Chapter I

INTRODUCTION

Every human being seeks pleasure and casts out the pain. No one instruct to perceive happiness. It is the natural instinct (*swabhava*) of every human being to endeavor for happiness. *Ananda* is the incarnation of natural instinct. These things can be attained through *yogasana*.

The word *yogasana* has its root from Sanskrit i.e yug meaning ‘to unify’. This comprises the procedure as well as the phase of unification. The phase of yoga indicates the peak of entropy: which is free from any confines of time and space, a condition that oversteps matter and energy. All the thinkers, spiritualists and materialists acknowledged the veracity of untainted realization by as a basic truth of life, that radiated all the wisdom, thoughts, love and will governing the life.¹

The culture of Yoga, in India, runs back to the ancient times where it contributed towards the unity of discipline. Yoga is an exercise for the enrichment of moral, mental and physical health (*arogya*), bestow to permanence (*chirayu*) and the total inherent obedience in its peak turn into constructive and persistent contentment and peace. Overall, yoga is the means to the ultimate achievement in life. It’s a discipline that upshots not only the awareness of oneself but the subliminal as well. It is a practical physiological training, can praise man to the ‘supra mundane level’.²

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Yoga as an absolute skill of existence had sprung up in the ancient India. It is the ancient art of blooming of personality, in all aspects constituting spirit, thought and body. Primeval yoga had a deep perceptive of own’s crucial instincts and the desires to live in synchronization with himself and his surroundings. The ancient people professed the man’s personality to be build up by three main entities action, emotion and intelligence, which are needed to be in good coordination for the integrated development of human personality. With this perspective, considering the mutual relationship between the body and the mind, the philosophers devised a sole technique yogasana for attaining the stability means with breathing and meditation that assured the serenity of soul.3

Yoga, introduced by Patanjali is a primeval system of physical exercises, physical postures, breathing practices and meditation that tend to integrate the body, mind, and spirit of the yoga practitioner. And its principles were first written down in India several thousand years ago.4

Nearly 6,000 years ago, the practice of yoga started, the most primitive written records affirming yoga as a health practice date back to 3000 years, are the Vedas, ancient books of India. There exists other documentation affirming the values and yoga practice.

Yogasanas have a deeper considerable value in the development of the physical, mental and spiritual personality. But pure physical exercises only have effect

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on the muscles and bones. Physical exercises are performed fast and results in quick
tiredness.

Aerobic implies "with oxygen". Aerobic exercises denotes to work out that
demands/enhances the usage of oxygen by the body during the metabolic process. They
are executed at modest degree of intensity for prolonged time period. Many of the work
out are aerobic, and are executed at sensible intensity. To achieve the excellent
outcome, an aerobic exercise session must involve a warm up phase, followed by
nearly twenty minutes of modest to extreme work out involving large muscle groups,
and a warm down phase at the end.\textsuperscript{5}

The aerobic exercises enhance the physical as well as mental stability of
an individual by ensuring good oxygen supply at the cellular level. The systemic
blood circulation is carried out by the coordination of heart’s function with that of
lungs. The blood rich with oxygen is carried from heart to every cell of the body
through the arteries. The cells consume this oxygen from the blood and radiate the
carbon di oxide to the blood. This deoxygenated blood goes to the heart and pumped to
the lungs for the process of oxygenation. This oxygenated blood is in turn supplied to the
heart through the pulmonary veins for next cycle. This process of supply of sufficient
blood to the cells ensures good muscle health and production of ATP’s (Adenosine
triphosphate).

Aerobic exercise constitutes innumerable forms of exercise that are worked
out with a modest level of intensity for a prolonged duration. For example, jogging

with a fair speed is an aerobic exercise, but 100mts dash is not. Games such as badminton singles with no brakes are "aerobic", and some cardiovascular activities like indoor cycling, step aerobic exercises and dance are planned exclusively to develop good cardiovascular health and muscle strength. Thus aerobic exercises enrich the physical stability of person by ensuring a good respiratory health.

Yoga helps to concentrate on breath, which makes it to soothe the mind and relieve worries. By discharging the tension and stress, yoga and pranayama relieve the negative thinking of the individual. The activities like relaxation, meditation, socialization and exercise, yoga is helpful in reducing anxiety and depression. Also it is able to regulate a person’s stress response system; results lower the blood pressure and heart rate which improve the respiration.

Numerous studies show that the blood pressure was reduced during the yogic practice session in people with hypertension. This is possible by the relaxation of ANS (autonomic nervous system), which regulates heart rate, digestion and other largely cataleptic functions. Yoga reduces the stress and help to relax, which leads to lower the resting heart rate. Yogasanas prescribe steady and controlled breathing patterns which help to relax the muscles, including the heart. Pranayama focuses the mind and helps to know how to control the respiration rate.

STATEMENT OF THE PROBLEM

The research under study involved the experimentation of yogasana practices and aerobic exercise on psychological variables (anxiety, stress, and self-confidence) and physiological variables (resting pulse rate, expiratory reserve volume, vital capacity, tidal volume and blood pressure) among middle aged men.

HYPOTHESES

It is a well-known fact that systematic training for a continuous period is bound to cause changes in psychological and physiological parameters. Based on this scientific fact the following hypotheses were formulated.

1. It is hypothesized that there would be a substantial improvement on preferred psychological and physiological variables among yogasana practice group and aerobic exercise group.

2. It is hypothesized that there would be a substantial disparity on preferred psychological and physiological variables among yogasana practice group and aerobic exercise group.

DELIMITATIONS

1. The study was confined to middle aged men only.

2. The study was restricted to 45 subjects only. Further, the subjects were distributed to 3 equal groups of fifteen each. Group first had undergone yogasana practice, group second had undergone aerobic exercise (Brisk walking) and group third represented the control group.
3. These subjects are the residents of Udupi District, Karnataka state.

4. The subjects chosen lie in the average age group of 35 to 40 years.

5. Chosen psychological variables for the present study were anxiety, self-confidence and stress.

6. The physiological variables selected for this study were resting pulse rate, expiratory reserve volume, tidal volume, vital capacity and blood pressure (both systolic and diastolic).

7. Yogasana practice and aerobic exercise were given for a period of twelve weeks, six days per week, which was considered adequate to indicate psychological and physiological changes.

8. The selected criterion variables such as, anxiety was assessed by using Taylor’s Manifest Anxiety Scale, self-confidence was assessed by using Rekha Agnihotri Self-confidence Scale, stress was assessed by using Girdano and Everly stress scale, resting pulse rate was measured by counting the pulse rate at resting condition, expiratory reserve volume, tidal volume and vital capacity were measured by using expirograph and blood pressure was measured by using sphygmomanometer.

**LIMITATIONS**

1. The meteorological variations, like wind, fluctuations in atmospheric temperature, pressure and humidity etc. during the testing periods could not be controlled and their unavoidable impact on the outcome of the research work was recognized as a limitation.
2. The subjects selected for the study were diabetes patients from different economic backgrounds. Therefore, variations in their living conditions, life styles, diet, medicines, etc., were recognized as a limitation of the study.

3. The general mood and environmental factors at the time of taking blood pressure, blood samples, etc., that would have affected the samples, were recognized as a limitation of the study.

4. The participation of subjects of other physical activities as part of their habituation may affect the result of the study.

DEFINITION AND EXPLANATION OF THE TERMS

Yoga

Yoga is the system of philosophy and practice of esoteric meditation having as object the union of the individual human spirit with that of the universe.7

Yoga is a method by which one can remove ignorance, the cause of main failures and thus attain union with supreme self.8

Yoga is the discipline of right living and it is anticipated to be integrated in daily life for better achievements. It works on all the domains of human personality like cognitive, affirmative and psychomotor domain, resulting in the blooming of personality in every aspect.9

Asana

The word *asana* refers “easy/comfortable” and so the postures should be to have their full effects.  

Aerobic Exercise

Aerobic implies "with oxygen". Aerobic exercises denotes to work out that demands/enhances the usage of oxygen by the body during the metabolic process. They are executed at modest degree of intensity for prolonged time period. Many of the work out are aerobic, and are executed at sensible intensity.

Anxiety

According to *Frost (1971)* it is the feeling of nervousness or agony when a person is about to board upon the challenging situation in the near future. It is usually accompanied with a strong desire for excellence.

Stress

Stress is the way we react to the environmental stimulus. Stress indications generally include a phase of alertness and production of adrenaline, temporary opposition as a recovering mechanism, imbalance in both physical and psychological state of the person, muscle tension, lack of concentration and a variety of physical indications like indigestion, elevated pulse rate etc.

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Self-Confidence

Promise yourself, no matter how difficult the problem life throws at you, that you will try as hard as you can to help yourself. You acknowledge that sometimes your efforts to help yourself may not result in success, as often being properly rewarded is not in your control.14

Tidal Volume

Tidal volume is the lung volume representing the normal volume of air displaced between normal inspiration and expiration when extra effort is not applied. In a healthy, young adult, tidal volume is approximately 500 ml per inspiration or 7 ml/kg of body weight.15

Expiratory Reserve Volume

The additional amount of air that can be expired from the lungs by determined effort after normal expiration.16

Pulse Rate

Pulse rate is nothing but heartbeat and the number of time heartbeats per minute.17 Pulse rate is a wave of increased pressure, which is felt at the arteries when blood is pumped out of the heart.18

15. I. Beardsell, MCEM Part A:MCQs, (London: Royal Society of Medicine Press, 2009), 33
**Vital Capacity**

It is the capacity of person to expel maximum amount of air following a deepest inspiration. This is the ratio of maximum of air exhaled after the deepest possibility of inhalation.

**Blood Pressure**

Force that moves blood into arteries and drains blood from the arteries as blood moves through the circulatory system.¹⁹

**Systolic Blood Pressure**

It is the pressure experienced by the vessel walls during the ventricular contraction. It is determined using sphygmomanometer and measured in millimeters of mercury.²⁰

**Diastolic Blood Pressure**

The pressure experienced by the blood vessel walls during the resting portion of the cardiac cycle. It is determined using sphygmomanometer.²¹

**SIGNIFICANCE OF THE STUDY**

Currently, sports coaches and physical educationists are giving preference to yoga and aerobic exercise by introducing it in centers of teaching learning. The significance of the study is based on the fact that *yogasanas* and aerobic exercise can be a valuable tool to improve biochemical and physiological capacities. The significances of the study are:

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1. The result of the study would be of great interest to yogis, yoga therapists, middle aged men and women and patients, as they would be able to assess the changes in psychological and physiological variables.

2. The findings of the study will be of great value in designing and administrating, yoga therapy camps, yoga awareness camps, physical fitness programmes and remedial programmes for those who need such special attention.

3. The study will reveal the effect of practicing yogasanas and aerobic exercise on anxiety, self-confidence, stress, resting pulse rate, vital capacity and blood pressure.

4. The result of the study will be useful for middle aged men and women to do yoga and walking as a tool to improve their fitness level and to cure various diseases.

5. The results of the study will be useful to overcome stress and strain.

6. This study would add to the quantum of knowledge in the area of psychology and physiology.