CHAPTER I

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Physical education and recreation are among the oldest arts in the humanities. Physical education is a fundamental mode of human expression and it is an essential form of non verbal communication like, music, art, literature and dance.

In the contemporary scenario, studies have been conducted for analyzing the merits of various physical fitness training programmes. National and state governments have realized the importance of including the dimension of physical fitness in to the school and college curriculum.

In Kerala State the government is giving more consideration in the field of sports and games. In Schools and Colleges authorities are giving due importance for Physical training programmes. Government of Kerala has introduced a new project of physical fitness in schools called “Samboorna Kayika Kshamatha Padhathi”. It is meant to measure the level of fitness of school children. It is indeed a fact that the rate of students engaged in physical activities is lower compared to the old generation. The new generation children are obviously weaker than the old generation, only because of the fact that they are inactive. The modern life style makes the children and elders inactive. The television, car, computers, lift, fast foods are some of the ingredient to this hazard. It has been stated by the WHO that by the completion of 2010, 60% of the Indians will suffer from cardiovascular diseases due to the sedentary lifestyle of the new generation (India Today, June 11, 2001).

The good physical activity culture formulated in the childhood will be transformed to adulthood. India spends a huge sum 690000 Crores of rupees every year for the cardiological patients (Manoj and Vipin, 2008).
Physical Education in Schools was earlier considered to be an extra-curricular activity and was pushed to the back seat, where as now it is accepted as a co-curricular activity. This indicates that education has to take the responsibility of all-round development of the students by means of physical activity and the teachers have to make use of it to develop and maintain a physically fit body, a sound mind and a socially desirable outlook of the students. One of the major drawbacks of our education system is that we do not pay much attention towards the development of physical capabilities of the student. With the increasing attention given to academic pursuit, there has been a decline in proper attention to their inherent physical virtues. As a result, the students face problems such as obesity, poor health, and postural deformities.

Robert (1985) States that “Fitness is that state which characterized the degree to which a person is able to function efficiency fitness is an individual matter. It is implies the ability of each person to live most effectively within his potentialities”.

The Physical Education programs in schools and colleges are intended to improve the health related physical fitness of the students. In the state of Kerala, even though the physical activities are conducted in schools, the levels of fitness were not measured up to 1995. As compared to the result of the studies conducted by American Alliance, Health, Physical education, Recreation and Dance (AAHPERD), the standard of the students in Kerala is very different. It is found that the abdominal strength and endurance of girls in high school classes were diminishing (Manoj and Manoj, 1995). This may be due to the lifestyle. Government of Kerala has taken action to see that proper physical training programmes are conducted in schools and physical education has been included as a class room teaching subject and it is included in the curriculum. The Government of Kerala has also ensured the health related physical fitness of the students up to high school level. Now, schools are conducting health related physical fitness test following the AAHPERD physical fitness test
manual. They are also giving guide lines to the students on the basis of the level of fitness. The government is also promoting this scheme by giving motivation to schools and students by awards.

A physical activity leads people to improve their physical fitness. A fit person can carry out task for prolonged period without undue fatigue. Regular exercises are a pre-requisite for physical fitness, and it leads to healthy life. Basic factors for good health are cardio respiratory fitness, muscular strength, muscular endurance, flexibility and body composition. Proportionate improvements of the above factors are needed for a fit person. But the modern life style of the people leads to inactivity and makes them physically unfit.

On the above circumstances the research scholar wishes to conduct a study on the different “physical fitness training programs on health related physical fitness of high school children in Ernakulam and Kottayam District with special emphasis to Yoga, Aerobics, and Calisthenics”.

The word ‘Education’ seems to have been derived from the Latin word-educare and educere. The former means “to bring up” and the later means “to bring for”. According to this, “e” means “out of” and “duceo” means “to lead”. The child is born with all the abilities required for his life. The process of education draws out these in born qualities. Education provides the individuals with ample opportunities to develop their inborn physical, mental, and emotional qualities to the full, so that they can achieve cosmic unity by their action, thought and feelings. Education provides the individuals with appropriate social environment to develop them physically, mentally and emotionally to fulfill their social obligations.

Bucher and West (1987) quote John Deviey’s definition of education as “the reconstruction of events that compose to the lives of individuals, so that new happenings and new events become more purposeful and more meaningful”. Moreover as a result of education and individual will better be able to regulate the direction of ensuring experience.
Physical Education is part and parcel of the whole education process and is concerned with the whole child as growing organism and as a member of society. Physical Education includes the acquisition and refinement of motor skills, the development and maintenance of fitness for optimal health, and well-being, the attainment of knowledge, and the growth of positive attitudes towards physical activity. Physical fitness is an important objective of the physical education, physical education programme. And the programme is directed towards achieving the objective through specific developmental exercises as well as games and activities and help to improve physical fitness. While the term ‘fitness’ and its usage to some extent is relatively new, the concept and its meaning to physical education is modified often to give greater emphasis to objective of fitness.

The history of physical education reflects people’s attitude about physical activity. From pre-historic times, because survival was related to physical stamina and the people’s ability to find food, no separate physical fitness programs were needed. Gradually, ancient societies in China, Egypt, Greece, and Rome adopted physical education as part of military training. As the more developed societies came to value the scholarly life, physical education lost favour. Many developed countries have had to strike a balance between physical and intellectual interests.

Anthropological historical research has established that physical education, recreation and sports have been fundamental aspects of all cultures throughout the history of the world. In its broadest interpretations, Physical education forces on selected aspects of human experience that are described as the art and science of voluntary, purposeful human movement.

The fitness refers to the dynamic qualities that allow a person to satisfy his/her own needs, including but not limited to mental and emotional stability and organic health consistence with functional capacity. The health related physical fitness refers to the physical fitness which is a combination
of very specific components that compose health related physical fitness, which are: cardio-vascular endurance, muscle fitness (strength and endurance) flexibility, and body composition.

According to Harold M. Barrow, et al, (1989) defined physical fitness as “the individual’s ability to meet the requirements of their environments”.

Physical fitness is of great importance to all human beings. It refers to the capacity to perform physical activities efficiently without being unduly tired. Physical fitness can improve the vitality of health of the individual. A fit person can carry out task for a prolonged period without undue fatigue.

According to Harrison and Clark (1976), physical fitness is the ability to carry out daily tasks with vigor and alertness without undue fatigue and ample energy to enjoy leisure time pursuits and to meet unforeseen emergencies. Physical fitness is also described as the capacity of the heart, blood vessels, lungs and muscles to function in their optimal efficiency (Bud Getchell, 1965).

Andrian Joseph (1988) “Physical fitness is the utilization of excessive calories by a cardiovascular and muscular process bringing the body to optimum efficiency. It comprises the following factors: utilization of excessive calories; purification of blood and circulation of blood by a cardiovascular and muscular process; bringing the body to optimum efficiency”.

Frederick et al, (1970) “Physical fitness is a condition of the body which determines how effectively one can perform the daily work and play and how well one can meet unexpected demands on his strength physical skills and endurance”.

Charles A. Boucher (1987) “Physical fitness implies soundness of body organs such as the heart and lungs, a human mechanism that performs efficiently under exercises or work condition and reasonable measure of skill in the performance of selected physical activity”.

In modern times physical fitness has got a vital role to play in the life of human being. The mechanized way of life has lowered people’s biological fitness levels. Physical fitness is a basic concept for all the conditions that makes life worth living; intellectual life, occupation, love life and social life. The benefits of physical fitness are numerous. The person who is physically fit has greater amount of strength, energy and stamina and improved sense of well being, better protection from injury because strong well developed muscles safeguard bones, internal organs and joint and keep moving parts lumbar and improved cardio respiratory function.

Physical fitness is necessary for a successful and enjoyable life, because it increases fundamental efficiencies in human organism. People who are physically fit can do more things efficiently than physically unfit person. The stronger one’s muscle, the more one can overcome his fatigue and the weaker one’s muscles, the more quickly does fatigue discourage activity.

Fitness is the ability of individual to a full and balanced life. A totally fit person has a healthy and happy outlook on life. Physical fitness is a qualitative element, with many, many variations among individuals and even within each individual at different times of life. The characteristics of physical fitness such as strength, endurance, agility, balance and flexibility are essential for psychological function and good health. Physically fit person gets the maximum satisfaction in every day life; he gets better physical co-ordination mental judgment and emotional control. Physically fit person is able to withstand fatigue for longer period and he is better equipped to tolerate physical stress.

Every objective held valued by the teacher requires some evaluation of results. One of the values of the test is that they tend to clarify both student and teacher, the objectives and capacities which are being developed. Test helps to stimulate the interest of the students in physical activities and enables to compare their abilities and performances with other pupils; assist the teacher in pin pointing the limitations as well as
strong points in a programme; provide a basis for the classification of students; diagnose needs in relation to body mechanics, fitness and motor skills; determine status and changes in status brought about by physical education for public relation purpose.

Improvements in Physical fitness, especially cardiovascular endurance, frequently are equated with improvements in health status or disease prevention. The difference between health and fitness often is a difficult one but an important distinction to make. A high level of physical fitness usually is associated with good health, but an improvement in fitness does not necessarily ensure an increase in resistance to disease or its consequences. For example, patients with disorders such as emphysema or schizophrenia can significantly increase their physical fitness through exercise without necessarily changing the severity of their disease or their medical prognosis. Becoming more physically fit and improving health status are interrelated, but they are not synonymous.

Physical activity may improve physical fitness (or one of its components) and clinical health status at the same time, but the improvement in health may be due to biologic changes different than those responsible for the improvement in physical fitness. For example, endurance training will increase aerobic capacity and may reduce the risk of coronary heart disease, but the biologic changes produced by the exercise responsible for these two benefits may not be the same; the increase of the aerobic capacity is likely due to an increase in oxygen transport and utilization capacity, while a reduction in coronary heart disease risk may be the result of alterations in lipoprotein metabolism or fibrinolytic mechanisms such as blood clotting. Therefore, while the improvement in physical and health may occur simultaneously during physical activity, the exercise-induced cumulous needed for each might be quite different.

Harrison Clarke and David Clarke (1987) was one of the first to write extensively about health related physical fitness. Indeed we would consider
him and his contemporaries such as Tom Cureton, Wilhelm Raab and Arthur Steinhaus as the leaders in changing the way we view physical fitness today. The definition ‘fitness’ in 1958, when the first national youth fitness test was developed, was considerably different from our current definition of physical fitness. In addition to this new terms have been developed such as metabolic fitness and wellness.

Health-related physical fitness consists of those components of physical fitness that have a relationship with good health. The components are commonly defined as body composition, cardiovascular fitness, flexibility, muscular endurance, and strength. Prior to the last forty years the distinction between health related physical fitness and skill related physical fitness was not typically made. When tests of physical fitness are administered in school, medical and other settings should be arranged for measuring the health related physical fitness components. Lab and field tests of health related physical fitness involve some type of performance such as running, stretching, or doing a specific muscle exercise. Because body composition (also referred to as relative leanness) is not a performance measure, some questions its inclusion as a component of health-related physical fitness. Possessing good health-related fitness is related to lower risk of illness and improved quality of life.

Charles A. Bucher (1983) says that the components of both health related and performance related fitness are similar, e.g. cardiovascular function, body composition, strength and flexibility. However, the degree of development of each varies with the two types of physical fitness. Performance related physical fitness may be required to a greater degree in various sports. For example, more physical strength is needed by a football player than by the average citizen who is interested primarily in maintaining his or her health. Therefore, the emphasis today for the vast majority of the population is on physical fitness that is related to functional health.
The goal of health in this new century calls for not only to the cure or alleviation of disease, but for the prevention of disease. Rather it looks beyond to strive for maximum physical, mental and social efficiency for the individual, for his family and for the community.

According to AAHPERD (1973) health related physical fitness can be viewed thus “physical fitness is a multifaceted continuum extending from birth to death. Affected by physical activity, it ranges from optional abilities, in all aspects of life through high and low levels of different physical fitness to severely limiting disease and dysfunction.

According to Bucher (1958) “Health related physical fitness is concerned with the development of those qualities that offer protection against disease and frequently are associated with physical activity.”

The recent development of Health Related Physical Fitness Tests constitutes a shift in the concept of fitness testing. The most prominent of these tests is the AAHPERD test. A Manual was published in 1980 and a technical manual in 1984. Prior proposals for these tests were evident in Texas, South Carolina, and elsewhere.

A committee was appointed in 1975 to review possibly revise the AAHPERD youth fitness test; represented on this committee were the Physical fitness, Research and Measurement and Evaluation Councils of Associations of Research, Administration and Professional Societies. Instead of revising the youth fitness test, the committee recommended that a Health Related Physical Fitness Test should be constructed. It was felt that a differentiation should be made between functional health and physical performance related primarily to motor ability.

In justifying the proposed AAHPHRD Health Related Physical Fitness Tests it was pointed out that Health related Physical Fitness refers to the aspects of physiological and psychological functioning which are believed to offer the individual some protection against degenerative disease such as coronary heart disease, obesity, and various musculo-
skeletal disorders. Performance related fitness, as for the AAHPERD youth fitness test, includes those qualities of function that provide the individual with the ability to participate in sports activities with greater power, strength, endurance and skill than would otherwise be the case.

Participation in daily physical activities results in the proper growth and maintenance of good health. All living beings acquire control over their limbs and brain to co-ordinate the body and develop them through physical activities. It is a biological principle that function builds structure and structure decides levels of functions, the organs and muscles, which are used, will develop and those that are not used will suffer atrophy.

Reema (1998) states physical conditioning provides opportunity for the development and maintenance of fitness. It offers an opportunity for the facilitation of normal growth of a child and prevents the reversal factors of the performance such as strength, endurance, and flexibility, speed and skill. By undergoing a physical conditioning program one experiences a number of changes which makes possible better performance and faster recovery. Through repeated muscular work, strength is gained and as a result one is able to produce more power as there is faster contraction, it means, gain in both power and speed. Conditioning the body through regular exercise, enable to individual to meet emergencies more effectively. Training and conditioning are one of the known ways which best prepare the players for efficient performance and healthful living. Efficient performance is possible only through a careful planned programme of progressive practice which will perfect the co-ordination, eliminate unnecessary movement and accomplish result at the expense of minimum energy as well as conditioning the muscle structure and the circulation to withstand without harm the intensive demands made upon them.

The concept of physical fitness has become a point of attraction in the modern world. The Government as well as the people is aware of its importance, as it is essential to enhance quality of physical labour and every aspects of development, leading to productivity. The various fitness
programmes enhances the quality of life of individual.

It is obvious that, in the present world, physical education and sports play an important role in the development of physical, intellectual and social aspects of life. Millions of people under modern conditions participate in it and sports have got woven into the fabric of modern life, providing a counter weight to the excessive comforts and indulgences of today. In developing countries it helps to fight against the frustration of youth and students who otherwise become easy victims of boredom because of lack of opportunities.

Fitness has become a matter of concern to every country. Basically, fitness means being in good physical condition and being able to function at ones best level. Itak Frank (1983) says that “Total fitness for living necessarily involves spiritual, mental, emotional and social as well as physical qualities”.

Physical fitness has become the corner stone that supports all the fundamental activities which makes life more meaningful that includes intellectual life, spiritual life, love life and social life.

In the modern society, life has become so complex due to various reasons. The modern way of life has lowered people’s biological fitness levels. They lead sedentary life, as machines have made their life easy and comfortable. Without adequate physical exertion man has become a storehouse of unreleased tensions. Modern man in the electronic and computer age tends to become complacent and forget the need of physical activity, for his survival. The modern man due to his luxurious, cozy and comfortable life has become an easy prey to various fatal diseases.

The early men who lived in caves and hunted down animals were aware of the fact that physical fitness was inevitable to keep them going. Even when man took up farming, he knew that the more fit he is, the more is his dominance. Our ancestors worked very hard to survive and they remained active because of their daily physical activities. It is said that
some sort of physical training and education existed in pre-historic period of human evolution. The old rule of “survival of the fittest” itself calls for how much, even in the time immemorial, physical fitness was valued. The primary function of existence is related to physical activities rather than intellectual. We can see that periods in history which man has progressed more are the times when he has made progress in the promotion of his health. Whenever health has been neglected, civilization has declined and mankind has deteriorated. However, as man progressed intellectually and as he began to reduce the importance of physical activities, he became an easy victim to many diseases.

Anderson (1968) says “to live an effective and enjoyable life has been the central dominant purpose of mankind from the beginning of recorded history. To attain this goal, mankind has studied the phenomena of the universe, control in the forces of nature, developed languages, invented various devices instituted new practices, written law and regulations, established institutions and even sought to improve man’s basic endowment.” Hence no one can be little the need and scope of physical fitness in this world of troubles, tensions and toil. So the primitive man recognized physical fitness as an absolute necessity for survival.

Physically fit citizens are a major asset for a strong nation. In the modern context, the field of physical education and sports has imparted refined knowledge and skill that has developed due to an impetus provided by the large strides in technology. Concurrent growth in the field such as Bio-mechanics, Exercise-physiology, Sports psychology and Sports medicine, impart a sound basis to the higher degrees of competence in contemporary society. Its contribution towards building up a peaceful and better world, consisting of non-discrimination, mutual understanding, friendship, solidarity and co-operation; is universally accepted.

According to Hall Higdon and Les Snowdan (2002), “after the age of 30, muscle fibres are declined at 3 to 5 percent each decade. This can add up to a decline of muscle power of about 30 percent by the age of 60.”
Fitness programme will help to regain some of the lost muscle strength as well as to improve cardio-vascular and respiratory efficiency.

Fit and healthy people are in control of their life and their body will be supple and will have the resources of strength and stamina. Suppleness prevents from getting injured soon, and keeps one active. Cardio vascular endurance enables one to go through without getting tired. So it is to be kept in mind that exercise is the best investment one can make for a long and healthy life. Physical fitness is one’s richest possession, it cannot be purchased, and it has to be earned through a daily routine of physical exercise.

According to Ralph S Paffer et. al., (1996), “Fitness is a measurable state or condition partially determined by genetics. Health is also a condition but is not merely as easily measured or defined in précised terms as fitness. Health is not merely the presence or absence of disease, rather, it’s a complete state of physical mental and social well being, a complex factor that represents all level of vitality from the highest to the lowest. On the other hand W.H.O defines fitness as the ability to perform work satisfactorily thus making the definition of who is fit and who is not some what dependent on personal inclination and social contacts.”

Ralph et al., (1999) the internationally renowned Canadian exercise physiologist, estimates that 25% to 40% of one’s fitness is genetically determined which is a figure achieving certain respectability in these days. It leaves an estimated 60% to 70% within our control which can be gained through regular exercise and healthful diet that makes us more active, lose excess weight, and become more fit - and of course more healthy as well.

According to P.K Pande and O.P Sharma (1998), “Physical fitness is the ability to carry out daily tasks with vigour, and alertness without undue fatigue and with ample energy to enjoy leisure time pursuits and to meet unforeseen emergencies. It can be said that the physical fitness is the ability to last, to bear up and persevere under different circumstances,
where an unfit person would give up. It is the opposite of being fatigued from ordinary efforts, to lacking the energy to enter best fully into life and to be exhausted from unexpected exercise demanding physical exertion”.

According to ACSM Fitness Book (1992), “Physical fitness refers to the ability to carry out daily tasks without being over tired. People who are fit have energy not only to complete everyday work, but also to participate in planned and unplanned activities outside the house and other work places.

Slowly but surely we are changing our eating habits. These changes are all aspects of wellness movement, which recommends adapting a life style that helps one to feel well and stay well, which emphasize prevention of illness rather than re-medication for diseases. Wellness is not just for the benefit of the individual, nor is lack of wellness merely an individual problem. The active, healthy life style is a public health issue because the enormous costs of health and health care have made it so.

According to Edlin and Golanty (1994), health was viewed as the absence of illness. “Ways of measuring health were to assess the five D’s, - death, disease, discomfort, disability and dissatisfaction.”

Corbim (1994) says that, “there is now little doubt that physical activity of the appropriate frequency, intensity and duration produces significant health benefits. Most important is the achievement of those specific fitness components which help to reduce the risk of hypo kinetic conditions including heart diseases back pain, diabetics, osteoporosis, and obesity.”

Looking good, feeling good and increasing the chance of living longer are the few benefits of physical fitness. .The current fitness programme however is by no means simply a manifestation of test fashion; rather, it is a part of larger life style trend that has a strong health basis.
According to Bucher (1958), “Fitness is the ability of an individual to live a full and balanced life. It includes physical, mental, emotional, social and spiritual factors and a capacity for their wholesome expression.” In the opinion of Marica E Hart (1963), “physical fitness is the ability of a person’s body to meet the demands placed upon it by his work, by his way of life and by the necessity to meet emergency situation. Fitness allows one to perform work more efficiently and with less effort. Physical fitness is the capacity for sustained physical activity without excessive fatigue or the capacity to perform everyday activities with reserve energy for emerging situations.

Considerable interest has been shown in both public and private sectors to develop physical efficiency and physical fitness by making physical education programme compulsory in many educational and social service institutions. Physical fitness is related to the ability to meet the demands of the environment specifically, to preserve, to withstand stress, to resist fatigue and to possess the energy for vigorous and well-rounded life. Physical fitness is minimal in the seriously ill and is maximal in the highly conditioned person.

According to Harrison H Clarke et al (1976), “Physical fitness is the ability to carry out daily tasks with vigour and alertness, without undue fatigue and with ample energy to enjoy leisure time pursuits and to meet unforeseen emergencies.”

The main feature of the wellness is that, wellness does not happen to you rather you must work towards it. The holistic view suggests that, physical, mental and psychological problem are inter related and that, to achieve wellness, one must make sure that, you must involve in some fitness activity, work and play. Social lives not only are positive in them but also are appropriately balanced. Fitness and wellness have been approached primarily as if they are personal and individual issues. More recently, however, health has become a national-issue; for no other reason than that, an increasingly large part of our national wealth goes for health
The word yoga comes from Indian philosophy, it literally means union, and in this context refers to the union of the individuals’ soul with the universal. Yoga is an ancient philosophy of life as well as a system of exercise that encourages the union of mind, body and spirit. In the words of Patanjali, author of the “Yoga Sutras” “Yoga is the ability to focus the mind on a single point without distraction”. Yoga is a physical discipline; it uses the body and breathing to develop self-awareness and mental clarity.

Yoga is way of life, an art of righteous living or an integrated system for the benefit of the body, mind and inner spirit. This art originated was perfected and practiced in India thousand years ago. The references to yoga are available in Upanishads and Puranas composed by Indian Aryans in the later Vedic & post Vedic period. The main credit for systematizing yoga goes to Patanjali who wrote ‘Yoga Sutra” two thousand years ago he described the principles of the full eight fold yogic discipline. He composed the treatise in brief code words know as Sutras ‘Yoga Sutra’ is the most important basic text on yoga. It is through this basic treatise that the essential message of yoga spread throughout the world. Aims of yoga are the attainment of the physical, mental and spiritual health. Patanjali has recommended eight stages of yoga discipline. They are, Gamas Niyamas, Asanas, Pranayama, Pratyahara, Dharna, Dhyana and Samadhi. Hathayoga demands muscles use which in turn increases the efficiency of the muscles fibers.

Today, thousands of people world wide swear by the curative effects of yoga. It relaxes both the body and soul. It can be practiced easily within the comfort of your home at your own pace. It is relatively simple and it practiced correctly. Yoga can enhance your life and improve your health.

According to Iyengar, (1976) Yoga is the joining of the individual soul to the universal soul the union of the personal spirit to God. Yoga is a system of spiritual and physical culture practiced form ancient times in India. Yoga has been applied not only to the cultural aim of attaining high
tend consciousness but also to the development of every human facility, physical, emotional and ethical which may conduce to that end.

Sreekumar (1960) states that, “Yoga is a method by which to obtain control of one’s talent powers. It offers the complete means to self realization. Yoga teaches one to develop one’s talent powers both physical and mental”.

Hopkins (1901) says that, “Yoga is a timeless pragmatic science evolved over thousands of years dealing with the physical, moral, mental and spiritual well being of man as a whole. Yoga is an art which brings as in coherent and scattered mind to a reflective and coherent state. Yoga is a complete message for humanity. It has a message for the human body, mind and the soul”.

The Great yogis gave rational interpretation of their experiences about yoga and brought a practically sound and scientifically prepared method within every one’s reach. Yoga philosophy is an art and science of living in tune with Brahmand-The Universe. Yoga and its origin in the Vedas is the oldest record of Indian culture. It was systematized by the great Indian sage Patanjali in the ‘Yoga Sutra’ as a special Darshana. Although, this work was followed by many other important texts on Yoga, but Patanjali’s Yoga Sutra is certainly the most significant where in no change is possible. It is the only book which has touched almost the aspects of human life.

Unlike earlier yoga today is no longer restricted to privileged minority of hermits; it has taken its place on our every day life and have undergone a world wide awakening and acceptance in the last few decades. The science of yoga and its techniques have now been re-oriented to suit modern sociological needs and lifestyle (James, 1970).

Swami Vivekanand defines Yoga as “It is a means of compressing one’s evolution into a single life on a few months or even a few hours of one’s bodily existences”. By Yoga, Sri Aurobindo, meant a methodological
effort towards self perfection by the development of potentialities latent in the individual (Iyengar, 1976).

James Hewith (1990) says that Yoga is a service as well as an art of healthy living physically, mentally, normally, and spiritually. It’s systematic growth from his animal level to the normality, from there to the divinity, ultimately. It’s no way limited by race, age, sex, religion, cast on creed and can be practiced by those who seek on education on better living and those who want it have a more meaningful life.

Iyengar (1991) states, Yoga is not a religion; it is a philosophy of life based on certain Psychological facts and it aims at the development of a perfect balance between the body and the mind that permits union with the divine i.e. perfect harmony between the individual and the cosmos.

Inder Sen (1980) “Yoga is the seeking and the effort, conscious and subconscious, for a longer and fuller life for the plentitude of being, for knowledge, power, love and bliss for the union of the human individuals with the universal and the transcendent for the growth of consciousness in depth, in width and in height, for the fullest development of the potentialities of human nature, for the union of man with god and the manifestation of the divine on earth”.

“Hatha Yoga is the first and foremost yoga-although this fact is often forgotten. The term ‘yoga’ which is in etymology related to the French ‘Joug’ meaning ‘yoke’, a word reacquiring in the adjective ‘conjugal’, is taken to have two principle meanings which are further more closely connected. The state of yoga is that in which man is ‘yoked together’ with the divine—an idea expressed in word ‘religion’, in a slightly different sense yoga satisfies the state in which the ‘apparent man’ binds himself like wise to the ‘real man’ that is to say, recovers his true nature and lives” (Andre Van, 1999).
Nagendra (1986) Vivekananda puts yoga “as a means of compressing one’s evolution into a single life or a few months or even few hours of one’s bodily existence”.

Aurobindo, emphasizes yoga as a methodical effort towards self-perfection by the development of the potentialities, talent in the individual. “Yoga is a complete process of perfection of man by developing his personality so that he may reach his ultimate goal, there by fulfilling the purpose of his birth” (Yogiraj, 1994). “Yoga is a systematic psychic practice to improve awareness to develop will power and to realize the self to metamorphose the character so that it can be in line with the self and the society and put an end to the birth-cycle by merging with the Almighty”. Harbans Singh (1995), “Yoga is a means of keeping the body in good shape and attaining longevity”. Janaki (1991) says, “Yoga is simultaneously a powerful curative as well as a preventive system, dealing successfully with organic and psychosomatic diseases. In a sense cure is a natural corollary of yoga”.

Asana means a steady and pleasurable psycho-somatic pose ie, one involving body and mind together (Sachashiv, 1999). According to Martin and Brooke (2005), Asana is the postures for creating fitness of body, steadiness of intelligence, and benevolence of spirit.

Yoga Ratna and Kaul H.K (1991), Pranayama means rhythmic breathing exercise by which lung motion, nerve-currents and mind functions are regulated. Pranayama means the lengthening of the period between inhalation and exhalation as also disciplining the entire process of respiration (Sachashiv, 1999). Respiration is life; in yoga great stress is laid on correct breathing and breath control. This is called pranayama, which means extension of breath.

Meditation is defined as a devotional exercise of contemplation. Meditation is an important part of the journey in ward. It is a great way into the experience of one’s own inner nature of divinity (Martin and Brooke, 2005). Meditation means continuation of one-pointedness of the mind on
an object, by which it gets the power to concentrate in an unbroken flow on that particular object (Sachashiv, 1999).

Numerous issues are confronting in the world today. The media have brought many of these issues to the forefront, increasing there visibility. The issues are political instability, violence, stories of corruptions health hazards, and so on. In recent years, medical research has shown that a great deal of ill health is directly related to lack of physical activity. Moreover, with the advent of the industrial revolution, machines began to do the work once done by hand. As people become less active, they began to lose strength instinct for natural movement. Machines have obliviously made life easier, but they also created serious problems. Without daily physical excretion, human bodies become store houses of unreleased tensions. People now realize that the only way to prevent the diseases in activity is to remain active not for a month, or a year, but for a life time. No doubt, Yoga is the important link between the sedentary life and the active life. It keeps the muscles, supple, prepares for movement and helps to make the daily transition from inactivity to vigorous activity without undue stress and strain. Thus yoga restores “wholeness”.

Yoga is effective in:

1. Increasing Flexibility
2. Increasing lubrication of the joints, Ligaments and tendons.
3. Massaging of all organs of the body.
4. Complete Detoxification
5. Excellent toning of the muscles.

The most important benefit of yoga is physical and mental therapy. The aging process, which is largely an artificial condition, caused mainly by autointoxicaiton or self-poisoning, can be slowed down by practicing yoga. By keeping the body clean, flexible and well lubricated, we can significantly reduce the catabolic process of cell deterioration. To get the maximum
benefits of yoga one has to combine the practices of yogasanas, pranayama, and meditation.

Regular practice of asanas, pranayama and meditation can help such diverse ailments such as diabetes, blood pressure, digestive disorders, arthritis arteriosclerosis, chorine fatigue, asthma, varicose veins and heart conditions. Laboratory tests have proved the yoga’s increased abilities of consciously controlling autonomic on involuntary functions, such as temperature, heart beat and blood pressure. Research into the effects of yogic practices on HIV is currently underway, with promising results.

According to medical scientists, yoga therapy is successful because of the balance created in the nervous and endocrine systems which directly influence all the others systems and organs of the body. Yoga acts both as a curative and preventive therapy. The very essence of yoga lies in attaining mental peace, improved concentration powers, a relaxed state of living and harmony in relationships. Through the practice of yoga, we become aware of the interconnectedness between our emotional, mental, and physical levels. Gradually this awareness leads to an understanding of the more suitable areas of exercise. The ultimate goal of yoga is to make it possible for you to be able to fuse together the gross material (annamaya) physical (pranamaya), mental (manomaya) intellectual (vijanamaya) and spiritual (anathamaya) levels within your being.

Yoga affects the mind as well as the body. It improves concentration, increases alertness, precipitates perceptual and rational clarity, cultivates calmness, develops equanimity, instills confidence, and nourishes contentment. These benefits all depends on presence of mind during practice. It inspires deep self-acceptance, provides continuous self-validation, and self-empowerment.

Being holistic science there are some aspects of yoga that cannot be explained by medical science alone. The best part of yoga is that it can be practiced by anyone with the right training and motivation. Yoga is also an excellent stress buster. If one has never practiced yoga before and
would like to begin, try and tackle the simpler forms before one moves on to the more challenging ones. It also important to understand that yoga is a process-oriented activity. This means what one experiences matters more than what one achieves. By taking one's body and soul through the practice of yoga, one will learn more about oneself and the perceptions that create one's entire world. Over time, one could even gain more control of one's emotions. One will realize that yoga not just an exercise; it is a way of life.

Aerobic Exercise refers to exercise that involves or improves oxygen consumption by the body. Aerobic means “With Oxygen” and refers to the use of Oxygen in the body’s metabolic or energy generating process. Many types of exercises are aerobic, and by definition are performed at moderate levels of intensity for extended periods of time. To obtain the best results, an aerobic exercises session involves a warming up period followed by at least 20 minutes of moderate to intense exercise involving large muscles groups, and a cooling down period at the end.

Aerobic exercise is defined by the American College sports Medicine as “any activity that uses large muscle groups, can be maintained continuously, and is rhythmic in nature”. Aerobic activities overload the heart and lungs and cause them to work harder than at rest. Aerobic exercise makes a person breath harder than when they are resting and increases their heart rate.

“Aerobic” is a particulars from of aerobic exercise. An aerobics class generally involves rapid stepping patterns, performed to music with eves provided by an instructor. This type of aerobic activity became quite popular in the united states after the 1970 publication of the New Aerobics by Kenneth H. Cooper (1988), went through a brief period of intense popularity in the 1980's when, celebrities (such as Jane Fonda and Richard Simmons) produced videos or created television shows promoting this type of aerobic exercise. Group exercise aerobics can be divided into two types; Freestyle aerobics and pre-choreographed aerobics.
According to CSEP (2003), aerobic fitness is a measure of combined efficiency of the lungs, heart, blood stream, and exercising muscles in getting oxygen to the muscles and putting it to work.

Barry and James (1998) say that, “consistency is essential for aerobic work out. One needs to do aerobic exercise at least 30 minutes 3 times a week. Before starting exercise, prepare muscles and get the heart pumping gradually by doing light calisthenics on easy walking and stretching for 10 to 15 minutes. Ideally, the warming up should raise your heart rate within 20 minutes per minute of the heart recommended for the endurance training. The exercise heart rate should be 10 or more beats per minutes below the level that triggers abnormal sign or symptoms”.

Otto Appenzeller (1998) states that, “under ordinary condition, the extent to which energy is supplied from carbohydrate or fat is determined by the relative exercise intensity. Increasingly more energy is derived from fats of exercise intensities of 65% of maximum oxygen consumption (Vo2 max) during prolonged activity, but if the intensity raises to more than 75% (Vo2 max) fat is not used, muscle needs carbohydrate for fuel. Fat utilization during prolonged exercise is higher after a fat rich diet than after a carbohydrate rich or a normal load”.

According to Roy J. Shephard (1994) the study of aerobic fitness provides some elegant intellectual challenges, such as understanding the beautifully matched sequence of integrated adaptations that ensure an appropriate increase in the delivery of oxygen to the working muscles at the onset of exercise, with the fascinating attendant puzzles posed by long transmission lines and the complicated feedback mechanisms that control the body’s response.
According Kennedy (1988) for any aerobic programme to be beneficial, the exercise must be sustained at a reasonable level for at least 20 min. A reasonable level is where the pulse beat increases and remains at 120 to 140 beats per minutes for the entire period.

Susan K. Wilmoth (1986) says that “Aerobic power corresponds to a rate of working rather than the completion of a specified quantity of work. The aerobic capacity is properly defined as the amount of aerobic effort that can be sustained over a specified period. For example 30min the physiological determinants of aerobic capacity differ some what from the factors limiting aerobic power. In general aerobic power is better sustained in a fit than in an unfit individual or the fit person can operate at closer to peak aerobic power than a sedentary subject of exercise is required for a prolonged period”.

Kenneth. H. Cooper (1982) says that “aerobic exercise refers to those activities that require O₂ for prolonged periods and place such demands on the body that it is required to improve its capacity to handle O₂. As a result of aerobic exercise, there are beneficial changes that occur in the lungs, the heart, and the muscular system. More specifically regular exercise of this type enhances the ability of the body to move air into and out of the lungs; the total blood volume increase; and the blood becomes better equipped to transport O₂”.

Aerobics Fitness: - Aerobic fitness increases the amount of oxygen that is delivered to ones muscles, which allows them to work longer. Any activity that raises ones heart rate and keeps it up for an extended period of time will improve ones aerobic fitness.
Benefits of aerobic exercises

<table>
<thead>
<tr>
<th>Fitness in:</th>
<th>Decreases in:</th>
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<tr>
<td>1. Heart health</td>
<td>1. Risk of cardiovascular disease</td>
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<tr>
<td>2. Blood supply to heart and muscles</td>
<td>2. Blood pressure</td>
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<tr>
<td>3. Body’s use of oxygen</td>
<td>3. Cholesterol level</td>
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<td>7. Risk of some cancers</td>
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<td>8. Anxiety and depression</td>
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<td>9. Fatigue</td>
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As one increases aerobic fitness, one will notice that one can do more physical activity without becoming out of breath or feeling like one's heart is pounding. One will be able to do activities such as playing with children, housework, yard work, or hiking exercise and these will also strengthen one's muscles and increase flexibility.

One of the best and easiest aerobic activities is walking, one does not need special equipment, and it can be done almost anywhere. To get aerobic benefit, one must walk briskly, fast enough to increase your pulse and breathing, but not so fast that one can't talk comfortably.

Different types of aerobic activity are, aerobic classes, including step aerobics and spinning (indoor cycling) classes. Running or jogging, Bicycling, Cross-country skiing, swimming, daily activities such as walking with dog or actively playing with children's. This need to be done for at least 8 to 10 minutes per session at a moderate intensity water-aerobics (which is especially good for older people, those who are over weight, and those with joint problems.), Sports like tennis, basketball, or soccer.
Medical research has shown that regular aerobic activity increases the body’s production of endorphins. Physical activity helps to control your weight by using excess calories that otherwise would be stored as fat. The number of calories you eat and use each by regulates your body weight. Everything you eat contains calories, and everything you do uses calories, including sleeping, breathing, and digesting food. Any physical activity in addition to what you normally does will use extra calories. To counteract this alarming art of obesity among a population that knows the value of exercise and the health risks of its sedentary lifestyle, diet fads are sought out to quickly counteract the revenges of unwise living. Low cart dieting has become the latest craze which took the country by storm and which-at least in the short term affected many people’s insulin levels and thus helped them to loose weight. Aerobic workouts are targeted towards fat loss.

Following a regular aerobic program gives you a sense of commitment and control-two positive mental attitudes that help counteract stress. Aerobics also relax tense muscles, they by reliving your body’s stress response. To achieve health benefits from aerobic exercise, it should be done anywhere from 2 to 7 times a week. If a person’s goal is weight maintenance, 2 to 5 times a week may allow them to maintain their fat levels. If a person’s goals fat loss, they may want to increases the frequency 6 to 7 times a week or increase the duration of exercise.

For an effective and safe aerobic workout and to reduce discomfort and the chance for injury, it may be important to include a warm-up and cool down as a part of the workout. A warm-up loosens and warms his muscles making them more flexible and less prone to injury.

Aerobic exercise is very important and it is very much necessary to be fit and fine. Aerobic exercise is very useful tool in fat burning too. Aerobic exercise can be any type of exercise that causes your heart rate to increases and makes you breathe harder than normal. The body has two sources of energy; sugar and fat. Sugar or glycogen is stored in the liver and muscles and is the easiest form of energy for your body it uses.
Glycogen is the body’s preferred source of energy. Fat on the other hand, requires more work to be used as energy.

Aerobic exercise enhances the development of capillaries to the muscle which in turn improves the blood flow and whenever it’s needed. With better blood flow and improved oxygen update by the muscles, your body becomes better adapted at building muscle. Aerobic activity offers a wide range of benefits to overall fitness and health.

Calisthenics are exercise consisting of movements which use the weight of your body as resistance to work against. It is an extremely incredible and efficient way to build muscle and stays it provides short bursts of intense training and only a few exercise covers almost muscle groups.

Calisthenics form a category of physical exercises closely related to, but a part of, gymnastics. The name of the disciplines Greek in origin, a combination of the words “kallos” beautiful and “thenos”, “strength”. Calisthenics actually began in the late 1800s as the culture of being physical in Victoria during the Gold Rush days. Originally, both woman and men participated during the industrial revolution and this participation was to provide exercise and entertainment within confined areas. The women and men would be split into separate groups to partake, at the beginning of the ‘world war’; and then overtime men’s terms eventually faded out. Like other forms of physical activity the repetition must be increased gradually.

Calisthenics are exercises consisting of a variety of simple movements, usually performed without weights or other equipments, which are intended to increase strength and flexibility using the weight of one’s own body for resistance. The primary calisthenics exercise are; sit-ups, crunches, push-ups pull-ups, squats, calf-raises and dips.

Calisthenics originated in ancient Greece. It is mentioned as a person scouts report on Spartan warriors before the battle of Thermopylae, who misinterprets calisthenics as a sign of weakness. The sport became so
popular that calisthenics clubs spread rapidly, mostly in Victoria and South Australia. It achieved national attraction when Victorian and South Australian coaches began moving throughout Australia.

Calisthenics or free exercise is one of more available means of developing strength and cardio-vascular endurance. The calisthenics exercise must be performed in an excite manner and in full range of motion. In most cases 10 or more repetitions are performed for each exercise and repeated in sets of 2 or 3. Regular exercise is an excellent approach to gain cardio-vascular efficiency and flexibility.

Matchaell Pullock et al. (1978), research has shown that regular physical exercise enhances the functions of joints, increases the sense of well-being and promotes a sense of feel good. It also increases physical working capacity by increasing cardio-respiratory fitness and muscle strength. In addition physical activity provides an out let for the dissipation of tension and mental fatigue aids in weight reduction, improves posture, contributes to youthful appearance enhance one’s self image and increases general vitality. Regular exercise of a vigorous nature has much to offer those who have been leading a sedentary life and who have watches themselves deteriorate over the years. However it must be carried on as a life time pursuit since the benefits rapidly disappears once training is stopped.

According to Carl E. Willgose (1974), free exercise is the all time favorite means of developing physical condition. Exercises serves as a warm up routine for other activities and it generally provides an out let for the need for something vigorous especially when a particular lesion requires the pupils to observe and listen more than usual.

According to Judiath Rink (1985), cardio-respiratory endurance is a key factor in health related fitness and is important to many sports performance related activities. For general health and fitness muscular work should consist of well coordinated rhythmical movements which are
specially designed more for organic and functional promotion than for mere muscular development or agility and skill.

Donald Mechleod (1989) observes that over the last 30-40 years with increasing momentum in the last decade, exercise has been recommended in health conscious societies as an essential element in a normal life style both to maintain good health and to alleviate disease, disability and depression.

Body weight exercise, are divided in to three upper body exercise and lower body exercise and abdominals. The upper body exercises are pushups exercise, wall pushups and pull-ups. Lower body exercises are free squats, lunges. The Abdominals exercises are crunches and reverse crunches. Body weight calisthenics exercise is one of the most versatile affective and beneficial training methods available to both the serious athletes and non-professional fitness enthusiast.

**Importance of calisthenics exercises**

- Bodyweight calisthenics can be done anywhere.
- Bodyweight calisthenics are the perfect place to start.
- Bodyweight calisthenics can be adapted for any times level.
- Bodyweight calisthenics, train natural body movements.
- Bodyweight calisthenics can improve muscular strength, power and Endurance.
- It can simultaneously improve strength and cardio respiratory endurance while burning fat.
- Thus the body weight calisthenics exercises are one of the best tools you have for the improvement of strength, conditioning and fitness. Calisthenics is the fundamental for any physical training program.
Benefits:

- By adding daily calisthenics to your walking program and natural diet, you notice significant added improvement in your health and level of fitness.
- One will have greater strength and energy.
- It also increases one's self-confidence.
- One will even begin to discover new ideas and impulses emerging from your improving natural health and enhanced personal power.
- Calisthenics contribute to one's mental well-being and help to treat depression.
- Calisthenics exercises and workout can be done indoor and outdoor, but should always be done in a clean, level area that is free from dangers objects and other physical hazards.

Physical fitness has five components namely, speed, strength, endurance, flexibility and coordinative abilities. Today's are a world where one can never predict what is going to befall the next moment. In such an unsure world only a man with a fit body and mind can move confidently without fear and tension. Only one who is physically fit can be a body guard to himself. Thus physical fitness boosts up one's confidence.

Physical fitness is a positive quality and it is closely related to diet, exercise, rest, and sleep, emotional and mental poise. It can be referred as organic vigour and vitality. Physical fitness helps us to feel good, to be able to turn, bend, and twist in any direction with reasonable ease and grace. Physical fitness tends to vary from one individual to another. Apparently, it varies in accordance with the nature of a person, depending on whether he is sedentary or dynamic.

According to Edward Stanley and Earl F. Derby (1987) daily physical activities results in the proper growth and maintenance of health. All living beings acquire control over their limbs and brain to co-ordinate the brain
and the body and develop them through physical activities. It is a biological principle that function builds structure and structure decides the functions. The organ and muscles that are used will develop and those that are not used will suffer atrophy. The strength of the muscle is not important and necessary for an individual so as to perform his daily activities in more efficient manner than he would do otherwise. Those who think have no time for bodily exercise will sooner or later have to find time for illness.

Man found that playing makes him healthy and more efficient. Therefore man wants to play for the sake of health, personal-physical development and strength. All animals and humans instinctively are driven to play. The young animals in their lairs, the human infants in their cradle all play. They play because the nature promotes them, because their instincts propel them. Play brings its own satisfaction. Exercise builds confidence, physical and mental ability, cultivates power of will and determination. It promotes personal efficiency and all mental characteristics. People are engaged in jogging, playing sports, practicing yoga, cycling etc to protect the body from diseases and various postural deformities. No doubt, physical fitness is an important part of the normal growth and development of an individual to lead an active life style.

The progress of any country in the fields of games and sports mainly depends upon the scientific programme and proper facilities provided to the youth to be outstanding sports men and women. Particularly the age between 12 and 16 years is very crucial in the life of an individual to become outstanding in sports.

Sports provide an ideal mean of bringing people closer together on the basis of shared understanding and mutual respect. Sports play a vital role in health and community development and individual fulfillment. Recreation is generally understood as a process of refreshment of the mind and of the body. The word recreation is associated with the idea of well being, both physically and mentally. Indeed, sports participation sometimes means the same as physical recreation, describing people’s
involvement in activities which are in some way physically demanding.

According to Less Snowdan (2002), “That which is used develops; that which is not used wastes away”. Participation in sports activities are designed primarily to maintain or improve physical working capacity or physical fitness. Sports activities can develop flexibility in the skeletal muscular system, strength in the muscle groups and cardio-vascular endurance or endurance fitness. Activities like aerobics, circuit training, weight training and jogging fall into this category. The conditioning activities can apply to mental fitness as well as physical fitness. The concentration perseverance with formal physical training will lead to mental discipline. Activities like yoga, and the non-competitive elements of the martial art, have mental training aspect to them.

One of the fundamental causes to success in all types of games and sports is to achieve higher level of physical fitness. Under any hypothesis, a sound and fit body is a pre-requisite for a top level performance in any game or sport. It is considered a matter of common sense that even all the contributory factors are controlled; an improvement in the level of physical fitness shall definitely have to improve in the performance level of the sportsman participating in any activity. Fit players or athletes can delay the onset of fatigue during a match or competition. The more tired the player the more prone he is to making errors and injury. A player who makes a lot of errors narrows his confidence.

Physical fitness can improve and promote the vitality of health of the individual. A fit person can carry out task for a prolonged period without undue fatigue. Regular exercise is a pre-requisite for physical fitness, which leads to healthy life.
TABLE 1.1. Classification of Health/Fitness. (Antony 2004)

HEALTH

- Physical
  - Performance Related Physical Fitness
    - Speed
    - Strength
    - Endurance
    - Flexibility
    - Co-ordinative Abilities

- Mental
- Social
- Emotional

- Health Related Physical Fitness
  - 1. Cardio Respiratory
  - 2. Flexibility of the low back and posterior thigh
  - 3. Abdominal strength and endurance
  - 4. Body Composition (leanness and Fatness)

- Cosmetic Fitness
**Classification of Physical Fitness.**

Physical fitness can be classified into three; (Antony, 2004) health related physical fitness, performance related physical fitness and cosmetic physical fitness. Health related fitness is concerned with the development of those qualities that offer protection against diseases that is associated with physical activity. Performance related physical fitness on the other hand is associated with those qualities which are conductive to better performance in sports and other physical activities such as those requiring strength, endurance, agility and speed. Cosmetic fitness is the capacity to have a beautiful physique without giving importance to other physical fitness parameters. Hence it is related with the physique such as the muscle mass and the lean physique for the sake of beauty.

In 1980 AAHPERD developed a new fitness test to emphasis Health Related Physical Fitness instead of motor / Athletic fitness. The new test measures cardio-respiratory fitness, body composition, and low back and hamstring strength and flexibility. These components, which can be measured in the field, reflect changes on exercise habits and are related to some aspect of health.

Health related physical fitness is important for all individual throughout their life span. “Health related physical fitness includes those aspects of physiological function that offer protection from disease resulting from sedentary life style, specific components of health related physical fitness includes cardio-vascular fitness, muscular strength and endurance, flexibility of the low back and body composition” (Lacy et al., 1989).

Margret (1986), according to AAHPERD health related physical fitness can be viewed thus “Physical fitness is a multifaceted continuum extending from birth to death. Affected by physical activity, it ranges from optional abilities, in all aspects of life through high and low levels of different physical fitness to severity limiting and dysfunction.”
Health related fitness is important for all individuals throughout their life span. Motor performance fitness emphasis the development of the qualities that improve sports performance. Participation in exercise regularly increases physical fitness. Individual with regular exercise has an improved sense of general well being and an enhanced self-image.

According to Daryl Siedentop (1994), the sociological view also makes it clear that fitness is not health. Indeed too much fitness and too much exercise can endanger health, as soon as when Elite athletes become bulimic; when highly trained aerobic athletes become susceptible for viral infection, when athletes use steroids to improve performance develop severe side effects, and when chronic problems such as arthritis develop from long term over use injuries. There is optimum level of fitness for health purpose and it is probably less than we have estimated.

At present in Physical education, physical fitness is either considered health related or performance related. Health related physical fitness is concerned with the development of those qualities that offer protection against diseases and frequently are associated with the physical activity. Performance related physical fitness on the other hand is associated with those qualities which are conducive to better performance in sport and other physical activities as those requiring strength, endurance, agility and speed.

Health is not merely of continuum of physical well being or of mental or spiritual or social well being but a combination of all four dynamically interrelated. Modern points of view of health place emphasis on the whole individual and his/her interrelationship with society. Health related physical fitness includes those aspects of physiological function that offer protection from disease resulting from a sedentary life style. Specific components of health related physical fitness include cardio vascular fitness, muscular strength and endurance flexibility of the low back and body composition.
One of the prominent tests to measure the health related physical fitness is AAHPERD Health Related Physical Fitness. It refers to the aspects of physiological functioning, which are believed to offer the individual, some protection against degenerative diseases such as coronary heart disease, obesity and various musculoskeletal disorders.

The components of health related and performance related fitness are similar, for example, cardio-vascular function, body composition, strength and flexibility. However, the degree of development of each varies with the two types of physical fitness. Performance related physical fitness may be required to a greater degree in various sports. For example, a football player needs more physical strength than an average citizen who is interested primarily in maintaining his or her health. Therefore, the emphasis today for the majority of the population is on physical fitness that is related to functional health. Performance related physical fitness is associated with those qualities conducive to better performance in sports and other physical activities such as those requiring strength, endurance, agility and speed. It is otherwise known as skill related physical fitness and the qualities of this fitness do not necessarily make us healthier, but possessing these fitness characteristics make us better in games and sports. Skill related aspects of fitness such as agility, balance and co-ordination may be necessary for high quality sports performance and they do not directly promote health.

The qualities essential for health related and performance related fitness are cardio respiratory fitness, body composition, strength and flexibility.

1. **Cardio respiratory fitness**

   It is associated with heart, lung and circulatory system. It is the capacity to exercise the entire body for extended period of time without undue fatigue. The improvement in cardio-respiratory fitness permits higher quality of life by increasing the rate at which energy can be provided to support work and play activities.
Cardio respiratory fitness is also called cardiovascular fitness. It refers to as cardiovascular endurance, aerobic fitness and cardio respiratory fitness. A max VO₂ test in the laboratory setting is considered to be the best measure of cardiovascular fitness. Commonly administered field tests include the one mile run, the 12 minutes run, the one mile walk, the pacer run for children and various bicycle, set, and treadmill tests.

2. Body composition

Body composition is centered mainly on the presence of obesity. It was considered that obesity is a co-existing factor associated with four types of hazards to health, disturbance of various normal function of the body, increased risk of developing certain disease, and adverse psychological effects.

The word ‘obesity’ is derived from Latin word for “to over eat” but now it mean over fat. Obesity has been linked with the onset of various health problems. Current research indicated that defects in a number of blood gut peptides play a role in weight. Brain and gut peptides either increase appetite through the alpha-adrenergic system, or decrease it through the beta - adrenergic system.

It refers to the amount of body fat a person carries if a person has a relatively low percentage of body fat. There are many genes that play a part in weight regulation. Peptides in the brain’s hypothalamus and the gut send signals to increase or decrease hunger depending on energy stores in the body. Current research indicated that defects in a number of blood gut peptides play a role in weight. There are many genes which play a part in weight regulation peptides in the brain’s hypothalamus in us and the gut sent signals to increase or decrease hunger, depending on energy stores in the body.

According to the W.H.O, India will have 50 million people with diabetics by 2005. Risk of diabetics increases when the BMI for Asians crosses over 23 through by W.H.O standards a BMI of 25 to 29 is
overweight and above 30 is obesity (The Hindu Health Watch Magazine, 9th March 2003, P-7). An excess amount of fat in the body is unhealthy because, it requires more energy for movement and may reflect a diet high in saturated fat. Furthermore, it is believed that obesity contributes to degenerative diseases. Obesity can also result in psychological maladjustment and it also may shorten the life span. A balance between caloric intake and caloric expenditure is necessary to maintain proper body fat content. Exercise will help to control the body fat.

3. **Muscular Strength**

According to James S. Basco et al. (1983), “strength is the muscular force utilized in creation or prevention of movement.” Strength is needed for all kinds of work and physical activity. Muscular strength helps in maintaining proper posture, greater endurance, power and resistance from fatigue”. Muscular strength is the ability of the muscles to extent force and muscular endurance is the ability of muscles to extent force over an extended period of time.

4. **Flexibility**

Flexibility refers to the quality of freedom of movement. It is a measure of the range of media allowed by a body joint or joints. Flexibility is important for performance in sports and important to maintain good posture. It can help to prevent muscle strain and orthopedic problems.

(i) **Statement of the Problem**

The purpose of the study is to investigate the effect of Yoga, aerobics and calisthenics training of selected school boys in the age group of 13 to 16 on health related physical fitness.
(ii) Hypotheses

Based on the research literature it is hypothesized that:

1. The group involved in yoga training will improve better than aerobics and calisthenics in sit-ups, sit and reach and one mile run.

2. The group involved in aerobic training will improve better than Yoga and calisthenics group in body composition.

3. There will be significant differences among various experimental groups in their health related physical fitness.

4. All the experimental group will improve in their health related physical fitness in comparison to control group.

(iii) Delimitations

The study is delimited to the male students of 13 to 16 years of age. The study will be confined to the “American Alliance to Health, Physical Education, Recreation and Dance (AAHPERD) Health Related Physical Fitness Test.

(iv) Limitations

1. Certain factors like habits, daily routine work, diet etc may influence the results which are considered as one of the limitation in this study.

2. The subjects for the study will differ in their socio-economic and cultural background, which is considered another limitation in this study.

3. The motivation and willingness to perform the test may be a limiting factor.

4. The non availability of sophisticated equipment to measure the variable will be the prime limitation of the study.
(v) Definitions and meaning of the terms

Physical Fitness

According to Kennedy (1988) “physical fitness is the utilization of excessive calories by the cardiovascular and muscular processes brings the body to optimum efficiency.” Physical fitness refers to the capacity of an athlete to a fatigued state. The components of physical fitness are strength, endurance, speed, flexibility, and body composition.

Health related physical fitness

Wartornton et al, (2006) says that health related fitness encompasses the components of physical fitness that are related to health status, including physical activity participation, cardio-vascular fitness, musculoskeletal fitness, body composition and metabolism. According to Katzmarzyk et.al, (1998) it is regularly assumed that health related physical fitness is a product of habitual physical activity participation.

Thus, a positive correlation is expected between participation in physical activity (i.e., any broadly movement produced by skeletal muscles that results in energy expenditure and measures of physical fitness (eg: body composition, aerobic fitness and musculoskeletal fitness) (Caspersen et. al., 1985).

Cardio Vascular Fitness

According to Charles A. Bucher (1987) the ability of the circulatory system (heart and blood vessels) to supply oxygen to working muscles during exercise. “The ability to perform physical activities for extended period of time as oxygen is supplied to the various tissues of the body”. Cardio vascular or aerobic fitness is another quantifiable component of physical fitness. It is commonly defined as a measure of the combined efficiency of the lungs, heart, blood stream and exercising muscles in getting the oxygen to the muscles and putting it to work (CSEP 2003). Individual must then relay on the musculoskeletal system for movement and to perform work.
Musculoskeletal Fitness

Musculoskeletal fitness refers to the fitness of the musculoskeletal system, encompassing muscular strength muscular endurance, muscular power, flexibility, back fitness and bone health (Warburton et al 2006a). Based on this definition, it is apparent that musculoskeletal fitness is essential to maintain as it provides the basis for our activities of daily living and determines our ability to perform a wide variety of physical challenges.

Body Composition

Body composition is an essential component of health related fitness. The relative amount of muscle, fat, bone and other anatomical components that contribute to a person’s total body weight are what make up an individual’s body composition and contribute to metabolic capacity (US department of health and human services, 1999).

Speed

Speed is the ability to move quickly from one point to another. “The maximum rate at which an individual is able to move his entire body or part of the body over a specified distance is considered to be the speed of the movement” (Helen H. Elecert, 1974). According to Hardayal Singh (1995), “It is the performance pre- requisite to do motor actions under given conditions (movement task, external factors, individual prerequisites) in minimum of time”. According to Gerhardt Schmolinsky (1978), “Speed is the ability, on the basis of the mobility of the nervous system and the muscular apparatus, to perform movements at a certain velocity”.

Strength

“Strength is the ability of muscle or muscle group to overcome resistance or to act against resistance” (Hardayal, 1995). Strength is needed in all kinds of work and physical activity. Muscles that are strong result in better protection of body joints and lower sprains, strains and other muscular difficulties. More over muscle strength helps in maintaining proper posture and provide for greater endurance, power, and resistance
from fatigue.

According to Gerhardt Schmolinsky (1978), “Strength is the capacity of overcoming a certain or acting against it by muscular tension.” Pull ups, flexed arm, hangs or push ups are commonly used to measure strength.

**Muscular Strength**

It is the amount of force that can be produced by a single contraction of a muscle. “The muscular strength is the maximum force or tension that can be provided by the muscle group” (Charles A. Bucher, 1987).

**Muscular Endurance**

It is the ability of the muscle group to continue muscle movement over a length of time. “The force produced by a muscle group for a prolonged period or to sustain a contraction for a long period of time (Bill Tancred, 1987).

**Endurance**

Hardayal Singh *et al.* (1987) say, “Endurance is the ability to do sports movements with the desired quality and speed under conditions of a fatigue.” It is the capacity to do an activity with desired quality and speed under condition of fatigue. Endurance enables the athlete to do activity efficiently without getting tired and to recover quickly from fatigue and during activity. It involves performing a task to exhaustion. The bend knee sit ups is a common exercise to measure this trait.

**Coordinative abilities**

Hardayal Singh (1995) says that, “coordinative abilities are understood as relatively stabilized and generalized pattern of motor control and regulation process. These enable the sportsman to do a group of movements with better quality and effect.”
Obesity

A condition of exercise excessive body fat that results from a chronic energy imbalance were by intake exceeds expenditure (Katzmarzyk, 2002).

Skinfoold

The thickness of the fold of skin plus the underlying fat is determined by the use of a high quality Harpenden™ Skinfold caliper (CSEP, 2003).

Flexibility

A supplement of joints, muscle masses and connective tissues, which lets you, move your limbs over an exaggerated range of motion, a valuable quality in body building training, since it promotes optimum physical development. Flexibility can only be attained through systematic stretching training, which should form a cornerstone of your overall body building philosophy.

“Flexibility is the ability to execute movements with greater amplitude or range” (Hardayal Singh, 1995). Flexibility implies that the human body is able to perform a wide range of movements. Abdominal and low-back hamstring muscle skeletal junction is also another feature of flexibility. The maintenance of minimal levels of trunk and hip strength endurance and flexibility is believed to be important in the prevention and alteration of low back pain and tension. The good range of movement possible at various joints. Charles A. Bucher (1987) says, “Range of movement about a joint from a position of extension to flexion on the opposite movement”.

Significance of the study

Health related physical fitness will be useful for assessing fitness level and to compare the level of fitness.

1. The study will help to compare the students health related physical fitness standards based on public health research.

2. To motivate students to improve the current fitness status and to educate students about health related physical fitness.

3. The study will enable us to realize the need of fitness and may be used criterion for the selection of students.

4. It will help physical education teachers to guide the students to improve the physical fitness level.

5. It is very helpful for the selection of athletes and team players.

6. It will help the physical education personnel to diagnose the strength and weakness of pupils and allocate players accordingly.