CHAPTER-I
INTRODUCTION

Hazlitt\(^1\) writes about life:
The art of life
is to know how to
enjoy a little and to endure much.

Many changes have occurred in the last few years that make the choice of living extremely difficult. Increased technology has resulted in changes in the work place. Concern for the environment has generated the implementation of protective measures against noise, radiation, and the pollution or destruction of land, forests, and waterways. The nation's economy has been in a state of upheaval resulting in problems such as budget cutbacks, inflated prices, inner city difficulties, unemployment and mounting population growth. The growing complexities of modern life and resultant crises make us to experience pricks and pressures in day to day affair. With today's sedentary and automated life styles, nobody can take good health and physical fitness for granted.

So, New interest has been generated in health and fitness. The wellness movement has increased people's awareness of their responsibility for their own and has drawn attention to the role of fitness and exercise in the attainment of optimal wellbeing.

Fitness acts as a spur to good health and sets as a shining example for the young to follow. Body is the temple of soul and

to reach harmony of body, mind and spirit, the body must be physically fit. Fitness implies the ability to perform a dynamic or specific task and to recover quickly from the task. Fitness is the capacity to the individual to live a full and balanced existence and to meet confidently the problems and crises and function effectively, purposefully and zestfully which are among life's expectations. It has rightly been said though fitness may not be everything, everything without fitness is nothing.

For a national physical fitness programme to be of real value, it must be sufficiently comprehensive to include all segments of the population regardless of age, background or vocation, and must help to condition all systems of the body, i.e., not only the muscular and the circulatory, but the respiratory, nervous, endocrine and other aspects of the organism. In addition, such a programme must be enjoyable and stimulating so that one wants to exercise if for no other reason than that he or she feels a sense of well-being physically, mentally, morally, socially and spiritually after exercising, not exhausted or strained as is so often the case with calisthenics. The system which meets all of the above requirements is yoga.

1.1. PHYSICAL FITNESS

Physical fitness implies the ability to function at one's best level of efficiency in all his daily living. Physical fitness, an instrument for social good is the capacity to successfully and fully respond physically, mentally and emotionally to the forces of life without undue debilitations. Physical fitness is one of the facets of a person's allround harmonious development. Physical fitness, the cultural phenomenon of great complexity
and magnitude is a historically preconditioned level of health and comprehensive development of a person’s physical activities, corresponding to the requirements of labour activity in production and other spheres of public life and ensuring high activity, normal functioning of the body’s vital systems and longevity. Physical fitness adds grace to the young, wealth to the poor, ornament to the rich and acts as a consoling factor to the old.

"The place of physical fitness in any society reflects something of that society’s characteristics".2

"Physical fitness provides a touchstone for understanding how people live, work and think and may also serve as a barometer of a nation’s progress in civilization".3

1.2.1. History of Physical Fitness

Since early in the development of Homo Sapiens, people have realized the benefits of being physically fit varying cultures overtime have given greater or lesser emphasis to physical fitness.

The Greeks provided a rich heritage of body-mind philosophy and glorified the aesthetically developed allround athleticism.

Nikolaos states fitness arised from the deep sense of classical Greek instruction, which incarnates for all the civilised world, regardless of race, religion and nationality, the finest, immortal values of life.

Varying dramatically from this ideal were the Spartan soldiers, the specialized professional athletes of the later greek era. The Romans to their credit illustrated the utilitarian goal of a fit people during the next thousand years only the knights developed their bodies but they did so primarily for military conquest rather than for any inherent value. It was during the period of Renaissance in Europe the philosophers and Educators reemphasized. "A sound Mind in sound body" although they grappled with whether the body and mind were separate entities.

Naturalism and Nationalism directly influenced the development of Gymnastics systems in Germany, Denmark, Sweden, England and Russia.

In united States, Reformers Concerned about people's health and fitness during the years 1776-1840, led to the introduction of physical Education in schools. Reformers promoted the habit of exercising in Gymnasium which for a time became more popular. Warren, professor of Anatomy and physiology at Harvard university together with several prominent Bostonians promoted a gymnasium for Boston residents in 1826. A year earlier CharlesFollen, a Harvard Instructor had introduced German Gymnastics to Harvard students. In Eastern cities, German private Gymnasiums opened in the late 1920s. Notable fitness experts

between 1840 A.D and 1885 A.D were Latharine Beccher, Reverand Henry ward Bucher of Brooklyn and Thomas wantworth Higginson. George windship, a noted strongman advocated a system of training with heavy weights through his lectures. Dioclesian Lewis developed a new system emphasized strength, flexibility, agility and grace of movement was a great success in 1850s, 1860s and 1870s. It was during the war years of the early 1940s that the terms of physical fitness became generally used. A mania for fitness all over the world really began in the 1970s with Joggers leading the boom.5

1.2.2. Indian Heritage

The profound tradition of the Indian Fitness Movement can be traced back to thousands of years. It has been closely associated with the religious practices, traditions and cultures of India. The Indian fitnesss activities like yoga, Dand, Baithak, Malkhamb, Leziums, Lathi etc., have been in vague from time immemorial.

In the medieval period (1200 to 1825A.D), the fitness programmes were promoted in the Gymnasiums which enjoyed the high patronage of the kings instead of at Gurukulams. The Britisheers during their reign had introduced in India the Maclaren’s system of Gymnastics, Swedish drills, Rhythmic exercises etcetera. The National Fitness corps was the outcome of the National Discipline Scheme initiated in the year 1954 by the Government of India with a view to bring out discipline among the youths of the country. The National physical

Efficiency Drive for men and women, boys and Girls was sponsored by the Ministry of Education in the year 1959 in order to evaluate the physical fitness of the people. A committee under the chairmanship of Hunzru was constituted in the year 1959 in order to modify certain features of the National Fitness corps. 6

Wakharkar 7 states realizing the need and importance of yoga, the National policy on Education, 1986 has recommended the inclusion of yoga along with sports for student youths to improve physical fitness.

1.3. NATURE OF PHYSICAL FITNESS

Physical fitness is the art of humanity. It is the basic need for people. It is the fundamental form of human expression. It is the means of enhancing national prestige. It is an avenue of social adjustment. It is an ambassador of peace. It is the most saving grace in the world.

The term physical fitness can simply be defined as follows: "being able to physically do what you want to do a body with toned muscles", "a state in which your body has sufficient strength and endurance for all physical activities," "being able to participate in any sport or Exercise with ease, or "the ability to use the body efficiently."

"Physical fitness implies the ability to function at one's best level of efficiency in all his daily living."8

"Physical fitness is the ability of an individual to live and a balanced life. It involves physical, mental, emotional and spiritual factors and the capacity for their wholesome knowledge."9

"Physical fitness means that the organic systems of the body are healthy and function efficiently so as to enable the fit persons to engage in vigorous tasks and leisure activities."10

"Physical fitness is the capacity to adapt to and recover from strenuous exercise."11

"Physical fitness is the combination of cardiovascular endurance, muscular strength and endurance and flexibility."12

"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

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of blood and circulation of blood by a cardiovascular and muscular process; bringing the body to optimum efficiency. 

"Physical fitness is the ability to function normally without undue fatigue and being able to enjoy leisure time activities without debilitating physical stress."  

"Physical fitness is the ability to perform daily tasks with sufficient strength and vigour without experiencing undue fatigue and to have enough strength, energy and stamina left over to enjoy recreational pursuits and be able to meet unforeseen emergencies."  

"Physical fitness is the capacity of the heart, blood vessels, lungs and muscles to function at optimal efficiency."  

"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."  

According to Don cash, "physical fitness means the ability to carry one's work load with staggering to participate in recreation with ease."

and enjoyment and with all to have a reservoir of endurance to meet the emergencies of life." \(^{18}\)

"Physical fitness implies soundness of body organs such as the heart and lungs, a human mechanism that performs efficiently under exercise or work condition and a reasonable measure of skill in the performance of selected physical activities. \(^{19}\)

According to Johnson, "physical fitness is a matter of fundamental importance to individual well being and to the progress of the security of the nation." \(^{20}\)

According to Kennedy, "Physical fitness is the basis of all other forms of excellence." \(^{21}\)

The reason why thousands of people especially the school going children have got themselves interested to keep their physique better is physical fitness that makes them feel better, mentally sharper, physically stronger and able to adjust with the demands they face everyday with firm confidence.


\(^{21}\) Ibid.
1.4. **NEED AND IMPORTANCE OF PHYSICAL FITNESS**

The human body is created for movements: to walk, dance, jump and play. "Inactivity may cause blood to clot in the heart more easily. It also increases the chance of developing other risk factors, including undesirable cholesterol levels, obesity, diabetes and hypertension." 22

With no physical stimulants, the sensory receptors become starved, subsequently causing the body aches and pains. With proper fitness, one can relieve much of these unnecessary pains and unpleasant complications. It is almost impossible to go through an entire day without being exposed to something that involves physical fitness. This national preoccupation with fitness has affected every segment of our society.

The quality of one's life depends upon the quality of work he or she does. Physical fitness is thus, essential for all but the degree of physical fitness is very individualized and will vary according to the demands and requirements of a specific task. The school athlete must constantly work to improve his or her strength, endurance, flexibility, speed and cardio-respiratory efficiency whereas the student who cycles to school will require less effort to maintain his or her level of physical fitness. The test cricketer needs a different level of physical fitness. A 40 year old mother requires a different physical fitness level than her daughter. So, physical fitness varies according to the circumstances of a person at different times in his or her life. In essence, Physical fitness is a must for all.

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1.5. **AIM AND OBJECTIVES OF PHYSICAL FITNESS**

The aim of physical fitness is to mould an individual healthy, mentally alert, socially active and morally stable builder of a society. The objectives of physical fitness are as follows:

a) to improve health, comprehensive and harmonious development of the forms and functions of the human body;

b) to form the motor skills necessary for everyday life;

c) to provide the necessary knowledge for a broadbase fitness facilities in everyday life and instilling the habit of fitness sessions;

d) to enhance the outlook on world affairs and the spirit of internationalism;

e) to develop will power, moral, aesthetic and patriotic education;

f) to raise the level of sporting achievements;

g) to develop an understanding and appreciation of movement in children and youth so that their lives will become more meaningful, purposive and productive.

1.6. **BASIC TRAITS AND PRINCIPLES OF PHYSICAL FITNESS**

The basic traits of physical fitness are its mass nature and scientific approach. The traits of this mass nature and the Scientific approach to physical fitness combine to make a single entity on the
basis of the following principles: Universality, the link with social practice, the comprehensive development of the personality and the efficiency of improvement of public Health.

Universality means that the fitness system encompasses the entire population regardless of age and social group. The link with social practice helps to prepare the young generation for active labour and to increase the creative activity and the longevity of the population. The principle of comprehensive and harmonious development of the personality expresses the general trend and close interrelation of different aspects of fitness system as a whole. Man's comprehensive development is essential for economic, social, technological and cultural progress. The principle of improving public health permeates the entire system of fitness. Physical fitness is closely, thus interlinked to make upon entire organic unity.

1.7. FORMS OF PHYSICAL FITNESS AND ITS COMPONENTS

There are several aspects to fitness, different ways of achieving the same end, a number of overlapping activities and of course, individual preferences to be taken into account. Fitness activities include Jogging, Swimming, cycling, Walking, weight training, aerobic dance, water aerobics, callanetics, free arm exercises and yoga.

"The term physical fitness has been divided into two distinct categories: Skill-related and Health-related fitness. Skill-related fitness (performance fitness) includes those qualities that provide the individual with the ability to participate in Sports activities. The components of skill-related
fitness are Agility, Balance, coordination, Speed, power and reaction time. Health-related fitness includes regular exercise in combination of proper diet and abstention from smoking and using potentially dangerous drugs will increase greatly one's quality of health. The components of Health-related fitness are cardiorespiratory endurance, Muscular endurance, Muscular strength, Body composition and flexibility.\(^23\)

"physical fitness is made up of a series of components. For example, Body composition, nutrition and diet, rest and relaxation, Endurance, Flexibility, Speed, Strength and so on."\(^{24}\)

Each one of which makes some independent contribution to the whole state.

1.8. RELATIONSHIP OF PHYSICAL EDUCATION WITH PHYSICAL FITNESS

According to Williams, "physical Education provides skilled leadership, adequate facilities, and ample time for affording full opportunity for individuals and groups to participate in situations that are physically wholesome, mentally stimulating and satisfying and socially sound."\(^{25}\)

Physical Education is a part and parcel of the whole education process and is concerned with the whole child as a growing organism and as a member of society. Physical Education includes the acquisition and refinement of motor skills, the development and maintenance of

\(^{23}\) Carl Gabbard, Elizabeth Leblane and Susan Lowry, op cit., p.50.

\(^{24}\) Roby and David, op cit., P.vi.

fitness for optimal health and well-being, the attainment of knowledge, and the growth of positive attitudes toward physical activity. Physical fitness is an important objective of the physical education programme and the programme is directed toward achieving the objectives through specific developmental exercises as well as games and activities that help improve physical fitness. While the term fitness and its usage for some extent were relatively new, the concept and its meaning to physical education are modified often to give greater emphasis to the objectives of fitness.

1.9. BENEFITS OF PHYSICAL FITNESS

Physical fitness, Indispensable to the development of manhood keeps physical and mental tone; promotes the maintenance of good function in the various organs of the body and helps to develop and improve a whole range of psychic qualities such as perception, depth of thinking, combinative skills, operative, visual and audial memory, sensory reactions and imagination. It gives vitality and zest, makes attractive; relieves stress; gives will to compete and create; helps to improve one's academic performance, work performance, readiness to learn and enthusiasm for learning; improves self esteem, interpersonal relationships, responsible behaviour and independence; enhances one's outlook of life; increases social outlets. Thus, physical fitness increases the scope of human abilities, enriches the life of an individual and that of society as a whole.

1.10. PHYSICAL EXERCISE

Exercise occupies a lead role in keeping a person fit. It will be quite difficult to adjust one's life in terms of stress, diet,
sleep and so on without proper exercise. According to Plato, "Lack of activity destroys the good condition of every human being while movement and methodical physical exercise save it and preserve it." Exercise means using and toning the body. Exercise builds and maintains physical fitness.

1.11. BENEFITS OF PHYSICAL EXERCISE

Physical Exercise is a capsule for better living. With regular exercise, coronary arteries that supply blood to the heart enlarge and new blood capillaries develop within the organ larger, stronger and more efficient. Exercise increases the strength and efficiency of the muscles of the rib cage and diaphragm. This causes an increase in the lung volume, enabling a person to take in more air and thus absorb more oxygen. A person who exercises regularly breathes more slowly at rest than one who does not work out. But, when required, he or she can breathe deeply and oxygenate a given volume of blood, spending less energy. Exercise increases the size of existing blood vessels and makes them more elastic. It promotes the formation of new blood vessels not only in the heart, but also in the skeletal muscles, thus improving the oxygen supply to all parts of the body. Exercise increases the total blood volume in the body, the density of red blood cells and the haemoglobin content. This increases the efficiency of the body's oxygen transport system as well as the waste disposal mechanism, leading to improved muscular endurance and efficiency. Exercise helps to burn calories.

not only when exercising, but burns calories at a higher rate even after finished exercising and converts them into muscle tissues. High levels of blood cholesterol are strongly associated with heart attacks. Regular Exercise will lower cholesterol levels. Exercise brings down high blood pressure; Reduces body fat and increases muscle mass; helps reduce weight; keeps blood sugar under control; relieves muscle and joint pains; reduces stress; prolongs life; Exercise improves feeling of well being."²⁷

Achieving and maintaining physical fitness helps prevent the premature occurrence of numerous illnesses and diseases. It also helps in rehabilitation after illness or disease has happened. It helps for mental alertness. It promotes emotional stability. It enhances spiritual and moral development. Exercise, thus contributes towards an increased level of fitness and an holistic approach to good health.

1.12. YOGA

Yoga, a rational and scientific treasury is the richest and noblest legacy the ancient indians have left to the world. It is an art of successful living. It is a culture-cum-science. Yoga is a universal system which brings harmony in body and mind. It has a message for the human body, mind and soul. It symbolises the unity of body, mind and spirit. It implies integration of the personality of man as a whole. Yoga is a sensitive science developed by spiritual genuises for powerful vibrantly healthy, happy and fulfilled disciples who

unsatisfied with their worldly attainments wished to comprehend the universe. Yoga, a timeless pragmatic science is the dedicated votice to a offering of a man who brings himself to the alter, alone and clean in body and mind, focussed in attention and will offering in simplicity and innocence not a burnt sacrifice, but simply himself raised to his own highest potential. Yoga is a way of life which can be practised by any human being regardless of age, condition of health, religion or nationality. Yoga, the important school of ancient indian philosophy is to the mind what technology is to the man.

1.13. HISTORY OF YOGA

The vedas are being the sources of yoga. It can be said that yoga is as old as the vedas. "A seal excavated from Mohenjodaro closely resembling the Mulabandhasana is one of the authentic sources. Yoga was practised by the people of the Indus valley civilization. It was practised in south India too. Some believe that patanjali taught the yogasutra at chidambaram in Tamilnadu. In the famous siva temple, there is a stone statue of patanjali. Nammalvar, the first of the twelve great vaishnavite saints of south India is said to have sat in astute of yogic meditation for 16 years under a tree. He is considered the Guru of yogi Nathamuni, the author of "yoga Rahasya". Adi sankara’s works such as "yoga Thavalai" and his commentaries on the Gita and the upanishads establish his mastery of yoga."28 Thus, yoga was known and practised all over India thousands

of years ago. "yoga was the basic symbol of India at that time and it continues to be so."29

1.14. NATURE OF YOGA

"The word yoga is derived from the Sanskrit root Yui meaning to bind, join, attach and yoke, to direct and concentrate one's attention on, to use and apply. It also means union or communion. It is the true union of our will with the will of God. According to Gandhi, "the yoking of all the powers of body, mind and soul to God; it means the disciplining of the intellect, the mind, the emotions, the will, which enables one to look at life in all its aspects evenly."30

Yoga, one of the six orthodox systems of Indian philosophy is also meant "To connect", "To add", "To meet" and "To establish link". It was originally used to grandest of all sciences is based on the philosophy of samkhya, "union of the individual self (Jivatma) with the universal self (Paramatma )."31 yoga is a religion. Equanimity is yoga; Serenity is yoga: control of the sense and the mind is yoga. Yoga, the total experience of human life teaches us the method of joining the individual soul and the supreme soul. Yoga, a way of life is the merging of the individual will with the cosmic or universal will. It is the communion of the human soul with Divinity. "yoga shows the

31 Iyengar, op cit., p.4.
way and unites men with the Almighty and makes them pure and perfect. 32

Bagavad Gita 33 says work alone is your privilege; never the fruits thereof; never let the fruits of action be your motive; and never cease to work, work is the name of the Lord, abandoning selfish desires, be not affected by success or failure. This Equipoise is called yoga. Yoga is skill in action.

Hatha pradipika34 states yuva vrddhi's tirrdho va vyadhiro durbalo piva abhyasatsid dhmaprote sarvayoge suarandritah which means that with the persistent effects in yoga one is bound to get success may he be young, old or utterly old suffering from disease or weak.

"yoga is a system of integral education of the body, the mind (or intellect) and the inner spirit. It is a way to attain salvation and to get oneself freed from the cycle of birth and death. It's main purpose is the elimination of the forces harmful to the soul".35

"yoga is a practical science which provides a methodology of change through actual practices which refine and sensitise the entire human personality."36

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33 Iyengar, op cit., p.20.
34 Swami Digambarji and P. Kokja (Eds), Swatanarama Hathaprdipika (Lonavala: Kaivalyadhama S.M.Y.M. Samiti, 1970) p.32.
According to John Mumford, "yoga is the mother of all sciences. It has its own terminology, its own methodology. It is empirical and its claim can be verified. Yoga is the science of transformation and transcendence; the transformation of the lower animal nature and transcendence into the highest realm of being."37

According to Jung," Yoga practice combines the bodily and the spiritual with each other in an extraordinarily complete way."38

"Yoga lays stress on bodily and mental poise and produces an equanimity of spirit that is most beneficial to the whole nervous system."39

According to wakhakar,"yoga is a positive way of maintaining physical upkeep, mental alertness and spiritual attainment. It teaches us how to control one's senses, resulting in an integrated personality, freedom, stress, conflict, frustration and the like. It stabilizes one's behaviour pattern, develops will power and ultimately helps one to lead healthy, happy and balanced life."40

Adhyatmananda41 states yogaha karmashu kaushalam or samatuam yoga uchyate—that is, harmony or balance is yoga. To control the

37 Ibid.
40 Swami Gitananda and Meenakshi Bhavanani, op cit., p.6.
mind is yoga. And finally, to live the life beyond the consciousness of body and mind and intellect is the ultimate aim of yoga.

"yoga is the inhibition of the modifications of the mind. This means that it prevents the contents of the mind from taking different forms." 42

Vivekananda 43 puts yoga as a means of compressing one’s evolution into a single life or a few months or even a few hours of one’s bodily existence.

Aurobindo 44 emphasises yoga as a methodical effort towards self-perfection by the development of the potentialities latent in the individual.

"The withdrawal of sense organs from the worldly objects and their control is yoga" 45

"Yoga is a complete process of perfection of man by developing his personality so that he may reach his ultimate goal, thereby fulfilling the purpose of his birth." 46

44 Ibid.
“Yoga is a systematic psychic practice to improve awareness, to develop will-power and to realise the self to metamorphose the character so that it can be in tune with the self and the society and to put an end to the birth-cycle by merging with the Almighty.”

“Yoga means a system of life best-suited for man in harmonious communion with Nature.”

Desikachar states for yoga to succeed, political place is required or perhaps for political peace, yoga is required.

1.15. AIM OF YOGA

Patanjali states The aim of yoga is the complete control, arrest of the fluctuations and modifications of the mind.

“Yoga aims at altering psychic by extremely higher degree of attention concentration.”

“Yoga aims at a total mastery over every aspect of the human personality in order to arrive at the ultimate truth.”

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47 Ibid.
50 Indradevi, Yoga - The Technique of Health and Happiness (Bombay: Jaico Publishing House, 1984), p.10
"Yoga aims at a complete transformation of man." 53

"The aim of Yoga is to teach the means by which the human soul may be completely united with the supreme spirit parading the universe and thus serve absolution." 54

"The aim of yoga is to achieve the union of the individual consciousness with universal consciousness." 55

"Union with God is the aim of yoga." 56

1.16. OBJECTIVES OF YOGA

The objectives of yoga are as follows:

a) to enable people to have good health;

b) to practice mental hygiene;

c) to possess emotional stability;

d) to integrate moral values;

e) to attain higher level of consciousness through positive experiences leading to higher truths.

f) to attain spiritual and recreational values.

54 Iyengar, Op cit., p. 535.
56 M. Lall, Yoga for Total fitnesss and Mental Concentration (Delhi : Hind Pocket Books (P) Ltd., 1985), p.11.
1.17. STAGES OF YOGA

Patanjali enumerates eight limbs or stages of yoga to attain the purification of body, mind and soul as well as to achieve union with the supreme being.

They are:

a) yama (universal moral commandments)

b) Niyama (Self purification by discipline)

c) Asana (posture)

d) pranayama (rhythmic control of the breath)

e) pratyahara (withdrawal and emancipation of the mind from the domination of the senses and exterior objects)

f) Dharana (concentration)

g) Dhyana (Meditation)

h) Samadhi (A State of super consciousness brought about by profound meditation in which the individual aspirant (Sadhaka) becomes one with the object of his meditation-paramatme or the universal spirit.)

57 Iyengar, op cit., p. 535.
1.18. YOGIC EXERCISES (ASANAS)

The third anga or limb of yoga is Asana. Asanas are postures. It is a state of complete equilibrium of body, mind and spirit. There are literally hundreds of postures in Asanas. Asanas bring steadiness, health and lightness of limb. By practising them, One develops endurance, agility, flexibility and so on. Thus, Asana is one of the ancient yogic practices forming a base for all other practices and plays an important role in every kind of yoga sadhana. Asana is a special type of exercise which is not only physical but also psychological in nature.

1.19. BENEFITS OF YOGIC EXERCISES

Yogasanas, the destroyer of sorrows and miseries tone up muscles and regulates the functions of various organs of the body. Yogasanas keep the body free from all impurities and make it healthy. Yogic exercises purify the blood vessels, open up the lungs and the muscles become elastic. This boosts their contraction and expanding powers. They can absorb more oxygen. They burn up the toxins of the body and eject them in the form of carbon dioxide.

According to Scherwitz, "Yogic lifestyle lowers the level of the bad LDL cholestrol in the blood stream more effectively than anti-cholesterol drugs. It helps obese people lose so much weight. It leads to a tremendous drop in chest pain. It reduces the incidence of heart attacks."58

Due to pressure changes in internal cavities, circulation of blood in various organs is also favourably influenced.

"The asanas are so designed that their effects may reach far out even to the very ends of the peripheral nerve tips, even to the tiniest and finest and most slender capillaries, to the vasa nervorum and the vasa vasorum and the nutrient arteries which pierce and ply through the hard bones to supply the marrow, and even to each of the individual cells wherever they may be located in the body."⁵⁹

They also improve the functioning of intestines very much. Keeping the muscles, ligaments and joints flexible, it helps to prevent injury and long term damage including arthritis. Yogic postures involve stretching and strengthening the different parts of the spine which is not only the backbone of human body but also a part of central nervous system. It promotes the health of the endocrine glands which is associated with nervous system and maintains the overall functional efficiency of different systems of the body.

Yogic practices help control the senses, thereby creating favourable situation for Dhyana which provides an excellent state of mind. As the body is being stretched to its limit by doing yogic exercises and the mind concentrates hard, there is a letting go of unnecessary mental activity and tension as well as physical. Yogic exercises impart high spirits to the mind and impetus to the intellect; increase perception and memory; perfect consciousness.

⁵⁹ Swami Vivekananda Saraswati, ed., The Effects of yoga on Hypertension (Munger : Bihar School of Yoga, 1984), p. 27
"Yogic exercise not only keeps the body physically and mentally fit but also provides recreation and mental relaxation. It is nature’s best tranquiliser. It changes the levels of hormones in the blood and may elevate beta-endorphins (mood- affecting brain chemicals)."\(^{60}\)

Yogasana put certain groups of muscles under pressure stretching and this in turn influences muscle tone which is closely related to one’s own emotional behaviour. Today, yoga is recognized and practised as a powerful health tool for physical fitness.

"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."\(^{61}\)

All yogic practices counter stress. Thus, yoga brings steadiness, lightness and an exhilarating feeling in the body as well as in the mind and a feeling of oneness of body, mind and soul.

"Yoga is the means of keeping the body in good shape and attaining longevity."\(^{62}\)

Sivananda \(^{63}\) believes the body becomes strong and healthy; excessive fat disappears; the face glows, the eyes are bright and the whole

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\(^{60}\) H.K. Bakhru, "Driving away depression," *The Hindu* 115, No.33 (February 1992), P. VII.

\(^{61}\) Janaki, "Yoga as a therapy," *The Hindu*, 114.No.342 (December 1991), P.X.


personality radiates a special charm. The voice becomes soft and melodious. The adept is no longer subject to illness. The process of digestion is eased. The whole body is purified and the mind improves in its ability to concentrate. Constant practice brings latent spiritual forces to life and produces happiness and peace.

Thus, yogic exercise brings behavioural transformation; enables a person to experience heavenly love; provides bliss or supersensuous joy: leads man from the ignoble to noble; brings over all enhancement in one’s personality.

1.20. YOGA AND OTHER EXERCISES

In yogic exercises, symmetry of the body is maintained whereas in other exercises asymmetrical development of the body is maintained.

In yogic exercises, the emphasis is given more on the nerve culture whereas in physical exercises, the emphasis is more on muscular development.

In yogic exercises, the muscles remain relaxed to a great extent whereas in other exercises the muscles are constantly contracted or stretched under tension.

Other exercises affect only the muscles outwardly. But these exercises do not have as much impact on the internal organs of the body as the yogasanas. Moreover, in doing asanas the number of cells that break is small, while the number of new cells that are formed is proportionately very large.
In yogic exercises, blood is directed to the internal organs whereas in other exercises blood is thrown to the periphery.

Asanas clean the blood-circulation drains of the body and keep the body free from impurities. This possible only by Asanas and not by other exercises which increase heart beat abnormally.

Yogasanas increase the expansion and contraction of lungs so that they become capable of purifying more and more blood. In other exercises, the lungs breathe quickly but not deeply.

Asanas increase the coronary blood flow without a rise in pulse rate, oxygen consumption or blood pressure. Conventional exercises, on the other hand increase coronary flow at the expense of these parameters.

Other exercises cause tiredness to the body, while asanas make the body fresh.

In other exercises, the body has to spend a lot of energy, but in asanas energy expenditure is minimum and even sometimes the same or reduced as compared to the normal resting conditions.

Other exercises may cause injuries to the body. There is no danger of injury in asanas.

In yoga, no movement is ever forced whereas in other exercises the movement is forced.
A weakness can be compensated for by over developing another part of the body in doing other exercises, whereas in yoga this kind of cheating does not occur.

Vigour and longer life is more in asanas than in other exercises.

Unlike other forms of exercise, where the aim is to develop a skill or to win competitively, in yoga the aim is the work on oneself, and there is no external goal.

Yogic exercises enhance mental and moral qualities whereas the other exercises enhance more on physical qualities.

Other exercises cause anxiety more whereas asanas aim at altering psyche by extremely high degrees of attention concentration and total relaxation.

Besides having physical, mental and moral effects, yogasanas lead a man to spiritualism. No other system has such wide-ranging impact on human body, mind, brain and intellect.

Yogic exercises are more economical than other forms of exercise.

Considerable space and several persons are needed for other forms of exercise. Asanas on the other hand can be performed in relatively little space and all by oneself.
One can practice the yogic exercises even in quite ripe old age whereas one cannot perform the other exercises that much in old age.

1.21. HINTS AND CAUTIONS FOR THE PRACTICE OF YOGIC EXERCISES

The best time to practice is either in the morning or late in the evening.

Asanas come easier after taking bath. It is desirable to bathe after doing yogic exercises some 30 minutes.

Yogic exercises should preferably be done on an empty stomach. Food may be taken half an hour after completing the asanas.

Asanas should not be practised after being out in the hot sun for several hours.

Asanas should be done in a clean airy place, free from insects and noise.

They should be done on a folded blanket laid on a level floor.

Yogasanas should not be mixed with any other form of exercise.

Asanas should preferably done with pleasant frame of mind.

In all the asanas, the breathing should be done through the nostrils only and not through the mouth without any strain.
Asanas must be performed slowly and systematically.

Asanas are to be done in a relaxed and graceful manner.

The release and return should be done step-by-step in the reverse order to the starting position.

The session should be started with a prayer and finished with ample relaxation by doing savasana.

Women should avoid asanas during the menstrual period.

All Asanas can be practised during the first three months of pregnancy. No Asanas should be done during the first month after delivery. Three months after delivery all asanas may be practised with comfort.

Asanas should not be practised during acute illness.

The qualities demanded from an aspirant are discipline, faith, tenacity and perseverance to practice regularly without interruptions.

1.22. NEED AND IMPORTANCE OF YOGIC EXERCISES

Numerous issues are confronting in the world today. The media have brought many of these issues to the forefront, increasing their visibility. The issues are political instability, violence, stories of corruption, 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 became less active, they began to lose strength and the instinct for natural movement. Machines have obviously made life easier, but they also created serious problems. Without daily physical exertion, human bodies become storehouses of unreleased tensions. People now realize that the only way to prevent the diseases inactivity is to remain active not for a month, or a year, but for a lifetime. 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".

1.23. NEED AND IMPORTANCE OF FITNESS TEST

Every objective held valid by the teacher requires some evaluation of results. One of the values of the test is that they tend to clarify for both student and teacher the objectives and capacities which are being developed. Other values are: 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 pinpointing 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 relations purposes.
1.24. AAHPER YOUTH FITNESS TEST

The measurement of physical fitness and methods of developing fitness have been topics of national concern through the years. It was mutual interest in physical fitness and other physical measurements that prompted the medical doctors interested in physical education to form a national organization in united States, now known as the American Alliance for Health, physical Education and Recreation (AAHPER). "The draft statistics in world War I and II brought national attention to be focussed on a need for increased physical fitness of the American youth. After the wars the nation relaxed only to be jarred awake the startling results of the krone-weber test in which American children were shown to be decidedly inferior to European children in this test of minimum muscular fitness. As a result, in 1956, US president Eisenhower established the president's council on youth Fitness which was to focus attention on the need for physical fitness programme in the schools. In 1958, the AAHPER youth Fitness Test was developed for Boys and Girls (in Grades five to Twelve). In 1965 and again 1975 the test went through revisions.64

1.25. STATEMENT OF THE PROBLEM

Children are the architects of the future of a nation. The school going children being the literates are having more responsibilities than the others to strengthen their country in all spheres to prosper. Physical fitness is thus, the foremost necessity, not only for their better living but for the betterment of the country as well.

The purpose of the study was to survey the physical fitness of high school Boys (Age 11 to 16 years) of Tamilnadu State in India and finally to find out the influences of selected yogic exercises and physical exercises on them.

1.26. SIGNIFICANCE OF THE STUDY

Machines began to do the work once done by hand with the advent of the industrial revolution. The advancement of Telecommunication system changed the lifestyles also. As people became less active, they began to lose the instinct for natural movement. But, the 1990's have brought the people especially the children a critical awareness of the necessity for a healthy life.

Yoga is the important link between the sedentary life and the active life. Yoga is a panacea to preserve the delicate fabric of humanism; It is an enchanting panorama of human excellence. Yoga is a new and integral segment of physical fitness.

The study would expose and encourage children in yoga and develop in them the habit of exploration; popularize yoga among the masses particularly the children and create in them an awareness of the importance of yoga; make them realise the relevance of yoga to society and the responsibilities of the Physical Educators of tomorrow by encouraging in them an attitude of yogic practices.
1.27. HYPOTHESIS

It was hypothesised that there might not be any significant improvement in the physical fitness level of high school Boys due to the influences of selected yogic exercises and physical exercises on them.

It was also hypothesised that there might not be any significant improvement in the physical fitness level of high school Boys due to the influences of yogic exercises than the physical exercises on them.

It was further hypothesised that there might not be any greater improvement in the physical fitness level of high school Boys due to the combination of yogic and physical exercises on them.

1.28. DELIMITATIONS

a) The study was conducted for 20,000 Boys from selected High Schools in Tamilnadu State only.

b) The age limit for the boys was between 11 and 16 years only.

c) The AAHPER youth Fitness Test (1976 Revision) was used to measure physical fitness of the subjects.

d) Selected yogic (asanas) and physical Exercises were only given for treatments.
e) Treatment was confined to only for Half-an-hour daily from Monday to Saturday in the evenings for a total period of Twelve weeks continuously.

1.29. LIMITATIONS

a) The study was conducted on the students without taking their Height and weight measurements for consideration.

b) External factors like diet, lifestyle, habits, body structure, socio-economic Status, motivation and other environmental conditions were not taken into consideration.

1.30. DEFINITION OF THE TERMS

1.30.1. SURVEY

"The survey method gathers data from a relatively large number of cases at a particular time. It is not concerned with characteristics of individuals as individuals. It is concerned with the generalized statistics that results when data are abstracted from a number of individual cases." 65

1.30.2. FITNESS

"Ability to function normally without undue fatigue and being able to enjoy leisure time activities without debilitating physical stress." 66

66 Carl Gabbard, Eliebeth Leblane and Susan Lowry, Op Cit., p.50.
1.30.3. PHYSICAL FITNESS

"Physical fitness is the ability to carryout daily task with vigour and alertness, without undue fatigue and ample energy to enjoy leisure time, persuits and to meet unforeseen emergencies."

1.30.4. AAHPER YOUTH FITNESS TEST

"The AAHPER youth Fitness Test consists of six items, four of which measure athletic performance-related physical fitness, pull-ups (boys) or flexed arm long (Girls) standing Broad Jump, 50 yards Dash and shuttle run. The remaining two items sit-ups and the option the 600 yard Run-walk and the nine minute (or one mile) or 12 minute (or 1 1/2 mile) run to measure health-related physical fitness."

1.30.5. EXERCISE

"The word Exercise refers to conscious and purposeful physical activity, usually of sufficient intensity to increase to some degree of respiratory and circulatory function. It refers only to the actual movement process at the time it occurs."

1.30.6. STRENGTH

"Strength may be defined as the capacity to exert force or the ability to do work against resistance."

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1.30.7. MUSCULAR ENDURANCE

"The ability of a muscle to repeat identical movements or pressures, or to maintain a certain degree of tension over a period of time."  

1.30.8. CARDIOVASCULAR ENDURANCE

"The ability of the lungs and heart to take in and transport adequate amount of O2 to the working muscles, allowing activities that involve large muscle masses, to be performed over long periods of time. Circulo-respiratory endurance has an additional implication as to recover from severe exercise."  

1.30.9. SPEED

"The ability to move the whole body or parts of it from one point to another as quickly as possible."  

1.30.10. POWER

"Power may be defined as the ability to apply force at a rapid rate."  

71 Johnson and Nelson, op cit., p. 119.  
1.30.11. FLEXIBILITY

"Flexibility is the ability of an individual to move the body and its parts through as wide a range of motion as possible without undue strain to the articulations and muscle attachments."75

1.30.12. AGILITY

"Agility may be defined as the physical ability which enables an individual to rapidly change body positions and direction in a precise manner."76

1.30.13. YOGA

Patanjali defines yoga as the suspension of all the functions of the mind.

"Yoga is a timeless pragmatic science evolved over thousands of years dealing with the physical, mental and spiritual well-being of man as a whole."78

1.30.14. Asana

"The Word "Asana" is formed from the sanskrit root 'As' meaning 'to sit'. It is used to denote a posture as well as a seat to sit upon."79

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75 Johnson and Nelson, op cit., p.201.
76 Ibid., p. 215.
78 Iyengar, op cit., p. 13.