INTRODUCTION

Health for all by 2000 A D - a target set by the WHO has been not as simple as it seems to be. The problem lies in diagnosing and evaluating individual health capacities. Proper evaluation of the level of individual health, and the health hazards that often hinder the development of individual’s health, are necessary for planning, promoting and predicting greater goal oriented programmes.

In the contemporary living style, physical fitness, health and nutrition seem to have gained a place of priority. One of the most important goals of physical education programme is to develop physical fitness. Physical fitness is considered as a pre-requisite to healthful and recreational living and is not an end into itself. Physical fitness can be health related in as much as it preserves healthful function of the body over extended periods of time in adults’ life. Health related physical fitness components are those developments which are related to certain diseases.

These components include cardio-respiratory endurance, muscular strength endurance, flexibility and body composition.

Physical education acts as an intermediary between health and fitness, while the degree of physical fitness depends on the
individual’s state of health, constitution, present and previous activities.

It is a vital issue now to discuss that physiologists have expressed that physical exercise improves and promotes the efficiency of the whole organism and is essential for the proper functioning and maintenance of all the systems of the body. A balanced programme of physical fitness is of profound importance to the life of an individual. There is scientific evidence that neglect of regular activity mainly during adolescence cannot be fully compensated later on life.

Yoga is a lived experience. It is dynamic. It continues to grow and evolve. Just as each of us continues to grow and evolve. As more and more people discover for themselves the diverse benefits of yoga, they are adopting yoga to suit specific interests and needs. This is especially true in the west, which has always prized individual creative energy. Yoga is exploding in new directions today as practitioners and devotees continue to find new ways to integrate yoga into their lives. Yoga is being adopted for use by handicapped and disabled persons by individuals coping with HIV, by senior citizens seeking gentle exercise, and by athlete’s training for peak performance. Yoga is being merged with journal writing and talk therapy to access ever-deeper levels of the body/mind. It is being
combined with dance and movement to enhance creativity, natural expression, and the sheer enjoyment of one’s own body in movement. Yoga is being shared with partners for a particularly nurturing practice.

Prime among yoga’s many health benefits is its proven ability to help reduce stress. Experts maintain that up to 80% of all illness is caused by stress. The activities and stimuli of contemporary life are constantly triggering what scientists refer to as “the fight or flight” mechanism. This expression refers to the way in which we respond to stress. This response is involuntary, and includes an elevation in heart rate, blood pressure, and the creation of toxic chemicals in the body. Yoga helps to induce the opposite effects, in what Herbert Benson, M.D. termed “the relaxation response” in his groundbreaking book of the same title yoga can help to reduce blood pressure, heart rate and improve circulation to help remove toxic wastes from the body. This may in turn help boost the functioning of the immune system. Yoga is so effective at inducing the relaxation response that many prominent authorities recommend its use for reducing stress and promoting health, including Dean Ornish, M.D. and Jon Kabat Zinn Ph.D. Indeed, much to the astonishment of western scientist accomplished
yogis have demonstrated that they can exert conscious control of heart rate, blood pressure and even the circulation of the blood.

In addition to its ability to help reduce stress, yoga has many other benefits for a man’s health. One of the primary aims of the physical practices of yoga is to help improve the alignment and flexibility of the spine. This is encouraging news for the 70 millions Americans who are estimated to seek help. Physical fitness is based upon a solid foundation of the good health. Healthy living implies free from disease, sufficient strength endurance, skill, capacity to meet the daily demands and sufficient reserves to meet the daily demands and sufficient reserves to meet extraordinary stresses without undue fatigue besides mental development and emotional balance according to the maturity level of the individual.

Physical fitness is the ability to carry out daily task with vigour and alertness. Without undue fatigue and ample energy to enjoy leisure time per suit and to meet unforeseen emergencies physical fitness of any human being is must for its existence, physical fitness has become a national concern.

The aim of yoga is to devise ways and means of helping the better emotional and intellectual concentration.
The word ‘yoga’ is derived from the root ‘yuj’ or yoke that means union or merger (to bond together or to concentrate). The merger of soul with God and the experience of oneness with him are meant by yoga. The state of Samadhi can be attained through yoga.

The withdrawal of sense organs from the worldly objects and their control is yoga. Maharishi Vethathiri (1985) states, “Yoga is a systematic physical practice to improve awareness to develop will power and to realize self of join traditional consciousness to super consciousness”.

Yoga is the inhabitation of the modification of mind. This means that it prevents to contents of mind from taking different forms.

Sreekumar (1960) states that yoga is training in the techniques of harmony and also a preparation for the total integration of human personality.

Heare (1884) says that yoga was first summarized and systematized around the second century A.D. by Patanjali and his yoga sutra is still regarded as the classic work on the subject, hence Patanjali is known as the father of yoga. He has joined a number of yoga sutras regarding yoga.
Chapter I

Introduction

It is the name given to exercises that are employed in general fitness programmes for gaining muscular flexibility. Strength and grace exercise refer to a programme of free hand exercises generally done rhythmically to promote flexibility, strength and coordination of muscles involved in an activity. Exercises are divided into different sets that help in developing particular muscles of say legs, thighs, arms, abdomen and back etc.

Yoga is an ancient India culture and ways of life and is claimed to endow upon a person who practices it with perfect physical mental and spiritual health. The efficiency of yoga on health and physical and cardio-vascular fitness has been well proved (Ganguly, 1981; Joshi & Joshi, 1992). Moreover, on the basis of various research reports yogic practice has now been found useful for cardio-vascular fitness (Karambelkar 1982; Rao, 1964 Roldon, 1983; Ganguly, Ghorate, July, 1989) specially related to Kapalbhati and hyperventilation. However, there seems to be no objective evidence showing the utility of kapalbhati and surya pranayam for developing cardio-vascular efficiency.

Earlier research reveals that yoga practices help to improve cardio-vascular efficiency (Ganguly & Gharote, 1989; Ganguly et al., 1988; Maily & Samanta, 2004). However there is some multiplicity in
opinion bout the efficacy of yoga practice on cardiovascular efficiency. Ganguly recorded improvement in cardio respiratory endurance as a result of yogic practice; however these results are not similar (Ganguly, Bera & Ghorate, 2003). Although there may be difference in experimental condition and different training stimuli.

The practice of Hatha yoga had proved to be of great help in the treatment of certain ailment as shown by the scientific investigation carried out in India and else where. It is a way of achieving perfect health of all parts of the body and influencing breathing and other functions going in it and through them bringing a perfect harmony in mental and physical activities. It helps to prepare a healthy body and mind in such a way that a necessary equilibrium is established in over all functions (Hatha Yoga, Ramacharaka yogi, 1977).

Yogic asanas involve symbolism and body language. The characteristic feature of asanas is that several of them involve stretching of the musculature and exerting pressure or squeezing of the bodily parts, providing exercise to the joints, muscles and internal organs. There are specific asanas to selectively exercise chosen areas and organs of the body. Asanas contribute to the health and vigor of
the whole body. Both the voluntary and involuntary systems of the body are exercised in asana practice.

In practicing asanas attention is paid to the sensation generated by the movement as well as to the stillness. Coordination of breath with movement is also emphasized. As a result body awareness increases and the practitioners become sensitive to the inner processes. As emotions often reflect in the body, asanas provide a means to deal with the emotional blocks and character logical muscle tensions. A regular practice of asanas may be helpful to change the disposition and attitudes that lead to maladjustment in life. For example, posture of strength (vajrasana), posture of attainment (sirsasana) posture of a hero (dhirasana) among others, may help to bring about a change in the attitudes of the individual. Relaxation postures such as shavasana and Makarasanas, and asanas that involve concentration on specific muscle groups of the body may help to overcome tensions and restlessness. Yogic relaxation postures have already been found in systematic research to reduce anxiety. Psychometric complaints and emotional repressions. (e.g. Ajaya; 1984; Patel; 1973; Vahia; 1973; Neurenberger; 1981).

In his foreword to B.K.S. Iyengor’s light on yoga, Yehudi Menuhin (1964) observed that yoga induces in the practitioner a
primary sense of measure and proportion. It refines and animates every cell of the body unlocking and liberating capacities such as strength of will, impetus, ambition and tenacity. Yoga is ideally suited to prevent physical and mental illness and to protect body. Generally developing an inevitable sense of self-reliance and assurance. According to Yoga once mind becomes calm and steady, clarity improve and person becomes more aware of the forces which bring about disturbances. He is thus mentally better.

The last sutra is Samadhi, which means union with the Supreme. Samadhi is the goal of classical yoga. In Samadhi you identify with the unchanging aspects of reality. It is through much dedicated practice that includes concentration, contemplation, and meditation that one can move toward Samadhi. Through this practice you develop tremendously with power.

Yoga postures can help improve circulation and eliminate toxic waste substances from the body. They can help promote optimum functioning of the internal organ by helping to massage and tone them. Yoga postures can help open the area of the pelvis and organ of reproduction that are housed there. Yoga practices can help bring increased circulation muscular control and awareness to a man’s sexual region thus promoting enhanced sexual enjoyment.
Chapter I

Introduction

The breathing practices of yoga can help improve lung capacity and posture, and harmonies the body and mind. The meditation practices of yoga can help still mind and bring about greater inner clarity, peace of mind, and self understanding and acceptance. This can help lead to greater emotional awareness and stability. For those men seeking spiritual enlightenment, yoga has a variety of techniques that can help support and guide you on your path.

Yoga has been defined as “technologies or disciplines of asceticism and meditation which are thought to lead to spiritual experiences and a profound understanding or insight into the nature of existence. Outside India, yoga is mostly associated with the practice of asanas (postures) of Hatha yoga or as a form of exercise.

Many Hindu texts discuss aspects of yoga, including the Upanishads, the Bhagavad Gita, the yoga sutras of patanjali, the Hatha yoga pradipika and the shiva samhita, major branches of yoga include Hatha yoga, Karma yoga, Inona yoga, Bhakti yoga, and Raja yoga, established by the yoga sutras of Patanjali and known simply as yoga in the context of Hindu philosophy.

The Sanskrit term yoga has many meanings. It is derived from the Sanskrit root yoj “to control”, “to yoke” or “to unite” common
meanings include “joining” or “uniting” and related ideas such as “union” and “conjunction”. Another conceptual definition is that of “mode, manner, means” or “expedient means in general”.

Exercises are divided in aerobic and anaerobic groups. Anaerobic physical activity is done in the absence of $O_2$ (oxygen) whereas aerobic physical activity is done in the presence of sufficient oxygen ($O_2$) for metabolic reactions.

Aerobic activity is usually exercise done with intensity, hard enough to achieve the target heart rate of 60% to 65% of one’s maximum heart rate and one’s metabolic rate is between 50% to 60% of Max VO2 for prolonged period of times. During which constant supply of $O_2$ is maintained by the circulatory system to the working muscles in order to metabolize carbohydrates and fats for the production of energy. Thus during aerobic activity, the heart, lungs and blood vessels supply $O_2$ and nutrients to the muscle cell to meet the demand of long duration physical activity. Because of the importance of the total fitness effect and the fact that it is more readily attained in aerobic exercise programs associated with high intensity anaerobic activity lower to moderate intensity of longer duration aerobic activity is recommended for the non athletic
Body composition is defined as relative percentage of fat and fat-free body mass. Excessive body fat is a health hazard and has been implicated as contributing to a variety of conditioning including hypertension, hyperlipoproteinemia and accident proneness. While all the mechanisms of how excess fat causes these problems have not been completely explained. Few health authorities would argue with the statement, “It is better to be lean than to be fat”.

Body composition is a function of caloric balance, and although the emphasis has traditionally been on the caloric input side of the equation we are now increasingly aware of the importance of energy output in regulating body weight. Short term experimental trials and large scale community studies show that vigorous physical activity helps to reduce body fat.

The body composition is not only important to health and influence by exercise, but it is also a massive public health problem, and thus deserves increased attention in fitness testing.
STATEMENT OF THE PROBLEM

The purpose of this study was to investigate the response of exercise and certain yogic practices programme on the health related physical fitness and to assess their effectiveness.

Delimitations

1. The study was delimited to male subject of age group 20 to 25 years.
2. The studies was also delimited by certain yogic practices, which included specific asanas, pranayama and yognidra.
3. The study was further delimited to certain exercise.
4. It was delimited to certain health related physical fitness.

Limitations

1. Variation in the ability of the individual to perform yogic practices and exercise.
2. Variation in age group.
3. Variation in somatotype.

Hypothesis

Keeping in view the objectives of the study following hypotheses were formulated –

1. It is hypothesized that yogic and exercise programmes would significantly improve the health related physical fitness.
2. It is hypothesized that yogic programme would be more effective than exercise programme in the health related physical fitness.

3. It is further hypothesized that a combined exercise yogic programme would be more effective in health related physical fitness than the individual programmes of yoga and exercise.

DEFINITION OF THE TERMS

Asanas: Asanas are defined as the “postural pattern” one has to achieve this pattern slowly and steadily and to release it again in slow and smooth manner.

Traditionally, asana mean’s “sitting condition” or position of the body, which contributes to steadiness of the body and mind and a sense of well being. Sometimes asana is also translated as “pose” but the term pose is not an appropriate translation to explain what asana is pose is not a natural position of the body.

Exercise: Exercise is physical exertion of the body. The aim of exercise is to achieve a beneficial level of fitness and health, both physically and mentally.

It is exertion which is done for the sake of exercising, practicing training, or promoting skill, health, mental, improvement moral discipline, etc. that which is assigned or prescribed for such ends;
hence, a disquisition, a lesson a task as military or naval exercise, musical exercise, an exercise in composition.

**Health related Physical Fitness**

Health related physical fitness is defined as fitness related to some aspect of health. This type of physical fitness is primarily influenced by an individual’s exercise habits, thus, it is a dynamic state and may change, and physical characteristics that constitute health related physical fitness include strength and endurance of skeletal muscles, joint flexibility, body composition and cardiorespiratory endurance.

Health related fitness is the ability of the heart, lungs, muscles and joints to perform well.

Regularly physical activity promotes physical fitness; physical fitness is the condition of the body that results from regular physical activity.

**Component of Health related Physical Fitness**

**Cardiovascular Endurance:** Cardiovascular, which is synonymous with cardiopulmonary exercise or “cardio” is aerobic physical activities that last longer than 90 seconds aerobic fitness is the ability to exercise the entire body for long period of time. It requires a strong heart healthy lungs blood vessel to supply the body with oxygen.
Activities to improve fitness in this area include running, swimming and aerobic dance. A person must do the activity continuously for a minimum of 20 minutes within his target heart rate zone. Cardiovascular/aerobic activity should be done a minimum of 3 days per week. Every other day is preferable. The mile or the pacer will measure fitness testing in this area.

**Muscular strength** is the amount of force you can put forth with your muscles. It is often measured by how much weight you can lift. People with strength have fewer problems with backaches and can carry out their daily tasks efficiently. Examples of muscular strength include push ups, weight lifting heavy weight with few repetitions, and pull-ups fitness testing will be measured by doing push-ups.

**Muscular Endurance** is the ability to use those muscles which are attached to the bones, many a time without getting tired. People with good muscular endurance are likely to have better posture, have fewer back problem and be better able to resist fatigue than people who lack muscular endurance. You can improve muscular endurance by lifting weights with many repetitions or doing sit-ups measuring the number of sit-ups correctly is used for fitness testing.

**Flexibility** is the ability to use your joints fully. You are flexible when the muscles are long enough and the joints are free enough to allow
movement. People with good flexibility have fewer sore and injured muscles stretching before and after activities will help to improve flexibility.

**Body composition** is the percentage of body weight that is fat compared to other body tissues such as bone and muscle. People who have a high percentage of fat are more likely to be ill and have a higher death rate than lean people. Exercise and eating the right foods in the proper amounts can improve body composition.

**SIGNIFICANCE OF THE STUDY**

Even though some scientific findings are available with regard to exercise training as a whole, very few studies have been done on yogic practices and exercise to see the impact on Health related physical fitness. The present study will highlight the aspect and will help the sports trainer in adopting best methods, far developing health related physical fitness that may help in enhancing performance.

The present study will also be of significance in –

1. Helping the sportsman and coaches through informing them the importance of health related physical fitness in performance of sports and games.

2. The study will be of great help to the teacher of sportsmen and coaches through giving them the knowledge of yogic practices,
exercises and combination of yoga and exercise which help in improvement of health related physical fitness.

3. It will help the sportsman and coaches in coaching and refinement of skills.