Chapter I

INTRODUCTION

The connections between regular exercise/physical activity and health were not always as obvious as they are today. In fact, as recently as the early 1980s medical and public attitudes toward exercise were quite different. To run 5 min, swim 1 min in the ocean, or cycle 50 min along the coast and to do these several times each week were viewed to be characteristics of abnormal behavior. After all, the objectives of 'modern society' were to make life easier to live, not more laborious. Physicians were not demanding that their patients exercise more to combat hypertension, excess body fat, or heart disease, and there was no media support to promote exercise and an active lifestyle. However, thanks to the continued research efforts of physical educators and exercise physiologists, and certain 'more enlightened' physicians, the connections between an active lifestyle and overall health became more recognized. During the two and half decades from 1980 to the present, the evidence that exercise can not only prevent disease, but also reverse many disease processes has accumulated to such a degree that now almost all medical organizations have published statements
on how important exercise is in the prevention and treatment of their
diseases of interest.

Sedentary lifestyles double the risk of heart disease. In terms of
heart disease risk, physical inactivity is equivalent to smoking a pack
of cigarettes each day. More people are at risk for developing heart
disease because of physical inactivity, than are all people for smoking,
high blood pressure, and high cholesterol (combined). Physical
inactivity reduces your life span. Physical inactivity is associated with
a higher incidence of chronic diseases such as diabetes, arthritis,
osteoporosis, and obesity. Physical activity declines dramatically with
age and during adolescent years.

The health club exercise equipment industries, the advertising
and commercials that support them can easily lead people to think that
exercising for health requires considerable time, energy, equipment,
special clothing, and money. Physical activity does not require special
equipment or spending a lot of money. Physical activity is anything
you do when you are not sitting or lying down. Besides jogging,
swimming, cycling, and aerobic dancing, physical activity includes
yoga, tai chi chuan, martial arts training, gardening, walking etc. For
instance, regular walking strengthens muscles, increases aerobic
capacity, clears and quiets the mind, reduces stress, expends calories, and causes few injuries, if any. Other than appropriate shoes, walking requires no special clothing, equipment, or money, and it can be worked into a busy schedule.

When one has physical activity in his life, other healthy behaviors often follow, such as improved eating habits and a reduction in alcohol consumption.

For many people, the mere mention of physical activity conjures up unpleasant images of painfully boring exercises or rough competitive sports whose proposed beneficial effects on health and character development rarely seem to meet the promises made by enthusiastic players and coaches.

Part of the idea of physical activity is to incorporate a playful or joyful activity into your life for its own sake. We tend to value what we do on the basis of outcome. With physical activity the process of doing itself is reward. So choose activities that you will enjoy. If you like to be around people, join an exercise class or organize some friends to be active with you. After you have accomplished a difficult task, reward
yourself with praise. And remember, physical activity, even active sports, does not have to involve competition unless you want it to.

Once a person has decided to begin exercising, it is tempting to do what others are doing (e.g., roller blading, jogging, racquetball). But before he goes out and buys expensive running shoes and that new outfit, he must decide what exercise is right for him. First he may want to ask himself what his goals are in an exercise program. Some goals may be: stress reduction, a healthy heart, weight control or weight reduction, greater strength, building muscles, greater stamina, or relaxation.

Once a person has determined his goals, he needs to make sure that the activities adopted go along with goals. One may choose swimming as main exercise. Swimming is good for weight maintenance, but not for body building. Other important factors when selecting exercise of choice are: motivation, realistic expectations, comfort, convenience, and cost factors.

If a person has never exercised or is not in good shape, he do not expect to see results overnight. Achieving physical fitness takes time and consistency. Changes will most likely be seen in the first month,
however, achieving total physical fitness will take months of constant exercise.

For some people, a fitness club or recreation center can be intimidating if everyone else is in good shape. Some find more informal “shaping-up” classes better for them. However, for others, being surrounded by a lot of physically fit people in a fitness club is motivating. Some may wish to stay at home and exercise. You need to decide in what environment you feel comfortable exercising.

Make sure whatever activity one chooses is convenient. Don’t choose one that requires to drive 30 minutes, because before one knows, it he will be saying, “it’s too far”. Choose an activity within a convenient distance.

If jogging, swimming, cycling, aerobic dancing, and other strenuous activities aren’t for you, try walking. Regular walking contributes many of the health benefits of other activities. And walking has advantages that other activities do not: other than appropriate shoes, no special clothing or equipment is required, and walking can be fit easily into a busy schedule.
Walking contributes the most to health when it is done regularly (about four times a week) for a minimum of 20 minutes each day. How strenuous the walk should be depends on the desires and physical abilities of the walker. Most of the benefits can be derived by walking between two and four miles per hour. Aerobic capacity can be increased by walking briskly enough to increase the heart rate.

Research shows that only moderate, not necessarily extensive exercise is sufficient for good health. For example, for both women and men, the chance of dying from heart disease, cancer, and several other diseases is greater for individuals with sedentary life-styles that those who engage in a daily brisk walk of 30 to 60 minutes (Curfman, 1993). Moderate regular exercise, lasting say 15 to 30 minutes, five times a week also has been found to improve health. Regular exercise may also lower your cholesterol and blood pressure, and reduce the risk of diabetes.

Exercise increases the size of coronary arteries and reduces clogging due to atherosclerosis. Exercise also increases the efficiency of blood's oxygen-carrying capacity and muscles' uptake of oxygen.
Regular physical activity can result in periods of relaxed concentration, characterized by reduced physical and psychic tensions, regular breathing rhythms, and increased self-awareness.

Exercise plays an important role in preventing heart disease, as well as in the rehabilitation of individuals with heart disease. The major risk factors for coronary heart disease—hypertension, smoking, high cholesterol—are all positively affected by exercise. Furthermore, physical inactivity is now recognized as a major contributor to the atherosclerotic process.

Not so many years ago, people were subject to a variety of diseases over which they had little or no control. In the early part of the twentieth century, infectious diseases caused by organisms were the leading causes of death in the United States. Modern public health methods and modern drugs, such as antibiotics, were not available. In 1918, millions of people around the world died from influenza, the cause of which was unknown at that time.

Today, the leading causes of illness and death are not due to infections, but to “lifestyle diseases”. These diseases, such as heart

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disease and cancer, result from people’s behaviors, and the ways in which they choose to live. The idea that lifestyle is a major cause of disease and death in modern societies is not new. A generation ago, Lewis Thomas (1978), an eminent physician and author, observed that our lifestyles were killing us.

There is no bacterium that causes heart disease. Heart disease results from today’s lifestyles, which include overeating, cigarette smoking, lack of exercise, high levels of stress, and high blood pressure and high levels of blood cholesterol. Cancer is associated with both nutritional and human-activity environmental factors. Improper nutrition, smoking cigarettes, and exposure to hazardous substances in the environment initiate biological changes that can result in cancer. An unhealthy lifestyle is also at the root of suicide and homicide, accidents and cirrhosis of the liver (alcohol abuse).

When a person dies, the cause of death is generally identified in terms of the organ system that failed and resulted in the person’s death, e.g., heart disease, cirrhosis of the liver, cancer of the lung. This may not, however, identify the root causes of that death. For example, saying someone died of lung cancer does not tell us that the actual

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cause of death was smoking. When deaths are examined for their actual causes and not simply what is reported on death certificates, the results show that approximately half of the 2.1 million deaths in the United States each year are due to lifestyle factors and by extension, that many, many deaths could be prevented if people lived more healthfully.

Leading the list of life-shortening behaviors is tobacco use, which is responsible for more than 400,000 American deaths per year. Smoking cigarettes and cigars, chewing tobacco, and being exposed to second-hand smoke contribute substantially to deaths caused by cancer of all kinds, heart disease, high blood pressure, stroke, bronchitis, chronic obstructive pulmonary disease (COPD), pneumonia, low birth weight, and burns from fires. The enormous toll on life and health exacted by tobacco use is the reason that health agencies, doctors, and governments overwhelmingly recommend limiting tobacco use.

Next to tobacco use, unhealthy diet and activity patterns contribute the most to death in the U.S. Consumption of high levels of cholesterol and saturated fat in foods is associated with heart disease, several types of cancer, and stroke. High-calorie consumption coupled with low levels of physical activity predisposes people to overweight,
diabetes, and high blood pressure. A sedentary lifestyle is responsible for 23% of deaths from the leading chronic diseases (heart disease, high blood pressure, stroke, and diabetes).

Diabetes\textsuperscript{3} is a disease in which the level of sugar in the blood cannot be regulated, which causes a variety of symptoms including degeneration of some organs in the body and even death. There are two forms of diabetes: type 1, or insulin-dependent diabetes, requires injections of insulin to control symptoms of the disease, type 2, or non-insulin-dependent diabetes, generally can be controlled by diet, exercise, or drugs other than insulin. Type 1, diabetes was formerly called “juvenile-onset” diabetes because it tends to start in childhood and adolescence. Type 2 diabetes was formerly called “maturity-onset” diabetes because it tends to start in adulthood.

Type 2 diabetes is an increasingly prevalent lifestyle disease. It is associated with being overweight: for every 20% increase in overweight, the chance of diabetes doubles. Improving nutrition and maintaining normal body weight can help prevent diabetes.

\footnote{Gorden Edlin, Eric Golanty, Kelly McCro Mark Brown “Health and Wellness” 2002: p. 13.}
Stress-related illnesses,\(^4\) such as high blood pressure (hypertension), asthma, gastrointestinal upset, and skin problems are considered psycho physiological or psychosomatic disorders. These illnesses are not phantoms, as the term *psychosomatic* is sometimes thought to mean, but are real physical conditions.

When we experience a challenging situation, the nervous, endocrine (hormone), and immune systems respond to meet the challenge. These responses are aspects of normal physiology that are meant to deal with short-term stressful situations. Illness arises when the body’s stress-response mechanisms are continually activated. Then, organs wear down and become diseased, and lowered immunity leads to increased susceptibility to infections and other diseases.

Stress also contributes to illness by fostering unhealthy behaviors. To manage stressful feelings, for example, some people smoke cigarettes, drink alcohol (or take other drugs), overeat, under eat, or overwork. Furthermore, people with high levels of stress may not engage in health promoting activities, such as exercising regularly, eating properly, and getting enough sleep.

According\textsuperscript{5} to the National Institute of Mental Health, each day approximately one person in seven experiences depression, characterized by feelings of dejection, guilt, hopelessness, self-recrimination, loss of appetite, insomnia, loss of interest in sex, reduced interest in previously enjoyable activities, withdrawal from social contacts, inability to concentrate and make decisions, lowered self-esteem, and a focus on negative thoughts and the bad things in life. If asked how they feel, depressed people usually say something like, "Life’s a drag" or "What’s the use of doing anything".

Depression can occur as a normal response to the loss of something that a person values or is attached to, such as a loved one, a job, good health, or self-esteem (e.g., when a person does not succeed at a task she or he deems important). When individuals experience a loss, it is "normal" for them to feel sad and depressed, and to grieve the loss. Sadness and grief are the human spirit’s way to heal the hurt of loss and open the way for new attachments. When depression is associated with a loss, the depressed individual may be simultaneously aware that the experience is transitory and, along with grief, feel that

\textsuperscript{5} Gorden Edlin, Eric Golanty, Kelly McCro Mark Brown "Health and Wellness" 2002 : p. 67-68.
there is hope for the future. This kind of depression tends to lift after the grieving ends.

In contrast to the “normal” depression that may accompany loss, some people experience a long-lasting depressive state, or periodic episodes of deep depression, that are not self-limiting and may hinder and even jeopardize a person’s life. These depressions may be a response to stress, severe psychological trauma, injury, disease, biological malfunctions of some part persons, major episodes of depression are accompanied by periods of excited euphoria (“mania”), resulting in a condition referred to as bipolar disorder.

Depression can also accompany the experience of being very sick or injured. In such cases, depression results from a combination of factors, such as grieving the loss of health, coping with the stress of being sick, lack of exercise and normal routine, disruption of regular social activities, or alterations in physiology that may change brain chemistry. Medications may also make one susceptible to depression. Some people experience a mild form of depression called dysthymia. Like major depression, dysthymia is associated with disturbances in sleep, appetite, and the ability to concentrate.
Because depression involves inactivity, withdrawal, hopelessness, and self-defeating thoughts and behaviors, it is often difficult for individuals to activate themselves on a program of self-healing. At such times, the encouragement of a caring friend or family member and the guidance of a therapist, counselor, or other helper can be invaluable.

Those pioneering studies and hundreds of subsequent ones have uncovered many health benefits of physical activity. Among them are: increased strength of the heart muscle, increased flow of blood to the heart, increased bone mass and resistance to osteoporosis, decreased amount of fat in the blood, decreased heart rate, increased longevity, maintenance of normal blood pressure and reduction in blood pressure in people with hypertension, maintenance of body weight within generally accepted normal limits, prevention and alleviation of chronic low-back pain, improved sleep, greater energy reserve for work and recreation, improved posture, which leads to improved physical appearance and the ability to withstand fatigue, greater ability of the body to cope with illness or accidents.

Several hypotheses have been offered to explain the psychological benefits of exercise:
1. Exercise becomes a means for autohypnosis, which increases the tendency for creative visualization.

2. Exercise increases the body’s output of epinephrine, which produces feelings of euphoria.

3. Exercise changes the pattern of the secretion of brain neurotransmitters, particularly norepinephrine, which produces changes in mood.

4. Exercise increases the secretion of endorphins and enkephalins, hormone-like substances that can facilitate feelings of inner peace.

A major\(^6\) outcome of regular physical activity is fitness. However, fitness is an elusive concept, not easily defined. For some, fitness means a lean, svelte, muscular body. For others, fitness means being in “top shape” – the capacity for strenuous exercise, such as hiking, swimming, running, or skiing long distances. But a lean, muscular body or exceptional physical endurance probably represents the extreme of the concept of fitness. Sports physiologists usually define fitness as (a) adequate muscular strength and endurance to accomplish

one's individual goals, (b) reasonable joint flexibility, (c) an efficient cardiovascular system, and (d) body weight and percent body fat within the normal range.

Because modern lifestyles do not require much physical movement, few adults in industrial societies are naturally fit. Rather, achieving fitness requires a commitment of time and energy to regular activities other than school, work (particularly sedentary work), and family responsibilities. To be fit, you must engage in activities that challenge the mind and body beyond what is required by a sedentary lifestyle.

There are a wide variety of conditioning programs or training regimens to improve fitness, but they tend to fall into two major categories: **aerobic training**, which increases the body's ability to use oxygen and improves endurance, and **strength training**, which enhances the size and strength of particular muscles and body regions.

Aerobic exercise involves stimulating heart and lungs for a period sufficient to increase the amount of oxygen that the body can process within a given time. Changes in physiology resulting from aerobic exercise are collectively called the **training effect**. Inducing
the training effect involves exercising so that heart rate increases to between 60% and 80% of its theoretical maximum.

There are various factors which affects the living style of an individual whether sedentary or active. The factors, among which, certainly the social scene, the difference between the sex and the acceptance by the society in their indulgence in any physical activity indoor or outdoor, school college based activity structure, parental support, long working/sitting hours with computer sets or television sets and most importantly the nature of job one performs with which individual lives for the most of the time.

Many studies suggest that aerobic exercise sustained exercise that increases heart and lung fitness can reduce stress, depression, and anxiety. People who regularly exercise cope with stressful events better, exhibit more self-confidence, and are less often depressed than those who exercise less. But when stated that other way around-stressed and depressed people exercise less- cause and effect become unclear. Other research reveals that exercise also benefits health. One 16 year study of 17,000 middle aged Harvard alumni found that those who exercised regularly were likely to live longer. A study of 15,000 control data corporation employees found that those who exercised had
25 percent fewer hospital days than those who didn’t, and a digest of data from 43 studies revealed that, compared with inactive adults, people who exercise suffer half as many heart attacks. The movement is repeating dividends. So off your duffs, couch potatoes.\(^7\)

A correlation study of TV watching and obesity was conducted. In one study of 12 to 17 year olds, obesity was more common among those who watched the most television. Of course, overweight people may avoid activity, preferring to sit and watch TV. But the association between TV watching and obesity remained when many other factors were controlled, suggesting that the inactivity of TV watching contributes to obesity.\(^8\)

Physical activity gets everything moving in body – the blood, the oxygen, the nutrients, the cellular respiration, the nervous system, and so on. Sweating is good for a person as well – one sweats out toxins and replace the lost liquids by drinking fresh, clean water. Physical exercise, if done outside, also exposes a person the healing effects of natural sunlight, an essential nutrients for the human body that is deficient in most people. Getting enough sunlight on skin can


prevent and even reverse an astounding number of chronic diseases such as breast cancer, prostate cancer, osteoporosis and more.

If a person puts all of this together, he see that physical exercise is extremely beneficial to the human body, and in fact the body won’t live nearly as long without it. Studies also show that it doesn’t take an enormous amount of physical exercise to achieve health – enhancing results. A mere 30 minutes a day of walking, swimming, jogging, cycling or other cardiovascular exercise can have astounding positive health effects.

But exercising seems to remain a low priority for many. People ask, how can one avoid all of these diseases without actually having to do the exercises? Is there a way that one can get the benefits of this physical exercise without having to move the body? And the answer to that is simply, no. one has to actually do it if he want to get the same effects, no surgical procedure can create the health that your body would create on its own when you engage in regular physical exercise. This is something a person must pursue on his own if he desire to experience the positive healthy results it offers.⁹

⁹ Mike Adams. “Sedentary Lifestyle causes more deaths than smoking”. NewsTarget.com
Lack of activity is a common phenomena, widely seen indifferent age groups and responsible for various diseases. Latest researches & reports are indicating towards serious physical and mental disorders in human beings due to inactivity. Inactivity is more common among higher income groups people as they are more dependent on luxurious life style or they are habitual of less physical work. Flooding of various electronic/ electrical/ mechanical & other instruments has rendered the human life more comfortable & resulted in minimum need of physical labour. These facts have prompted the research scholar to see the effects of sedentary life style on his health and wellness.

**Statement of the Problem**

The main purpose of the study was to analyze the sedentary life style of different age groups and its related diseases in metropolitan city Delhi and its adjoining areas.

The study has focused on the linkage between status of health and sedentary life style of the people working in cities.
Purpose of the Study

1. To identify the Major diseases due to inactivity in different age groups.
2. To analysis the various factors responsible for inactivity.
3. To correlate the inactivity with possible diseases.
4. To quantify the various diseases in different age groups due to inactivity.
5. To find some feasible measures to overcome on this problem.
6. To analyze the intensity of the problem & its future trend.

Delimitations

1. Study was focused on two age groups: Only
   a) 25 to 35 years       b) 36 to 45 years
2. Subjects were selected from Delhi Ghaziabad, Noida, Faridabad & Gurgaon only.
3. Main focus of the study was to analyze the extent of physical inactivity & consequent problems in Delhi and its adjoining areas.
Limitations

1. Subjects from the restricted chosen area may not represent the entire population of all geographical areas.

2. Feedback from the subjects was taken with the help of questionnaire, personal interview or telephonic interview. Truthfulness of their statements may partly affect the result, as it is impragmatic to monitor the real living habits of all subjects for a longer period.

Definition and Explanation of Term

Sedentary

Some one who has a sedentary life style of job, sits down a lot of time and does not take much exercise.

1. Involving Sitting – Involving a lot of sitting and correspondingly little exercise.

2. Usually Sitting – Tending to sit most of the time and getting little exercise.
Disease

Disease commonly is considered to be a departure from the normal physiological state of a living organism sufficient to produce overt signs, as well as the physical, state of the organism; thus, it is customary to speak of “mental” disease when referring to deranged thought processes.10

Significance of the Study

This study was conceptualized with an idea to investigate health problems associated with sedentary life style. Further it was also envisaged that the possible causes of health problems of sedentary population could be comprehensively identified. Successful accomplishment of this study will serve the vary purpose of the study, which in-turn will have great significance for health policy planner as well as medical fraternity to find out remedial measure to deal with problems of sedentary population. In addition to above the study will be significant in following way:

10 "Encyclopedia - Britannica Macropaedia Knowledge on Depth, Volume 5, 15th Edition."
1. By focusing on physical activity, value addition can be done in human capital of a particular nation.

2. Money which is spent on the physical inactivity related diseases can be diverted to constructive activities.

3. Findings of the study may provide a premonition to the people about the consequences of physical inactivity.

4. Proper circulation of the findings in common mass may prompt them to be physically active, resulting in better output for our nation.