CHAPTER – I

INTRODUCTION

1.1 General Introduction

India has a glorious history. Our ancestors have made several invaluable contributions for the welfare of mankind. Yoga is also one of them. "Patanjala Yoga Sutra" is a universally accepted treatise on the subject wherein Yoga has been defined as the control of modifications of Mind. The control of Mind invariably involves the control of senses and enables the soul to abide in its true nature. In ancient India there has been a number of Yoga exponents, each defining Yoga in its own way. In Indian contemplation unilateral development of personality has not been given any importance. Special emphasis has been laid to the development of mind and soul alongside body. Yoga is such a science which aims at the total development of human personality.

Yoga classics while recommending various practices for physical development, have also described numerous techniques for mental, social and spiritual development. It is encouraging to note that in last few decades some distinguished medical scientists also have taken active interest in evaluating various therapeutic claims mentioned in ancient Yoga texts and in most of the cases they have corroborated the claims on the basis of the research data in one form or other. The principles and practices of healthy living advocated in Yoga classics are universal and have been propounded by our ancient sages as a result of practical experimentation for a very long time. Today's living in a polluted atmosphere and odd conditions coupled with the growing stress and strain has multiplied its necessity and importance enormously.

Usually Indian Philosophy has been divided into 6 Theistic and 3 Atheistic Darshanas. Six Theistic Darshanas are Mimansa, Vedanta, Nyaya, Vaisheshik, Samkhya & Yoga and three Atheistic Darshanas are Charvak, Buddha and Jain. These 6 Darshanas find their basis in Vedas. To understand the concepts and principles of Yoga the knowledge of philosophy is essential So, it is believed that the real spiritual wisdom leading to Moksa can only be acquired by getting perfection in Yoga.

In recent past, Yoga has acquired a world-wide recognition and acceptance.
But it is observed this popularity of Yoga has been mainly confined to its health-care aspect, i.e. Hatha Yoga alone. Although it is true that the essential nature of Yoga is psychological and para-psychological and not merely physiological yet the main reason of giving special emphasis to physical practices by Hatha Yoga is that a healthy and sound mind invariably necessitates a healthy and sound body and regular practice of Hatha Yoga is a surest way to acquire a disease free and vigorous body. Positive physical health is sure to facilitate the process of mind control. It is for this reason that Hatha Yoga has laid so much emphasis to the practice of Asanas and cleansing acts which are somewhat different in effect than other exercises because the object of Yoga practices is to control the body as well as the Mind. Therefore, Yogis have to control the body as well as the Mind. Therefore, Yogis have invented such exercises in the form of Yoga which affect both simultaneously. Asanas while mainly contributing to keep the body healthy invariably impart sensual control and mental concentration. An individual should be physically sound, one-pointed, cheerful, enthusiastic, affectionate, all-loving, given to the service of society and all livings beings, characterful, endowed with patriotism, philanthropy, all round health and blissfulness. The individual who is healthy, characterful, benevolent, truthful, given to social service, universal fraternity and patriotism – for acquiring all the above virtues practice of Yoga is a simplest and surest way.

1.2 Advancement of Technology

Advancement of technology in modern science is amazing. It helps the human being as well as other animal species to control and adapt to their natural environments. Technology of cultivation is being applied to produce the crops in huge. Even the new technology is being used to help human in travelling and controlling their environment. Recent technological development including the printing press, the telephone and the internet have lessened physical barriers to communication and allowed humans to interact freely on a global scale. However technology should be used for peaceful purposes instead of destructive purpose.

But it is regretting to state that the modern technology has affected society and its surrounding in a number of ways. In many societies, technology has helped
develop more advanced economics and has allowed the rise of a leisure class. The leisure class people are not interested in exercise and laborious to perform their duties. They are not determined and concentrated physically. They like to perform any duty with the help of technology.

Therefore, we must emphasize to do any work physically that would prevent storage of fat in our body. "Physical exercise" and "Yoga" also help the people to be free from anxiety and live long without any disease. Finally, the use of technology and the physical exercise must be done equally.

1.3 Medical Science and Our Life Span

It is seen today that the medical science has developed our life span vastly. It is to be noted that the preventive medicine is being practiced by the doctor. Even the checkups, diagnostic tests etc. are done before the use of medicines. In the childhood stage it is seen that the diseases like mumps, measles, chicken pox etc. have already been wiped out. Polio has almost been eradicated.

We now have stronger antibiotics, chemotherapy and a vast array of other medicines to prevent total diseases. For the common cold, fever, cough we go to the drug store for taking medicines instead of going to doctors. At the drug store there are a lot of home tests kits which we can use to monitor our own health. We can get blood pressure monitor, glucose meters, tests to detect blood in our stool, tests to find out if we are pregnant and many more.

Doctors have made advancements in the medical science wonderfully. They have made transplants surprisingly and so one human can save another. It is astonishing that now even the dying and less weight babies live long lives.

Research had made the prognosis for cancer patients better. New drugs are keeping HIV positive patients from becoming full bloom AIDS patients. We have pacemakers, bypass surgery and heart transplants. We even have artificial hearts.

Discoveries in medical sciences and improved social conditions during the past few decades have increased the life span of man. Many people in the developed countries are living up to the age of 70 years and over. In England, about 12% of the people are over 65 years of age as against 3.8 percent of India. The age structure of
the population in the developed countries has so evolved that the number of old people is continuously on the increase (Park, 1997).

1.4 Inactive Life Styles

"Physical exercise" and "Yoga" are necessary to keep our body fit and to shrug off inactive life styles. People who enjoy an active life and who take care of their physical well-being have a far longer life-expectation. Our bodies need to be free of excess weight if they are to perform the various exercises. Sitting for long periods of time, watching television, looking to a computer for long time etc. make the life styles inactive. Even excess weight causes serious diseases such as diabetes, cardio-vascular diseases stroke, high blood pressure etc. which may be termed as hypokinetic diseases.

Even excess weight put pressure on the skeletal structure and on the joints of the knees. It is noted that the excess weight also causes the respiratory system to struggle.

As more weight is gained, it becomes even more difficult to move around, causing weight to pile on even more quickly. A body that is over weight is difficult to rest. Sleeping in awkward position causes cramps, aches, pains and minor sprains.

The process of losing weight is not painful, if diet is controlled and effective Yoga & exercise is done. The right kind of exercise can take as little as eight minutes per day. An innovative and effective exercise program that transforms fitness levels on a daily work out of just a few minutes in the life style changing. Powerful training secrets that produce dramatic results without having to buy expensive equipment (Jan Gamm, 2011).

It is also stated that the man who lead inactive lifestyle are five to six times more likely to be at serious risk of heart diseases with that degree of danger emerging as early as their teenage years (Sreeraman, 2008).

But it is upsetting to say that the “physical exercise” and “Yoga” are not now being performed due to use of preventive medicines which make people leisurely. So it is to be noted that though the life span of people are increased, the excessively growing fat in the body, the side effect of medicine and also the artificial use of medical technology make people living long painful (Harlax, 2002).
1.5 Importance of Yogic Life

A common man thinks that only the Sages, Saints and Brahmacharis who have renounced the worldly affairs can lead Yogic life. This is a misconception. Any individual married or unmarried can make his life pleasant by following the Yogic way of life irrespective of his age, occupation, religion, sex, caste and creed. Yogic behaviour changes the gunas of an individual Nature and all its elements are composed of three gunas Rajas, Sattva and Tamas. Tamo Guna produces sleep, tendra, attachment, fear, dizziness, poverty and misconception etc. Rajo Guna produces, instability, anxiety and tendency to get involved in worldly affairs which generate sorrow. Sattva Guna produces kshama (forgiveness), faith, perseverance, enthusiasm, vigour, mercy and charity etc. which promote pleasure and bliss. The practice of Yoga leads the man towards Sattva dominated stage from Tamasa and Rajasa dominated stages. Therefore, for making life happy, practice of Yoga is most essential.

Our life is getting more and more distressed, restless and devoid of pleasure nowadays. Its basic cause is that we live a competitive and stressful life in the name of progress. We concentrate only on one or two aspects of life due to which the development of our personality remains lopsided in place of complete and balanced. This unbalanced development is the main cause of man's distress. There are many aspects of life. These are physical, mental, social (moral) and spiritual. Unless the human personality develops physically, mentally, socially and spiritually in a uniform way till then he will not get rid of distress and till then he will not acquire all-round health. Yoga is a science which develops the human personality by affecting all aspects of his existence and provides him complete health, prosperity, happiness and peace (Brahmachari, 1999).

1.6 Meaning of Yoga

The word "Yoga" is derived from the roots of Sanskrit 'Yuj' which means to join, to attach, to bind and yoke and to concentrate on one's attention.

The literal meaning of the word "Yoga" is Yoke. It also means union. It means the experience of oneness or unity with inner being. Yoga means uniting the individual spirit with the universal spirit, or God. The experience of oneness or unity
with inner being is called ‘Yoga’. This unity comes after dissolving the duality of mind and matter into the supreme reality. It is a science by which the individual approaches truth. The aim of ‘Yoga’ practice is to achieve truth where the individual soul identifies itself with the supreme soul of God.

Yoga is not a religion. It is a method by which one obtains control of one’s latent powers. It is the means to reach complete self realization. Yogis achieve this by turning their thoughts inward, away from the objective world. By yoga life is so organized and so satisfying that in its twilight a person will be contented to let go without regrets and without a sense of leaving to much undone. Yoga is re-education of one’s mental processes along with the physical

“When the senses are stilled, when the mind is at rest, when the intellect wavers not then, say the wise, is reached the highest stage. This steady control of the senses and mind has been defined as Yoga. He who attains it is free from delusion” (Kathopanished).

Yoga is as wisdom in work or skillful living amongst activities, harmony and moderation.

The main stress is on Karma Yoga (Yoga by action). Work alone is your privilege never trust thereof. Never let the traits of action be your motive and never ease to work. Work in the name of Lord, abandoning selfish desires. Be not affected by success of failure. This equipoise is called Yoga (The Bhagabat Gita).

Yoga as a deliverance from contact with pain and sorrow. When a man become one in communion with God, when his mind, intellect in self are under control, freed from restless desire, so that they rest in the spirit within only a yogi can control his mind, intellect and self, being absorbed in the spirit within him, as a lamb does not thicker in a place where no wind blow. The yogi by the grace of the spirit within himself finds fulfillment, when the restlessness of the mind, intellect and self is stilled through the practice of Yoga. Then he feels the joy eternal which is beyond the pale of senses. He finds the treasure above all others. There is nothing higher than this. He who has achieved it, shall not be moved by the greatest grass sorrow. So we can say that the real meaning of Yoga is deliverance from contact with pain and sorrow (The Gita).
The aim of Yoga is control over the mind. A happy man is he who knows how to distinguish the real from the unreal, the eternal from the transient and the good from the bad by his discrimination and wisdom. in Bhagabat Gita Arjuna asks Srikrishna “Yoga is a communion with Brahmin (the universal spirit), which is over one. Since the mind is so restless and inconsistent then how can this be permanent?” He says that the mind is impetuous and stubborn, strong and willful, as difficult to harness as the wind. Then Srikrishna replies “undoubtedly the mind is restless and hard to control. But it can be trained by constant practice and by freedom from desire. A man who can’t control his mind will find it difficult to attain this divine communion, but the self controlled man can attain it if he tries had and directs his energy by the right means.

There are different paths by which a man travels. The common man finds realization through Karma Yoga in which a man realize his own divinity through work and duty. A man who works self less for the welfare of others with love in his heart finds ultimate peace. Love and selfless service are holy. Those who meet such people become calm and purified.

Mind is the king of the senses. One who has conquered his mind, senses, passions, thought and reason, is a king among men. That mean is fit for Raja Yoga, the royal union with the universal spirit. Because Yoga lights his inner world or he has inner light. One who has conquered his mind has complete mastery over his self. Only the yoga explains the ways to control the mind. Yoga is like a foundation. It brings calmness and tranquility and prepares the mind for absolute unqualified self-surrender to God.

The whole system of Yoga was developed to attain the highest state of Chitta (consciousness) that so merges finally into absolute consciousness. Patanjali, the father of Ray Yoga, has explained eight fold systems of yoga to advance oneself on the spiritual path. There are eight stages of yoga to secure purity of body, mind and soul. They are Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana and Samadhi.

Yama (Social Discipline) means restrain or abstention. It has five moral practices.
a) **Non-violence (Ahimsa)** means not to hurt any creature mentally or physically through mind, speech or action.

b) **Truthfulness (Satya)** means the presentation of a mother as perceived with the help of the sense organs.

c) **Non-stealing (Asatya)** means not to covet and acquire physically, mentally or by speech others possession.

d) **Calibacy Moderation in sex (Brahmacharya)** does not mean lifelong celibacy, but moderation in sex between married couples.

e) **Non-acquisitiveness (Aparigraha)** means abandoning wealth and means of sensual pleasures.

**Niyama (Individual Discipline)** means physical and mental rules of conduct towards oneself.

a) **Cleanliness (Shoucha)** means internal and external purification of the body and the mind.

b) **Contentment (Santosh)** means a state of mend by which one lives happily and satisfied in a congenial or uncongenial atmosphere.

c) **Austerity or penance (Tapas)** means the conquest of all desires or sensual pleasures by practicing unity thought, speech and action.

d) **Self study (Sraddhya)** means exchange of thoughts in order to secure purity in thought and accomplish knowledge.

e) **Surrender to God (Iswara Pramidhana)** means pure devotion to god and surrender of all actions to him.

**Asana (Postures)** means holding the body in a particular posture to bring stability to the body and poise to mind. The practice of Asana brings firmness to the body and vitality to the body and the mind.

**Pranayama (Breath Control)** means practice pranayama is to stimulate, regulate and harmonize vital energy of the body, e.g. as bath is required for purifying the body Pranayama is required for purifying the mind, and internal organs.

**Pratyahara (Discipline of the Senses)** means the extroversion of the sense organs due to their hankering of the after worldly objects has to be restrained and
directed in words the source of all existence. This process is putting the sense under restraint.

**Dharana (Concentration)** means focusing the pure mind on one’s personal deity or on the individual self. The practice of Dharma helps the mind to concentrate on a particular object.

**Dhyana (Meditation)** means when one sustains and maintains the focus of attention through Dharma unbound by time and space, then it becomes dhyana (Meditation).

**Samadhi (Self Realization)** means one’s identity becomes both externally and internally immersed in meditations supreme happiness, free from pleasure, pain or misery, is experienced. Samadhi is the climax of dhyana.

1.7 History of Yoga

The yoga we know today was developed as a part of the tantric civilization which existed in India and all parts of the world more than ten thousand years age. In archaeological excavations made in the Indus Valley at Harappa and Mohenjo-Daro, now in modern Pakistan, many statues have been found depicting deities resembling Lord Shiva and Shakti (i.e., the form of Parvati) performing various asanas and practising meditation. These ruins were once the dwelling place of people who lived in the pre-vedic age before the Aryan civilization started to flourish in the Indus subcontinent. According to mythical tradition, Shiva is said to be the founder of yoga and Parvati, his first disciple.

Lord Shiva is considered to be the symbol or embodiment of supreme consciousness. Parvati represents supreme knowledge, will and action, and is responsible for all creation. This force or energy is also known as **kundalini shakti**, the cosmic force which lies dormant in all beings. Parvati is regarded as the mother of the whole universe. The individual soul is embodied and bound to the world of name and form, and also liberated from the bondage of the world and united with supreme consciousness through her grace. Out of love and compassion for her children, she imparted her secret knowledge of liberation in the form of tantra. The techniques of
yoga have their source in tantra and the two cannot be separated, just as consciousness, Shiva, cannot be separated from energy, Shakti (Saraswati, 1973).

*Tantra* is a combination of two words, *tanoti* and *trayati*, which mean 'expansion' and 'liberation' respectively. Therefore, it is the science of expanding the consciousness and liberating the energy. Tantra is the way to attain freedom from the bondage of the world while still living in it. The first step in tantra is to know the limitations and capacities of the body and mind. Next it prescribes techniques for the expansion of consciousness and the liberation of energy whereby individual limitations are transcended and a higher reality experienced.

Yoga arose at the beginning of human civilization when humankind first realized their spiritual potential and began to evolve techniques to develop it. The yogic science was slowly developed by ancient sages all over the world. The essence of yoga has often been shrouded in or explained by different symbols, analogies and languages. Some traditions believe that yoga was a divine gift revealed to the ancient sages so that humankind could have the opportunity to realize its divine nature.

In ancient times, yoga techniques were kept secret and were never written down or exposed to public view. They were passed on from teacher or guru to disciple by word of mouth. In this way there was a clear understanding of their meaning and aim. Through personal experience, realized yogis and sages were able to guide sincere aspirants along the correct path, removing any confusion, misunderstanding and excessive intellectual contemplation.

The first books to refer to yoga were the ancient Tantras and later the Vedas, which were written about the time the Indus Valley culture was flourishing. Although they do not give specific practices, they allude to yoga symbolically. In fact, the verses of the Vedas were heard by the rishis, seers, in states of deep yogic meditation or *samadhi*, and are regarded as revealed scriptures. It is, however, in the Upanishads that yoga begins to take a more definable shape. These scriptures collectively form *Vedanta*, the culmination of the Vedas, and are said to contain the essence of the Vedas.

Sage Patanjali’s treatise on raja yoga, the *Yoga Sutras*, codified the first definitive, unified and comprehensive system of yoga. Often called the eight-fold
path, it is comprised of yama, self-restraints, niyama, self-observances, asana, pranayama, pratyahara, dharana, concentration, dhyana, meditation, and samadhi, identification with pure consciousness.

In the 6th century B.C., Buddha’s influence brought the ideals of meditation, ethics and morality to the fore and the preparatory practices of yoga were ignored. However, Indian thinkers soon realized the limitations of this view. The yogi Matsyendranath taught that before taking to the practices of meditation, the body and its elements need purifying. He founded the Nath cult and the yogic pose matsyendrasana was named after him. His chief disciple, Gorakhnath, wrote books on hatha yoga in the local dialect and in Hindi.

Indian tradition previously required that original texts be written in Sanskrit. In some cases they clothed their writings in symbolism so that only those qualified to receive a teaching would be able to understand it. The Hatha Yoga Pradipika, or ‘Light on Yoga’, in Sanskrit, collating all extant material on the subject (Swami Swatmarama). In doing so, he reduced the emphasis on yama and niyama, thereby eliminating a great obstacle experienced by many beginners. In the Hatha Yoga Pradipika, Swatmarama starts with the body and only later, when the mind has become stable and balanced, are the yamas and niyamas (self-control and self-discipline) introduced.

1.8 Types of Yoga
1. Karma Yoga is the Yoga through action.
2. Jnana Yoga is the Yoga through knowledge and wisdom.
3. Hatha Yoga is the Yoga through attaining physical and mental purity (Shuddhi).
4. Raj Yoga is the Yoga through awakening the psychic awareness and facilities.
5. Mantra Yoga is the Yoga through freeing the mind by utilizing second vibration.
6. Laya Yoga is the Yoga through conscious dissolution of individuality.
7. Bhakti Yoga is the Yoga through intense devotion. (Gill, 2000).

1.8.1 Karma Yoga:
Karma Yoga is the first yoga necessary in order to understand the stage of perfection in Yoga. Karma Yoga is one of the main aspects of ‘Yoga’. Karma can be
defined as action, which everyone performs, whether consciously or unconsciously. When we say Karma Yoga, it only means on action that is performed with a meditative awareness. Laws of Karma govern each and every aspect of creation. It is the knowledge which one experiences. It is the knowledge which one experiences. It is also an action which is performed by the intellect, the thought and the senses, in order to enjoy the fruits of material world. For example, the soul can be compared to a baby playing in the playground of the world. The toys that it plays with are the karmas, the thoughts, desires, ambitions, circumstances, roles tend to become an integral part of his nature, because karma is also an action of the unman fest dimension of life.

Karma means the primal seed of desire. This primal seed of desire guides the (destiny), thought action and behaviour of every individual Karma is the action performed by the senses. Senses including the organs of perfection, organs of action, karmendriyas. These karmas are physical in nature. The senses are also mental in nature. These are the different activities of the mind which make us aware of the body and its relationship with the world of objects senses. the karmas are inherent, primal seeds of desires that influences our patterns of thinking and behaviour.

The physical karmas are being performed by every body. The physical actions, the physical karmas are motivated by desire for self satisfaction. The motto of ‘karma Yoga’ is “give, give, give and not take, take, take” karma Yoga is a very effective and valid Yoga in the frame of mind with which the actions are performed. Actions guide our life where we wish them to or not. The aim of karma yoga is to lead one into a meditative state of awareness, an awakened state of consciousness where we became observers of what is happening and how these actions and interactions are influencing binding and limiting our own expression and personality (Gill, 2000).

1.8.2 Jnana Yoga :

Jnana Yoga is a means to obtain the meditative state. Jnana means knowledge and wisdom, thus it is a yoga of knowledge and wisdom. It is a process of meditative awareness and brings us closer to our inner nature. This is a means to awaken the intellectual faculty. This is something we do everyday in our life. If one wants to the
answer, he will do the efforts by talking to somebody or by reading books. It is Yoga of meditation in which the attitude is one of intense self-enquiry, where we become aware of our abilities and facilities. It is also a part of dhyana or meditation.

The aim of Jnana yoga is the removal of speculative knowledge and to have experimental knowledge, which is one’s own understanding and experience. It is a self analysis. The form of self analysis is not high, abstract of obscure, it is very definite. Self analysis in terms of physical, mental, emotional and intellectual aspects can be termed as part of the techniques of ‘Jnana yoga’ (Madan, 2000).

Jnana yoga has to be practiced after perfecting a certain degree of meditation and in this meditative state the mind is tuned and charged. It has to be combined with other practices of yoga. So Jnana yoga is a supplement to meditation, dhyana. When combined with dhyana, it is converted into samadhi later on, because samadhi is experimentation of spirit.

1.8.3 Hatha Yoga:

Hatha Yoga is powerful, but difficult whose whole principle of action is founded on intimation in its own way, a system of knowledge. This is a science of discipline and its aim is to ensure perfect health by physical and mental purification through the control of mind and body. If there is balance and harmony between the body and mind, the power of concentration can be developed, leading to the realization of the self. It is the greatest strength to awake the mind and animate the body. In the views of Swami Vivekananda that there is no limit to the power of the human mind. The more concentrated it is, the more power brought to bear on point.

Hatha Yoga is a means to attain physical and mental purification and balance. It is the most common Yoga. The aim of Hatha Yoga is to eliminate toxins. Impurities within the body that accumulated the body reaches a state of purification, which helps to bring about a state balanced in the functioning performance of the internal organs and systems.

According to Sanskrit texts, ‘Ha’ means ‘Sun’ i.e. positive energy the word ‘Yoga’ comes from the Sanskrit root , ‘Yug’ meaning, ‘to link’ join or unite. Hatha Yoga is supposed to have been taught first of all by Lord Siva, who is called
Adhinatha here, to his consort Parvati; and several works or Hatha yoga and Tantras are in the form of a dialogue between Siva and Parvati.

'Hatha Yoga is the meeting of two forces animating the human body, i.e. the union of positive energy (symbolized by the sun) and negative energy (symbolized by the moon plus a perfect balance).

According to Hatha-Yoga Pradipika, mastery of the body and breath are an undoubted aid to those concerned with their spiritual evaluation. For having full control over the physical condition, the body becomes, calm, allowing the mind to be directed inwardly more easily in perfect tranquility, to achieve a spiritual level.

According to 'Bhagavad Gita', when the mind and body are working together harmoniously due to yoga discipline, we can find calm and peace of mind at every moment.

Hatha Yoga is composed of three inseparable factors –
1. Control of mind.
2. Pranayama (control and regulation of breath).
3. Asanas (bodily pastures).

1.8.4 Raj Yoga:

The word Raja means "King", this raja yoga is the king or royal yoga; the highest yoga or the supreme yoga. The basic theme of raja yoga is to develop the dormant potential within the human personality. Yoga, in general, and raja in particular, has always advocated and recognized that the human personality contains a deep, dormant, psychic potential within its framework. This potential is within the reach of every person, provided one has the knowledge of a particular system by which it can be tapped.

Raja yoga has been further divided into groups. The first group is known as the external or bahirangga yoga. It consists of Yama, Niyama, Asanas and Pranayama. They are known as external yogas because they change and other the external personality, behaviour and action, which are related to the interaction in the world.

The second group is inner yoga. ‘Antaraga Yoga’ includes pratyahara, dharana, dhyana and samadhi to took work with the mind and experience the full mind the
initial state of sensory withdrawal to the state of samadhi, which is unity of all the facilities of mind. It is a mental process of observation, analysis, reflection, contemplation, meditation and achievement. Thy stop the input of further impressing, into the field of consciousness (Brar, 2000).

1.8.5 Mantra Yoga or Japa Yoga:

Mantra Yoga is the force which lifts the mind from bondage: The mind or mental nature has two attributes which hold it in bondage. The first, is ‘mala’ means impurities and the second is ‘Vikshepa’ meaning dissipation. These impurities are the courses of our attraction of rajasic qualities of life, which limit the faculties of mind, causing it to act, experience, behave in a certain way. The rajasic or tamasic nature is expressed by the mind in a specific way. Attraction to the worldly thinks is the mala. The feeling of dissatisfaction with the present life is the distraction of the mind. The mind is vibrant because it wants to amuse itself, in the absence of amusement the mind would be absolutely quiet, still, and peaceful. The purpose of mantra is to free the mind from the worldly attraction.

It is concerned exclusively with spiritual discipline, its practice consists of repeating mantras. No mind wandering at all is permissible, and since most persons’ minds do wander to some extent. The Japa Yogi will be sitting motionless for hours to distract himself from the world. So this helps to alter and rebalance the mental personality (Bains, 2000).

1.8.6 Laya Yoga:

Laya Yoga is similar to both Kriya and Kundalini Yoga. The techniques of Laya Yoga are more meditative in nature. Its aim is awakening of energy center and deals with the experiences of the psychic body and also with the various expressions of consciousness, combining and harmonizing those expressions with the manifestation of energy. The word Laya means ‘to dissolve’. Energy is not dissolved, rather, it is awakened. These are changed with the awakening of energy and in the field of consciousness, they manifest in the form of an altered thinking process, an altered analytical process, altered pattern of awareness and so forth (Rathee, 2000).
1.8.7 Bhakti Yoga:

Bhakti yoga is a system of intense devotion, with emphasis on faith. The true follower of Bhakti is one who is free from both guilt and egoism. He is humble, unaffected by either happiness or sorrow, and has not a single enemy. Greed, injustice, rashness, persecution of others, jealousy, stealing, harsh words and cruelty are foreign to him. His heart is pure. He has faith in innocence, simplicity and absolute truthfulness. He would be considered a saint (Kande, 2000).

According to ‘Gherenda Samhita’, there are –

1.9 Yogasanas and Prana

*Prana*, vital energy, which corresponds to *ki* or *chi* in Chinese medicine, pervades the whole body, following flow patterns, called *nadi*s, which are responsible for maintaining all individual cellular activity. Stiffness of the body is due to blocked prana and a subsequent accumulation of toxins. When prana begins to flow, the toxins are removed from the system, ensuring the health of the whole body. As the body becomes supple, postures which seemed impossible become easy to perform, and steadiness and grace of movement develop. When the quantum of prana is increased to a great degree, the body moves into certain postures by itself and asanas, mudras and pranayamas occur spontaneously (Satyananda, 1973).

1.10 Prana and Lifestyle

Lifestyle has a profound impact on the pranamaya kosha and its pranas. Physical activities such as exercise, work, sleep, intake of food and sexual relations all affect the distribution and flow of prana in the body. Faculties of the mind such as emotion, thought and imagination affect the pranic body even more. Irregularities in lifestyle, dietary indiscretions and stress deplete and obstruct the pranic flow. This results in what people experience as being ‘drained of energy’. Depletion of energy in a particular prana leads to the devitalization of the organs and limbs it governs and ultimately to disease or metabolic dysfunction. The techniques of pranayama reverse
this process, energizing and balancing the different pranas within pranamaya kosha. Pranayama practices should be performed after asanas in an integrated yoga program (Saraswati, 1973).

1.11 Breath, Health and Pranayama

The breath is the most vital process of the body. It influences the activities of each and every cell and most importantly, is intimately linked with the performance of the brain. Human beings breathe about 15 times per minute and 21,600 times per day. Respiration fuels the burning of oxygen and glucose, producing energy to power every muscular contraction, glandular secretion and mental process. The breath is intimately linked to all aspects of human experience.

Most people breathe incorrectly, using only a small part of their lung capacity. The breathing is then generally shallow, depriving the body of oxygen and prana essential to its good health. The first five practices given in this section are preparatory techniques which introduce correct breathing habits. In addition, they help focus the awareness on the breathing process, which is otherwise normally ignored. Practitioners develop sensitivity to the respiratory process and retrain the muscles of the pulmonary cavity, enhancing their vital capacity and preparing them for pranayama.

Rhythmic, deep and slow respiration stimulates and is stimulated by calm, content, states of mind. Irregular breathing disrupts the rhythms of the brain and leads to physical, emotional and mental blocks. These, in turn, lead to inner conflict, an unbalanced personality, a disordered lifestyle and disease. Pranayama establishes regular breathing patterns, breaking this negative cycle and reversing the debilitating process. It does so by giving us control of the breath and reestablishing the natural, relaxed rhythms of the body and mind.

Although breathing is mainly an unconscious process, conscious control of it may be taken at any time. Consequently, it forms a bridge between the conscious and unconscious areas of the mind. Through the practice of pranayama, the energy trapped in neurotic, unconscious mental patterns may be released for use in more creative and joyful activity (Satyananda, 1973).
1.12 The Physiological Concept of Yoga

Yogic procedures maintain normal body functions. They affect higher functions of the central nervous system (C. N. S) like perception, planning, execution of tasks, learning and memory. Yoga with breath control techniques increases the cerebral blood flow (Reader, 1993). Meditation or Dhyana trains the mind to concentrate on an inner or outer object, channelises the thoughts in an attempt to get beyond mental distractions. It improves coherence between the two cerebral hemispheres signifying synchronization of logical and intuitive function. It increases alertness, along with relaxation. Alertness decreases the reaction time of the brain. Twelve weeks of yoga is known to decrease the visual and auditory reaction times (Telles et al., 1995; Uma et al., 1989). Pranayama alone and Mukh bhastrrika have shown similar effects (Borkar and Pednekar, 2003; Ananda Balayogi Bhavanani et al., 2003). Similarly, planning and execution of any task, thought to be a frontal lobe function is enhanced. Yoga accompanied with meditation for a month has shown decreases in time required to perform certain tasks (Manjunath and Telles, 2001). Spatial tasks are enhanced during left nostril breathing and verbal tasks during right nostril breathing. Breathing through a particular nostril also improves spatial memory scores (Naveen et al., 1997). Perception of any geometrical illusion is influenced by retinal, cortical and cognitive judgmental factors. A decrease was observed following practice of focusing and defocusing (Telles et al., 1997; Vani et al., 1997). Similarly, the process of learning involves selection, choosing, decision-making and other higher brain functions. However, maze learning may improve due to repeated performance rather than yoga alone (Telles et al., 2000a). The ability to perform rapid fractionated movements depends upon monosynaptic connections between the cortex and the ventral horn cells of the spinal cord. Dexterous or skilled actions depend upon speed of gross movement of the hand and arms steadiness, rhythm, hand eye coordination of eyes and motor control. This was seen to improve after yoga. Presumably, a reduction in anxiety can account for these benefits (Telles et al., 1994; Manjunath and Telles 1999). Nevertheless, higher functions of the CNS are augmented by a yogic lifestyle. The body is ultimately controlled by the CNS through its relationship with the autonomic nervous system (ANS) and the neuroendocrine processes. Yogic processes
have a tremendous influence on the central nervous system. It helps an individual to gain control over the ANS resulting in homeostatic functioning of the body. However, there is no definite model of sympathetic activation or relaxation during practice of meditation and there can be individual variations (Telles and Desiraju, 1993a). Selvamurthy et al., found that six months of yoga resulted in an autonomic shift towards the parasympathetic nervous system. Sirsasana is associated with increased sympathetic activity while Shavasana brings about a reduction in the sympathetic response (Manjunath and Telles, 2003; Madanmohan et al., 2002). Yogic breathing exercises include right and left nostril breathing. These breathing techniques stimulate different divisions of the ANS, thus having useful implications in treating psycho physiological disorders associated with hemispheric and autonomic imbalance (Jella, 1993; Shannahoff, 1991). Right nostril breathing correlates with the activity phase of the basic rest activity cycle, it activates the sympathetic nervous system as shown by an increase in the oxygen consumption and left nostril breathing decreased the sympathetic activity as manifested by an increase in the level of volar galvanic skin resistance (Werntz et al., 1983; Telles et al., 1996). Studies of EEG and evoked potential have indicated that there is increase in cortical activity along with synchronization. Marked uniformity of frequency, amplitude and electrical activity was observed in all areas of the brain (Khare and Nigam, 2000). Nostril rhythm increases the theta rhythm, the mean alpha (a) and beta (b) power followed by reduction in the asymmetry in b band in the EEG (Stancak and Kuna, 1994; Stancak et al., 1996; Wallace et al., 1971). Practice of Santhi Kriya has shown to increase the a activity in both the occipital and prefrontal area (Satyanarayana et al., 1992), while an increase in b activity is reported in those practicing Sudarshan Kriya for a long time (Bhatia et al., 2003). Six months of Sahaj Yoga decreases the seizure frequency in patients of epilepsy. Stress reduction is suggested as a probable cause of benefit (Panjwani et al., 1995, 1996). Meditation with the thought focused on the syllable “OM “showed an increase in amplitude with a reduction in latency of middle latency auditory evoked potentials (AEP) (Telles and Desiraju, 1993b; Telles et al., 1994). Pranayama exercise of Ujjayi and Bhastrika also increased the amplitude and decreased the latency of Na wave of middle latency AEP, indicating facilitation of
processes of sensory signal transmission. These practices involve the use of various
cortical mechanisms and corticofugal control processes that may alter the process of
information processing at the level of the brain stem (Telles et al., 1992). Similarly in
epileptics, improvement in AEP, visual contrast sensitivity has also been observed
(Panjwani et al., 2000). Yoga thus increases CNS activity, synchronization, improves
sensory processing and balances the ANS.

1.13 Yoga and Biochemical Changes

The benefits of yoga are accompanied by biochemical changes. After three
months of yoga, a significant increase in the level of creatinine phosphokinase and
decrease in pyruvate to lactate ratio indicating increased muscular activity with
anaerobic metabolism was noted (Sahay et al., 1982). A decrease in lactate,
catecholamine, dopamine beta hydroxylase, cholinesterase, monoamine oxidase, and
cholesterol has been reported. A similar reduction in blood glucose, cholesterol,
dopamine beta hydroxylase, monoamine oxidase, and increase in urinary ketoteriods
has been reported in sports teachers after three months of training (Telles et al., 1993b;
Delmonte, 1985; Udupa et al., 1975). Three months of Kriyas, yoga and a vegetarian
diet decreases urinary excretion of adrenaline, nor adrenaline, dopamine, aldosterone,
and serum testosterone and leutenising hormone. Cortisol levels decrease in blood
along with increased excretion (Kamei et al., 2000; Schmidt et al., 1997). The
biochemical changes indicate a hypo metabolic state (Selvamurthy et al., 1983;
Wallace et al., 1971; Rai and Ram, 1993b). Regional glucose metabolism in the CNS
is altered during meditative relaxation (Herzog et al., 1990). Improvement in glucose
homeostasis, with reduction in fasting blood sugar, hyperglycemia, glycosylated
hemoglobin, and dose of oral hypoglycemic drugs required after 6, and 12 weeks of
yoga in Non Insulin Dependant Diabetes patients (NIDDM) has been observed
(Monro et al., 1992; Jain et al., 1993). The changes are suggestive of decrease in
stress, sympathetic activity, better glucose utilization and exercise tolerance. Yoga and
Hormonal Balance The glandular activity is increased and hormonal profile is
balanced. There is a decrease in cortisol, growth hormone, and thyroxin. On the other
hand, prolactin levels increased with no change/ decrease in catecholamine. There
may be notable difference in the effect of different types of asanas and exercises. Suryanamaskar influences the skeletal muscle with less influence on the vital organs. Yogic practices increase the protein bound iodine (PBI); improve the thyroid and adrenocorticoid functions. Sarvangasana rehabilitates the thyroid gland (Delmonte 1985; Udupa et al., 1975). Ujjayi with long and short kumbhak effects adrenomedullary secretions (Telles and Desiraju, 1991). Melatonin production believed to be psycho-sensitive, may bring about the psychological benefits of yoga therapy in stress management (Massion et al., 1995).

1.14 Yoga and Cardiovascular Response

The cardiovascular system is controlled by the ANS. Yogic procedures differentially affect the ANS. Those that decrease the sympathetic activity are useful in controlling the diastolic blood pressure in mild to moderate hypertensives. Improvement in risk factors may benefit patients of coronary artery disease. Some of the asanas routinely recommended for improvement in cardiovascular function include Halasana, Paschimottanasana, Virasana, Siddhasana, Shavasana and Nadi Shodana pranayama (without breath holding). Yoga accompanied by breath control increases cardiac output, decreases the hepatic, renal blood flow and increases cerebral blood flow in the peripheral vessels (Reader, 1993). Yoga is also associated with a decrease in the heart rate and diastolic blood pressure (BP) (Baride et al., 1994). Heart rate alterations in various types of pranayama and in single thought and thoughtless states have been described (Telles and Desiraju, 1992 a, b). Heart rate increases in Siddhasana and Virasana are likely due to increased metabolism (Rai et al., 1994; Rai and Ram, 1993b). The effects of inspiratory and expiratory phases of normal quiet breathing, deep breathing and savitri pranayama breathing on heart rate and mean ventricular QRS axis was investigated in young healthy untrained subjects. Pranayama breathing produced significant cardio acceleration and an increase in the QRS axis during the inspiratory phase compared to eupnoea. These changes were similar to the changes observed during the corresponding phase of deep breathing or savitri pranayama breathing (Madanmohan et al., 1986). Marked heart rate
variability (HRV), increased amplitude of oscillations as seen during meditation indicate that it is not a quiescent state as generally believed (Peng et al., 1999).

Yoga with other regimes like muscle relaxation produces lowering of BP that has favored its use as a non-drug therapy (Andrews et al., 1982). A study has shown that yoga may be more useful than drugs, but this has been observed in mild and moderate hypertension only (Murugesan et al., 2000). Transcendental meditation likewise resulted in lowering of BP in borderline hypertensives. The change is attributed either to an integrated hypothalamic response associated with a decreased sympathetic activity or a placebo effect (Benson et al., 1974). In a study after 6 months of yoga training, exercise was found to increase the systolic but not the diastolic BP (Opal et al., 1973).

Yoga is not only an exercise, it is a lifestyle. In a classical paper, Dean Ornish showed that by following a lifestyle of low vegetarian diet, cessation of smoking, stress management training and moderate exercise, a significant number of patients had regression of coronary artery stenosis as analyzed by quantitative coronary angiography. It was suggested that coronary arteriosclerosis was reversed after 1 year with comprehensive lifestyle changes without the use of lipid lowering drugs. (Ornish et al., 1990; Manchanda et al., 2000). The effect of yogic lifestyle on some modifiable risk factors has been studied in angina patients and normal subjects with risk factors. The subjects practicing yoga showed a regular decrease in cholesterol, triglyceride, low density lipoprotein (LDL), while the high density lipoprotein (HDL) increased. The effect began four weeks after treatment and continued till 14 weeks thereafter (Mahajan et al., 1999). Hypertension autonomic function tests indicate attenuation of the sympatho-adrenal and rennin-angiotensin activity. Yogic asanas can modulate cardiovascular responses. The different types of breathing procedures affect the ANS. Right nostril breathing activates the sympathetic nervous system and increases the heart rate. Alternate nostril breathing brings about a balance in the ANS (Shannahoff 1993). Kapalbhati practice showed an increase in the low frequency band and decrease in the high frequency band of the heart rate variability spectrum indicating increased sympathetic activity (Raghuraj et al., 1998). Nadi Shoddhana pranayama increased both components of HRV. Yogic asanas were found to be effective as tilt
procedures in correcting the baroreflex sensitivity in patients, represented by the a 
index at high frequency, and was seen to increase after 6 weeks of yoga indicating 
enhancement of parasympathetic activity (Selvamurthy et al., 1998; Bowman et al., 1997). Sarvangasana is a posture with the body inverted. It is comparable to a negative “g” position. Echocardiographic recordings showed a reduction in heart rate and left ventricular end diastolic volume. The sympathetic inhibition is due to stimulation of high pressure baroreceptors and low pressure cardiopulmonary receptors. In this position there is sympathetic stimulation also due to isometric contraction of upper limb and neck muscles to support the body (Konar et al., 2000). The net effect of the two will determine the autonomic response. Orthostatic responses were altered such that the cardiac output improved more than peripheral resistance to maintain the BP. Shavasana also brings about a faster recovery after treadmill exercise compared to sitting in a chair or lying supine (Bera et al., 1998).

1.15 Yoga and the Respiratory System

The various practices use breathing exercises (pranayama), suryanamaskar, dhyana, devotional sessions, asanas, kriyas, and yogic chair breathing (Nagarathna and Nagendra, 1985; Singh 1987a; Nagarathna et al., 1991). Yogic Kriyas like Kunjal and Vastra dhauti use warm water and cloth for cleansing of nasopharynx, oropharynx oesophagus and stomach. The osmolality of fluid may decrease inflammation and thus reduce the sensitivity of receptors in the bronchi thereby increasing the threshold of provocation. Sutra Neti desensitizes nerve endings of the nasal passage making it resistant to allergens. Kapalbhati removes the residual secretions by moving the neck in all directions and forcing out secretions forcefully through the nose. Hence, by this mechanism yoga and naturopathy may be both useful in treating asthma (Satyaprabha et al., 2001). Pranayama techniques form an important component of yoga. The types of pranayama generally used are surya bhedana, bhashrika, and nadi shodana. The idea is to maintain a slow rhythmic pattern of breathing using both nostrils alternately. This produces a balancing effect on the ANS. Short kumbhak or breath holding increases O2 consumption while long kumbhak decreases O2 consumption (Telles and Desiraju, 1991). Prolongation of breath holding time with increase in Forced Vital Capacity
(FVC), Forced vital capacity in first second (FEV1), maximum voluntary ventilation (MVV), peak expiratory flow rate (PEFR) and lowered respiratory rate has been reported after six weeks of training in pranayama (Joshi et al., 1992). Techniques involving focusing on a single thought resulted in regularity of respiration while in the no thought state there was reduction in the rate and regularity of respiration (Telles and Desiraju, 1992a). Savitri type breathing had a similar effect as deep breathing on cardiovascular parameters (Madanmohan et al., 1986). In a study of patients practicing hatha yoga, long term manipulation of breathing by practicing slow deep breathing likely results in overstretching of pulmonary stretch receptors, chronic manipulation results in vagus blockage, thereby vagal manipulation is decreased. This also leads to a conditioning or learning of a pattern of breathing with ample tidal volume and a slow rate (Stanescu et al., 2001). Various respiratory parameters improve after yoga. A significant increase in FVC, FEV, FEV1, PEFR, increase in the vital capacity, tidal volume increase in expiratory and inspiratory pressures, breath holding time and decease in the respiratory rate is documented to help symptoms of weekly attacks, and scores for drug treatment. Improved exercise tolerance, faster recovery after exercise, decrease in inhaler use, and improvements in bronchial provocation response has also been documented (Gopal et al., 1973; Nagarathna and Nagendra, 1985; Yadav and Das, 2001; Tandon, 1978; Singh et al., 1990). This effect is not merely due to exercise as the sports teachers with training in physical activity for 8-9 years have also shown improvement (Telles et al., 1993b). Some asanas used for respiratory disease are Yogic chair breathing, Vajrasana, Tadasana, Sasankasana, Shavasana, Naukasana, Bhujangasana, Ustrasana, Urdh hastottanasana, Gomukasana, Ardha Matsyendrasana, Matsyasana, and Makarasana. In specific yogic postures like Siddhasana there is a larger tidal volume, O₂ consumption, CO₂ elimination and minute ventilation compared to shavasana and a relaxed posture of sitting in a chair (Rai et al., 1994). Virasana also increased minute ventilation, respiratory rate, tidal volume, O₂ consumption and CO₂ elimination, O₂ pulse with a lesser ventilatory equivalent. The response gets eliminated when the subject retrieves back to shavasana (Rai and Ram, 1993). Shavasana is a calming procedure while cyclic meditation involves yogic postures along with periods of supine relaxation. It was found that the results in
decrease in oxygen consumption, respiratory rate and increase in tidal volume compared favorably to Shavasana alone (Telles et al., 2000b). During transcendental meditation there is an increase in respiratory rate, minute ventilation, oxygen consumption, and CO₂ elimination, with no change in the respiratory quotient. There was reduction in arterial blood pH, lactate levels, and arterial PO₂, while PCO₂ remained unchanged indicating a wakeful metabolic state (Wallace et al., 1971). An eight-stepped yoga chair breathing procedure consists of neck muscle relaxation, and asanas with breathing exercises. This may reduce the panic anxiety element contributing to aggravation of bronchial obstruction. The effect seems to be acute, but patients have been followed for 54 months with beneficial effects. Similar results to yoga asanas and breathing exercises may be observed by techniques like progressive muscle relaxation, postural drainage, and pink city exerciser (Nagendra and Nagarathna, 1986; Singh, 1987b; Freedberg et al., 1987; Lorin et al., 1971). Resistive breathing training requires the person to breathe against a resistive load. These respiratory maneuvers may lead to better tolerance of hyperemia, improve the strength and endurance of respiratory muscles and decrease the onset of fatigue. Exercise using a bicycle ergometer and breathing exercises may cause subjective improvement, increase exercise tolerance without lung volume and ventilation in severe obstructive disease by improving neuromuscular hand eye coordination (Brundin, 1974). Yogic exercises and asanas may benefit individuals by similar mechanisms.

The various mechanisms responsible for the improvement include reduction of psychological over activity, emotional instability, vagal efferent discharge and evacuation of sputum. Slow breathing with and without humidified air had a bronchoprotective and bronchorelaxing effect, increased autonomic control, and a positive endogenous corticosteroid release (Nagarathna and Nagendra, 1985; Singh 1987a; Tandon, 1978; Singh, 1987 b; Jain et al., 1991). Yogic breathing is also known to decrease the chemoreflex sensitivity to hypoxia and hypercapnia (Spicuzza et al., 2000). Pranayama is believed to decrease the anxiety element as well. Since asthma is a psychosomatic and chronic disease, a psychosomatic imbalance with an increased vagal tone is one of its various etiopathogenesis. Yoga therapy may first bring internal awareness, correct autonomic imbalance, control the breathing, improve the immune
status and alter physiological variables. Even one week after yoga therapy, improvements in ventilatory functions in asthmatics have been observed. This could be due to reductions in sympathetic reactivity and relaxation of voluntary inspiratory and expiratory muscles. Both transcendental meditation and yoga have proven to be effective alternative medicines for controlling symptoms of asthma (Lane, 1991; Wilson, 1975). Yoga is also valuable in the treatment of COPD (Behera, 1998).

1.16 The Importance of Yogic Practices in Modern Society

Today in modern society Yogic practices have become popular throughout the world. Inspite of that there are great many misconceptions about these practices due to the lack of scientific information. Today Yogic practices are generally looked upon as exercises and many a time is interpreted in the light of exercise physiology. The physiology needs the basic understanding of the concept of Yoga and its relation with the techniques. The nature of every yogic practice is psychological and if this conceptual background is not clearly understood, the whole outlook on yogic practices will be distorted. The rational of yogic practices in terms of anatomy and physiology would remove many misconceptions. Yoga has become popular all over the world because of its great potentiality in promoting and maintaining the physical as well as mental and moreover in the treatment of psychosomatic diseases, apart from its spiritual objectives. Yoga is being taught at various Yoga institutes and Universities as philosophy and also as a practical science. Various Yoga courses are being conducted by these organizations so as to prepare authorized yoga teachers and therapists. Modern life style suffers from ‘stress’. If one is properly integrated and balanced on physical and mental level, one will not be able to cope up the ‘stress’. The result is restlessness and conflict in the mind and disharmony in all the functions. The anxiety depression, anger, worries can easily disturb the mind which leads to various psychosomatic disorders. It has been observed that the hatha yogic practices help to promote a healthy state of body and mind which establishes a harmony amongst all the bodily functions. One feels relax and enthusiastic, due to these practices. One is so balanced on all aspects of personality that he hardly feels any stress. Yoga has become
popular mostly because of its potentiality to tranquilize the mind which is the main key in the management of stress disorders. (Gore, 1997).

1.17 (i) Yoga and Physical Fitness

Yoga is not restricted to any particular age group. It is therapeutic for patients but it is also practiced in normal individuals to keep physically fit. A study reporting increased physical fitness in school children practicing yoga has been reported (Gharote, 2000). It is thus advisable to start early. Yoga also slows down ageing as shown by a decrease in the reduction of baroreflex sensitivity with age in subjects who were practicing yoga for five years (Bharshankar et al., 2003). Yogic asanas are isometric exercises that involve a coordinated action of synergic and antagonist muscles in bringing about steadiness, flexibility and accuracy of movement. Improvement is seen in static motor performance, hand eye coordination, hand grip strength, cardiovascular endurance, anaerobic power, thermoregulatory efficiency, and orthostatic tolerance. The practice of Yoga for six months to one year improves performance by increasing stretch duration, endurance and decreasing the onset of fatigue (Telles et al., 1993a,1994; Dash and Telles, 2001; Raghuraj et al., 1997). The mechanisms of yogic breathing may involve improvement in oxygen consumption with better oxygen delivery, utilization and minimal energy expenditure as seen in subjects who practiced pranayama. A higher work rate with reduced oxygen consumption per unit of work without increase in blood lactate levels is reported (Raju et al., 1994). There is an accompanied increase in peripheral blood flow, along with a decrease in body weight (Selvamurthy et al., 1983; Satyanarayana et al., 1992; Telles and Desiraju 1992a; Bera and Rajapurkar 1993; Ray et al., 1986). Regular and continuous use of any muscle prevents fat deposition, increases flexibility and heightens performance. Ujjayi with long and short kumbhak (breath holding) may exert their effects by alterations in the skeletal muscle activity, ANS discharge, and cerebral blood flow. Breath holding with a short kumbhak increases oxygen consumption, while a long kumbhak during Ujjayi decreases oxygen consumption, and metabolic rate (Telles and Desiraju, 1991). Siddhasana is also known to increase oxygen consumption, and metabolic rate compared to shavasana (Rai et al., 1994).
Virasana likewise induces a hyper metabolic state temporarily characterized by increased ventilation, and enhanced sympathetic activity. This gets neutralized on assuming a shavasana posture (Rai and Ram, 1993a). Yoga can improve exercise performance by increasing flexibility, psychological motivation and decreasing heart rate, minute ventilation, oxygen consumption/unit work and respiratory quotient (Ray et al., 2001; Raju et al., 1997). Above all, yoga increases the subjective well-being in subjects (Malathi et al., 2000).

1.17 (ii) Yogasana and Exercise

Yogasanas have often been thought of as a form of exercise. They are not exercises, but techniques which place the physical body in positions that cultivate awareness, relaxation, concentration and meditation. Part of this process is the development of good physical health by stretching, massaging and stimulating the pranic channels and internal organs, so asana is complementary to exercise. Before the difference between the two can be understood, it is necessary to know that exercise imposes a beneficial stress on the body. Without it the muscles waste, the bones become weak, the capacity to absorb oxygen decreases, insulin insensitivity can occur, and the ability to meet the physical demands of sudden activity is lost.

There are several differences in the way asana and exercise affect body mechanisms. When yogasanas are performed, respiration and metabolic rates slow down, the consumption of oxygen and the body temperature drop. During exercise, however, the breath and metabolism speed up, oxygen consumption rises, and the body gets hot. Yoga postures tend to arrest catabolism whereas exercise promotes it. In addition, asanas are designed to have specific effects on the glands and internal organs, and to alter electrochemical activity in the nervous system (Saraswati, 1973).

1.17 (iii) Yogasanas and the Body-mind Connection

The mind and body are not separate entities, although there is a tendency to think and act as thought they are. The gross form of the mind is the body and the subtle form of the body is the mind. The practice of asana integrates and harmonizes
the two. Both the body and the mind harbour tensions or knots. Every mental knot has a corresponding physical, muscular knot and vice versa.

The aim of assana is to release these knots. Asanas release mental tensions by dealing with them on the physical level, acting somato-psychically, through the body to the mind. For example, emotional tensions and suppression can tighten up and block the smooth functioning of the lungs, diaphragm and breathing process, contributing to debilitating illnesses in the form of respiratory disorders.

Muscular knots can occur anywhere in the body; tightness of the neck as cervical spondylities, the face as neuralgia, etc. A well chosen set of asanas, combined with pranayama, shatkarmas, meditation and yoga nidra, is most effective in eliminating these knots, tackling them from both the mental and physical levels. The result is the release of dormant energy; the body becomes full of vitality and strength, and the mind becomes light, creative, joyful and balanced.

Regular practice of asana maintains the physical body in an optimum condition and promotes healthiness even in an unhealthy body. Through asana practice, the dormant energy potential is released and experience as increased confidence in all areas of life.

1.18 Mental Illness and Yoga

A life full of hurry and increasing competition is robbing people of peace of mind and a good night’s sleep. This directly affects the mental health of people. From children to youth to aged people – all are becoming victims of mental illness. Mental stress, insomnia, hysteria, depression etc. Complaints are increasing. According to a survey, 15–20% of the total population is suffering from mental illness. Of these, 10–15% people needs special medical attention.

According to mental health expert, problem such as mental stress, insomnia and depression are on the increase these days. While stress has become a common thing nowadays, consistent stress can become the cause of many other diseases. Stress that stays for a long period of time has a very harmful effect on the body. This leads to persistent headache, sleeplessness and loss of appetite. There is a gradual weight loss. Woman may have complaints of irregular periods. This stress can lead to diseases
such as peptic ulcer forms acidity in the stomach, asthma or high blood pressure, anxiety of hysteria.

With regard to depression, this can affect both males and females of any age, however it is mainly seen after 40–45 years of age. Mental stress arising out of various reasons may be the cause for this. The patient, without any reason, feels very sad helpless and lonely. Along with this, he showed symptoms such as headache, dizziness, loss of appetite and weakness. There are also instances when people affected by this have attempted to commit suicide. This mainly occurs in women and erupts suddenly during time of mental stress. The patient may have problem in speaking or swallowing. After sometime the patient may stop seeing with her eyes or may stop hearing with her ears. Breathing becomes rapid and the body starts shivering. She starts behaving as if possessed by ghosts or spirits. As no illness shows when the patient is examined, many a time people feel that she is merely acting but this is not so. One should avoid the causes that lead to mental stress. It is to be mentioned that exercise, yoga and meditation have been found to be most helpful in protecting oneself from mental stress (Rastogi, 2009).

Every seventh male and every fourth female is a victim to depression. This disease has grown because of mental, stress. Every year, on 10th October, world Mental Health day is celebrated. This year, the world Health Organization has given the slogan ‘There is no health without mental health’.

World Health Organisation is urging a lot of attention to be given to mental health as this problem is rapidly increasing. According to estimates, by 2020, this will be the main disease after heart disease. He said that in a day of 24 hours, 7-8 hours of sleep is very necessary. Along with this, there should be balance diet and regular exercise. It is seen that those people who do not fill their quota of sleep irritated all the time. On should definitely take out time to do something of interest so that one feels happy. Even after all these precautions if someone is still affected by mental problems, then they should consult a doctor. The problem of depression is fast increasing (Malhotra, 2009).
1.19 Role of Pranayama for Wellbeing

Pranayama means control and regulation of breathe. ‘Prana’ is a Sanskrit word which means ‘Vital force’. It also signifies ‘life’ or breathe. ‘Ayana’, means the control of the Prana so Pranayama means the control of the vital force (Prana) by concentration and regulated breathing.

Prana is the vital power or force which is motivating every element on the earth and is the origin of the force of thought. There is deep affinity between Prana and mental force, between mental force and intellect, between intellect and soul, and between soul and God. The prana only ensures the proper functioning of the body (including the glandular system), but is also the regulator and animator of the psychic disturbances of which modern man is the victim.

In all forms of life, from the highest to the lowest, the prana is present as a living force. All the force is based on prana; it is the origin of movement, Gravity, Magnetism, Physical action, the newer currents and the force of the thought. Without prana there can be no life, for it is the soul of all force and energy. It is found in the air, water and food prana is the vital force inside each living being, and thought is the highest and most refined action of prana. As we breathe, the movement of the lungs inhaling air is the expression of Prana. Pranayama is not simply the breathing but the control of the muscular force activating the lungs.

The control of Prana through the concentration of thought and regular breathing is called ‘Pranayama’. It is through Pranayama that each part of the body can be filled with Prana. Once one is capable of performing it, one is master of the body and can dominate illness and suffering. Prana is accumulated where our mind is concentrated.

Pranayama cleans the body and knowledge is manifested. Bathing is necessary for purifying the body similarly, pranayama is essential for purifying the mind. The objective of pranayama is to strengthen the nervous system. It also increases the concentration power of the mind (Quadri, 2000).
1.20 Statement of the Problem

The investigation will be associated with the influence of Yogic practices of middle aged male of 45–55 years age on performance of some selected asanas, surya namaskara, Pranayama and Kriya for 24 weeks Yogic training programme. The specific problem is “Influence of Yogic Practices on Selected Physiological, Motor and Psychological Variables of Middle Aged Male”.

1.21 Purpose of the Study

1. To observe the influences of Yogic Training Programme on physiological condition of sedentary middle aged male.
2. To observe the effects of Yogic Training Programme on motor performance of sedentary middle aged male.
3. To observe the effects of Yogic Training Programme on psychological parameters of sedentary middle aged male.
4. To observe the consequences of being active.

1.22 Significance of the Study

1. The present study may provide information about the physiological condition of middle aged male of age ranging between 45 and 55 years.
2. The study may provide information about motor ability variables of middle aged male age ranging between 45 and 55 years.
3. The study may help to give information about psychological parameters of middle aged male age ranging between 45 and 55 years.
4. The study may throw some light on the middle aged male age ranging between 45 and 55 years to remain active and healthy.
5. The study may help to increase the production where the middle aged male age ranging between 45 and 55 years are engaged in such activities.
6. The study may help the middle aged male to maintain their headship in the family and they can also take part actively in the various jobs in the family as well as in the society rather engaging some persons to look after them.
7. A comparative analysis of selected physiological parameters, motor ability variables and psychological parameters of middle aged male during their sedentary life and active life can be made from this study.

8. The findings of the present study may throw new lights in the understanding of healthy life style and middle aged male may be benefitted. They may be enthused to remain active throughout their life.

1.23 Delimitation of the Study
1. The subjects of the present study were delimited to \((30 + 30) = 60\) middle aged male of age between 45 and 55 years of Kandi, a sub-divisional town in the district of Murshidabad, West Bengal.

2. The study was confined to selected physiological parameters viz., heart rate at rest, resting blood pressure (systolic and diastolic), blood sugar, blood cholesterol and body fat percentage.

3. The study was also confined to only four motor performance tests, i.e. static balance, flexibility, hand grip strength and hand eye coordination.

4. The study was confined to only three psychological parameter tests, i.e. anxiety (state and trait), anger (state and trait) and depression.

1.24 Limitation of the Study

Due to scarcity of fund, time and facility the present study has its own limitations which are as follows:

(i) It was difficult to accumulate more number of male staff of these age groups. So sample size was very small.

(ii) It would have been better also if some more psychological parameters such as emotional balance, stress management etc. were included.

(iii) Pranayama has a great impact on brain and it can be measured by Encephalograph. However, this measurement was not possible for the researcher.

(iv) The subjects of the study were almost homogenous category, yet the researcher had no control over their way of life, life style or mental make up. However, there were no abnormal variations in this regard.
1.25 Hypotheses

Considering relevant information pertaining to the field of present research study, the following hypotheses are drawn:

(i) It is expected that physiological potentiality will improve following the participation of 24 weeks of Yogic training programme of middle aged persons.

(ii) There will be no change in motor ability variables and hand eye coordination among the experimental subjects.

(iii) Psychological parameters will improve among the experimental subjects following Yogic Training Programme.

1.26 Meaning and Definition of the Term

Active : One who undertakes various forms of activity relating to daily life skills and also participates in organized physical activity involving light to moderate intensity exercises.

Alzheimer’s disease : It is a disorder which causes mental deterioration in middle or old age. It is characterized by progressive loss of memory and impairment in cognitive functions (language, perception, behaviour), pathological lesions with accompanying massive neuron loss and abundant accumulation of modified proteins.

Anger : Anger is one of the common and basic emotions. It is seen that anger has evolved as one of the important factors affecting mental and physical health. Anger, whether reasonable or unreasonable, causes harm to the individual and to the society (Spielberger, 1999). “By the simplest of definitions anger occurs towards an object person which / who is an obstacle to fulfilling one’s desired goal” (Ram, 2000). Anger is not always goal directed. Angry feelings stem from an unpleasant occurrence that yields internal physiological reaction, motor reaction, facial changes,
changes in thoughts and movements. Several efforts, have been made by people to reduce anger, like counting ten, going away from the provoking situation, or diverting attention. Homeopathy believes in holistic approach, which says that mind, body and soul should be in equilibrium for an individual to remain healthy. So any affection on any plane will show its effects on another plane. Homeopathy can be defined as a system of therapeutics based on the 'law of similars'. This law states that a drug capable of producing a disease state in a healthy individual which is identical to that observed in a diseased individual, acts a curative agent if the disease is in the curative stage (Dhawale, 2000). Rational-emotive behaviour therapy (REBT) is a cognitive behavioral therapy. Anger which as cognitive, emotive and behavioural components is very well-treated with REBT. “Rational emotive behaviour therapy is a comprehensive, active-directive, philosophically and empirically based psychotherapy which focuses on resolving emotional and behavioral problems and disturbances and enabling people to lead happier and more fulfilling lives” (Wikipedia, 2008).

Anxiety encompasses both some degree of activation and unpleasant emotional state. The term anxiety is used to describe the combination of intensity of behaviour and direction of affect or emotion. The direction of effect characteristic of anxiety is negative in that it describes subjective feelings that are unpleasant. Anxiety is a state serves to mobilize an organism to escape or to avoid danger (Wagman, 1996).
| **Arthritis**   | It is a condition of painful inflammation and stiffness of the joints. |
| **Asthma**     | Asthma is characterised by narrowing over a wide area of the peripheral airways (Mottram, 1988) and it is also characterised by severe bronchiolar contraction and obstruction in the airway by increased bronchial secretion (Gore, 1991). |
| **Balance**    | Balance may be defined as that physical ability which enables an individual to hold a stationary position (Johnson and Nelson, 1966). |
| **Blood Pressure** | The driving force that moves blood through the circulatory system. Systolic pressure is obtained when blood is ejected into the arteries; diastolic pressure is obtained when the blood drains from the arteries (Fox and Mathews, 1981). |
| **Blood Sugar** | The Islets of Langerhans of the pancreas constitute an endocrine organ secreting insulin, the anti-diabetic hormone. Its deficiency results in hyperglycaemia, a high blood sugar, loss of weight, fatigue and polyuria, with its accompanying thirst, hunger, dry skin, dry mouth and tongue. |
| **Bronchial Asthma** | Bronchial Asthma is a disease characterised by spasm of the bronchial smooth muscles, edema, and inflammation of the mucous lining (Arnheim, 1989). |
| **Bronchitis**  | It is inflammation of the bronchi. It is caused by an infection. It may also be caused by cigarette smoking and exposure to air pollutants like carbon monoxide. The |
linings of the bronchi swell and produce excess mucus. The typical symptoms is regular coughing with thick greenish yellow sputum that indicates the underlying infection.

**Cardiovascular diseases**

Disease associated with heart and blood vessels.

**Cholesterol**

Cholesterol is a soft, waxy substance found among lipids (fats) in the blood stream. Found in all healthy living cells, it is essential for the formation of cell membrane enzymes, male and female sex hormones and certain tissues.

**Depression**

A disorder of mood that involves symptoms of sadness, discouragement, and feeling of hopelessness, as well as loss of appetite, difficulty sleeping, and loss of energy. Depression is a state of mind or more specifically a mental disorder characterised by a lowering of the individual’s vitality, mood, desires, hopes, aspirations, and of self esteem (Patil et al., 2003).

**Emphysema**

The word ‘emphysema’ means ‘inflation’ or ‘full of air’. Emphysema is an inflation or abnormal distension of the bronchioles or alveolar sacs of the lungs. Many of the septa between the alveoli are destroyed and much of the elastic tissue of the lungs is replaced by connective tissue. Major causes are cigarette smoking and the inhalation of other smoke or toxic substances over a period of time. As the alveolar septa collapse, the surface areas of gas exchange is greatly reduced. As a result, the alveolar sacs remain filled with air even after expiration. The exhalation
becomes more difficult. The lungs remain inflated. Emphysema is closely related to cigarette smoking.

<table>
<thead>
<tr>
<th>Flexibility</th>
<th>Range of movement in a joint or a sequence of joints (H. H. Clarks, Ibid, p. 174).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forced Expiratory</td>
<td>The volume of air expelled during the first second of a forced maximal expiratory maneuver.</td>
</tr>
<tr>
<td>Volume in One Second</td>
<td></td>
</tr>
<tr>
<td>Forced Vital Capacity</td>
<td>The total volume of air expelled during a forced maximal expiratory maneuver.</td>
</tr>
<tr>
<td>Heart Attack</td>
<td>The blocking of blood flow to a portion of the heart muscle (Fox and Mathews, 1981) or a sudden failure of the heart to function normally.</td>
</tr>
<tr>
<td>Heart Rate</td>
<td>The number of ventricular beats per minute is the heart rate. The heart rate is usually determined from pulse rate, which is the number of pressure waves per minute along the carotid artery at the neck or the radial artery at the wrist. The resting value of heart rate for an adult individual is 70–75 beats/minute.</td>
</tr>
<tr>
<td>Hypertension</td>
<td>It implies a blood pressure raised above normal</td>
</tr>
<tr>
<td>Life Span</td>
<td>Life span is the life duration of an individual organism from the earliest development phase to its death in the adult phase (Finch, 1990).</td>
</tr>
<tr>
<td>Low Density Lipoprotein</td>
<td>LDL cholesterol known as 'bad cholesterol' which forms plaque a thick hard coating that can block heart arteries</td>
</tr>
</tbody>
</table>
which feed the heart and brain and increases risk of heart attack.

Motor Ability : Motor ability is the ability to perform motor skills involving all basic performance traits including hand eye coordination.

Osteoarthritis : A condition in which joint cartilage decays, causing pain and stiffness.

Pharyngitis : It is an inflammation of the pharynx, often called sore throat.

Pneumonia : It is an acute infection or inflammation of the alveoli or the lung. Pneumonia is caused by bacteria *Streptococcus pneumoniae*. Some times, other bacteria or fungi, protozoan viruses and mycoplasma may cause pneumonia. Infants, elderly persons and immunocompromised individuals (who are treated with immunosuppressive drugs, *e.g.* patients of AIDS) are more susceptible to the pathogens of pneumonia. The alveoli become acutely inflamed. Most of the air space of the alveoli is filled with fluid and dead white blood corpuscles, limiting gas exchange in the alveoli.

Pranayama : Pranayama consists of two words ‘Prana’ which means energy and ‘yama’ which means control, regulation or mastery. So, it is expressed as breath control. Pranayama is “the regular of incoming and outgoing flow of breath with retention” (Patanjali).

Pulmonary Tuberculosis : It is caused by Mycobacterium tuberculosis. It most often affects the lungs and the pleura. The bacteria destroy
parts of the lung tissue and the tissue is replaced by fibrous connective tissue. Gasses do not diffuse easily through the fibrous tissue. Tuberculosis bacteria are spread by inhalation.

**Strength** : Strength is the ability to overcome the resistance or to act against resistance (Singh, 1991).