health-related physical fitness status of boys and girls of two different age groups in the hilly and coastal areas of Kerala state.

**DELIMITATIONS**

1. The study was delimited to aided and government schools of Kerala State.

2. The study was delimited to 3000 male and 3000 female school children of 12 to 14 years of age, which have had two age groups one below 13 years and the second below 14 years.

3. The study was delimited to subjects of five coastal districts namely Thiruvananthapuram, Kollam, Alappuzha, Ernakulam and Thrissur and...
to subjects of five hilly districts namely Pathanamthitta, Idukki, Wayanad, Kottayam and Palakkad.

4. The study was delimited to the ICHPER.SD Asia Youth health-related physical fitness Test Battery.

**LIMITATIONS**

1. The differences that exist among the subjects due to varied social, cultural and economic factors cannot be controlled and this is considered as a limitation of this study.

2. The lifestyle, nutritional status and family background of the subjects selected cannot be controlled and this is considered as another limitation of this study.

3. The environmental changes and climatic conditions during the testing period were not considered and this is considered as another limitation of this study.

4. Body composition was assessed by adding the skinfold thickness of two sites namely triceps and calf, this is considered as another limitation of this study.

5. The score on Pull-ups of a majority of the subjects were zero, hence the modified Pull-up test was used to assess the shoulder strength
instead of Pull-ups, and this is considered as another limitation of this study.

**HYPOTHESES**

1. There will not be any significant difference in means among the eight different selected groups of subjects such as under 13 year boys of hilly areas, under 14 year boys of hilly areas, under 13 year girls of hilly areas, under 14 year girls of hilly areas, under 13 year boys of coastal areas, under 14 year boys of coastal areas, under 13 year girls of coastal areas and under 14 year girls of coastal areas in any of the five dimensions of health-related physical fitness.

2. There will not be any significant difference in means across different age and gender groups, irrespective of terrain such as boys under 14 years of age, boys under 13 years of age, girls under 14 years of age and girls under 13 years of age in any of the five dimensions of health-related physical fitness.

3. There will not be any significant difference in means across different gender and terrain groups irrespective of age such as boys of hilly areas, boys of coastal areas, girls of hilly areas and girls of coastal areas in any of the five dimensions of health-related physical fitness.
4. There will not be any significant difference in means across different age and terrain groups irrespective of gender such as under 14 years of hilly areas, under 14 years of coastal areas, under 13 years of hilly areas and under 13 years of coastal areas in any of the five dimensions of health-related physical fitness.

5. There will not be any significant difference in means among under 13 years and under 14 years of children irrespective of gender and terrain in any of the five dimensions of health-related physical fitness.

6. There will not be any significant difference in means among students of hilly and coastal areas irrespective of gender and age in any of the five dimensions of health-related physical fitness.

7. There will not be any significant difference in means among boys and girls irrespective of age and terrain in any of the five dimensions of health-related physical fitness.

**DEFINITION AND EXPLANATION OF THE TERMS**

**Health-related physical fitness**

Health-related physical fitness is the ability to perform strenuous physical activity with vigour and without excessive fatigue and demonstration of physical activity traits and capacities that are consistent with minimal risk of developing hypo-kinetic diseases.
health-related fitness is considered as the role that exercise has in the pursuit of healthier lifestyle by presenting the so called twentieth century medical problem such as cardiovascular diseases and obesity.

**Cardio-respiratory endurance**

Cardio-respiratory endurance is the ability of the heart and lungs to supply oxygen to the working muscles for an extended period of time.

Cardio-respiratory endurance is the ability of the circulatory and respiratory systems to adjust to and recover from the effects of moderate to vigorous activity.

Cardio-respiratory endurance is the ability to sustain long-continued contractions (sub-maximal) with sufficient intensity and duration to put a demand on the circulatory and respiratory system.

**Muscular strength**

Muscular strength is the measure of the greatest force that can be produced by a muscle or group of muscles.

**Dynamic muscular strength**

Dynamic muscular strength is the ability to continue successive movements of muscular strength over an unlimited time span.
Muscular endurance

Muscular endurance is the ability to contract a muscle or group of muscles repeatedly without incurring fatigue.

Flexibility

Flexibility of a joint is the ability to move freely in every direction or more specifically throughout a full and normal range of motion.

Flexibility is the ability in the range of movement with ease and in wide range.

Body composition

Body composition is the quality or make-up of total body mass. Total body mass is composed of lean body mass which includes an individual's bones, muscles, organs and water, while fat mass is fat or rather adipose tissue.

Body composition is typically the relative amounts of fat mass and fat-free mass, usually measured via skin-fold tests.

Body composition is the proportions of different fat and lean tissues that make up an individual's body.
Body Mass Index

Body Mass Index is the body mass divided by the height of the individual squared and is often used as an indicator of obesity.

Body Mass Index is expressed as an index of an individual's weight in kilograms divided by height in metres squared.

Lean body mass

Lean body mass is the body tissues not containing fat such as bone, muscle, organs, blood and retained water.

SIGNIFICANCE OF THE STUDY

The results are a means to an end. They should never be considered as an end in themselves. The results of this study can be a significant aid in the prescription of exercise for the development of health-related physical fitness. Several ways by which the results of this study can be effectively utilized are listed below, besides helping to determine the health-related physical fitness of school children.

1. The test results will enable to plan the most desirable health-related physical fitness programmes.

2. The results will enable to diagnose the strength and weakness of school children belonging to different terrains.
3. The results will help to determine whether the important objectives of the Physical Education programme have been attained or not.

4. The study will enable to stimulate interest in health-related topics among the children.

5. The study will help to perform an indirect educational function by making the parents aware of important health-related physical fitness components.

6. Since high level of health-related physical fitness is found to be associated with different terrains, the study will provide clues for methods of health care development programmes.

7. The results of the study will indicate the health status of the school going children of different terrains of Kerala state.

8. The results will enable to study and understand the maintenance of good functional capacities in health-related physical fitness components during childhood.