CHAPTER - I

INTRODUCTION
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1.1 Origin of the Problem

Sedentary life style is a seriously growing health problem. Epidemiological study has shown that sedentary life style will contribute to the early onset and progression of life style disease such as cardiovascular disease, hypertension, diabetes and obesity (Hulens et.al., 2002). Healthy body is necessary for increasing the working capacity and maintaining physical fitness of any individual to perform his daily tasks vigorously and alertly, with left over energy to enjoy leisure time activities. It also helps to maintain good body composition. Cardiovascular fitness reduces the risk of cardiovascular diseases and other diseases like hypertension, Diabetes obesity, and may cure respiratory problems like asthma (Amusa, & Goon, 2011).

The large majority of university-based, internationally published research in this field has found a positive association between children's physical activity participation and academic achievement. A two year physical activity intervention led to significant improvements in children's maths scores (Hollar et al., 2010) Academic achievement of children in a case study group (who received extra physical education) was significantly higher than children who were in a control group (who did not receive extra physical education) in a second year follow-up (Shephard et al., 1994) Greater vigorous physical activity out of school resulted in higher test scores (Coe et al., 2006) Physical activity was a significant positive predictor of academic achievement. Body mass index, diet and physical activity explained up to 24% of the variance in academic achievement after
controlling for gender, parental education, family structure and absenteeism (Sigfusdottir et al., 2006)

Daily physical education class may provide the opportunity for students to meet healthy people to guide for physical activity. Many schools districts, however, are reducing physical education requirements and some are eliminating programs. The percentage of schools/college requiring physical education in each grade decreases from approximately 50% in grade Physical education classes are being replaced with other classes in an effort to increase the students’ academic achievement as measured by standardized tests. Despite this trend, no clear evidence indicates that academic achievement will improve if physical education classes are cut. But it is not fact it is only misunderstanding and misconcept among general line administrators. (Ahamed Y, et.al., 2007)

Now a day Physical education classes provide an opportunity for students to be physically active during the school days. School-based physical education programme has many benefits, including increasing physical activity and improving physical fitness and muscular endurance. Increasing physical activity through physical education is also a proposed public health strategy to reduce childhood obesity. Although there has been no evidence to date to show that maintaining or increasing time in physical education class negatively affects academic achievement in other subjects, there is concern that physical education classes could take time away from those subjects. More information is needed to address this concern and support public health objectives to maintain or expand physical education programmes. (Cameron M, et.al., 2000)

Davice CL examined the influence of physical education in US elementary schools on direct measures of academic achievement in mathematics and reading from kindergarten through fifth grade. Our study was unique in at least ways: first, the measurement of academic achievement
was a standardized test administered at time points. Second, we examined the association between physical education and academic achievement with a prospective cohort design. Finally, we examined participation in physical education as it existed in a representative sample of US students entering kindergarten in fall 1998 who were followed through spring 2004. (Davis CL, et.al., 2007)

The time allocated to physical education in the majority of western schools has declined over the last decade, with a consequent increase in time allocation for other academic subjects. Budget restraints and pressure to meet academic targets have caused schools to cut back on physical education, with the aim of improving academic performance. There was even a perception amongst key decision makers that time spent on non academic pursuits might impact negatively on academic achievement. However, advocates of school-based physical activity have suggested that physical education, physical activity and sport may contribute to the enhancement of academic performance either directly or through the achievement of wider social outcomes which, in turn, may impact on academic achievement. (Hilman et.al., 2008)

One area of recent current interest has been whether or not participation in sport and other forms of physical activity can enhance cognitive function, including memory and concentration. Large, all encompassing reviews examining this relationship between physical activities and learning behaviour have suggested that school children may indeed derive cognitive benefits from participation in physical activity including sports. Associated with these cognitive benefits, it has been suggested that physical education, physical activity and sport may enhance classroom behaviour contributing to the enhanced academic achievement of pupils. (Mahar et.al., 2006).

Furthermore, it has been suggested that physical education, physical activity and sport have the potential to impact on school attendance which in
turn could impact on academic achievement. For example, there is a strong relationship between attendance and exam performance, even after prior attainment is taken into account and significant relationships have been identified between attendance and skill acquisition, knowledge and understanding, behaviour, personal development, relationships, parents views on the school and also pupil's attitudes to school. (Shephard, RJ, 1994).

Finally it has been argued that the potential, psychological and social benefits of physical education, physical activity and sport may indirectly enhance academic performance by enhancing mental health, improving feelings of connectedness with school and by enhancing positive social behaviours. (Trudeau and Shephard, 1996).

Physical education will contribute to the overall education of the student by helping them to lead full and valuable lives through their participation in purposeful physical activity. Through a broad and balanced program, students will be involved in the continuous process of planning, performing and evaluating, although the emphasis will be placed upon the actual performance aspect of the subject. Students will be taught through physical activities that fall into six categories: games, swimming, gymnastic, dance, athletic, and outdoor and adventurous type of activities. Fitness is a cross-curricular area.

All graduating students should leave the school having experienced a diverse range of physical activities and learning styles. Students should be competent performers in a range of individual and team activities and sports should understand the rules and regulations of these activities in order to be able to participate throughout their lives as well as have a good level of fitness and knowledge of how to maintain it. Our classes provide opportunities for students to be creative, co-operative and competitive and to face up to different challenges as individuals and in groups and teams. We hope to promote a positive attitude towards active and healthy lifestyles. In
class, students learn how to plan, perform and evaluate actions, ideas and performances to improve their quality and effectiveness. Through this process, they discover their aptitudes, abilities and preferences and make choices about how to get involved in lifelong physical activity.

Physical education lessons are taught using a variety of teaching and learning styles, with a balance of teacher-centered, student-centered and guided learning approaches. Students are encouraged, wherever possible, to be creative, co-operative, inquisitive and responsible for their own learning. Assessment will be made continuously throughout the units of work based against the programs of study for the specific activity. Recording and reporting on students will occur at specific times throughout the year and relate to the adopted standards and benchmarks.

The training is defined as an organised instruction, a teaching learning process, (repetitive practice of skills) aiming at performance enhancement in any field of human activity. Precisely, it is a methodical way of preparing oneself to achieve some pre-determined goals. A soldier trains to fight in war, a teacher trains to communicate things to students, a pilot trains to fly an aeroplane, a mechanic trains to repair an automobile and an athlete trains to run marathon or play soccer etc. In each of these training situations, people have to undergo some formal skill acquisition course, which includes learning, practice and testing procedures enabling the trainees to be qualified and competent to handle the specific jobs successfully. (Kamlesh, 2009).

Usually in sports, we use term sports training which denote the sense of preparing sportsmen for the highest level of performance. But now-a-days sports training is not just a term but is very important subject that affects each and every individual who takes up physical activity of sports either for health and fitness, or competition at different level.
Sports training need not be confused with physical exercise which is more validly used in conjuction with health and fitness. It does not however, mean that the athletes do not engage in a physical activity programme. As a matter of fact, training for competition require much harder regimes of physical exercise to condition the body than one does to achieve health objective. The training programme for athletes in reality is a comprehensive, it includes physiological, physical conditioning, nutritional and managerial factors. In its broadest sense, sport training is the physical, technical, intellectual, psychological and moral preparation of an athlete by the means of physical exercise. Sport training is thoroughly systematic it is very personal to each athlete and is based on certain well tested scientific principles. In an expert's hands, sports training becomes a magic wand of making people perform to the best of their potential and satisfaction of the trainer. There are no shortcuts in sports training; it is a long term phenomenon requiring utmost patience, restraint, commitment and continuity on the part of both trainees and trainers.

Physical exercise increase is currently under study as a possible prevention strategy for diabetes, obesity, blood pressure and cardiovascular disease (Dubbert P.M, 2002), either alone or in combination with dietary changes. The level of physical exercises needed to alter chronic disease patterns is currently the subject of debates. The Healthy People 2010 goals include increasing the number of people that are moderately physically active (e.g., walking & Jogging) five or more times per week for 30 minutes per day (USDHHS healthy people 2010). These general population goals are reasonable and have been related to cardiovascular fitness, but they may not be intensive enough to reduce obesity-related health problems and to ultimately affect life style disease risks; therefore, more rigorous goals have been proposed and used in recent studies (Irwin et.al., 2003, McTiernal A et. al.1999). The Institute of Medicine, for example, recommends an hour per
day of moderate to vigorous exercise 4–7 days per week. (National academies press 2005).

This level of exercise has the potential to alter the ways in which people think, feel, and conduct their lives on multiple levels. These effects could most likely be seen in sedentary people who undertake a regular exercise program. In general, experimental studies of exercise have found improvements in various aspects of quality of life (Ellingson T et al., 2000) including general functioning (Courneya KS et al., 2002, Rippe JM et al. 1998) and depression and anxiety symptoms (Dunn AL et al. 2001). Most of these studies have found positive effects of exercise on multiple aspects of quality of life and functional status during the active intervention period or at relatively short-term intervention follow-up periods of 4-20 weeks. The mechanism by which these improvements occur are not known, but hypotheses include improvements in psychological factors, such as body image or perceptions of physical fitness, as well as more physiological changes, such as sympathetic nervous system activity. Long-term quality of life effects due to large increase in exercise are unknown. Further, if increases in quality of life and functional status remain after the initiation of intervention they could contribute to long-term adherence (Deborah J.B. 2006).

However, it is also possible that intensive exercise could produce negative effects on relevant aspects of quality of life, especially in initially sedentary individuals. Possible negative effects include body or joint pain, disruption of social interactions, or negative effects on mood from the high demands of the exercise program. Little is available in the literature documenting any of these negative effects. These deleterious effects may be short-lived and may decrease over time, or they may only occur in the long run, after the initial short-term behaviour changes have occurred. As with the long-term causes of improvements in functioning due to exercise, little is
known about the mechanisms of any negative effects of exercise on general functioning.

A systematic review has reported a consistent association of higher health-related quality of life (HRQoL) scores with higher PA levels among healthy adults (Bize R et.al., 2007). Physical activity has enhanced well-being and increasing physical functioning also in people with poor health (Mcauley E et.al., 1996) or of advanced age (Rejeski WJ 2001). Also higher physical fitness level has been shown to be associated with higher levels of HRQoL in the older and chronically diseased populations (Lavie C J, Milani R V 2000, Rejeskiwj et. al. 2006). However, there is insufficient evidence regarding the relationship between physical fitness level and HRQoL in younger adults. One recent study has reported association between cardio-respiratory fitness and HRQoL in young males in United States navy. They found a positive relationship between sub maximal fitness test and mental and physical components of HRQoL (Sloan RA et.al., 2009). There is still limited evidence on relationships of objectively measured fitness and individual domains of HRQoL. Therefore, the aim of the present study was to investigate the impact of measured cardiovascular and musculoskeletal physical fitness level on HRQoL in Finnish young men.

Day by day, the importance of young population is being declared in many platforms by international organizations, politicians, and scientists. According to the statistics of World Health Organization (WHO) the deficiency of physical activities of adults are approximately at 17% (Berggren, 2005; Angilley and Haggas, 2009) in the world. In developed countries 10-15% of young population do sport (Yitzhak, 2000), this percentage decreases through the developing and underdeveloped ones. In scientific studies it is revealed that participation to physical activities has rapidly decreased especially in the periods of high school and university education (Gyurcsik et al., 2004; Kwak et al., 2009; Sinclair et al. 2005).
In Turkey, also depending on the high percentage of young people in the population, and as a result of new universities, the number of university students increase day by day. Academic education in the universities focuses on the specialization in preferred fields; hence Rona and Gokmen (2005) implied that physical education and sport lessons in universities are not represented effectively enough in program schedules. Physical activity has an important role in the education of new generation in the frame of physical and mental health, and nowadays it is placed as a piece of education in the developed societies’ education programs (Turkmen et al. 1995). Physical education and sport activities are accepted as noticeably effective on anthropometric structure and performance (Ozer, 1993; Zorba and Ziyagil, 1995; Zorba and Saygin, 2008). Moreover, the provision of cardio vascular adoption is seen as important to eliminate the risks of diseases such as diabetes mellitus, chronic obstructive lung diseases, osteoarthritis (Peker et al., 2000; Kayatekin et al., 1996). With the physical insufficiency, strength losses and movement deficiency emerge and as a result of these some health problems such as obesity, diabetic, articulation pains, hypertension, and cardio vascular problems may occur. Also some studies show that systematic and controlled exercises provide individuals to create power adaption against efforts, and they are considerable protective factors against above mentioned health problems (Cokivecan, 1981; Varol et al., 1996; Rice and Howell, 2000; Rowland, 2001).

The study of the effects of Physical exercise on health, Anxiety, Emotional, Intelligence, and Personality of psychological variables has become a major topic of interest to physical educationist in the recent years. The degree of perceived Anxiety, Emotional, and Intelligence & Personality is an important variable to be considered in the health of an individual.

Therefore, this study endeavors to examine the effects of Physical education training programmes.
1.2 **Statement of the Problem:**

Sedentary life style is a one of the health problem. Sedentary life style will contribute to the early onset and progression of life style disease such as cardiovascular disease, hypertension, diabetes and obesity. Healthy body is necessary for increasing the working capacity and maintaining physical fitness of any individual to perform his daily tasks vigorously and alertly, with left over energy to enjoy leisure time activities. Physical activity has a positive impact on anxiety, depression, mood, and wellbeing, all of which may impact on academic achievement. In light of above the investigator interested to find out the effects of Physical Education Training Programme on Psycho- Physiological Efficiency on Sedentary Students. The problem was stated as “Effectiveness of Physical Education Training Programme on Psycho-Physiological Efficiency on Sedentary Students”.

1.3 **Objectives of the Study:**

The following objectives has been taken as per the study

- The objective was to study and examine the effect of Physical education training programme on Heart Rate of sedentary student.
- The objective was to study the effectiveness of Physical education training programme on Breathing Holding capacity with respect to inspirations of sedentary student.
- The objective was to study the effectiveness of Physical education training programme on Breathing Holding capacity with respect to Expiration of sedentary student.
- The objective was to evaluate the effect of Physical education training programme on Diastolic Blood Pressure on sedentary student.
- The objective was to evaluate the effect of Physical education training programme on Systolic Blood Pressure on sedentary student.
- The objective was to study and examine effect of Physical education training programme on Body Mass Index of sedentary student.
The objective was to evaluate effect of Physical education training programme on Personality with respect to Neuroticism of sedentary student.

The objective was to evaluate effect of Physical education training programme on Personality with respect to Extroversion of sedentary student.

The objective was to evaluate effect of Physical education training programme on Self Efficacy on sedentary student.

The objective was to study and examine the effect of Physical education training programme on Mental Health on sedentary student.

1.4 Significance of the Study
1. The study will help to know about the importance of physical fitness programme and Academic achievement of students.
2. It will help the students to take preventive measure to minimize the lifestyle problem among sedentary students.
3. This study may motivate other investigator to take up similar studies selecting more number of students. So more information related to physical fitness and physiological efficiency will be highlighted.

1.5 Hypotheses of the study
The following hypotheses were formulated for the present study:

1. There would be significant effect of Physical education training programme on Heart Rate of sedentary student.
2. There would be significant effect of Physical education training programme on Breath Holding capacity (inspiration) of sedentary student.
3. There would be significant effect of Physical education training programme on physiological variables with respect Breath Holding capacity (Expiration) of sedentary student.
4. There would be significant effect of Physical education training programme on Blood Pressure (Diastolic) of sedentary student.
5. There would be significant effect of physical education training programme on Blood Pressure (systolic) of sedentary student.
6. There would be significant effect of Physical education training programme on Body Mass Index of sedentary student.
7. There would be significant effect of Physical education training programme on Personality (Neuroticism) of sedentary student.
8. There would be significant effect of Physical education training programme Personality (Extroversion) of sedentary student.
9. There would be significant effect of Physical education training programme on Self efficacy with respect to Time management on sedentary student.
10. There would be significant effect of Physical education training programme on Self efficacy with respect to Study skill on sedentary student.
11. There would be significant effect of Physical education training programme on Self efficacy with respect to critical and creative thinking on sedentary student.
12. There would be significant effect of Physical education training programme on Self efficacy with respect to Involvement in learning on sedentary student.
13. There would be significant effect of Physical education training programme on Psychological variables with respect to Positive Mental Health of sedentary student.
14. There would be significant effect of Physical education training programme on Psychological variables with respect to Negative Mental Health of sedentary student.
1.6 Delimitations of the study

1. Study was conducted on only 75 sedentary students after screening 103 participants. Only experimental group was targeted there was no control group.

2. The age group of sedentary student was 21-30 years.

3. The study was delimited to the following psychological and physiological variables.
   a) Psychological Variables: Personality, Self efficacy and mental health.
   b) Physiological Variables: Heart Rate, Breath Holding, Body Mass Index (B M I), and Blood pressure.

1.7 Limitations of the study

1. The weather condition that would affect the results of the study was considered as limitations.

2. The background of the subject was not considered in this study.

3. There was no control of researcher scholar on the diet of the subjects.

4. Inherent potential of the subjects was unknown.

5. Other exercises and activities which affect the result of this study were recognized as limitations.

1.8 Definition and Explanation of important technical terms

- **Physical Education Training Programme**
  
  Activity in which the body's large muscles move in a rhythmic manner for a sustained period of time.

- **Personality:**
  
  Personality is a dynamic organization within the individual of those physical systems that determine his unique adjustment to his environment.
 **Resting Heart Rate:**
The heart rate is differenced as the frequency or number of heart beat/rate in one minute.

 **Breath Holding Capacity After Expiration:**
The time for which one can hold air after full expiration is called breath holding capacity after expiration.

 **Breath Holding Capacity After Inspiration:**
The time for which, one can hold air after inspiration.

 **Blood Pressure:**
The blood pressure is the pressure of the blood within the arteries. It is produced primarily by the contraction of the heart muscle.

 **Body Mass Index:**
Body Mass Index is individual’s body mass divided by the square of his or her height.

 **Sedentary Students**
Those students which are tending to spend much time seated; somewhat like inactive.

 **Extroversion:**
The Extroversion is personality traits. The extravert person’s orientation is towards the standard words. He deals people intelligently in social situation.

 **Neuroticism:**
It is a minor mental disorder characterized by inner struggles & Discord & social relationship.

 **Psychology:**
It is the study of the mind, occurring partly via the study of behavior.

 **Physiology:**
The biological study of the functions of living organisms and their parts. All the functions of a living organism or any of its parts.
- **Psycho-physiology:**
  The study of physiology as it relates to various aspects of psychological or behavioral function. The study of mental activity by physical examination and observation.

- **Self Efficacy:**
  Refers to an individual's belief in his or her capacity to execute behaviors necessary to produce specific performance attainments (Bandura, 1977, 1986, 1997). **Self-efficacy** reflects confidence in the ability to exert control over one's own motivation, behavior, and social environment.

- **Mental Health:**
  A person's condition with regard to their psychological, emotional, and behavioral well-being.