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(Sandhya Pandey)

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REVIEW OF RELATED LITERATURE

The term Yoga is derived from ‘Yujir yoge’, which means to ‘unite’ or to ‘bind’ or to ‘link’ or to ‘connect’ or to ‘merge’. The literary meaning of Yoga expels harmonious interaction of body and mind. The merger of soul with God, and the experience of oneness with him is another explanation of term Yoga. It is possible only through the control over sense organs and through continuous practice of Yoga and detachment of sensorial organs including mind from pleasure and pain. According to the great Sage Patanjali the withdrawal of sense organs from their worldly objects and their control is yoga.

The aim of man’s life is to get rid of the worries, anxieties and sufferings of the world and to achieve peace and bliss. To get rid of the tempting delusions, sorrows and pains of the world, there are different paths of yoga namely Bhakti yoga, Karma yoga, Dhyana yoga, Jnana yoga, Hatha yoga and other yogas. The paths may be different but the ultimate aim is the same. Our body has been called the temple of the God. According to Shankracharya we can see the image of God in our own body if we maintained the purity of body & mind. It is a science of physical and mental control through various practices. It is a system of self renewal of mind & body and also a path to great spiritual attainment. Our ancient Rishis and sages have given eight stages of yoga. The great Indian philosopher Patanjali Maharshi describes Yoga in his Yoga Sutra as “chittavrittinirodha” i.e. cessation of the fluctuation of mind. According to him, Yama (abstention), Niyama (observance), Asana (posture) Pranayama (life force control), Pratyahara (abstraction), Dharana (concentration), Dhyana (meditation) and Samadhi (liberation),(Swami S.S., 2002).

Types of Pranayama: Many types of Pranayama are used in Yoga practice such as Surya Bhedana Pranayama, Sheetakari Pranayama, Bhastrrika Pranayama, Moorcha Pranayama, Samavrtti Pranayama, Plavini Pranayama, Ujjayi Pranayama, Sheetali Pranayama, Bharmari Pranayama, Kapalabhaati pranayama and Nadishodhana Pranayama, (Swami, S.S., 2002).
Yoga is India’s oldest divine and natural healing system which evolved more than 5,000 years ago. In Sanskrit the term “yoga” stands for “union” with the divine. A Yogi’s eventual objective is to attain this union by nourishing the mind through deep meditation. The origin of yoga is in the Vedas. The ancient Sanskrit word Veda means knowledge, (Babooa, K.S., 2012).

Yoga is the science of right living and, as such, is intended to be incorporated in daily life. It works on all aspects of the person: the physical, vital, mental, emotional, psychic, and spiritual. Yoga aims at bringing the different bodily functions into perfect coordination so that they work for the good of the whole body (A. Neethi and Chidambara S.R., 2012).

Yoga focuses on harmony between mind and body. Yoga derives its philosophy form Indian metaphysical beliefs. The word yoga comes from Sanskrit language and means union or merger. The ultimate aim of this philosophy is to strike a balance between mind and body and attain self-enlightenment. To achieve this, yoga uses movement, breath, posture, relaxation and meditation in order to establish a healthy, lively and balanced approach to life, (A. Neethi and Chidambara S.R., 2012).

**Yoga and Physical Exercises:** “Yoga is not an ancient myth buried in oblivion. It is the most valuable inheritance of the present. It is the essential needs of today and the culture of tomorrow”. Yoga is one of the size orthodox systems of Indian philosophy. It was collated, coordinated and systematized by Patanjali in his classical work. Regular practice of asana maintains the physical body in an optimum condition and promotes health even in an unhealthy body. Through asana practice, the dormant energy potential is released and experienced a increased confidence in all areas of life. Yogasanas have a deeper significant value in the development of the physical, mental and spiritual personality, whereas pure exercises only have a physical effect on the muscles and bones. Physical exercises are performed quickly and with a lot of
heavy breathing. Yogasanas are performed slowly with relaxation and concentration. According to Swami Satya and Sarswati 2002.

Yoga is very ancient, certainly much older than the archaeological record. The archaeological findings indicate a well established system of yoga practice, which must have existed long before. One of the difficulties, of tracing a history of yoga has been that by its nature it leaves nothing behind except myth and legends of miraculous powers possessed by some of more accomplished practitioners of the art. Yoga and its asana are intended for the thorough exercise of the internal organs viz. liver, spleen, pancreas, intestines, heart, lungs, brain and the important ductless gland in brain which play a very important part in the economy of nature, in maintaining health in metabolism and in structure, growth and nutrition of different kinds of cells and tissue of the body.

According to Sh. Yogananda yoga suggests an integral approach to man with “Chitta” as the basic factor and treats man as a body-mind complex. But one should be very careful in practicing yoga. It must be practiced under trained and experienced instructor with proper guidance, (Saharawat, M. et al; 2012).

Yoga is an ancient Indian culture and way of life which is claimed to endow one who practices it with perfect physical, mental and spiritual health. Although efficacy of yoga on health and physical and cardio-vascular fitness have been well proved (Ganguly, 1981; Joshi & Joshi, 1992). Moreover, on the basis of various research reports yoga and asana claimed to have superior to training on physical exercise for anxiety level and fatigue of children’s (Karwarde, 1981; Pratap, 1968: Kocher, 1974). This might be because of yogic practices have no chance of fatigue mentally as well as physically. Body composition is defined as relative percentage of fat and fat-free body mass. Excessive body fat is a health hazard and has been implicated as contributing to a variety of conditioning including hypertension, hyperlipoproteinemia and accident proneness. While all the mechanisms of how excess fat causes these
problems have not been completely explained, few health authorities would argue with the statement, that it is better to be lean than to be fat. The body composition is not only important to health and in flounce by exercise, but it is also a massive public health problem, and thus deserves increased attention in fitness testing. The American college of sports medicine has defined Health-Related Physical Fitness “a state characterized by an ability to perform daily activities with vigorous and a demonstration of traits and capacities that are associated with low risk of premature development of the hypo kinetic disease i.e., those associated with physical inactivity, (Singh, Kumar. Vivek et al; 2012).

Yoga-Health, physical fitness and emotional stability are the three objectives which bring Yoga and sports on a common platform for the benefit of human individuals (Pramanik, T.N et al; 2012).

Yoga refers to traditional physical and mental disciplines originating in India. The word is associated with meditative practices in Hinduism, Buddhism and Jainism. Within Hinduism, it also referees to one of the six orthodox (astika) schools of Hindu philosophy, and to the goal towards which that school directs its practices. Major branches of yoga in Hindu philosophy include Raja Yoga, Karma Yoga, Jnana Yoga, Bhakti Yoga, and Health Yoga. Health Yoga has become increasingly popular in western countries as a method for coping with stress and as a means of exercise and fitness training. Health yoga is an ancient practice that was developed to promote physical health as well as an awareness of one’s true nature. It consists of a series of postures, called asanas, and various breathing exercises, called pranayama, which encourage balance between the physical, mental/emotional, and spiritual aspects of a human being, (Kumar, D et al; 2012).

The popularity of yoga in the twenty first century proves the fact that these age-old Indian practices are effective even in the era of science and technology. However, in this industrial age, when water, atmosphere and even food items are polluted, precaution for a good healthcare system is even more
necessary. Pranayama and physical exercises can help in ensuring a sound mental and physical health for anyone. To build a strong nation, it is important to bring up with enriching education, which not only imparts intellectual but also physical knowledge. Father of nation, Mahatma Gandhi considered education to be “an all-round drawing out of the best in the child and man body, mind and spirit”. Ancient Indian practices have been oriented towards the wholesome development of one’s mind and body (Swami, A., 2008).

Yoga is helpful not only for the cure of diseases but it also helpful in making and keeping individuals more fit and healthy. In sporting events viz; Martial arts, Gymnastics, Wrestling, Shooting and other, the successful performance depends upon the perfection with which different phases of the event are performed, because performance in one phases dependent upon other phases. Breathing exercise (Pranayama) and meditation lead to better concentration and improved performance (Kangane S and Limbkar J., 2012). Yoga can help to improve competitive performance. Archery, rifle shooting, pistol shooting, squash require optimal levels of concentration. Meditation can help in improving concentration, which leads to better performance.

Today Yogic practices have become popular throughout the world. But there are great misconceptions about these practices due to the lack of scientific information about them. The physiology of Yogic practices differs greatly from that of exercise, games and sports, (Pramanik, T.N et al; 2012). The new millennium is the age of technological excellence, where life has become more luxurious with mechanical dependence that results into material gain and economic prosperity. Yet in the process we lost our moral and spiritual realms including fitness and health too. Man probes the mysteries of the universe but ignores the mystery of his own self. From necessities he moved to comforts and form comforts to luxuries forgetting the supreme source of comfort, viz. health and bliss. Whole society, therefore, becomes victim of tremendous stress and strain.
By nature human beings are competitive and aspire for excellence in all athletic performances. This is only possible by channelizing them in to appropriate games and sports according to their potentialities and through scientific and planned sports training. Today the preparation of an athlete for achievement is a complex dynamic matter characterized by a high level physical and physiological efficiency and the degree of perfection of necessary skill and knowledge, and proper teaching and tactics. For the physiological system of the body to be fit, they must function well enough to support the specific activity, the individual is performing. Moreover different activities make different demands upon the organism with respect to circulatory, respiratory, metabolic and neurological process which are specific to activity. There are several studies, which have documented specific pattern of respiratory muscle activity, respiratory presence of nostril dominance during specific asana. However, what is of greater physiological relevance is the increase in physiological reserve after a few months or years of regular performance of yogic exercises. With exercise conditioning, one can increase the amount of air that is regularly brought into the lungs each minute, and thus the amount of oxygen that can be extracted and delivered by the heart and vascular system to the exercising muscles. Along with the changes in the capillaries at the muscle cell level, this training effect allows individual to ride longer and stronger without becoming anaerobic in metabolism, (Muralirajan, K. 2012).

**Yoga and Pranayama:** Yoga is a life of self-discipline. Yoga balances, harmonizes, purifies and strengthens the body, mind and soul. It shows the way to perfect health, perfect mind control and perfect peace with one’s own self, the world, nature and God. Yogasanas not only work to bring fitness and vigor to physical body, but also harness the will and emotions to improve the power of analysis, insight and vision. They calm the mind and steady the emotions, still not losing the sharpness of intellect, which is the key to human
progress. The science of yoga is dedicated in helping people to change their personalities and life styles.

Asanas are physical exercises which enable the body to be physically fit. These exercises in physical endurance play an important part in helping the pupils to maintain a slim and youthful body. Several tests and experiment have been conducted to know the values and importance of asanas. Like psychological effect of short term yogic exercises on the adolescent body has an inevitable effect. It also harnessed our will and emotions to improve power of analysis, insight and vision. They calm the mind and steadily the emotions, still not losing the sharpness intellect which is the key to human process. The science of yoga and health is dedicated to help people to change their personalities and health, (Singh, K.V et al; 2012).

Yogasana is based on a sound knowledge of human anatomy and physiology. Placing the body in certain posture or position stimulates specific nerves, organs and glands. Many yogasanas offer an opportunity for the physical expression of mental imagery, with which children are usually very comfortable. Sitting yogasanas provide greater blood circulation in parts above the waist. Thus, the vital organs are energized, giving increased stimulus to brain functioning. Similarly, inverted yogasanas help in increasing blood flow to the brain and activate the brain cell. Yoga training also increases the grip strength, dexterity, confidence, self-efficiency, mental health, creativity, concentration, memory & intellectual abilities, (Singh, S and Singh, J.P 2014).

**Historical Background of Pranayama:**

Thousands of years ago, the yogis living in the shadow of the Himalayas fathomed the inherent quality of motion in creation and they called it prana. One may roughly translate the word prana as 'energy' or 'vital force', but neither definition offers a precise equivalent of the Sanskrit term that emerged from higher states of contemplation. The word prana assumes the quality of 'livingness'. From the yogic point of view, the entire cosmos is alive,
throbbing with prana. Prana is ever present in every aspect of creation. The prana within every created object gives existence and material form, whether it is a planet, an asteroid, a blade of grass or a tree. If there were no prana, there would be no existence. If prana were withdrawn from the universe, there would be total disintegration. All beings, whether living or non-living, exist due to prana. Every manifestation in creation forms part of a never-ending matrix of energy particles, arranged in different densities, combinations and variations. The universal principle of prana may be in a static or dynamic state, but it is behind all existence on every plane of being from the highest to the lowest. Prana is the simplest as well as the most profound concept propounded by the seers. A stone worshipped sincerely may have a finer quality of prana than the force of a leopard in full flight. The tangible strength that enables the movement of one's hand is prana and the intangible force invoked through a complex fire ritual is also prana. The wind blows and rivers flow because of prana. Aircrafts, trains and cars move because of prana; laser beams and radio waves travel because of prana. Every object in creation is floating in the vast, all-encompassing sea of prana, and receiving everything they need to exist from it. It is said in the Kapanishad. This whole world - whatever there is - vibrates having originated from prana. This cosmic prana, also called mahaprana, came into being at the time of creation. Thus, in order to fully understand prana, one must go back to the beginning of creation. All yogic practices purify the pranas, but pranayama is considered the principal among these. In the Yoga Sutras Maharshi Patanjali states, "thence the covering of the light is destroyed", with reference to the effects of pranayama. This covering is the residue of Tamas and Rajas, and through pranayama the sattwic nature of the chitta shines forth. Tamas and Rajas exist in the form of blockages in the nadis. These blockages may be caused by disease, tension, accumulation of impurities, negative thoughts or samskaras, mental patterns lodged in the subcon-scious and unconscious. Just as the nadis are not physical but pranic entities, the blockages too are pranic and may be experienced, but not
quantified. When all the pranas are balanced, the body and mind are in a state of optimized harmony. However, this is not usually the case. Due to overuse and misuse, the pranas of most people are in a state of imbalance. In the course of daily life, worry and stress use maximum prana, so that the pranic fields become exhausted and discharged. This in turn causes fatigue, depression, and inefficient digestion and circulation. As this vicious cycle continues, the body does not have the strength to walk, work or think, and the smallest disturbance causes nervousness and anxiety. In order to remedy this, the pranas need to be charged constantly, so their functioning is optimized and balance is maintained. This is the first objective of pranayama, which charges and replenishes the pranas through the practices. When the pranas are sufficiently charged, they are awakened, (Swami V.D. 1987).

The word pranayama is formed by two words i.e. PRANA and AYAMA. Prana means a subtle life force, which provide energy to different organs (including mind) and also controls many vital life process (e.g. circulation, respiration etc.) Ayama signifies the voluntary effort to control and direct this Prana. Breathing is one of the vital activities governed by Prana on a gross level. The system (Pranic activity) is linked with the nervous system (based on the mental activity) on one hand and the mind (Consciousness) on the other. Yoga has taken best advantage of this situation, considering that the mind could be controlled effectively with the voluntary regulation over breathings of this situation, considering that the mind could be controlled effectively with the voluntary regulation over breathing. Prayanama is more important because it produces deeper effect as far as the physique is concerned. The effects of asanas are superficial in nature whereas the pranayama is deeper as far as the outcomes are concerned, (Mishra, S. and Singh, J. et al; 2012).

**Pranayama:** Prana is the vital life force that acts as a catalyst in all our activities and Ayama the expansion or control of this force. Thus, Pranayama can be defining as the science of controlled, conscious expansion of Prana in
body/sheath, the Pranayama kosha. Gurus of Vedic times placed great importance on Pranayama and advocated its practice in order to unleash the hidden potential energy known as the Kundalini Shakti. Indian culture has always laid great emphasis on Prana and Pranayama and ancient texts say, “God is breath” as well as “Breath is life and life is breath”. Atarva Vedlevlen states, “Prana is the fundamental basis of whatever is, was and will be”. In the Prasno-upanishad we can find the following statement. “All the existence” in the world is under the governance of Prana”. It is sad in the Shiva-Svarodaya, “The Prana (life force) verily is one’s greatest friend, companion and there is on grater kinsman that the life force.” In Yoga-Vashistha, it is written that when the energy of the life for (Prana) is restricted, then the mind dissolves, like a shadow of a thing when thing is absent. In Pranayama the Ujjayi breathing is a breath technique employed in a variety of Hindu Yoga practices. In relation to Hindu Yoga, it is sometimes called “the ocean breath”. Unlike some other forms of pranayama, the Ujjayi breath is typically done in association with asana practice. In Sanskrit Bhashrika means ‘bellows’. Rapid succession of forcible expulsion is a characteristic feature of Bhashrika. Nadishodhana is a purifying as well as a balancing pranayama. The Sanskrit term nadi means ‘channel or ‘flow’ and shodhana means purification’. This suggests that the practice of nadi shodhana purifies the network of psychic energy channels in the body. The logic behind nadishodhana pranayama states that there is a constant pranic flow through the network of psychic channels present throughout in the body. These networks are not physically visible and Nadishodhana is the process which aims to cleanse these networks. Cardiovascular endurance is the most important aspect of fitness. It is basically how strong heart is, which can potentially add years to one’s life, (Rana, D.S. et al; 2012).

The word Pranayama is made of the combination of two words: Prana + Ayama (Pranayama). Prana may be called the energy inside everything in the universe. It literally means the air one takes while breathing. Breath is the
external manifestation of Prana, the vital force. Ayama means to control. By exercising control over one’s breathing, one can control the subtle Prana inside. Control of Prana means control of Mind. Thus, Pranayama can be understood as a method by which vital energy can be stimulated and increased. The aim of Pranayama is Udghata or awakening of the dormant Kundalini. Pranayama intends to bring the spontaneous functions of the respiratory mechanism under human control. If one can assume control over one’s external breath, he or she can also be in command of the inner vital force is Prana. By Pranayama, one can remove the impurities of the body and the senses by blowing his lungs. Regulation of breathing is a natural process. This natural process of intake and outflow of the breath goes on involuntarily and human life depends on this spontaneous process. The difference between this natural process and the 'Pranayama' is that in the former the inhalation and exhalation is not necessarily connected with the mind. The inhalation and the exhalation are not of any set duration. For some people, the inhalation may take a longer time than the exhalation and vice versa. In Pranayama, however, there is a systematic regulation of both the inhalation and exhalation. Hence, the duration of inhalation and exhalation has to be controlled. The result of this controlled process has a more helpful impact on the body and mind, (Swami Vishnu-devananda, 1987).

The science of Pranayama was developed by highly evolved yogis through an intuitive and experiential understanding of prana and its influence on the human mechanism at various levels. The agency of the breath was used to access the pranic field, to attain balance in the body and control of the mind. The practices would render the body-mind instrument capable of experiencing higher states of consciousness so that the ultimate union with the transcendental reality could be experienced. The breath being the medium of pranayama, the system is based on the three stages of respiration: inhalation (pooraka), retention (kumbhaka) and exhalation (rechaka). By permuting and directing these three stages, the different practices of pranayama are obtained.
Technically speaking, pranayama is actually only retention. Maharshi Patanjali’s Yogasutras states remember that pranayama is not a stand-alone yogic practice. In the system of Ashtanga yoga, it is preceded by sustained practice of yamas and niyamas, shatkarmas and asanas, and is followed by pratyahara, dharana, dhyana and samadhi. A balanced, sequential movement from gross to subtle, from annamaya kosha to anandamaya kosha, is the aim. In the Hathayoga Pradipika it has been said: Asanas, various types of kumbhaka (pranayama) and the other various means of illumination should all be practiced in the hathayoga system until success in raja yoga is attained. In this context, the aim of pranayama is to perfect pratyahara, which in the traditional texts has been described as not just sense of withdrawal, but the state where we perceive every sensory input as a manifestation of the Supreme, and have expanded the pranic capacity to the extent that we can retain the breath for three hours. The Shiva Samhita states: When one attains the power of holding the breath for three hours, then certainly the wonderful state of pratyahara is reached without fail. The practice of yoga, in fact, begins when we come to the pranayama series. With the practice of asanas, we arrive at the state where we are able to work with the energies controlling the body. With pranayama, through the breath, we develop an awareness of the subtle force within the body, and directing the mind to become aware of the subtle activities is the beginning of yoga.

Every yogic science—mantra, yajna, austerities, different forms of concentration and meditation—is aimed at awakening and enhancing this vital force within the unit of the individual or the wider universe. The Sanskrit word prana is a combination of two words, pra and na, and denotes constancy, a force in constant motion. Prana exists in sentient beings as the energy that drives every action, voluntary and involuntary, every thought, every level of the mind and body. Scientific research describes prana as a complex multidimensional energy: a combination of electrical, magnetic, electromagnetic, photonic, ocular, thermal and mental energies. Prana also
exists in the insentient world, causing motion, growth and decay at this level. Prana is, indeed, the basis of manifested creation. It is the force that emerged out of the 'original willing' of the primal consciousness to bring about creation, (Saraswati 2009).

Pranayama is the pause in the movement of inhalation and exhalation when that is secured. Inhalation and exhalation are methods of inducing retention. Retention is the key because it allows a longer period for the assimilation of prana, just as it allows more time for the exchange of oxygen and carbon dioxide in the cells. As the breath is also intimately connected with various functions and organs of the body as well as the mind, by controlling the breath we also influence all these dimensions. At the pranic level, in their initial stages the practices of pranayama clear up the nadis, energy pathways in the body. The scriptures say there are over 72,000 nadis or pathways of prana in the pranic body and six main chakras. However, in the average individual, many of these pathways are blocked and the chakras release energy only partially. In other words, we do not utilize our full potential in terms of energy, mind and consciousness. The negative conditions we experience, whether physical or mental, are the causes as well as the consequence of the blockages. The state of our nadis and chakras are defined by our samskaras, conditionings carried in seed form, as well as purushartha, self-effort and anugraha, grace. With the practice of pranayama, these pathways of energy are gradually freed so that prana moves through them smoothly. At higher levels of practice, the direction of the panics flows is influenced and a greater quantum of energy is released from the chakras. As these processes are activated, many new experiences unfold. Expert guidance is essential to steer the practitioner through these stages, (Saraswati 2009).

**Benefits of Pranayama:** The physical body that is exposed to the processes of yoga is freed from old age, disease and death. Pranayama initiates a process in the physical body whereby the energy molecules and the mental forces which interact with one another in life and consciousness are
transformed. When the molecules of mind are transformed, higher qualities such as love, compassion and unity arise. Matter is energy and, therefore, the physical body can be transformed into energy. The aspirant who practices pranayama in a sustained manner will find that every aspect of the being, at every level, is gradually being impacted. As one advances in the practices, the structure, the skin and the smell of the body begin to change. One is always full of fresh energy, and the senses are calmed and their outgoing tendency diminishes. Impurities are removed not only from the physical and pranic bodies, but also from the mental, psychic and causal bodies. As a result, the intellectual capacity increases, and the mind and thoughts become more powerful. As prana flows freely through all the levels of being, the negative tendencies begin to drop off almost automatically.

The one essential benefit of pranayama is that it allows one to increase one's level of vital energy, thus strengthening the force of the different systems active within, resulting in better overall health. The practices connect the individual with the very source of energy so that one's physical and mental energies do not get depleted. This brings about continuous alertness and a sense of wellbeing, dynamism and vitality. The purpose of pranayama is not to learn how to breathe or even to breathe better, but to awaken the inherent energy, the power or prana, within. Pranayama creates static electricity in the body which helps to recharge the positive ions breathed in from the environment and convert them into negative ions. When the rishis discovered the science of pranayama, they did not have yoga therapy in mind, although the practices have innumerable physical benefits. The therapeutic aspect of pranayama is an incidental by-product. The main objective of pranayama is to balance the interacting processes of the pranic and mental forces for awakening the higher centres of human consciousness. Nevertheless, the practitioner of pranayama will experience many benefits at the physical level. These effects have been documented scientifically, and it has been observed that pranayama influences almost all the organs and physiological systems, as
indicated below. Pranayama exercises the muscles of respiration and the lungs through the processes of deep, rapid or slow breathing. The chest is opened to its fullest extent and the lungs are stretched to the utmost. This strengthens the respiratory muscles and makes the lungs more elastic, resulting in a healthier process of respiration.

During pranayama one does not absorb a larger quantity of oxygen. In fact, the amount of oxygen absorbed during a round of pranayama is less than the amount absorbed during normal respiration. The average person inhales about 7,000 cc of air in one minute during normal inspiration; during pranayama, one inhales about 3,700 cc in one minute. The total intake of air being smaller in pranayama, the absorption of oxygen is also smaller. However, the practices allow more time for oxygen to mix with the blood flow and for the system to eliminate waste through the breath and blood. The training given to the respiratory organs and muscles during the pranayama practice prepares them to work efficiently all through the day. Similar benefits are received by the organs of digestion, absorption and elimination. The stomach, pancreas, liver, bowels and kidneys are all exercised in pranayama through the massage given to them by the diaphragm and the abdominal muscles. This happens in normal respiration as well, but during pranayama the movement of the muscles and the resulting massage is greatly accentuated. All the associated muscles and nerves are toned up and rendered healthier. Constipation is removed and all the organs function better. Absorption also becomes more efficient with a well-functioning digestive and eliminatory system so that the blood is enriched with nutritive elements.

In 1968, the Bihar School of Yoga conducted a study on one thane and patients suffering from cardiac disorders such as angina, myocardial infections and other cardiac diseases and referred to yoga and pranayama practices. It was found that the practice of pranayama had helped each and every patient, but especially those suffering from angina and ischemia. Many other research studies have verified that pranayama is extremely beneficial for the heart. The
practices minimize the stress put on the cardiac system by day-to-day life. Breathing with slow, deep and long breaths gives rest to the heart. Many heart conditions can be managed through pranayama.

During the practices of pranayama, the muscles of the heart are also gently massaged, allowing for good circulation. In bhatrika and kapalbhati, vibrations spread to the entire circulatory system, including the veins, arteries and capillaries, making them function more efficiently. Pranayama gives proper training to the coronary behavior and this has another connotation for the spiritual aspirant. When the practitioner enters the state of meditation having practiced pranayama, there is no stress on the heart, and the body is able to withstand the higher states of consciousness without any adverse effect. The endocrine glands influence the behaviour, reactions, interpretations, and even the so-called natural responses. Pranayama harmonizes, purifies and neutralizes the secretions of these glands and thereby influences thought and behavior. The overall health of the endocrine system is largely dependent on the quality of the blood and its distribution to the glands. During pranayama, especially the vitalizing practices, the circulation of the blood becomes very rapid and the quality of the blood is also rendered very rich. The richer and more liberal blood supply brought to the endocrine glands enhances their functionality and the regulated breathing helps to balance the system. The effects of pranayama on the endocrine system are most striking in relation to the pineal gland. This mysterious gland, located behind the third ventricle of the brain in the region of the ajna chakra, normally begins to decay with the onset of puberty. The pineal gland acts as a check for the pituitary gland, which is responsible for controlling the growth and functions of the other endocrine glands. If the pituitary gland is not regulated from an early age, an imbalance arises between the physical and mental development and the emotions mature before they can be handled. Therefore, in India, children from the age of seven or eight begin the practice of pranayama in order to
maintain the activity of the pineal gland for a longer period, so that the transition from childhood to adulthood is smooth.

The brain, spinal cord, cranial and spinal nerves benefit from a richer and more liberal blood supply received through pranayama. In addition, the actions of the diaphragm and the abdominal muscles during extended inhalation pull up the lower part of the spinal column. The pulling up of the vertebral column as whole tones the roots of the spinal nerves and gives a strong peripheral stimulus to the whole nervous system. If pranayama is combined with all the three bandhas, the high intra-thoracic, intra-pulmonary and intra-abdominal pressures gives peripheral stimulus to the different nerve plexuses situated in the abdomen and thorax. Respiration also controls fluctuating moods, which are subtle behaviors of the mind. The neuronal memory of the brain influences the projection of moods. However, the neurons fire more rhythmically and the electrical interactions between the different brain centers become more regulated when one breathes slowly and deeply in a systematic and coordinated manner.

Accordingly, the Shiva Samhita states: Pranayama gives purity, and the light of knowledge shines forth. There is no purificatory action greater than pranayama. The karma that covers the light and binds one to repeated births becomes ineffective and is eventually destroyed by the perfection of pranayama. A yogi measures the span of life by the number of breaths, not by the number of years. Swami Sivananda breathing is a natural process and the normal rate is 15 breaths per minute, 900 breaths per hour and 21,600 breaths per 24 hours. When the breathing rate is increased, longevity is decreased. Correct breathing profoundly improves one's physical and mental wellbeing. Therefore, the first prerequisite of pranayama is conscious breathing, whereby it becomes possible to correct the breathing habits. In order to develop conscious breathing, one must free the mind from emotional tension. The breath is perhaps the only physiological process that can be either voluntary or
involuntary. One can breathe consciously and control the breathing process or one can breathe reflexively or unconsciously.

Pranayama serves several purposes in Yoga. First, it is the method by which the nadis, particularly the ida-nadi and pingala-nadi are purified, allowing prana to flow into the central channel, the sushumna-nadi. In the ordinary state, prana flows with regularly alternating dominance through the ida-nadi and the pingala-nadi. The effect of this back-and-forth fluctuation is mental activity. Prana-vayu (one of the five major modalities of prana) functions within the superficial mind (manas), which processes the world in which we live. Attached to the five senses and dominated by the superficial mind, which is filled with idle chatter, prana-vayu carries the energy of emotion. When the nadis become purified through proper lifestyle and the practice of pranayama, prana is drawn into the sushumna-nadi and is carried upward by udana-vayu (the upward moving modality of prana). Then prana becomes the energy of immortality and guides the unfolding of our consciousness. Breathing and metabolic rates are extraordinarily slow, mental chatter stops, and the yogi experiences bliss or “that” which has no words. Pranayama is also a preparatory practice for the deeper stages of meditation. Toward this end, pranayama begins the process of balancing the flow of energy through the ida-nadi and pingala-nadi, which relate to activity in the right and left sides of the brain, (Swami Vishnu-devananda1987).

Pranic energy normally resides in these channels, but when they become pure and their flow balanced, the prana moves into the sushumna-nadi. Once there, the mind of the yogi becomes still, the fluctuations of thought disappear, and consciousness expands. The further stages of dharana (concentration on a single point) and dhyana (sustained concentration or meditation) focus and hold the yogi’s attention within the voidm of the sushumna-nadi. Through pranayama performed properly along with appropriate bandhas, kundalini, the “serpent fire,” which usually lies dormant at the base of the spine, awakens. Then it rises through the sushumna-nadi and
the yogi’s consciousness is liberated. A third purpose of pranayama is the extension of life Prana is life, and its mastery through pranayama prolongs life. With proper practice the yogi is able to control prana in such a way that there is no dispersion of the life force. Ayurveda teaches that one fundamental cause of disease and death is parinama, or time in relation to motion. In other words, the faster we move the faster biological time moves forward. This motion is not only physical but mental as well. The result is aging, decay, and death. Through pranayama and meditation, the motion of the mind slows and can even be stopped. The result is the elongation and possible suspension of biological time. In the stillness created, the body is relaxed and prana flows freely without obstruction through the physical body to heal and repair any damaged areas (Swami Vishnu-Devananda1987).

Specific mantras may be used in pranayama to create the rhythm of inhalation, retention and exhalation. In this case the count and ratios are maintained by the mental chanting of the mantra. One may use the guru mantra or a universal mantra such as Soham or Om, for this purpose. However, the best mantra is Gayatri, as it corresponds to the ideal breathing pattern of pranayama. Gayatri mantra represents cosmic prana. It is comprised of twenty-four syllables which contain the entire form of prana. Inhalation during the repetition of the twenty-four syllables is considered to be the ideal vital capacity. Retention and exhalation are also performed with the same repetition. Not everyone can use the Gayatri in this manner at the beginning of pranayama practice, but the lung capacity expands with regular practice, and then the Gayatri mantra can be comfortably synchronized with the breath. Gayatri pranayama performed in this way is a complete practice in itself. Omkara or Pranava pranayama is also described in several scriptures as a total practice. The repetition of Om may be combined effectively with every pranayama to keep time and to deepen the experience of the practice (Saraswati 2009).
**Pranayama for transformation:** In the practice of pranayama, prana unites with apana and the united prana-pana is directed upwards to the head. At this time, prana leaves the passages of ida and pingala and travels through the channel of sushumna. When prana passes through sushumna, the light of jnana is kindled and the kundalini is awakened. The mind enters a thoughtless region. All the karmic seeds of the yogi are burnt away. The oblation of the senses is offered into the fire of prana. As the practitioner undergoes this process, the sleeping centers of the brain are awakened. Usually the brain and the mind are trained through the perceptions available and intelligible to the senses. Yoga, however, has a completely different view of mind control. It says isolate the mind and consciousness from the pathways of sensory stimulation. The brain, mind and consciousness can function independent of the senses. By isolating the brain and mind, the consciousness enters a more powerful state of understanding and realization, and this is the beginning of yoga. The practice of pranayama has a direct effect on the functioning of the intricate, sophisticated functions of the brain. When the yogis investigated the possibility of an independent method to develop the silent areas of the mind and brain in order to transcend the limiting barriers of the human personality, they discovered pranayama.

It is possible to understand this process through modern scientific principles as well. There are billions of cells in the brain which exist in a chaotic order, without any discipline or unity, shown as random brainwave activity when measured on an EEG machine. These cells are oscillating forms of energy or shakti, comprising the totality of brainwave activity. The chaos in the brain and mind is also a result of the millions of archetypes that exist as unorganized geometric patterns and influence one's actions, thoughts, decisions, feelings and awareness as a whole. When the basic elements of the brain move in such a chaotic fashion, so does the thinking process. Pranayama holds the key to blend them together as one pulsating unit. One cannot discipline or organize the physical brain or bring order into the chaotic elements of the brain without
first balancing the nadis. The brain is controlled by the chakras and nadis. Mental balance is not possible unless one is able to balance the ida and pingala nadis through yogic practices. The practices of pranayama are of major importance because they purify and balance the flows of ida and pingala nadis to awaken sushumna nadi and kundalini. Thus the brain cells are stimulated, the brainwaves are streamlined and the archetypes are reorganized. Breathing is a unique vital process, which normally functions unconsciously, but one also has the ability to breathe consciously. Other unconscious processes, such as the heartbeat, body temperature and metabolic activity, cannot be controlled by the average person. Unconscious breathing is controlled by the medulla oblongata in the brain stem, a region known as the primitive brain, while conscious breathing comes from the more evolved areas of the brain in the cerebral cortex. In fact, conscious breathing engages the cerebral cortex and stimulates the more evolved areas of the brain. The regular practice of pranayama over a period of time reinforces cortical control of the breath, a process called telencephalization, where one shifts from unconscious to conscious breathing with profound effects on one's wellbeing. During conscious control of the breath, the cerebral cortex bypasses the respiratory centre in the brain stem. The involvement of the cerebral cortex in conscious breathing causes the cortex to develop and allows the individual to enter higher stages of the evolutionary cycle. The awareness is an aspect of consciousness and the breath is a vehicle of prana. Thus, in this way, prana and consciousness move together. Awareness of the breath implies that one is simultaneously aware of the consciousness. By the practice of conscious breathing, the witness aspect develops and the expansion of consciousness begins. Conscious breathing has a calming effect on the mind. Even simple breath awareness, without exerting any control over the natural pattern of the breath, will induce a regular and relaxing rhythm of breathing. This is an effective method of quietening a tense mind. The more complex breathing techniques of pranayama influence the
brain even more deeply. There is no system like pranayama that has such an immediate influence on the nervous system, brain and mind.

Units of Pranayama: In a systematic practice of pranayama, the first criterion is a balanced ratio of the breath. Timing has a deep effect on the mind and prana. "If one is able to practise five rounds of nadi shodhana with absolute precision in timing, then the laya state of samadhi will come," Swami Satyananda said while explaining the science of pranayama to yoga teachers in Spain during 1979. The ancient yogis who propounded the practices of pranayama were extremely mindful of this fact, and devised various methods to measure the units of pranayama, in the absence of devices such as clocks. Each time unit was called a matra. The following physical actions provide a guideline for understanding the notion of matra. Each denotes one matra:
- Twinkling of an eye
- Time taken to pronounce a short vowel
- Time necessary for touching one's knee thrice followed by a clap
- Time occupied by one normal respiration
- Time taken up in pronouncing the sacred syllable Om.

As pranayama Training was always imparted by a guru to a disciple; the precise balance could be achieved under actual guidance. In modern times, despite the invention of clocks, the measuring of inhalation, exhalation and retention remains a somewhat perplexing issue. Watching a clock or even mental counting can be a distraction while practicing. The best way to measure the breath is with the aid of the 24 syllable Gayatri mantra. One repetition of Gayatri mantra provides the proper timing for the inhalation and two Gayatris for the exhalation. The Gayatri is an ideal unit for pranayama, but in case one is unable to chant it in one inhalation, shorter mantras or a simple count may be employed, keeping them uniform. Along with the time unit, the space unit also needs to be taken into consideration. This measures the force with which the inhalation and exhalation are practised. The expelled air current can be felt for a specific distance from the nose, and this was measured with the fingers by
the ancients. In regard to the space unit, the air pressure must be uniform, the inhalation and exhalation must be smooth, and the length of exhalation should ideally be double of inhalation, although one may practice equal inhalation and exhalation at the beginning. Overall, one must practice pranayama with utmost mindfulness, follow one's capacity and allow it to build up gradually, for the ratio represents the natural evolution of breath control, (Saraswati 2009).

The practice of pranayama decreases the rate of respiration and elongates the breath. As yogic texts equate breath with life, they interpret this to imply that life is elongated as well. Pranayama cultivates the prana-agni or the fire that digests prana. It is this digestion that transmutes prana into its higher form, where it acts as a force for the transformation of consciousness. It is also this agni that is responsible for purifying the nadis. Inhalation feeds the fire. Retention purifies the prana. Exhalation rids the body of its waste by-product. As the pranaagni slowly builds, the body begins to lightly sweat. This aids the purification of the subtle nadis. Prana-agni is the heat associated with the kundalini, but it is not limited to the kundalini. Prana-agni converts breath into life on the physical level and life into immortality or enlightenment on the subtle level. This mild form of pranayama increases prana, which secondarily increases tejas. Excessive practice increases vata and pitta in the physical body, (Swami Vishnu-devananda1987).

Pranayama and exercise develops various component of physical fitness such as strength, flexibility, co-ordination, balance, body composition and grace. Flexibility is a part and parcel of physical fitness. Pranayama (Sanskrit) from prana breathe ‘ayama’ restraining, stopping the fourth of the eight steps of yoga. Consisting of various methods of regulating the breath the three forms of pranayama are puraka (the inhaling), kumbhaka (the retaining) and rechaka (the exhaling).Pranayama (Sanskrit) is a Sanskrit word meaning “extension of the prana or breath or extension of the life force” the word is composed of two Sanskrit word prana life force or vital energy
particularly the breath and ayama to extend or draw out (not restrain or control as often translated from yam instead of ayama).

**Bhramari Pranayama:**
Bhramari word has originated from Sanskrit word ‘bhramar’ which means humming bee. The name suggests in this method of pranayama, humming sound is created so is the name. The most conspicuous effect is that it relaxes the brain if done regularly. It can have positive effect on stress, fatigue and high blood pressure. The cerebral cortex sends impulses directly to the hypothalamus which controls the “pituitary” gland the master of all glands. The resonance of the brains metaphysical thinking is taken out and this enhances capacity of brain. It consist of three parts: Pooraka, Kumbhaka and rechaka

**Pooraka:** Take breath from both nostrils and start inhaling.

**Kumbhaka:** when the pooraka is completed both the nostrils are closed with pranav mudra. In this situation all the three bands are fixed and kumbhaka is performed. There is no sound in kumbhaka.

**Rechaka:** Start exhaling while making bee like humming sound. While in exhaling, concentrate the mind on the breathing and sound of breath. First do pooraka and then do Rechaka. The sound created during this will seem hoarse but with gradual practice it becomes likes humming bee after some time, (Swami, Kuvalayananda., 2000).

Varieties of approaches’ and treatment modalities aver described for overall improvement of human being including body and mind. In this perspective the physical Exercise and Bhramari Pranayama have been selected for empowerment of Physical and mental fitness at under graduate level students because both are important tools of yogic and Ayurvedic system of medicine.

An Extensive description about Physical Exercise and Bhramari Pranayama and its clinical application is available in Ayurveda and Yogic sciences respectively but the correlative interpretation and its applied aspect with latest update in relation to bio-sciences is not available. The Basic ideology of
Physical exercise and Bhramari Pranayama and its impacts on Physical, Physiological and mental denominator to be studied by utilizing recent tools and techniques of biosciences to answer the hidden secrets of the same. Besides, the response of physical exercises bhramari pranayama is also variable depending upon different genetic makeup of human being. This also warrants us to shift the study and hints on this line to develop real knowledge for the benefit of society. Previously no work has been carried out on this concept. Yoga has a lot to offer as we approach the 21th century. It gives us means to compliment medical technology with a system of health care that addresses the problems of the mind and spirit, as well as those of the body, (Pramanik, T.N et al; 2012).

**Bhramari Pranayama:-** This breath is similar to ujjayi, but instead of a hissing sound is accompanied by a humming sound, like a bee makes (bhramari). The classic texts describe the sound of the bee in detail. The sound on inhalation resembles a female bee and on exhalation a male bee. This form of pranayama has been reported to be beneficial in the treatment of insomnia. A cooling breath, bhramari increases prana, pacifies pitta, and may aggravate vata and kapha. The cooling action of the pranayama prevents a rapid rise in tejas. While pranayama can be practiced in many postures, siddhasana is the most highly regarded. Still, any posture that keeps the spine erect is considered adequate for practice. While different ratios of inhalation to exhalation and retention have been mentioned, it is often recommended to begin simply by equalizing the lengths of inhalation, exhalation, and retention. This is called sama-vritti pranayama. A person may first have to keep retention following inhalation to a lesser amount, slowly building up over time until it is equal to inhalation and exhalation. Retaining the breath after exhalation, or bahya-kumbhaka, is not recommended for beginners. Once the student is competent in sama-vritti pranayama, bahya-kumbhaka can be added beginning with a lesser amount of time and working up to an amount equal to the other phases. Another way to practice pranayama is with ratios that are not equal. Called
vishama-vr̥tti pranāyama, the standard approach is to work toward a ratio of 1:4:2:1, that is, inhalation, inner retention, exhalation, and outer retention respectively, (Shri Swami Sivananda., 1997).

Upanishadas say, that the Om is the bow, mind is the arrow and Brahma is the target, the person, whose mind and thoughts are concentrated, can pierce it, Its continuity can convert and establish the person into Brahmic complexion. The pronunciation of bhramari pranayama is like Omkar. The mouth remains open during practicing Omkar while it remains closed during Bhramari. The voice that is produced during Bhramari is like the humming sound of the black bee. The practice of Bhramari pranayama can be continued till the body becomes wet with perspiration. The deep inhalation should be done and then the voice like humming of the black bee is to be produced from throat. The voice comes out through the nose. As it happens during Omkar it produces high velocity waves in the cerebrospinal fluid. It gives all the benefits of Omkar. The longtime practice of Bhramari pranayama gives good and deep sleep. People who have the problem of insomnia should practice Bhramari pranayama. Do not touch the face. It can be practiced on empty stomach. It is practiced before going to bed at night. It removes mucus, inhaled dust particles and unwanted materials with breath. The regular practice of omkar and bhramari increases the working capacity of this lining, so that the external unwanted material which has entered through the nose, as well as mucus can be ensiles removed. This mucus may interfere with the movement of air in the bronchial tubes. Therefore the practice of omkar and bhramari has been proved very helpful to the patients of bronchial asthma and bronchitis. The vibrations, which are produced during omkar, can be experienced in the throat, head and forehead. It sweetens the voice, increases the memory, enlightens the thought power and brings precision in intelligence. It also relieves headache and sinusitis. The practice of omkar helps the seekers of meditation to concentrate the mind. There is a great contribution of omkar to lead the mind on the spiritual path. The practice of omkar destroys into Sattvik thoughts. In long term if the people
living in all four directions on the earth start practicing omkar regularly, the mental conflicts can be eliminated. Selfishness will diminish. Benevolence will be originated. The whole world can become a family. The contradiction will decrease and smooth conversation will be possible. The wind of pure selfless life will flow. Omkar is the highway of world peace and welfare. Let us practice omkar and make out life successful, (Swami, A. 2008).

By doing Bhamrami pranayama one can cure ailments like:

- Ears
- Nose
- Throat
- Eyes
- Nervous system

Pranayama is Kumbhaka: The actual pranayama is kumbhaka i.e- the period of breath retention. The guiding of inhalation (pooraka) and exhalation (rechaka) aids in achieving kumbhaka, irrespective of where it is applied. In Nadishodhana pranayama, kumbhaka is practiced after inhalation and/or exhalation, but in bhastrika it follows a round of rapid inhalations and exhalations.

In the Yoga Sutras Maharshi Patanjali says: It is the pause in the movement of inhalation and exhalation when that is secured. Yoga Yajnavalkya Samhita also equates pranayama with retention, describing its three grades of, depending on the periods of breath holding: i) adhama pranayama (produces sweating), ii) madhyama pranayama (produces tremors in addition to sweat) and iii) uttama pranayama (produces levitation). Kumbhaka is difficult for a beginner, but it becomes easier, smoother and longer by systematic and regular practice. Breath retention may come more easily for those who have followed other yogic practices. The rare few, who are blessed with an awakened kundalini, may experience kevala kumbhaka (spontaneous retention) at their very first attempt at pranayama. However, it is of paramount importance for all Just as the impurities of mountain minerals are
burnt by the blower, so the stains caused by the sensory organs are burned by controlling the prana. The effect of prana nigraha is evidenced by a lightness and vitality in the body and a calm, relaxed mind, and then comes the strength and ability to practice pranayama, (Saraswati 2009).

Importance of Kumbhaka:-The process of respiration has three components: pooraka, inspiration; rechaka, expiration; and kumbhaka, retention. In the classical yogic texts it is said that kumbhaka is pranayama and pranayama is kumbhaka; not pooraka and rechaka, which are natural processes. However, one must remember that inhalation and exhalation are a part of retention. In order to retain the breath, it is necessary to inhale as well as exhale. Therefore, the three components of the breath are also the three parts of pranayama. Inhalation is described as the active or positive breath, exhalation as the passive or negative breath, and kumbhaka represents the transcendence of duality. Inhalation is the active process of respiration and requires muscular effort to draw air into the lungs. Normal exhalation is passive and does not require muscular effort; rather, the diaphragm and ribcage recoil back into their original places. In pranayama, rechaka is often a slow and controlled process. Generally, it is either the same length or twice the length of pooraka. The main advantage of conscious exhalation is that it develops conscious control over the relaxation response. Slow rechaka is performed spontaneously, for example, when one moans or groans in pain, for this removes pain from the pain centre in the brain. The conscious effort required for slow release of the breath needs the help of the cerebral cortex of the brain. Raising up the vayu from the akasha (region in the heart) and making the body void (of vayu) and empty, and uniting (the soul) to die state of void, is called rechaka. That is called pooraka when one takes in vayu, as a man would take water into his mouth through the lotus stalk. The word kumbha means 'vessel', and thus implies holding or retaining something. In pranayama, this term describes the retention of breath. Kumbhaka can be performed after inhalation (antar kumbhaka) and after exhalation (bahir kumbhaka). There are two types of breath retention:
Sahita kumbhaka, which is deliberately holding the breath, or Kevala kumbhaka, where the breath is suspended spontaneously. Kumbhaka is a part of all pranayama practices. In the Yogasutras, Maharshi Patanjali described pranayama as kumbhaka. The aim of all pranayama practices is to achieve kevala kumbhaka, which is equivalent to the state of samadhi, (Saraswati 2009).

**Physiology of Kumbhaka:** During the practice of kumbhaka the oxygen levels in the body fall and the carbon dioxide levels increases, depending on the speed of metabolism and how relaxed or tense one is. The main effect of kumbhaka is to train the nervous system to tolerate higher levels of carbon dioxide in the body before signals from the primitive brain stem force one to take another breath. Many blood capillaries lie dormant in the brain and become active only when more blood is required. Increased carbon dioxide levels stimulate the brain's capillaries to dilate. In this way, more capillaries in the brain are opened up to improve cerebral circulation. The brain also stores a certain amount of carbon dioxide, which allows for a more efficient oxygen exchange and carrying capacity of the lungs. Often, when one cannot breathe deeply, it means that the brain's concentration of carbon dioxide is diminished. The lungs are not out of order, but the carbon dioxide concentration of the brain tissues is too low to allow a deeper respiratory process. Nature, it seems, has provided for carbon dioxide storage in the brain in order to activate the respiratory drive and make the oxygen consumption process more efficient. Kumbhaka restores the levels of carbon dioxide in the brain tissues, allowing the system to fully extract oxygen. Additionally, when carbon dioxide is retained in the brain, it increases the capacity for assimilating ions. Increased carbon dioxide levels in the blood can lead to altered states of consciousness and feelings of expansiveness, (Sunder, Prem., 2009).

**Importance of Puraka and Rechaka:** The various pranayamas are obtained by modulating the processes of pooraka, rechaka and kumbhaka. The main classical pranayamas are nine: nadi shodhana, bhasrika, kapalbhati (also
a shatkarma), sheetali/sheetkari, bhramari, ujjayi, moorchha, surya bheda and chandra bheda. Some of these pranayamas increase heat and some cool the body down. Some pranayamas stimulate, while others harmonize and relax the nervous system. Nadi shodhana is balancing, Bhastrika and Kapalbhati are activating, and Bhramari and Ujjayi are relaxing the mind. Sheetali/Sheetkari and Chandra Bheda decrease the inner body temperature; Surya Bheda and Moorcha increase the inner body temperature. All pranayama techniques alter the normal breathing rate, but some more than others. Bhastrika and Kapalbhati speed up inhalation and exhalation. They may be considered as methods of hyperventilation, where prolonged rapid breathing is practiced. Similarly, bhramari, ujjayi, sheetali and sheetkari may be regarded as methods of hypoventilation, centre in the midbrain. These inhibitory impulses from the cortex overflow into the adjoining area of the hypothalamus, concerned with emotions, and quietness. Hence, the soothing effect of slow expiration. The Amritanada Upanishad gives a poetic description of the twin processes of pooraka and rechaka Raising up the vayu from the akasha (region in the heart) and making the body void (of vayu) and empty, and uniting (the soul) to die state of void, is called rechaka. That is called pooraka when one takes in vayu, as a man would take water into his mouth through the lotus stalk. The strength of the nation depends on the well-being of the mothers. Therefore, health of women fold should be our prime concern. Women need more attention and care for their health as they have the responsibility of maternity. During last few decades women have become worst hit victims of excess stress. This is because they have to work alongside men for meeting the growing demands of their families. The dual responsibility of working in the office and at home creates enormous pressure and stress at home and workplace which badly affect their health and wellbeing. They are suffering from various mental problems. Yogic practice can convert a woman into a “divine mother”, (Jana, S. and Bandyopadyay, N. et al; 2012).
Stress is the major problem in modern time but it is not an illness in itself, rather it is maladaptive response to a particular situation. When it prolonged it results in mental and emotional imbalance that ultimately leads to various somatic and psychic disorders like Insomnia, Asthma, Coronary heart disease, Hypertension, Sexual inadequacies, Diabetes etc. For prevention of all these disorders various medicaments are being used but no one is fully successful. So, there is need to change the lifestyle of the person to combat the stress. Yoga is one of the best tools for modification of behavior, emotion and personality. Yoga offers many practices like Asana, Pranayama, Meditation, etc. which individually and collectively activate relaxation and may help to restore the physical and psychological components of body. Thus by regular practice of Yoga, one can manage stress and psychosomatic disorders, (Joshi, K.N., and Nathani, N et al; 2012).

Reported that meditation, almost like transcendental meditation once a week for seven weeks improved competitive shooting performance of elite athletes. Hence, investigators of this study thought that yoga stretching and relaxation would be helpful for improving performance in rifle shooting event.

In fact Yoga and physical training are disciplines which have a direct impact on the physical and mental health of a person. Yoga and autogenic training are useful to the modern man by relieving his stress and tension. It proves to be helpful for the patients in treatment, rehabilitation and promotion of positive health. The professionals enhance their skills and improve the quality of life by these trainings. Thus, it attracts people from all sections of the society. The purpose of any research should be to solve the existing complication of the human being. Research should help the society not only to create good health and happiness among human beings, but also to improve the quality of life. Yoga is defined as a “method or a system for the complete development of the personality in a human being”, (Mohan, N.V et al; 2012). Yoga has been used as curative therapy in a number of conditions, the
maximum trails being in reference to Bronchial Asthma, Diabetes Mellitus and Hypertension, (Yadav, R.B., and Yadav, R.K et al; 2012).

Today, in this world, individual need two items to make our lives a complete success. The first item which everyone lacks is “vitality”, which is not physical strength, but inner strength, will power, clarity of mind and the ability to perform every action, with perfection. The second item we lack is tranquility, (Sao, K.A et al; 2012).

People suffering from high blood pressure are benefited by influencing the alpha wave behavior of the brain. Pranayama is also practised to bring the mind under control, and for this purpose the round is usually begun from the left nostril, which represents Ida nadi or the mental energy.

The mind becomes fit for concentration (by the practice of pranayama). The cumulative effect of pranayama is that the mind becomes steady like a candle flame in a still room. The disturbing energies are removed and the prana moves in the ether principle. The velocity of the mind is slowly decreased, but its power is increased. Rajas and tamas are subdued and the tossing of the mind is arrested. The mind becomes one-pointed and achieves dharana, concentration, and dhyana, meditation. In the Yoga Sutras Maharshi Patanjali says: The advantage of stepping into meditation through pranayama is that the mind remains dynamic and does not slip into a state of hypnosis. Some forms of dhyana yoga may induce hypnosis, if practiced for too long. Pranayama prevents this, and also keeps the mind from becoming distracted during meditation. Usually, during meditation the mind wanders and ponders upon daily interactions and passions. One may bring it back to the meditation, but again and again it dissipates. When pranayama is combined with the practice of meditation, this wandering tendency of the mind is overcome, because the process of pranayama stills the mind and makes it one-pointed, (Kuvalayananda Swami 2002).

The practices of pranayama develop the quality of human consciousness and should be adopted with this attitude. Control over the mind is achieved by
regular and systematic practice, so that one is able to handle the involuntary processes of the body, brain and mind. This means that one is now the master of oneself and one's destiny. At the physical level, the high pressure and stimulation exerted on the nervous system during the practices of pranayama cause the consciousness to be internalized, so that super-sensory perceptions become possible. Once the physical structure is changed, the mental substance automatically undergoes a change. At the pranic level, the awakening of pranashakti becomes a bridge to cross over from the gross to subtle experience of yoga. Planes of consciousness that had previously remained in darkness are illumined as prana flows into them. The practitioner is able to penetrate these higher dimensions of existence experientially. The anahad nada, subtle inner sounds, are heard distinctly and the mind evaporates at this time. The practitioner of pranayama does not have to fight with the wild and untamed mind; it becomes calm and controlled by itself. As prana circulates into the dark areas of the brain and mind, one's evolution is catalyzed and a higher intelligence manifests. The kundalini is awakened and the practitioner does not need to learn meditation. The meditative state arises by itself, and a new realm of consciousness opens. One is born into a radiant area of experience; such is the great science of pranayama. The classical yogic texts state that by concentrating on the tip of the nose during kumbhaka, one will control prana. By concentrating on the navel during kumbhaka, all diseases will be cured. If one concentrates on the toe of the foot, one will attain lightness of the body. When the yogi can perform kumbhaka for three hours, he will be able to balance himself on his thumb. This last statement relates to the fact that one's relationship with gravity changes by the practice of pranayama. One may not realize this, but it can be measured by scientific instruments, (Shri, S.S., 1997).

Health is an extent of containing physical, emotional, mental and social ability to cope with one’s environment. A healthy person is not only a boon to himself, but also to his nation and world at large. But now a day’s life is becoming so fast and hectic that every person faces annoying situation in their
home, work place and academic life. Today on one side we see the technological excellence and related comforts and on the other side the hazards & disorders created by this growth. Stress and anxiety have become major killer in our developed world, particularly the youth, the college going students, are losing their health and well being. The problems of mental disorders have been increasing tremendously for the two decades all over the world. India is no exception. We have witnessed a rapid growth in mental disorders of all types during this period. The incidence of mental disorders are acquiring unusual dimensions every year, causing great concern to educationists, psychologists, sociologists, social workers and all those who are closely connected with the welfare of the individual and the society as a whole. Due to developing technology modern life become so competitive that it has no any ends. This results the growth of anxiety in both men and women which affects nervous system and blood circulatory system of the body. Everything in this universe is rhythmic and harmonious and human life is no exception to it. The moment this harmony or balance is lost, it leads to a misbalance in the thoughts, perception, action etc.

According to Pandaya (2003), we hardly find anyone around, whose mind remains balanced and is always free from tension, stress and worries. In the National Co-morbidity Survey, the most recent large epidemiological study, anxiety disorder as a group were the most common kind of disorder for women, affecting approximately 30% of the female population at some point in their lives, and the second most common kind of disorder for men affecting approximately 19% of the male population at some point. Modern age is the era of anxiety, tension and fatigue, (Sao, K.A., 2012).

Physical activity helps to maintain good physical health. Participation in regular physical activity at least 30 minutes of moderate activity on at least five days per week, or 20 minutes of vigorous physical activity at least three times per week is enough for sustaining good health. Regular physical activity has beneficial effects on most organ systems, and consequently it helps to
prevent a wide range of health problems and diseases. People of all ages, both male and female, derive substantial health benefits from physical activity. Regular physical activity improves health and reduces the risk of dying prematurely from heart disease and other conditions; reduces the risk of developing diabetes; reduces the risk of developing high blood pressure; reduces blood pressure in people who already have high blood pressure; reduces the risk of developing colon and breast cancer; helps to maintain a healthy weight; build healthy bones, muscles, and joints; helps older adults to become stronger and better able to move about without falling; reduces feelings of depression and anxiety; and promotes psychological well-being. Through physical activity people enjoy and feel the stress melt away. Relieving stress by exercise, especially aerobic exercise has been proven to be highly effective, (Srivastava, K.A 2008).

Regular physical activity can prevent or delay the development of high blood pressure, and reduces blood pressure in persons with hypertension, and is also important for maintaining muscle strength, joint functioning, and bone health. Weight-bearing physical activity is essential for normal skeletal development during childhood and adolescence and for achieving and maintaining peak bone mass in young adults. Among post-menopausal women, exercise, especially muscle strengthening (resistance) activity, may protect against the rapid decline in bone mass. Regardless, physical activity including muscle-strengthening exercise appears to protect against falling and fractures among the elderly, probably by increasing muscle strength and balance. In addition, physical activity may be beneficial for many people with arthritis. It also helps to improve the quality of life, (Srivastava, K.A 2008).

Physical fitness is not only keys to maintain a healthy body. But it is the basis of dynamic and creative intellectual activity. The relationship of the body and the activities of the mind are subtle and complex. Physical fitness is to the human body what fine-tuning is to an engine. It enables us to perform up to our potential. Fitness can be described as a condition that helps us look,
feel and do our best. More specifically, it is the ability to perform daily tasks vigorously and alertly with energy left over for enjoying leisure-time activities and meting emergency demands. It is the ability to endure, to bear up, to withstand stress, to carry on in circumstances where an unfit person could not continue, and is a major basis for good health and well being.

Physical exercise is one of the most effective ways of relieving stress. Exercising the body regularly is very effective in managing stress. On its own or as a part of a stress management plan getting into better shape, it improves physical health as well as mental health. When a person physically exert; themselves, the body releases chemical substances [endorphins], these natural substances produced by their own bodies are free of side effects except for making them feel good. When it comes to stress management, every little bit of exercise counts.

Sports, games, Playful activity, exercises, dance, gymnastics involve movements. Every individual whether a child, youth or adult needs to teach movement to fulfill his human developmental potential and adapt to and control his physical environment, and also relate to others. Besides these, physical activities of various kinds bring about physiological efficiency and psychological equilibrium. They are also therapeutic, educational and recreational in function, (Srivastava, K.A 2008).

Participation in physical activities and sports can promote social well-being, as well as good physical and mental health, among young people. A research has shown that students who participate in interscholastic sports are less likely to be regular and friends. Friends, training partners, and support from others are an important part of physical activity and participation in youth sports programs for all kids.

Exercise is the physical exertion of the body - making the body physically active which results in a healthy or healthier level of physical fitness and imparts both physical and mental health. Physical exercises help in modeling a healthy body, which aids in the prevention of various kinds of
health hazards. Due to the practice of unhealthy consumption of junk food, many people in India are diagnosed as diabetics. Extra fat in the body is the root cause of many problems, which destabilize one’s psychological health as well. Regular exercises in the form of drill and free hand exercises can lead to better functioning of body, which can burn the extra fat accumulated by food practices.

Many individuals due to their routine life suffer from sedentary behavior. The availability of faster transport system, communication technology and other scientific means have made human beings less accustomed to physical labor. At least the people who are engaged in blue collar jobs or intellectual works are less prone to do physical tasks. This has led to a variety of ailments among them. Many suffer from diseases like diabetes, hyperlipidemia, and cardiovascular disease. Doctors suggest regular exercise to all these people. People do not understand the significance of exercise even when they are told by their physicians. Some might even think of it as a fashionable luxury. Yet exercise is very important in ensuring one’s physical and mental well being. Physical exercises help to maintain good physical health. Regular physical exercise for at least 30 minutes for five days per week is essential for obtaining good health. A regular physical exercise has advantageous effects on most organ systems, and thus it helps to avert a many health issues. People of all ages and gender get considerable health profit by physical exercises. Regular exercise improves health and decreases the risk of ailments. Older adults can become stronger and better able to move about without falling. It can also help to reduce feeling of depression and anxiety. Regular physical activity is associated with lower mortality rates for both older and younger adults. Physical activity leads to cardiovascular fitness, which reduces the risk of cardiovascular disease, mortality in general and coronary artery disease in particular. Physical activities like muscle-strengthening exercise protect against falling and fracture among the elderly. Aerobic exercises like jogging, swimming, cycling, walking, gardening, and dancing,
have been proved to reduce anxiety and depression. Exercise improves mental health by reducing depression, anxiety and negative mood and improves self-esteem and cognitive function. Schizophrenic patients would benefit a lot by exercise as they are vulnerable to obesity and associated maladies. Thirty minutes of exercise of moderate intensity, such as brisk walking for 3 days a week, is sufficient for these health benefits. Moreover, these 30 minutes need not to be continuous; three 10-minute walks are believed to be as equally useful as one 30-minute walk. Health benefits from regular exercise that should be emphasized and reinforced by every mental health professional to their patients are improved sleep increased interest in sex better endurance relief from stress improvement in mood increased energy and stamina reduced tiredness that can increase mental alertness weight reduction reduced cholesterol and improved cardiovascular fitness increased blood circulation to the vital organs. Physical exercises and yoga practices in school can train the youth in achieving a sound bodily and mental health together. Pranayama and physical exercises can make a man sound both physically and mentally in their career, (Pandey, S. et al; 2015). Changes in respiratory responses to exercise take place during training. As a result for a standard amount of exercise the pulmonary ventilation is reduced and the amount of breathing decreases in the trained subjects even at rest, the depth of breathing is greater and the respiratory rate may fall from about twenty to eight breath per minute, (Singh, A. 1998).

It is universally accepted that training has pronounced effects on heart rate. Research studies concluded that high cardio respiratory fitness group due to regular participation had attain higher level of the parasympathetic tone of the heart as a result of which the cardiac output is greater in their case and in case of trained person, stroke volume increases and to maintain the resting cardiac output at the same level heart rate reduces.

In modern life anxiety is more often out of proportion and out of place. In research at Stand ford University School of Medicine, with more than a
thousand men and women who had suffered a first heart attack, those women who went on to suffer a second heart attack were marked by high levels of fearfulness and anxiety. To reduce anxiety people become habitual of smoking, taking drugs, drinks or pills. Instead of getting relaxation they come with more tension and figure. Prolonged use of pills affects the nervous system. In this way they get relief only for some time, but again they suffer from such illness. To overcome from such illness or problem one must know about the no pharmacological treatment such as counseling, cognitive therapy, family therapy and above all yoga therapy. Regular practices of yoga can reduce the mental tension, muscle tension and enhance relaxation by performing different pranayama, trataka, asana, yognindra, mudra, bandh, meditation etc, (Sao, K.A. et al; 2012).

Obesity is medical condition in which excess body fat accumulates to the extent that it may have an adverse effect on health, leading to reduced life expectancy and/or increased health problems. Obesity increases the likelihood of various diseases, particularly heart disease, type 2 diabetes, obstructive sleep apnea, certain types of cancer, and osteoarthritis. Obesity is most common caused by a combination of excessive food energy intake, lack of physical activity, and genetic susceptibility, although a few cases are caused primarily by genes, endocrine disorders, medications or psychiatric illness, (Abraham, T. and Abraham, G. et al; 2012).

The knowledge of Pranayama in elderly is very important in day to day life. In case of mental health problem like depression, the availability of the source of Complementary and Alternative Medicine (CAM) like Pranayama helps to decrease depression, (K. Kannan et al; 2015)

Conducted a study of know the Immediate Effects of Bhramari Pranayama on Resting ‘Cardiovascular Parameters in Healthy Adolescents. (In yoga, Pranayama has a very important role in maintaining sound health. There is some strong scientific basis on constant physiological changes produced when pranayama is practiced for long duration. Still, there exists a dearth of
literature on the effect of Bhramari pranayama (Bhr.p) on physiological systems, (Kuppusamy, M 2016)

**Prakriti:** Ayurveda recognizes three bodily humors (doshas) called vata, pitta, and kapha (wind, bile, and phlegm), which are closely related to three energies prana, tejas, and ojas—life force, “fire/glow,” and subtle energy. Whereas the doshas exerts their functions primarily on the anna-maya-kosha or physical body and the energetic counterparts exerts their functions primarily on the mano-maya-kosha or subtle body. Mind (manas) and intellect (buddhi) are both superficial aspects of and operate within the broader field of consciousness (chitta). Manas process the ordinary physical world. Buddhi also has two aspects, a higher and a lower. The lower aspect, which is attached to the senses, organizes the sensory input from the world and compartmentalizes the experiences. The higher aspect is not attached to the senses. It draws knowledge and wisdom from atman, which is connected to the cosmic stream of knowledge, the “Great” (mahat). From this connection, a person receives “higher guidance” to act in ways that are sattvic and not sensory based (rajasic and tamasik). Prana manifests within our mind and consciousness as enthusiasm for life. Its normal function provides motivation for living. Tejas is the aspect of fire that provides illumination. Its normal function provides motivation for knowing truth, and its outward expression manifests through our intellect. Ojas, is the substance that provides the mind with stability, manifests in our consciousness and mind as contentment. In the sushumna-nadi, tejas can be understood as dormant kundalini energy. Heightened prana is the force that raises kundalini though the central nadi, which is stabilized and supported by ojas. Yogic practices purify the nadis and remove obstructions to the flow of kundalini. They also increase the activity of prana, which stokes the fire of kundalini. As kundalini awakens, it rises through the central channel. Ideally, this brings about peacefulness, higher consciousness, and powers (siddhi). There are, however, potential complications. When practicing
pranayama, the individual observes several effects. First, sweating may occur, a sign the nadis are being purified.

In addition the yogi may observe tremors or shaking as well as various other neurological sensations, including seeing colors and lights and hearing inner sounds. Pranayama also has been reported to have the following physiological effects improved circulation purification of the lungs, physiological support for the liver, spleen, and kidney, stimulation of peristalsis improving fecal excretion, sharpening of the intellect, and improved memory. Pranayama is further understood to be effective in treating conditions of the respiratory, circulatory, and nervous systems, which are most directly dependent on pranic flow.

**Manas Prakriti:** Ayurveda clearly recognizes the distinctions in human temperament and individual differences in psychological and moral dispositions, his reaction to socio-cultural and physical environment. The concept of mind and its association with the body have been widely discussed in different systems of Indian philosophy. Ayurveda, which is mainly indebted for its philosophical ideas on Samkhya and Vaisesika systems of philosophy, has emphasized different aspects of human mind. The Ayurvedic concept of mind (manas) is both broad and illuminating. It not only related to mental activity but also imparts in the process of consciousness and resides in the heart; the heart is indispensable for normal mental and physical activities as the entire waking consciousness rests upon it. It is the real cause of growth and development. Ayurveda strongly believe that individual prakriti, examination of patients, etiology of disease, disease diathesis, diagnosis and management are rest upon foundation stone of psycho-somatic consideration. The management of ailments in Ayurvedic therapeutics is individualized on the basis of psychosomatic constitution (i.e. Deha-Manas prakriti). By knowing the individual nature we can prevent disorders in near future. Mind is built from different aspects. Buddhi is intellect and is really like a mirror reflecting universal consciousness as it cognizes and clarifies. Manas is supposed to
move the senses, which are constituted by five basic elements (Pancamahabhutas). Prakriti is the matrix of the whole psychophysical universe. It is the equilibrium of sattva (essence), rajas (energy), and tamas (inertia). The nature is the ultimate component of these basic qualities. When the equilibrium of these the gunas are distributed under the influence of self the processes of creation of nature start (Anbalagan & Dhanalakshmi, 2011).

Manas prakrity is which conceptualizes, analyses, and interacts between our inner sub consciousness and our experience of the outer world. On the one hand, modern business characteristics, such as technology and efficiency, are being discredited because they are said not to correspond with indigenous knowledge. Indigenous knowledge is being discredited because they are perceived as incongruous with modern business life.

Numerous theories of mind have been developed through the ages. The various concepts have been propounded by different systems of Indian philosophy (Dubey, 1978).

- These can be classified as:
- Mind as a material substance;
- Mind as an association of experience;
- Mind as an association of perception;
- Mind as a form of behavior;
- Mind as an immaterial substance.

Charaka also mentions mind as the sixth sense. The mind is called atindriya because it is not a cause of knowledge of external objects like the other senses. It is directly responsibly for pleasure and pain and it is master of all senses. The mana is an instrument of all our experiences. The chief functions of manas are assimilation and discrimination along with ichchha (desire), dvesha (hatred), suka (pleasure), duhkha (pain), and prayatna (effort). According to Charaka, thinking, judgment, argument, and conclusion are the object of mind. The modern psychology also agrees about the function of mind; it is the aggregate of thinking, judgment, and conclusion. It directs and
controls the senses, to control one-self when one is getting away from right thinking, imagination, and ideation. The function of mind is to synthesize the sense data into percept (Dubey, 1978). Manas has been stated to enable the buddhi (intelligence) to discriminate between good (hita) and bad (ahita), right or wrong, action and inaction. Mind is built from different aspects. Sadhaka pitta corresponds to buddhi, which is located to Hriday. It includes memory (dhriti) and the ability to recall (smriti) events. Tarpaka kapha relates to memory. Ahamkara is our “I” maker and identity former that personalizes every experience. There is also chitta that is considered to be consciousness and awareness. Prana connects these different aspects into something that is known as antahkarana, the inner active power.

The temperamental characteristics have been described in Ayurveda. Trigunas are the essential part of conception of personality. Trigunas are the three potentialities which are named as sattva, raja and tama only when they are distributed. The three gunas i.e. sattva, raja, and tama can be translated in terms of cognition, action, and inertia respectively. The variations in the inter-individual as well as inra-individual psychic behavior are due to relative expression, at a given moment, of the above-mentioned potentialities (Dubey, 1978). The word, sattva signifies whatever is pure and fine. Whatever is active is designated as rajas, while tams signify whatever is solid and offers resistance. The satt means real or existence and perfect. Therefore, sattva refers universal reality or consciousness; it is also an element, which is responsible for goodness and happiness. All the activities are due to raja. It leads to a life of enjoyment and restless efforts. Tamas is responsible for inertia; it resists activity and produces the state of apathy. In the process of evolution of mind and various states of matter, the sattva, raja, and tama express themselves differently. During the evolution of mind with sensory and motor faculties, the expression of sattva and raja is dominion and that of tama is latent. In the evolution of matter, tama plays the active role assisted by raja while sattva is latent. Raja is associated with all the phases of both evolution as well as
involution. The individual temperament can also be explained as a trio of sattva, rajas, and tamas. The individual differences in the temperament and personality are mainly, due to relative predominance of sattva, raja, and tama. According to the inter-play of these three gunas the persons differ in their cognitive, effective, and cognitive aspects. The human temperament has been divided in three major groups, sattvika, rajas, and tama in their psyche. Each of the three major temperamental groups is again subdivided into several sub-groups, viz seven of sattvika, six of rajasika, and three of tamasika as per sutra samhita.

Each of the three major temperamental groups is again subdivided into several sub groups, viz seven of sattvika, six of rajasika, and three of tamasika as per Charaka samhita (Dubey, 1978).

**Sattvika Temperamental Groups**

1. Brahmakaya—clear in body, hospitable and celebrates the religious sanities;
2. Mahendrakaya—recognized by his favor, command, constant discussion;
3. Varunakaya—cold exposures, sweetness of speech;
4. Kouverakaya—capability for arbitration, earning and accumulation of wealth and facility;
5. Gandharvakaya—perform dance, music and enjoyments;
6. Yamyasattva—free from anger, illusion, fear and jealousy;
7. Rsisattva—full of all kind of knowledge, oblations and study.

**Rajasika Temperamental Groups**

1. Asura Sattva—terrible, valorous, jealous;
2. Sarga Sattva—irritable, laborious and hasty in behavior;
3. Sakuna Sattva—intemperate and impatient;
4. Raksasa Sattva—jealous, irreligious and ignorant;
5. Pisaca Sattva—hot tempered and courageousness;
6. Preta Sattva—lazy, greed, and miserable life.
Tamas Temperamental Groups

1. Pasu Sattva — do not resist any obstruction, dirty and dull mind;
2. Matsya Sattva—unstable and perform foolish activity;
3. Vanaspatya Sattva — away from religious and good activities.

Based on the above temperamental groups, a questionnaire could be framed to know the type of Manas Prakriti (Personality) profile of typical employees. The questionnaire will guide the one to understand what are the terminal values, instrumental values, operating values, and weak values of employees, (Mendis, D.S. Kalana., 2015).
Singh (2000), conducted a study on effect of yoga asana’s on physical and psychological fitness of college level students in relation to sports performance and concluded that yoga asanas improves all motor-abilities i.e. strength, speed, flexibility, endurance, agility, and co-ordination affect positively in sports performance. In summery the findings of the study provide ample supports to the conclusion that the regular practice of yoga asana’s improve physical and psychological fitness of sports person on most of measures.

Dharmender (2001), conducted a study on “Effect of kapalbhati and anulom vilom on selected respiratory variables”. 30 students from yoga match practice and yoga specialization group from Lakshmibai National Institute of Physical Education Gwalior with a purpose to investigate the comparative effect of Kapalbhati and Anulom-Vilom on selected respiratory variables. In order to study the comparative effect of Kapalbhati and Anulom-Vilom on selected respiratory variables. Analysis of covariance was applied at significance level of 0.05. Further to see the significant difference between group means and least significance was applied. It was concluded that both treatment i.e. kapalbhati kriya and Anulom-Vilom Pranayama havesignificant effect on the entire selected Physiological variable. Kapalbhati kriya practice has significant contributing changes over the resting respiratory rate and air flow rate and Anulom-Vilom Pranayama practice have significant changes over the vita capacity, negative breath holding time and positive breath holding time.

Gunsaria (2002), conducted a study on “effect of selected yogic practice on body composition in male students”, 30 male students of kendriya vidyalaya with a purpose to assess the effect of yogic practice for a period of six weeks on the body composition. In order to study the effect of selected yogasana practice
on body composition, T-test was applied. It was concluded that there was no significant effect of yoga practice on body composition.

Venkatareddy et al; (2003), studied the effect of yoga on weight and fat fold thickness among obese women. 30 obese woman of age 19-53, categorized into two groups, as per body mass index (BMI), were exposed to one-hour practice of asanas and pranayama in the morning for the period of 90 days. A significant reduction in BMI was seen in both groups. In group I (BMI greater than 35) the reduction was greater as compared to group II (BMI 25-35). Lean body mass (LBM), however, did not show significant change in both the groups.

Sivarajan (2003), studied the effect of plyometric training and detraining on speed and explosive power among school boys. Thirty healthy untrained school boys were selected from karaikal region and their age ranged from 12 to 15 years. The subjects were equally divided into two groups namely control and experimental group. The experimental group underwent plyometric training for one hour duration for twelve weeks for weekly three classes. Control group did not undergo any training. Speed was measured using by 50meter dash and explosive power was measured using by standing board jump. The results of pre-test, post-test and detraining were compared by using Data were analyzed by factorial ANOVA The impact plyometric training significantly improved the speed, explosive power among school boys in the post test.

Swaminathan (2003), studied the effects of maximal power and plyometric trainings detraining and retraining on selected strength and power parameters. Forty five healthy male subjects were selected from sports hostel boys in Tiruchirapalli, Tamil Nadu and they were aged 15 to 17. The selected subjects were divided into three equal groups of fifteen subjects each at random. Group I underwent maximal power training, Group II underwent plyometric training and Group III acted as control. The experimental groups underwent their respective programmes for three days per week for twelve weeks. Control group which did not undergo any training programme. All the subjects of the three groups were tested on selected criterion variables such as leg strength, back strength, strength
endurance and elastic power in terms of vertical distance and explosive power in terms of horizontal distance. Data were analyzed by factorial ANOVA. The results shown there was significant improvement in the strength and power parameters among sports hostel boys.

Karthikeyan (2003), studied the effects of isolated, complex weight, plyometric trainings detraining and retraining on selected strength and power parameters among male subjects. Sixty healthy male subjects were selected from department of physical education and sports sciences at Annamalai University, Annamalai Nager, Tamil Nadu and they were aged 18 to 22. The selected subjects were divided into four equal groups of fifteen subjects each at random. Group I underwent maximal weight training, Group II underwent plyometric training and Group III underwent maximal weight training and plyometric training, Group IV acted as control. The experimental groups underwent their respective programmes for three days per week for twelve weeks. Control group did not undergo any training programme. All the subjects of the four groups were tested on selected criterion variables such as leg strength, back strength, strength endurance, an aerobic power and explosive power after the training programmes as pre and post tests respectively, at every ten days of detraining programme for forty days (four cessations) and four weeks of retraining programme. The collected data were statistically analysis factorial ANOVA. The study results concluded that there was significant improvement on selected strength and power parameters among experimental group than the control group.

Takeshima et al; (2004), studied the effect of concurrent aerobic and resistance circuit exercise training on fitness in older adults. Thirty-five volunteers were randomly divided into two groups [programmed accommodating circuit exercise group (PG) 8 men and 10 women, 68.3 (4.9) years, and non-exercise control group 7 men and 10 women, 68.0 (3.4) years). The PG participated in a 12-week, 3 days per week supervised program consisting of 10 min warm-up and 30 min of programmed accommodating circuit exercise. (Moderate intensity}
hydraulic-resistance exercise and aerobic movements at 70% of peak heart rate) followed by 10 min cool-down exercise. Programmed accommodating circuit exercise increased oxygen uptake. Muscular strength evaluated by a hydraulic-resistance exercise machine increased at low to high resistance dial settings for knee extension, knee flexion, back extension and flexion, chest pull and press, shoulder press and pull, and leg press. Body fat (sum of three skin folds) decreased and high-density lipoprotein cholesterol (HDLC) increased for PG. There were no changes in any variables for control group. These results indicate that programmed accommodating circuit exercise training incorporating aerobic exercise and hydraulic-resistance exercise elicits significant improvements in cardio respiratory fitness, muscular strength, and body composition.

**Kumar & Mokhal (2005),** studied to examine the distribution of subcutaneous fat in young adult physically active males (N=50) and females (N=50) aged from 18-24 years, before and after a 90 days conditioning programme consisting of exercises targeted to improve flexibility, strength, and cardio respiratory endurance. The data was significantly analyzed by using ANOVA and Scheffe Post hoc tests were used to derive the result. The result shows that the distribution pattern of subcutaneous fat in the form of skin fold thickness in males was sub scapular (maximal) followed by calf, triceps suprailiac, biceps (minimal). The subcutaneous skin fold thickness from the observed body sites significantly decreased (except Sub scapular in females) with the progression of a conditioning programme but it could not change the preconditioning distribution pattern of subcutaneous fat in both males & females. Whereas the body fat percentage significantly decreased (before 23.87 ± 3.20 & after 20.86 ± 2.41) and LBM% significantly increased (before 76.00 ± 3.20 after 79.14 ± 2.80) only in females after conditioning programme. These findings indicate that a conditioning programme on the one hand lowers the total body fat by mobilizing and using the subcutaneous fat and on the other hand increase lean body mass (LBM) both in males & females.
Muthuelukavam (2006), studied the effect of different intensity circuit training and detraining on selected biomotor abilities and physiological parameters among university male students. Forty five male subjects were selected from department of physical education and sports sciences at Annamalai University, Annamalai Nager, Tamil Nadu and they were aged 18 to 20. The selected subjects were divided into three equal groups of fifteen subjects each at random. Group I underwent moderate intensity circuit training, Group II underwent high intensity circuit training and Group III acted as control. The experimental groups underwent their respective programmes for ten weeks. Control group did not undergo any training programme. after the training programme as pre and post tests respectively, at every ten days of detraining programme for forty days (four cessations) and four weeks of retraining programme. The collected data were statistically analysis factorial ANOVA. The study results concluded that there was significant improvement on selected biomotor abilities and physiological parameters among experimental group than the control group.

Preetha (2006), conducted a study to find out the effect of selected yogasanas and aerobic exercises on selected physical, physiological and psychological variables among women students of Pondicherry University. Samples were selected randomly aged between 20 to 25 years and was divided into equally three groups Control and two experimental groups. Experimental group I underwent aerobic exercises, experimental group II underwent yogasana practice the both group the training session were held five days in a week for a period of twelve weeks .Control group did not undergo any training. Prior to and at the end of training period all subject were tested for selected physical, physiological and psychological variables. Aerobic exercises & yoga practice group showed significant improvement on selected physical, physiological and psychological variables like weight, flexibility, and balance among experimental group than the control group.

Lich et al; (2006), studied the effects of aerobic exercise intervention with goals of improving health-related physical fitness among selected adults in high-tech
Company at Taiwan. This study was conducted as a quasi-experimental design. Among the 54 subjects enrolled in the study, 26 subjects of the volunteers agreed to participate in an aerobic exercise program. The control group was comprised of a similar sample of 28 subjects working at the same company. Subjects in the exercise group participated in a 12-week aerobic exercise program, while subjects in the control group did not participate. The results of analysis of variance with repeated measures of health-related physical fitness showed that the subjects in the exercise group had significantly more improvements in abdominal muscle strength and endurance than the subjects in the control group. This study indicated that one 12-week aerobic exercise program was effective in improving the abdominal muscle strength and endurance among selected adults.

Wang et al; (2007), studied the effects of aquatic exercise on physical fitness (flexibility, strength and aerobic fitness), self-reported physical functioning and pain in adults with osteoarthritis of the hip or knee. Two-group randomized controlled trial with a convenience sample was used. Participants were recruited from community sources and randomly assigned to a 12-weeks aquatic programme and a non-exercise control condition. Data for 38 participants were collected at baseline, week 6, and week 12 during 2003 and 2004. Instruments were a standard plastic goniometer, a hand held dynamometer, the 6-minute walk test, the multidimensional Health Assessment Questionnaire, and a visual analogue scale for pain. Repeated measures analysis of variance showed that aquatic exercise statistically significantly improved knee and hip flexibility, strength and aerobic fitness, but had no effect on self-reported physical functioning and pain.

Kumar (2007), conducted a study to find out the effect of 12 weeks jogging and asanas on selected physical variables among obese men. Thirty subjects from Cheyyar town, Tamil Nadu state was randomly selected and their age ranged from 18-25 years. The subjects were divided into three groups, one control and two experimental groups. The two experimental groups were
subjected to a training programme for 12 weeks. Jogging was administrated to group I (n=10) and asanas was administrated to group II (n=10) and group III (n=10) served as a control group. Test was conducted for physical variables namely agility, muscular strength and flexibility prior and after the 12 weeks training programme the data was collected and analyzed statistically by Analysis of covariance and to find out the significant difference at 0.01 level of confidence. The result reveals there was significant difference among the three groups. It is finally concluded that the jogging group found to be significant than the asanas group on agility, muscular strength but asanas group found to be significant than the jogging group on flexibility.

Koutedakis et al; (2007), conducted study to assess effects of three months of aerobic and strength training on selected performance- and fitness-related parameters in modern dance students. The sample consisted of 32 men and women (age 19 +/- 2.2 years) who were randomly assigned into exercise (n = 19) and control (n = 13) groups. Anthropometric and flexibility assessments, treadmill ergometry, strength measurements, and- on a separate day-a dance technique test were conducted pre- and post exercise training in both groups. It is concluded that in modern dance students (a) a 3-month aerobic and strength training program has positive effects on selected dance performance and fitness-related parameters, (b) aerobic capacity and leg strength improvements do not hinder dance performance as studied herein.

Toy (2008), “effect of Aerobic Dance Training on Vo2 Max and Body Composition in Early Middle Aged Women,” Twenty subjects were selected to experimental group (No: 10) and control group (No: 10) for this study. The experimental group underwent twelve weeks aerobic dance training. The control group which was not undergone any training. The selected variables were vo2 max, body weight, and BMI and percentage body fat measure from the study. After twelve weeks of aerobic dance training, a significant reduction was noted in body weight, BMI and percentage body fat, and a significant in vo2 max.
This study highlights that systematic aerobic dance training helps to increase the physical and cardio respiratory fitness among middle aged women.

Shenbagavalli & Recthammal (2008), studied the effect of aerobic training on body mass index on sedentary obese men. 30 obese men were selected randomly and divided into two groups 15 subjects in each group. Group I as experimental group and Group II as control group. The experimental group had been in aerobic training programme five days in a week for a period of 8 weeks. Involve in any fitness programme or training programme. Once in 2 weeks the load was increased. The body mass index was selected as variable. The collected data were analyzed by using ‘t’ ratio. From the findings it is quite interesting to know that the sedentary obese men have positive influence upon their body mass index due to the training programme given. The results shown aerobic training helps the subjects to decrease the weight, maintains body mass index and also it helps to increase the heart rate, improve the breathing for a sustained time.

Chen et al; (2009), studied the effects of yoga exercise intervention on health related physical fitness in school-age asthmatic children. 31 voluntary children (exercise group 16; control group15) aged 7 to 12 years were purposively sampled from one public elementary school in Taipei County. The yoga exercise program was practiced by the exercise group three times per week for a consecutive 7 week period. Each 60- minute yoga session included 10 minutes of warm-up and breathing exercises, 40 minutes of yoga postures, and 10 minutes of cool down exercises. Fitness scores were assessed at pre-exercise (baseline) and at the seventh and ninth week after intervention completion. A total of 31 subjects (exercise group 16; control group 15) completed follow-up. There was improved BMI, flexibility, muscular strength, and cardiopulmonary fitness after yoga practice among yoga group, where as no changes were noticed among control group subjects.
Kumar (2009), conducted a study to find out the effect of selected yogic practices and aerobic exercises on somato type components and its relationship with health related physical fitness and biochemical variables. Forty-five college male students were selected randomly from in the Government boys’ hostel, lawspet, Puducherry. Their age ranges from 18 to 25 years. They were divided into three groups namely control group, yogic group and aerobic group. The training period the yogic group and the aerobic group underwent fourteen weeks of training on their respective program. The yogic group was trained on asanas and pranayama. The aerobic group was trained on aerobic exercises with rhythmic music with various types of aerobic type movements. The progressive load method was used up to fourteen weeks for the respective groups. The training was given during for 5 days a week. The data pertaining to pre test and post test of experimental variables were derived through the following methods. Health related physical fitness components such muscular strength and endurance, muscular flexibility, cardio vascular endurance & body composition significantly improved after yogic group and aerobic exercise group than the control group.

Chidambara (2010), studied the effect of yogic practice and physical fitness on flexibility, anxiety and blood pressure. Forty five subjects working women in various faculties of Annamalai University in the age group of 35 to 40 years were selected. They were divided into three equal groups each group consisted of fifteen subjects. Group I underwent yoga practice, group II underwent physical exercise and group III acted as control group who did not participate in any special training. The training period for this study was five days in a week for eight weeks. Flexibility was measured using by sit and reach test, anxiety was measured by Taylor’s Manifest Anxiety scale and blood pressure was measured using sphygmomanometer. Prior to and after the training period the subjects were tested flexibility, anxiety and blood pressure (systolic and diastolic). The data were computed statistically by using “Analysis of Co
Variance” (ANCOVA). All the variables were significantly improved among experimental group than the control group.

**Punithavathi (2010)**, study was carried out to investigate the effects of aerobic exercises and yogic practices on selected physical, physiological and biochemical variables among school girls. 45 girls were selected from St. Joseph of Cluny Hr. Sec. School, Pondicherry. The age group of the subjects ranged between 14 to 18 years. The subjects were divided into three groups and each group consisted of fifteen subjects. The two experimental groups underwent two different training programs namely aerobic exercises and yogic practices and the third group acted as control group which was not subjected to any training. The subjects selected were from three categories viz. Control group, aerobic experimental group and yogic experimental group, and the data on the selected variables were collected before and after the training period. The pretest and post test data collected from control, aerobic and yogic experimental groups were statistically analyzed to find out the significance of the variables such as speed, muscular endurance, cardio respiratory endurance, resting pulse rate, breath holding time, respiratory rate, protein and lactic acid, by the use of analysis of covariance (ANCOVA). After eliminating the influencing of pre test, the adjusted post test means of experimental groups and control group were tested for significance by using ANCOVA.

**Promoth (2010)**, studied the effect of step aerobics training on selected physical and physiological variables of physical education students. Thirty female students were selected, from St. Joseph Physical Education College, Moolamattum in Kerala. Fifteen female students were assigned as experimental group and another 15 female students were assigned as control group. Their age ranged from 20 to 24 years. The experimental group was progressively introduced to the practice of step aerobics. The subjects performed step aerobics apart from their regular physical education workout, five days in a week for a period of sixty minutes. The control groups did not participate any training programme expect their regular workout. Both groups were tested before and
after experimental period of twelve weeks with respective standard tests. The data were computed statistically by using “Analysis of Co-Variance” (ANCOVA) to see progressive effects. The results, in general, support the theory that step aerobics had significant effects on selected physical and physiological variables improved significantly among the experimental group i.e., flexibility, explosive power BMI, and Vo2 max and no significant changes were seen in control group.

Sreenimurugan et al; (2011), studied the effect of selected yogic practices on body composition of college students. Sixty male subjects were selected from Madurai District College students, Madurai and their age ranged from 18 to 21 years. The subjects were equally divided into two groups namely the control and the experimental group. The experimental group underwent selected asanas and pranayama weekly five classes for twelve weeks. Control group did not undergo any training programme rather than their routine work. Body composition was measured using by skin fold caliper. Prior to and after end of practice period all subjects were tested. The results of pre-test and post-test were compared with using Analysis of Covariance. The yogic practices groups significantly improved body composition when compared to the control group.

Aranga & Kulothungan (2011), studied effect of different intensity aerobic exercise on body composition variables among middle aged men. Sixty male subjects were selected randomly divided four groups and each group consists of fifteen subjects each. The age ranged from 35 to 45. Group 1 underwent as low intensity aerobic exercise, group II underwent moderate intensity aerobic exercise, group III underwent high intensity aerobic exercise and group IV acted as control group. The experimental groups underwent their intensity aerobic exercise programme three days per week for twelve weeks. Control group did not undergo any training programme rather than their routine work. The body composition are percentage body fat and lean body mass were measured by using skin fold caliper. Prior to and after end of practice period all subjects were tested. The results of pre-test and post-test were compared with using Analysis
of Co-variance. The results show that high intensity aerobic exercises were significantly better than low and moderate aerobic exercises in percentage body fat. The moderate and high intensity aerobic exercises significantly influenced lean body mass of middle age men.

**Subramaniam & Sivarajan (2011)** has studied effect of stretching exercises and aerobic exercises on flexibility of school boys. For this study sixty school boys were selected at random from Velankanni Matriculation Higher secondary school, Puducherry and their age ranged from 14 -17years. The selected subjects divided in to four groups each group consist of fifteen subjects. Group I underwent stretching exercises, group II underwent aerobics exercises, group III underwent combined exercises (stretching and aerobics exercises) and group IV is control group. The three experimental groups were subjected to the training programme for 10 weeks for three days per week. Control group did not undergo any training programme rather than their routine work. Flexibility was measured by using sit and reach box. Prior to and after end of practice period all subjects were tested. The results of pre-test and post-test were compared with using Analysis of Covariance. The result shows that combined exercises (stretching and aerobics exercises) were significantly better than stretching exercises, aerobics exercises in flexibility.

**Neethi & Chidambara (2011),** has studied effect of yogic practices and physical exercises on muscular strength self - concept and blood pressure. Forty five healthy, untrained female subjects were selected from various Departments of Annamalai University and their age ranged from 18 to 25 years. The selected subjects were equally divided into three groups. Group I underwent yoga practices, group II underwent two experimental groups and group III as a control group. The experimental groups underwent their training programma five days per week for eight weeks. Control group did not undergo any training programme rather than their routine work. Muscular strength was measured by sit ups test, self concept was measured with the help of Muktha Rani Rasthogi’s self-concept and blood pressure was measured by using sphygmomanometer.
Prior to and after end of practice period all subjects were tested. The results of pre-test and post-test were compared with using Analysis of Co-variance. The yogic practices group and physical exercises group on muscular strength, self-concept significantly improved when compared with the control group. Blood pressure has also decreased in yogic practices group and physical exercises group when compared with the control group.

Singh (2011), has studied the effect of concurrent strength and endurance training and detraining on selected bio-motor abilities. Thirty men students participated in this study. They were selected from bachelor of physical education in Annamalai University their age 18 to 22 years. The selected subjects were equally divided into two groups control and experimental. The experimental group performed both the strength and endurance training three days per week on alternative days for twelve weeks. Control group did not undergo any training programme rather than their routine work. The dependent variables selected were assessed by standard test and procedure. The data were collected prior to and immediately after twelve weeks of training and also during detraining period once in ten days for thirty days analyzed by using factorial ANOVA with last factor repeated measures.

Sugumar (2011), has framed a study to find out the effect of yogic practices on body composition among the college men students. Thirty healthy, untrained male subjects were selected from various Departments of Gandhigram Rural Institute, Deemed University, Gandhigram. Their age ranged from 18 to 25 years. The subjects were equally divided into two groups namely the control and the experimental group. The experimental group underwent selected asanas and pranayama for five days per week for six weeks. Control group did not undergo any training programme rather than their routine work. Body composition was measured by using BIA method in the three sites. Prior to and after end of practice period all subjects were tested. The results of pre-test and post-test were compared with using Analysis of Co-variance. Finding of body composition
shows significant improvement due to the six weeks yogic practice when compared to the control group.

**Bharatha & Gopinath (2011)**, has studied the effect of yogic practice on flexibility among school boys. Forty subjects were selected from A.R.R Matriculation higher secondary school and their age ranged from 15 to 17 years. The subjects were divided into two groups namely the control and the experimental group. The experimental group underwent selected asanas and pranayama for five days per week for twelve weeks. Control group did not undergo any training programme rather than their routine work. Flexibility was measured by using sit and reach box. Prior to and after end of practice period all subjects were tested. The results of pre-test and post-test were compared with using Analysis of Co-variance. Finding of flexibility shows significant improvement due to the twelve weeks yogic practice when compared to the control group.

**Komathi & Kalimuthu (2011)**, has framed a study to find out the effect of yogic practices on abdominal strength among school boys. Forty subjects were selected from A.R.R Matriculation higher secondary school and their age ranged from 15 to 17 years. The subjects were divided into two groups namely the control and the experimental group. The experimental group underwent selected asanas and pranayama for five days per week for twelve weeks. Control group did not undergo any training programme rather than their routine work. The abdominal strength was measured by using sit ups. Prior to and after end of practice period all subjects were tested. The results of pre-test and post-test were compared with using Analysis of Covariance. Finding of abdominal strength shows significant improvement due to the twelve weeks yogic practice when compared to the control group.

**Manimakalai & Chitra (2011)**, have studied the effect of yoga asanas practice on flexibility among university women. Thirty healthy, untrained female subjects were selected from Annamalai University in various departments and
their age ranged from 18 to 25 years. The subjects were divided into two groups namely the control and the experimental group. The experimental group underwent selected asanas for five days per week for eight weeks. Control group did not undergo any training programme rather than their routine work. Flexibility was measured by using sit and reach box. Prior to and after end of practice period all subjects were tested. The results of pre-test and post-test were compared with using Analysis of Co-variance. Finding of flexibility shows significant improvement due to the eight weeks yogic practice when compared to the control group.

Rajkumar et al; (2011), find out the effect of yogic practices for weight control for obese men students. Thirty two obese men students were selected from Pavendhar Bharathidasan institute of information technology, Tiruchirapalli and their aged from 17 to 21. The subjects were divided into two groups namely the control and the experimental group. The experimental group underwent selected yogic practices for eight weeks. Control group did not undergo any training programme rather than their routine work. All the two groups were tested on selected criterion variables such as body weight measured using by weighing machine, forearm and thigh circumference measured using by steel measuring tape and body composition measure using by skin fold caliper of biceps and triceps. Prior to and after end of practice period all subjects were tested. The results of pre-test and post-test were compared with using Analysis of Co-variance. The yogic practices groups significantly improved body weight, forearm and thigh circumference and body composition when compared to the control group.

Selvakumar et al; (2011), have conducted the effect of selected yogic practices on cardio vascular endurance of college students. Sixty male subjects were selected from Thiagarajar College, Madurai and their age ranged from 18 to 20 years. The subjects were divided into two groups namely the control and the experimental group. The experimental group underwent selected asanas and pranayama practice weekly five classes for twelve weeks. Control group did not
undergo any training programme rather than their routine work. Cardio vascular endurance was measured through field test using by one mile run and walk. Prior to and after end of practice period all subjects were tested. The results of pre-test and post-test were compared with using Analysis of Co-variance. Finding of cardio vascular endurance shows significant improvement due to the practices of yoga when compared to the control group.

Sokkanathan & Selvakumar (2011), have studied the effect of selected yogic practice on muscular endurance of school children. Sixty male subjects were selected from Madurai District Matriculation Higher secondary school, Madurai and their age ranged from 14 to 15 years. The subjects were divided into two groups namely the control and the experimental group. The experimental group underwent selected asanas and pranayama practice weekly five classes for twelve weeks. Control group did not undergo any training programme rather than their routine work. Muscular endurance was measured through field tests using by bent knee sit ups. Prior to and after end of practice period all subjects were tested. The results of pre-test and post-test were compared with using Analysis of Co-variance. The yogic practices groups significantly improved muscular endurance when compared to the control group.

Babu & Kulothugan (2011), have studied the effect of yogic practices on selected physiological variables of men hockey players. Thirty hockey men players were selected from Annamalai University, Chidambaram and their age ranged from 18 to 25 years. The subjects were divided into two groups namely the control and the experimental group. The experimental group underwent forty five minutes selected asanas and pranayama practice five classes per week for eight weeks. Control group did not undergo any training programme rather than their routine work. Cardio respiratory endurance was measured by using Cooper’s twelve minutes run and walk test, however the breath hold time was measured by the standard stop watch and resting pulse rate measured by using stethoscope. Prior to and after end of practice period all subjects were tested. The results of pre-test and post-test were compared with using Analysis of Co-
variance. The yogic practices groups significantly improved Cardio respiratory endurance, breath hold time and significantly decreased resting pulse rate when compared to the control group.

_Sultana (2011),_ has studied the effects of yoga practice on dominate hand grip strength of female students. Forty female subjects were selected from various departments in Pondicherry University and their age ranged from 18 to 25 years. The subjects were divided into four groups’ namely Right Nostril Breathing Group (Asanas and Surya Bhedana), Left Nostril (Asanas and Chandra Bhedana), Alternate Nostril Breathing Group (Asanas and Nadishuddhi) and control group. The experimental group underwent selected asanas and pranayama practice for ten days. Control group did not undergo any training programme rather than their routine work. Hand grip strength was measured through hand grip dynamometer. Prior to and after end of practice period all subjects were tested. The results of pre-test and post-test were compared with using Analysis of Co-variance. The yogic practices three groups significantly improved hand grip strength, Alternate nostril breathing group ( Asanas and Nadishuddhi) is better improved compared than other groups.

_Joshi (2012),_ has conducted a study on effect of Dynamic Surya Namaskar on abdominal strength the objective of the study was to compare the effect of Dynamic Surya Namaskar on Abdominal strength of the students of Jai Ram Ashram. The age of the subjects ranged from 20 to 25 years. Abdominal strength was considered as a dependent variable while the Dynamic Surya Namaskar was considered as independent variable. For the study pre test – post test randomized group design which consists of control group total 30 students,(n=15 boys & n=15 girls students) and experimental group 30 students,(n=15 boys & n=15 girls students) was used. To test the abdominal strength of sixty students, 60 second (One minute) sit ups test was used. In order to find out the effect of Dynamic Surya Namaskar training on abdominal strength of the students of Jai Ram Ashram, Rishikessh, descriptive statistics and analysis of co-variance (ANCOVA) was used. Based on the findings and
within the limitation of the study it was noticed that practice of Dynamic Surya Namaskar helped to improve abdominal strength of students, as the abdominal strength of the subjects of experiment group was found to be statistically significant.

**Neethi & Chidambara (2012),** have made a study to know the effect of yogic practices and physical exercise on muscular endurance, self-concept and blood pressure. The purpose of the present study was to find the effect of yogic practices and physical exercise on muscular endurance, self-concept and blood pressure (both systolic and diastolic). For this purpose, thirty men students studying in various faculties (except physical education and fine-arts students) of Annamalai University in the age group of 18-23 years were selected. They were divided into three equal group, each group consisted of fifteen subjects, in which group-I underwent yoga practice, group-II underwent physical exercise and group-III acted as control group who did not participate in any special training. The training period for this study was five days in a week for eight weeks. Prior to and after the training period the subjects were tested for muscular endurance, self-concept and blood pressure (systolic and diastolic). The muscular endurance was measured by administering the sit-ups test, self-concept was measured by using Muktha Rani Rastogi’s questionnaire and blood pressure was measured using sphygmomanometer. It was concluded that after the yoga practice and physical exercise, both the training groups have improved all the criterion variables, such as, muscular endurance, self-concept and blood pressure.

**Pramanik et al; (2012),** have organized a study to know the effect of asanas and pranayama on selected physical variables of footballers. The study was conducted on 40 male students with a view of determine the effect of asana and pranayama on selected physiological variables of footballers. All the subjects were randomly divided into 2 groups in such a way that each group contains 20 students. The physiological variables selected were vital capacity, resting blood pressure, breathing holding time, resting heart rate, peak flow rate and BMI.
Random group design was employed for the experiment. The result of ANCOVA revealed that statistically significantly improvement in vital capacity, positive breath holding time, negative with holding time, resting pulse rate, peak flow rate and BMI of experimental group and control group peak flow was found significant. Blood pressure (systolic and diastolic) blood pressure was found insignificant. This result shows that the majority of physiological variables improved significantly after practicing yoga.

**Kundu et al; (2012),** have made a study to know the effect of bhastrika pranayama on vital capacity of college students. The purpose of the study was to analyze the effect of Bhastrika pranayama on vital capacity. For this study twenty two (male) students of B.A.1st year were randomly selected as subject from Mugberia Gangadhar Mahavidyalaya, Mugberia, West Bengal. The follow up period was limited to three months. The subjects were divided into two groups i.e. experimental and control group. Experimental group were followed Bhastrika and the control group did not participated in the training programme. The criterion measures for measuring vital capacity was measured by Recorded and Medicare system Pvt. Limited Spirometer (Helios 401)in liters. The significance of mean difference between the pre test and post test scores, each of the criterion variables among the groups were analyzed by using the ‘t’ ratio. The level of significance was chosen at 0.05 level. The result of the study showed that Bhastrika pranayama was effective in bringing about significant improvement in the vital capacity.

**Dubey et al; (2012),** have made a study to identify the effect of Ujjayi and bhastrika pranayama on the vital capacity and respiratory rate of yoga practices. Thirty male students of yoga diploma of B.H.U., Varanasi participated in the study. Their age ranged from 20 to 24 years. The random group design was used for the study. Two groups were made of the subjects each comprising of 15 subjects. The subjects participated voluntarily in the study. Fifteen subjects (n=15) were selected for experimental group and Fifteen (n=15) acted as control group. In order to know the effect of Ujjayai and Bhastrika Pranayama on vital
capacity and Respiratory rate Analysis of covariance was applied at 0.05 levels of significance. He concluded that no significant difference was found in vital capacity of experimental and control group, significant difference was found in Respiratory Rate of experimental and control group. Ujjayai and Bhasrika Pranayama were effective in bringing about significant improvement in the Respiratory Rate. Ujjayi and Bhasrika pranayama were not much effective in bringing about significant improvement in Vital capacity.

Muralirajan (2012), the subjects of this study were 60 women post graduates studying in Pondicherry University. The subjects were randomly assigned to four groups that is one control group (N=15) and three experimental groups (N=15 each). Group-II practiced cycling, Group III practiced Pranayama and Group-IV practiced combination of cycling and Pranayama, five days a week for a period of 12 weeks. The control group did not participate in any sort of physical activity like Cycling and Pranayama during the same period. All the subjects were tested in the selected respiratory variables such as respiratory rate, tidal volume and vital capacity before and after 12 weeks cycling and Pranayama. Respiratory rate was measured by seeing the number of breath per minute. The tidal volume and vital capacity were recorded in liter with a standard Spirometer. The data pertaining to selected respiratory variables were analyzed by ANOVA and it concluded that there is a significant change on respiratory rate, tidal volume and vital capacity after the 12 weeks of Cycling and Pranayama Practices.

Kumar & Kumar (2012), have conducted a study to know the effect of Bhasrika, Ujjayi and Nadishodhana Pranayama on Cardiovascular Endurance. The subjects for this study were 30 male students who were studying in Department of Physical Education C.C.S. University Meerut in the age ranging from 22-27 years. All the subjects were divided into 3 different groups i.e. three experimental group . The Cardio Vascular Endurance was measured especially in relation to the pulse at the rest, after exercise and after rest following the exercise through the physical index obtained by the administration of Foster’s
Test in which a stop watch was used as equipment. To find out the effect of Bhati, Ujjayi and Nadishodhana pranayama on cardiovascular endurance. Analysis of co-variance was used and level of significance was set at 0.05 level. Result of the study shows that there was insignificant differences found in adjusted post test means of Bhati, Ujjayi and Nadishodhana groups in cardiovascular endurance. It may be due to fewer periods of training program and small sample size. It was concluded that there was insignificant effect of Bhati, Ujjayi and Nadishodhana pranayama on cardiovascular endurance.

Ray & Dutta (2012), have conducted a comparative study of motor fitness components and playing ability of soccer players in Vidharbha region”. The purpose of the study was to compare the selected motor fitness component and playing ability of soccer players in vidharbha region of Maharashtra state. The study was delimited to male soccer players of selected districts of vidharbha such as- Nagpur, Akola, Chandrapur, Bhandara and Amravati. The study was delimited to soccer players who falls below the age of 24 years and had represented the district in state level soccer tournament. The age of the subjects were ranged between 18to24 years. The study was also be delimited to 16 soccer players from each of the above selected district, thus a total of 80 soccer players have been selected as the subject for the purpose of the study. The study was further delimited to the following motor fitness components, i.e. speed, Power, Cardio respiratory Endurance and Agility. The criterion measures chosen for Motor Fitness components i.e. speed was tested using 50 yard dash and the scores were recorded in 1/100th of a second. Power/Explosive strength was measured in centimeters using vertical jump. Cardio-respiratory endurance was measured by Physical Efficiency Index (P.E.I) score using Harvard step test and Agility was recorded in 1/100th of a second using 4x10 yards shuttle run. For judging playing ability the average score of the three experts to judge soccer playing ability was considered as criterion measures. The design of the study was random group design as the subjects for the purpose of the study were selected randomly from those who had reported for the selection trials as one of
the probable to be selected in the district team. To determine the significant difference in groups of soccer players in the selected motor fitness components and playing ability, one way analysis of variance (ANOVA) was employed. When the ‘F’ ratio was found significant Schaffer’s Post-Hoc test was used. Within the Limitations of the present study and on the basis of finding it is concluded that there is a significant difference in selected motor fitness components and playing ability of soccer players of different districts of Vidharbha. The finding of the study reveals that in 50 yard dash performance the soccer players of Nagpur district have shown better performance than the soccer players of other selected districts of Vidharbha, than by soccer shown by soccer players of Chandrapur district. The finding of the study reveals that in vertical jump performance the soccer players of Amravati district have shown better performance among the soccer players of other selected districts of Vidharbha, than by soccer players of Nagpur district followed by Akola district than by Bhandara district and least performance has been shown by soccer players of Nagpur district. The finding of the study reveals that in Harvard step test performance the soccer players of Nagpur district have shown better performance among the soccer players of other selected districts of Vidharbha, than by soccer players of Nagpur district followed by Akola district than by Bhandara district and least performance has been shown by soccer players of Nagpur district. The finding of the study also reveals that the playing ability of the Nagpur district soccer players was found superior among the soccer players of other selected districts of Vidharbha.

Shaw (2012), has conducted a study with the following purposes:-

- To study the effect of Kapalbhati Practice on selected Non Parametric HRV Variables (Frequency Domain).
- To study the effect of Anulom -Vilom Practice on selected Non Parametric HRV Variables (Frequency Domain).
- To study the effect of Agnisar Practice on selected Non Parametic HRV Variables (Frequency Domain).
To study the effect of Bhramari Practice on selected Non Parametric HRV Variables (Frequency Domain).

To study the effect of Om Recitation Practice on selected Non Parametric HRV Variables (Frequency Domain).

To study the effect of kumbhakā Practice on selected Non Parametric HRV Variables (Frequency Domain).

The age of the subjects ranged from 18 to 20 yrs. The seven homogeneous/matched groups of four to seven samples each were randomly selected. There were six experimental group and one control group. The experimental groups were treated with selected yogic practices namely Kapalbhati, Anuloma-Viloma, Agnisar, Bhramari, Om recitation and Kumbhaka (tailored programme) independently to independent group for 20 minutes, five days a week, for 30 days whereas the control group was not given any treatment. Five minutes recording of ECG (electrocardiogram) were done at pre-test and after thirty days of treatment the post-test was taken. Simultaneously the control group was tested. The selected variables were VLF Peak (Hz), LF Peak (Hz), HF Peak (Hz), LF/HF, VLF Power (ms²), HF Power (ms²), VLF%, LF%, HF%, LF and HF. Mean, standard Deviation, ANNOVA and LSD were used as statistics and hypothesis was tested at. 05 level of significance. The finding exhibited significant differences between pretest and post test scores of experimental groups in regard to the variables namely High Frequency (HF) of Anuloma Viloma treatment group and Low Frequency (LF) Peak in Agnisar treatment group. The LSD analysis confirmed the experimental effect. Further the mean values of pre and post test of the selected variables demonstrated partial experimental effect. Hence it is concluded that in general all the treatment groups having positive effect among which two treatment groups were statistically significant.

Thakur & Bandopadhyay (2012), have made a Comparative Study of Yog asanas and Gymnastic Activities on Selected Physical Variables of School Boys. Purpose of the present study is to find out the effects of yogasanas and
gymnastic activities on flexibility and body composition among the school boys. The investigators have also made an attempt to assess the superiority among experimental groups. One hundred and fifty (N=150) school boys of District Howrah, West Bengal State were randomly selected as subjects. For the present study the age range of the subject was 10-12 years. All the subjects were divided into three equal groups such as Gr. Y (n=50), Gr. G (n=50) and Gr. C (n=50), Gr. Y and Gr. G were experimental groups and Gr. C was control group (BMI). % of body fat (%BF) and lean body mass (LBM) were employed to all the subjects of each group and thereafter specific yogic treatment and gymnastic activities were given to Gr. Y and Gr. G respectively for three days in a week and continued the period of one year and finally the subjects were retested on criterion measures. The data were analyzed by t-ratio to find out the effects of the treatment. The results of the present study showed that all the flexibility measures such as wrist flexion, wrist extension, elbow flexion, knee flexion, ankle dorsiflexion; ankle planter flexion, spine flexion and trunk flexion were improved significantly among the subjects of Gr. Y and Gr. G after one year treatment. BMI and % BF were also improved significantly among the Gr. Y and Gr. G in same treatment season but no significant improvement was observed in LBM among the Gr. Y and Gr. G. In comparisons among experimental groups, yogasanas was superior to gymnastic activities for improvement of wrist extension, spine flexion, trunk flexion and ankle dorsiflexion where as gymnastic activities were superior to yogasanas for improvement of wrist flexion. No superiority was observed among yogasanas and gymnastic activities for improvement of elbow flexion, knee flexion and ankle planter flexion. No superiority was observed among yogasanas and gymnastic activities for improvement of all three body composition such as body mass index, % of body fat and lean body mass.

Dutta (2012), have made a study with the purpose compare the effects of Pylometric and circuit training on the jumping ability of volleyball players. Seventy five male inter collegiate level Volleyball players of Rashtrasant
Tukdoji Maharaj Nagpur University, Nagpur Maharashtra were selected randomly as subjects for the purpose of the study. The selected player were equated on the basis of pre test and them divided equally into three equal groups of 25 students each viz. (A) Plyometric training group, (B) Circuit training group and (C) Control group. The age of the players were ranged between 18-25 years. The training programme was administered to the two experimental groups whereas no training was administered to the control group. The training was administered for a period of twelve weeks thrice a week in a progressive manner. The criterion measures to test the hypothesis related to jumping performance were Vertical Jump, three successive Double Feet Jump and three meter Spike Jump. Equated group experimental design was employed in this study. To compare the effect of two different training programmes i.e. polymeric training and circuit training and the control group on jumping ability of volleyball player’s one way analysis of variance was computed to find out the difference among the selected three groups. In case of any significance obtained by F-ratio, LSD Post Hock test was applied to test the significance of difference of post hoc difference between the means. Within the delimitations and limitations of the present study and on the basis of findings, it was concluded that:

1. There is a significant difference in the mean performance of two different selected training group and control group.

2. In Vertical Jump, three successive Double Feet Jump and Three Meter Spike Jump performance, polymeric training group has shown superior performance than the other selected groups and the least performance was shown by control group.

3. Hence, the finding of the present study reveals that plyometric training is best training programme to improve jumping ability of players out of the two training programmes selected for purpose of the study.

Manjappa & Reddy (2012), the purpose of this study was to know the effect of yogic, aerobic and laughing exercises on self concept of High school boys. For
this study 14 to 15 years 8th and 9th standard 120 School boys were selected. Further they were divided in to four groups with 30 subjects in each group, such as yogic, aerobic, laughter and control group. The collection of data was pre and post-test design S.P. Ahluwalia Children’s Self Concept Scale (CSCS) questionnaire was utilized to obtain the self concept. After completion of eight weeks training all the subjects were re-tested to collect post-test data to determine the cause and effect of training. Hence the difference between the mean this was achieved by the application of the analysis of co-variance, where the final mean were adjusted for difference in the initial means and the adjusted means were tested for significance. When the adjusted post test means were shows significant differences. The study proved that self concept was significantly enhanced in experimental group when compared to control group.

Jana & Bandyopadyay (2012), have conducted a study with the purpose to investigate the effects of Pranayama on FEV, FVC & Depression of middle aged female (age ranging 30 to 60 years). There was an Experimental Group and a Control Group. According to age, the subjects were divided into two groups i.e. Young Adult (YA) age ranging from 30 to 45 years and Elderly Adult (EA) age ranging from 46 to 60 years. In the present study, all the subjects (34 volunteered women) of the Experimental groups were brought under a Pranayama training programme for 15 weeks. All the parameters i.e. FEV, FVC & Depression were measured before and after the training programme. For statistical analysis and interpretation of data ‘t’-test was conducted. Result showed a significant increment in FEV, & FVC in experimental YA & EA groups and a significant decrement in Depression was observed in experimental YA & EA groups. There was almost no change in all the aforesaid parameters in control YA & EA groups after the experimental period.

Rai et al; (2012), have organized a study and the objective of the study was to assess mental health of University Archers and compare them on the basis of different events of Archery. Total 156 Archer of different University were
randomly selected as subjects from All India University Archery Tournament, organized by Panjabi University, Patiala. Their age ranged from 17-28 years. Mental Health was selected as a dependent variable and different events of Archery i.e. India round, resurvey and compound were considered as independent variables. The static group comparison design was used for this study Mental Health was assessed by Mental Health Check-List developed by Pramod Kumar 2011. For assessment of mental health of University Archers, descriptive statistic was used and for comparison of mental health among different events of Archery, One way Analysis of Variance (ANOVA) was used and the level of significance was set at 0.05. Results: The findings of the study revealed that significant difference (F (2, 153)=31.34, p<0.05) was found among different events of Archery. It is concluded that all events of Archer had different mental health. In which reserve players had higher mental health (M=14.66) than the compound players (M=16.93) and Indian round players (M=17.58).

Kumar et al; (2012), the aim of this study was to determine the effects of yogasanas and Pilates exercises training on flexibility. Forty five male students randomly selected, from Pt. K.L.S. Degree College. Ramabai Nagar, aged 20-25 years, volunteered to participate in the study. Subjects were assigned into three groups: A (experimental 1: N=15), B experimental 11: N=15) and C (control III: N=15). The subjects from Groups A and B take 12-weeks yogasanas: Halasana, Chakrasana, Mayurasana, Bhujangasana, Sarvangasana, Dhanurasana, Makarasana, Vajrasana, Supta Vajrasana and pilates exercise: Chest lift, Curl up One leg circle, open leg balance, roll up and rolling like a ball program me. Each yoga session consisted of 05 minutes prayer, 35 minutes prayers, 35 minutes of asanas, and 5 minutes of supine relaxation is shvasana and plate’s exercises consisted of 35 minutes exercises, 10 minutes relaxation. The subjects were evaluated pre and post test were taken before and after 12-week training program. Analysis of covariance was used to assess the between-group difference for dependent data to assess the pre-post differences. Dependent
variable flexibility has significantly improved in group A and B when compared with the control group. There was significant difference found between two experimental groups for flexibility. These findings indicate that regular yogasanas and pilates exercises can elicit improvements in the flexibility.

Kangane & Limbkar (2012), conducted a study and the purpose was to compare the efficacy of Yoga stretching and Relaxation on accuracy in Rifle shooting among school students. Forty male student (n=4) of Chembur Naka Municipal School, Chembur, Mumbai, were selected randomly as sample by employing Fishers random Table. The subject’s age group was ranging from 12-17 years. Making the use of table random numbers all the 40 subjects were divided randomly into two equal groups ie. Group A (Rifle shooting) and Group B (Rifle shooting plus Yoga stretching and relaxation). A completely randomized design of two groups of equal numbers was adopted for this study. The score in each criterion measure (Rifle shooting ability, speed & accuracy) were taken before and after the experimental period of 6 weeks. After the pre test was over, all the subjects of Group A were exposed to a practice of Rifle shooting and Group B shooting plus, Yoga stretching and relaxation. Separate training for both the groups was imparted 1 hour daily in the morning except Sundays and Holidays. Descriptive statistics have been applied to process the data prior to employing inferential statistics 2x2x3 Factorial ANOVA. Further, Scheffe’s post- hoc test was employed to record comparative effects of Yoga, stretching and relaxation on accuracy in Rifle shooting among school students. The result summarized that the Yoga stretching and Relaxation has significant effects on accuracy in Rifle shooting among school students.

(Babu 2012), the purpose of the study was to find out the effect of yogic practices on two selected bio-chemical parameters namely high density lipoprotein, Low density lipoprotein. To achieve the purpose, thirty obese college men were selected by using Body Mass Index technique from Pondicherry University Community College & Kanjemamunivar post Graduate College, Pondicherry. Their age ranged from 19 to 25 years, they were divided
into two groups and designed as Experimental group and control group the experimental group was given yoga training for a period of twelve weeks, morning, for six days in a week, whereas control group was not arranged any specific training program me other than their routine physical activities programme. The data were collected before and after the training programmes and statistically analyzed by using ‘t’ test. The results showed that yoga can be an effective training programme to maximize the HDL and minimize the LDL Lipoprotein among obese college men

Bajwa & Mondal (2012), have made an attempt to assess of specific motor fitness status of female volleyball players in relation to their competition performance. As many as 120 female volleyball players of least inter college level were randomly drawn from various colleges affiliated to Punjab University to act as subjects for the study. The study was delimited to the minimum of inter college volleyball players studying in the various colleges affiliated to the Punjab University. The subjects were non residential students and they had different living condition, diet, rest and working schedule. The quantum of physical activities involved outside regular college hours which could not be assessed or controlled and this recognize as the limitation of the study which might affect the finding of study. To select the specific motor fitness variables battery developed by Kulwinder Kaur Sandhu having seven motor fitness components were used for the assessment of 120 player’s specific motor fitness level. To assess competition performance the criteria for the admission into various classes of Physical Education at Punjab University, this was used for the study. After tabulation of the data the results revealed that volleyball group with high profile competition performance were found superior in all the seven specific fitness variables then their counterpart that is with low competition performance profile. As in the specific fitness variable mean scores of high profile group were found higher than the means scores of low profile group.

Bilderbeck et al; (2013), have conducted a study on the topic “Yoga and meditation have been shown to be effective in alleviating symptoms of
depression and anxiety in healthy volunteers and psychiatric populations. Recent work has also indicated that yoga can improve cognitive-behavioral performance and control. Participants were recruited from 7 British prisons and randomly allocated to either a 10-week yoga programme (yoga group; 1 class per week; N = 45) or a control group (N = 55). Self-report measures of mood, stress, and psychological distress were collected before and after the intervention period. Participants completed a cognitive-behavioral task (Go/No-Go) at the end of the study, which assessed behavioral response inhibition and sustained attention. Participants in the yoga group showed increased self-reported positive effect, and reduced stress and psychological distress, compared to participants in the control group. Participants who completed the yoga course also showed better performance in the cognitive-behavioral task, making significantly fewer errors of omission in Go trials and fewer errors of commission on No-Go trials, compared to control participants. Yoga may be effective in improving subjective wellbeing, mental health, and executive functioning within prison populations. This is an important consideration given the consistently high rates of psychological morbidity in this group and the need for effective and economical intervention programmes.

Vega et al; (2013), the purpose of this study was to evaluate the effects of a circuit training program along with a maintenance program on muscular and cardiovascular endurance in children in a physical education setting. Seventy-two children 10-12 years old from four different classes were randomly grouped into either an experimental group (n = 35) or a control group (n = 37) (two classes for each group). After an eight-week development program carried out twice a week and a four-week detraining period, the experimental group performed a four-week maintenance program once a week. The program included one circuit of eight stations of 15/45 to 35/25 seconds of work/rest performed twice. Abdominal muscular endurance (sit-ups in 30 seconds test), upper-limbs muscular endurance (bent arm hang test), and cardiovascular endurance (20-m endurance shuttle run test) were measured at the beginning and
at the end of the development program, and at the end of the maintenance program. After the development program, muscular and cardiovascular endurance increased significantly in the experimental group (p<0.05). The gains obtained remained after the maintenance program. The respective values did not change in the control group (p > 0.05). The results showed that the circuit training program was effective to increase and maintain both muscular and cardiovascular endurance among schoolchildren. This could help physical education teachers design programs that permit students to maintain fit muscular and cardiovascular endurance levels.

Shivkant & Mastram (2015), have conducted a study to know the “effect of yoga training on physiological variables of school level student”. Another purpose of the study was to improve the physiological level of students. 30 subjects were selected randomly from Govt. Sr. Sec. School, Ugalan, Dist. Hisar (Haryana). The studied physiological variables are Pulse rate, systolic blood pressure, diastolic blood pressure and respiratory rate. The mean and ‘t’-test were applied for interpretation of data. The level of significance was set at .05. The result revealed that there was significant (p<.05) effect of yoga training on physiological variables of school students.

Sahu & Kishore (2015), the purpose of this study was to know the “effect of Bhramari Pranayama and Jyoti Dhyan effect on alpha EEG and Hemoglobin of college going students”. For this 50 boys were selected from Dev Sanaskriti University, Hardwar (Uttarakhand), who was studying M.sc/M.A first year in the year 2011 with the help of Accidental sampling and all the samples belonged to the age range of 20-24 years. Bharamari Pranayam and jyoti dhyan practice was given to all samples in a group for a period of 1 month (10 Sep-10 Oct 2011) regularly with a definite pattern in the morning. Sahli's haemometer & α-EEG Bio feedback apparatus test were used as data collection device. In this study t-test was used for statistical analysis. It is found that bharamari Pranayam and jyoti dhyan was found to have significant effect on Hemoglobin level & alpha EEG of the students.
Bajpai (2015), has conducted a study to know the Effect of Bhramari Pranayama and Yoga Nidra on cardiovascular hyper-reactivity to cold pressure test. The aim of this study was to investigate whether regular practice of Bhramari Pranayama and Yoga Nidra for 3 months can reduce cardiovascular hyper-reactivity to the cold pressure test in young healthy medical students. A number of studies support the beneficial effect of Bhramari Pranayama and Yoga Nidra in hypertension. No study has been done to evaluate combined effect of pranayama and meditation in hyper-reactors to cold pressure test. Materials and Methods: A total of 94 young medical students were selected who performed Bhramari Pranayama and Yoga Nidra for duration of 3 months. Cold pressure test was done on each student before and after yoga. Results: There was 79% reduction in hyper-reactivity to cold pressure test as number of hyper-reactors reduced from 32 before the study to 7 after 3 months of yoga. Systolic rise of blood pressure to cold pressure test reduced from 20.1 ± 3.5 mm Hg to 15.2 ± 3.7 mm Hg (P < 0.001) and diastolic rise reduced from 13.81 ± 3.4 mm Hg to 10.37 ± 2.62 mm Hg (P < 0.001) in hyper-reactors. Mean systolic blood pressure in all the 94 subjects reduced from 119.87 ± 12.01 mm Hg to 117.68 ± 11.89 mm Hg whereas mean diastolic blood pressure reduced from 77.08 ± 9.3 mm Hg to 75.11 ± 9.07 mm Hg (P < 0.001). Conclusion: Bhramari Pranayama and Yoga Nidra together can significantly alleviate stress induced changes in cardiovascular parameters.

Kondam et al; (2015), a comparative study on effect of Pranayama and Suryanamaskar Yogic Exercise on Static Spirometry Values In Normal Young Healthy Individuals. Yogic practices can be considered to be a very good exercise for maintaining proper health and also has a profound effect on the lung functions of an individual. They are also used as psycho-physiological stimuli to increase the physiological functions and human performance. Their age ranged between 18-24 years. All the participants were given training for 15 days by a certified yoga teacher and were allowed to practice pranayama and suryanamaskar exercise for one hour everyday in the evening for duration of
six months. Five types of pranayama namely Bhashrika pranayama, Anulom vilom pranayama, Bhrumari pranayama and Pranava pranayama were chosen for this study. Various static spirometry tests were done to measure the Tidal volume (TV), slow vital capacity (SVC), Inspiratory reserve volume (IRV), expiratory reserve volume (ERV). Pulmonary function test was performed in all the participants using computerized pulmonary testing machine (Helios-401, RMS). The obtained data was analyzed for statistical significance using SPSS software of 22.0 version followed by students t test and p<0.005 was considered the level of significance. There was significant increase in all these variables (p<0.001) in the study group after six months of yoga. This study concluded that, the practice of yoga can be advocated to improve respiratory efficiency for healthy individuals as well as an alternative therapy or as adjunct to conventional therapy in respiratory diseases and improve the anesthetic fitness for cardiothoracic surgery. Summing up, the six months yoga training including pranayama and suryanamaskar had significant effect on SVC, IRV, ERV and TV. Thus, such training may be recommended to improve physical and physiological fitness-based performance. The positive results found in the present study might apply to sports persons to improve physiological efficiency. A few minutes practice daily may help in maintain healthy life. The daily practice could also be parts of physical fitness and lifestyle modification programmes in maintain better physical and mental health. It is evident from the above results that, the combined practice of pranayama and suryanamaskar develops many wonderful qualities, and makes the students healthy for their future life. It also sharpens the ability to focus, self-confidence, and helps to develop self-discipline. We therefore conclude that pranayama snd suryanamaskar should be practices by any student’s particularly medical students these who are under stress constantly every day to get these beneficial effects.

Mishra et al; (2015), The Purpose of the study was to find out the effect of yogic training on selected physiological variables. Selection of Subject: For the
present study twenty five male students of 9th and 10th standard from Children Senior Secondary School, Azamgarh, Uttar Pradesh were selected randomly as the subjects for the study. The age of the subjects were ranging from 13 - 16 years. Selection of Variable: The variables selected for the present study were yogic training (independent variable), resting heart rate and vital capacity (dependent variables). The data was collected through the pre and post test. For the study single group design was used in which the pre test was taken prior to the yogic training and post test was taken after eight weeks of yogic training. Statistical for comparing pre and post test means of resting heart rate and vital capacity, descriptive analysis and paired t-test were applied at 0.05 level of significant. Result: The result of the study showed that there was significant difference between pre and post test of resting heart rate and vital capacity. On the basis of the findings it was concluded that the yogic training may be responsible for the improvement of selected physiological variables like resting heart rate and vital capacity.

Singh & Ghuman (2015), the aim of the present study is to assess the effects of Pranayama on Breath-Holding Capacity, Cardio- Vascular Endurance & Reaction Time of high school students in Punjab. Two hundred boy’s age group of 13 to 16 years from Govt. High School, Karala, Punjab and S.B.W.S.M.P. School, Banur, Punjab were selected as the research subjects. The Pranayama training duration was of 10-weeks. The subjects were divided into two groups as experimental (Group A) and control (Group B). The experimental group underwent Pranayama training for 10-weeks and control group did not receive the Pranayama training. The ‘t’ test was used to compare pre and post-training values. After10-weeks Pranayama training, there was a significant (P< 0.001) difference between pre and post-testing of experimental group for the breath-holding capacity (pre = 35.89±1.55, post=36.92±1.57), cardio-vascular endurance (pre= 1710.27±50.73, post 1785.51±78.24) and reaction time (pre = 24.81±0.40, post 23.55±0.43) as well as control group for the breath-holding capacity (pre = 34.28±1.01, post = 34.27±1.02).
cardiovascular endurance (pre = 1580.94±13.62, post = 1498.17±62.78) and reaction time (pre = 25.90±0.50, post = 25.83±0.52). The experimental group had a significant improvement on Breath-Holding Capacity, Cardio-Vascular Endurance & Reaction Time than the control group. On the basis of the obtained results the following conclusions were drawn the results suggest that 10-weeks training programme of Pranayama improved Breath-Holding Capacity of high school students. There is a significant role of Pranayama to improve our Breath-Holding Capacity. It is also concluded that 10-weeks training programme of Pranayama improved Cardio-Vascular Endurance of high school students. It is further concluded that training programme of 10-weeks of Pranayama decrease Reaction Time of high school students. On the final note, it can conclude that regular practice of Pranayama is helpful to improve Breath-Holding Capacity, Cardio-Vascular Endurance & decrease Reaction Time. Thus it is suggested that to be in good shape of health status, one must regularly practice yogic asanas and pranayams.

**Prasad & Dhapola (2015)**, the purpose of the study was to investigate the effect of pranayama practice on selected physiological variables. For the purpose of present study a total of 22 male kabaddi players were selected as a subject randomly from the group of students attending the regular kabaddi practice sessions at Guru Ghasidas Vishwavidyalaya ground, Bilaspur (C.G.). The researcher selected as a physiological variables for the present study: i.e. resting pulse rate, maximum breath holding capacity, and blood pressure (systolic and diastolic). The data was collected before and after eight weeks pranayama practice. The participants were tested with the usages of stop watch, Sphygmomanometer and Stethoscope. The data was analyzed by applying paired t-test. at 0.05 level of significance. The finding of the present study strongly reveals that pranayama practices of eight weeks have significant effect on selected physiological variables of kabaddi players. Hence the hypothesis that pranayama practice would have been significant effect on selected physiological variables. Within the research sample and the available
possibilities, we can conclude that pranayama exercises have positive effect on the selected physiological variables (resting pulse rate, maximum breath holding, systolic blood pressure and diastolic blood pressure) under research. This effect may be attributed due to the participation in a pranayama training programme regularly, which declares that pranayama exercises induce changes in various physiological and biochemical parameters. In view of the fact that physiological and biochemical statistics on GGU, students are insufficient; the recent study might be useful for other sports also where the selected physiological variables play a vital role. The study of the physical fitness demands through sport activity helps in designing training programmes on a biological and physiological foundation. Pranayama variables are considerable indicators of changes in physiological variables as a result of training. In conclusion, the effects of pranayama practice on physiological aspects adding new dimensions that can assist in evaluating, directing and developing yogic training programmes for athletic training and modern sports.

Singh et al; (2015) effect of 8 Weeks Pranayama training on Cardiovascular Fitness of Young Male Boxer. The purpose of the study to see the effects of 8 weeks of Pranayam Training on Cardiovascular Fitness on selected subjects. The (N-50) subjects (Male) young boxer are purposive randomly selected belonging to age group of 18-22 years further divided into two groups. Group-A (control Group) and group-B (Experimental Group) and selected Pranayam Technique “Anuloma-Viloma and kapalbhati Pranayam. The group performs Pranayam Training Program 6 days (1 hour) in a week for 8 weeks. Statistical Technique; Pre-Test and Post Test have been conducted Tuttle Pulse Ratio Test and “t-test” was the Statistical Technique. The results of Pre-Test and Post Test of control group with regarding to the Tuttle pulse ratio score. The descriptive statistics shows the Mean and SD values of Pre-Test on the Tuttle pulse ration score as 5.13 and 0.22 respectively. However, Post-Test had mean and SD values as 5.13 and 0.22 respectively. The standard error difference of mean was 0.04 respectively. The t value 0.44 as shown in the table above was found
statistically insignificant (P>0.05). But while comparing the mean values of both the test, it has been observed that Pre-Test and Post-Test had demonstrated no difference of both test. The results of Pre-Test and Post Test of experimental group with regarding to the Tuttle pulse ration score. The descriptive statistics shows the Mean and SD values of Pre-Test on the Tuttle pulse ration score as 5.18 and 0.18 respectively. However, Post-Test had mean and SD values as 5.19 and 0.18 respectively. The standard error difference of mean was 0.00 respectively. The t value 3.01 as shown in the table above was found statistically significant (P<0.05). But while comparing the mean values of both the test, it has been observed that Post-Test had demonstrated better Tuttle pulse ration score than the Pre-Test. have been drawn in the view of data analysis of present study. The collected data showed significant difference in the subject belonging to experimental group and control group. Experimental group was found better than the control group on the Tuttle pulse ration score. In the study to see the significant effect of Paranayam training on cardiovascular fitness.

**Kuppusamy. M.K et al; (2016)**, have conducted a study on “Immediate Effects of Bhramari Pranayama on Resting Cardiovascular Parameters in Healthy AdolescentsIn”. Yoga, Pranayama has a very important role in maintaining sound health. There is some strong scientific basis on constant physiological changes produced when pranayama is practiced for long duration. Still, there exists a dearth of literature on the effect of Bhramari pranayama (Bhr.p) on physiological systems. Aim: To assess the immediate effect of Bhramari pranayama (Bhr.P) practice on the resting cardiovascular parameters in healthy adolescents. Materials and Methods: Sixty apparently healthy adolescents of both sex participated in the study. They were randomly divided into Bhr.P (n-30) and control (n-30) group. Informed consent was obtained after explaining the detailed procedure of the study. Bhr.P group practiced Bhramari pranayama for 45 min (5 cycles) and control group was allowed to do normal breathing (12-16 breath /min). Heart rate (HR) was assessed by radial artery palpation
method and blood pressure was recorded in supine position after 5 minutes of rest by sphygmomanometer. The HR reduced significantly (p<0.001) in Bhr.P group. BP indices, Pulse Pressure (PP), Mean Arterial Pressure (MAP), Rate Pressure Product (RPP) and Double Product (DoP) significantly decreased after Bhr.p practice compared with control. Pre and Post inter group analysis also showed that significant reduction in HR and BP indices in Bhr.P group. Present study showed that Bhr. P practice produces relaxed state and in this state parasympathetic activity overrides the sympathetic activity. It suggests that Bhramari pranayama improves the resting cardiovascular parameters in healthy adolescents. The findings of this study conclude that Bhr. P (3bpm) practice improves the cardiovascular parameters through parasympathetic dominance in adolescents and it can be practiced routinely for the reduction of stress induced cardiovascular risk in their future.

Srivastava. S et al; (2017), have conducted a study on “Interventional Effect of Bhramari Pranayama on Mental Health among college Students”. Mental health as a being of well being in which individual realize his or her own abilities, can cope with normal stress of life, can work productively and fruitfully, able to make his or her community (World Health Organization, 2014). The present study is aimed to measure the interventional effect of Bhramari Pranayama on Mental Health in students. Total 60 subjects of Dev Sanskriti Vishwavidyalaya, Haridwar who enrolled in under graduate courses were selected. A mental health scale (Kamlesh Sharma 1996) was administered as a single group pre and post study. Fifteen minutes Bhramari Pranayama exercise session for 20 days used as an intervention variable in the study. Results revealed that Bhramari Pranayama intervention was found significant effect on mental health and increased level of mental health was found in post study in comparison to pre study. This concludes that Bhramari Pranayama provides a means to individual peace, happiness, develops optimism attitude, self esteem and proper coordination between mind and body. Present study was done to investigate the interventional effect of Bhramari Pranayam on mental
health. This study reveals the significance of Bharamari Pranayama & study also opens up a way to delineating the further importance of Bhramari Pranayama with mental and physical health. Bharamari Prayanama and Yoga could be play a vital role to improve mental as well as physical health especially for young adult, corporate, old age and patient with suffering from mental disorders in near future.
METHOD & PROCEDURE

In this chapter the selection of subject, selection of variables, criterion measures, reliability of data, sample and sampling technique, method of study, tools and tests of the study, pilot study, administration of the test, description of training programme, collection of data and statistical techniques used for analysis of data have been described.

Selection of Subjects

The subjects selected for this study were one hundred and thirty five Male (67) and Female (68) undergraduate players were enrolled fulfilling the criteria of selection of players Varanasi out of 135 players. Total Forty five players from IIT B.H.U., Forty five players from Mahatma Gandhi Kashi Vidyapeth and Forty five players from Arya Mahila Post Graduate College Varanasi were selected.

All subjects were divided in to four groups’ i.e. Bhramari Pranayama group (BHP-35), Physical exercise group (PT-35), Physical exercise & Bhramari Pranayama group (BPPT-35), Control group (CG-30). Their age ranged between 18-25 years. Following table shows the total number of subject of different group. All subjects had represented inter faculty tournament in their respective games.

Table-1 Group wise distribution of undergraduate players

<table>
<thead>
<tr>
<th>BHP GROUP</th>
<th>PT GROUP</th>
<th>BPPT GROUP</th>
<th>CG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>18</td>
<td>17</td>
<td>16</td>
<td>19</td>
</tr>
</tbody>
</table>

- Subjects divided in four groups BHP group, PT group, BPPT group and Control group.
Selection of variables

On the basis of literary evidences, it is mentioned that health component consists of three things i.e. Physical health (Body) Physiological health (Functioning of different systems of body) and mental health (Mind). The research scholar gleamed through the scientific literature from books, magazines, journals and periodicals. Keeping the feasibility criteria in mind especially in the case of availability of instruments, for the purpose of this study the following variables were considered which were already tested by several experts and were justifiable and feasible in administration.

**Physical Health Variables**

1. Flexibility
2. Muscular Strength
3. Shoulder Power
4. Speed
5. Cardio-vascular Endurance

**Physiological Health Variables**

1. Blood Pressure
2. Resting Pulse Rate
3. Respiratory Rate
4. Vital Capacity
5. Body Weight
6. Hemoglobin

**Mental Health Variables**

**Prakriti Pariksha Variables**

1. Deha Prakriti
2. Manasa Prakriti
**Criterion Measures:** The Criterion measures chosen for this study were:

- Physical health was measured as follows:
  
  **Flexibility:** Flexibility was measured with the help of Sit-Ups test. The number of Sit-Ups was recorded for One Minutes.

  **Muscular Strength:** Strength was measured with the help of Standing Broad Jump test. The distance was recorded in meters.

  **Shoulder Power:** Shoulder Power was measured with help of Medicine Ball Throw test. The distance was recorded in meters.

  **Speed:** Speed was measured with the help of 50 Meters Sprint test. Time was recorded in Seconds.

  **Cardio-vascular Endurance:** Cardio-vascular Endurance was measured with the help of 600 Yard Run-Walk test. Time was recorded in Minutes.

- Physiological health was measured as follows:-
  
  **Blood Pressure:** Blood Pressure was measured with the help of Sphygmomanometer Equipment. The Systolic and Diastolic Blood Pressure was recorded in mmHg.

  **Pulse rate:** Pulse rate was measured with the help of Stop watch. The Radial pulse count was recorded for one Minutes.

  **Respiratory Rate:** Respiratory Rate was measured with the help of Stop watch. The inhalation or exhalation count was recorded for one Minutes.

  **Vital Capacity:** Vital Capacity was measured with the help of Dry Spirometer. The score was recorded in Liters.
Body Weight: Body Weight was measured with the help of weighing machine. Weight was recorded in Kg.

Haemoglobin: Haemoglobin was measured with the help of Laboratory Investigation (Blood Test). Haemoglobin was recorded for Units%.

Mental health: Mental health was measured by using Mental Health Inventory (MHI) constructed and standardized by Dr. Jagdish and Dr. A.K. Srivastava., (1986).

Prakriti Pariksha

Deha prakriti: Deha prakriti was measured by using prakriti parameters developed by Dubey and Singh (1970). Based on individual prakriti i.e., vatika, pattika and kaphaja.

Manasa prakriti: Assessment of manasa prakriti viz, sattvika, rajasika and tamasika was done based on parameters developed by Singh R. H., (1980).

Reliability of Data

The reliability of data was ensured by establishing the instrument reliability, tester’s competency, reliability of the tests and the subject reliability.

Reliability of Instrument

The electronic stop watch, Weighing machine, Measuring tape, Sphygmomanometer, stethoscopes, Dry Spirometer, Medicine Ball, Mat, wood, Skipping etc. were obtained from standard firms which cater to the needs of various research laboratories in India and abroad. The reliability of these instruments ensured and calibrated by their Manufactures. Thus all the instruments used in this study to measure the various aspects of health of the subjects were calibrated and precise.
**Tester Competency and Reliability of Test**

To ensure that the investigator was well versed with the technique of conducting the tests, the investigator had a number of practice session in testing procedure under the supervisor and co-supervisor. The tester competency was evaluated together with the reliability of the tests. To determine the reliability of the tests, the measurement of 10 subjects selected at random on the selected variables were recorded twice under identical conditions by the scholar. Pearson’s product moment correlation was computed between the two measures of each variables and these reliability co-efficient are shown in table -2.

**Table-2**

**Reliability Co-efficient of Test Retest Scores:**

<table>
<thead>
<tr>
<th>Components</th>
<th>Co-efficient of Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexibility</td>
<td>.93</td>
</tr>
<tr>
<td>Muscular Strength</td>
<td>.92</td>
</tr>
<tr>
<td>Shoulder Power</td>
<td>.96</td>
</tr>
<tr>
<td>Speed</td>
<td>.91</td>
</tr>
<tr>
<td>Cardio-vascular Endurance</td>
<td>.89</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>.97</td>
</tr>
<tr>
<td>Pulse Rate</td>
<td>.96</td>
</tr>
<tr>
<td>Respiratory Rate</td>
<td>.98</td>
</tr>
<tr>
<td>Vital Capacity</td>
<td>.89</td>
</tr>
<tr>
<td>Body Weight</td>
<td>.99</td>
</tr>
<tr>
<td>Haemoglobin</td>
<td>.99</td>
</tr>
</tbody>
</table>

From the test retest co-efficient of correlation (Table-2), it was obvious that the tester reliability was significantly high establishing the competency of the scholar to administer the tests. The correlation co-efficient also indicated the reliability of the tests selected, as very high correlation were obtained, when the tests were repeated.
**Subject Reliability**

The above test retest coefficients of correlation method also established that subject reliability was significantly at 0.01 level, as the same subjects were used under similar condition by the tester and no motivational techniques were used nor any training given.

**Sample and Sampling Technique**

The sample has been selected using Purposive sampling technique was utilized for the present study. Subject was selected from IIT B.H.U. Varanasi, M.G.K.V.P. Varanasi and A.M.P.G. College Varanasi only.

**Method of the study**

The present study was carried out using experimental method. The experimental design has been employed in four parallel groups (Undergraduate players).

**Experimental Design**

In this study random group design was utilized. For division of subject in different groups Random group design was adopted. The students were randomly divided into four groups. The three groups were served as the experimental group and one group was served as control group.

**Tools and Tests of the Study**

Modified AAHPER youth physical fitness test (1961) was utilized to measure physical fitness of players. The criterion measure chosen for testing of fitness of student are as follows.

**Physical Health –A**

<table>
<thead>
<tr>
<th>SI.NO</th>
<th>Test Item</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sit-ups</td>
<td>Mat, Stop Watch</td>
</tr>
<tr>
<td>2</td>
<td>Standing Broad Jump</td>
<td>Jumping Pit, Measuring Tape</td>
</tr>
<tr>
<td>3</td>
<td>Medicine ball Throw</td>
<td>Measuring Tape, Medicine Ball</td>
</tr>
<tr>
<td>4</td>
<td>50 Meters Run</td>
<td>Stop Watch</td>
</tr>
<tr>
<td>5</td>
<td>600 Yard Run- walk</td>
<td>Stop Watch</td>
</tr>
</tbody>
</table>
Tools used for Physiological measures: Physiological ability measured through specific equipments specially designed for measuring the physiological variables, which were as follows:

<table>
<thead>
<tr>
<th>SI. No</th>
<th>Variables</th>
<th>Tools/Equipments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Blood Pressure</td>
<td>Sphygmomanometer</td>
</tr>
<tr>
<td>2</td>
<td>Pulse rate</td>
<td>Stop watch</td>
</tr>
<tr>
<td>3</td>
<td>Respiratory Rate</td>
<td>Stop Watch</td>
</tr>
<tr>
<td>4</td>
<td>Vital Capacity</td>
<td>Dry Spirometer</td>
</tr>
<tr>
<td>5</td>
<td>Body Weight</td>
<td>Weighing Machine</td>
</tr>
<tr>
<td>6</td>
<td>Haemoglobin</td>
<td>Laboratory Investigation(Blood Test)</td>
</tr>
</tbody>
</table>

Pilot Study
Prior to the enrollment of trial subject the pilot study was conducted on 10 different game players on all physical, physiological and mental health items to determine the clarity and appropriateness of the items selected for the training programme.

Administration of Test Items

Physical Health

Sit-ups
Purpose: To measure the Flexibility of the subject.

Materials needed:-stop watch, mat

Procedure: The subjects were asked to lie down in a supine position with the hands clasped behind the head. Keeping the knees straight, the subject comes to a sitting position and touches one elbow to the opposite knee and then the other elbow to the alternate side. Returning to the supine position, the subject repeats the movement as many times as possible.

Scoring: The score is the total number of sit-ups the subject performs correctly.

Standing Broad Jump

Purpose: To measure the muscular strength of legs of the subject.
Materials Needed: Measuring tape, jumping pit, score sheet and recording material.

Procedure: A take-off line was drawn near one edge of the jumping pit. The subject was asked to take his position with toes just behind the take off line with feet slightly apart. Then jumped to cover maximum horizontal distance, landing on both feet, while jumping he was asked to crouch slightly and swing the arms to aid the jump. Three trials were given and the best of three jumps was recorded as the standing broad jump performance.

Scoring: The distance between the take-off line and the nearest point where any part of the body touches the ground is recorded in meters as score.

Medicine Ball Throw

Purpose: To measure the shoulder power of the subject.

Materials needed: Medicine ball, lime powder, measuring tape.

Procedure: The subject stands the desired distance behind the throw line, up to a maximum of 15 feet, using the medicine ball throwing approach, he moves up to the line and throws the ball as possible with the over arm throwing technique, being careful not to cross over the restraining line

Scoring: The subject is allowed three trials, the best throw is recorded to the nearest throw, and measurement is taken from the back of the restraining line to the spot where the ball first strikes the ground.

50 Meters Sprint

Purpose: To measure the speed of the subject.

Materials Needed: Stop watch, clapper, recording material, running area.

Procedure: Two parallel lines were marked apart 50 meters as starting and finish line. On the command of ‘go’ the subject were asked to run as fast as possible across the finish line to cover 50 meters area.

Scoring: The time was recorded in seconds.

600 Yard Run-Walk

Purpose: To measure the cardio-vascular endurance of the subject.
**Materials needed:** 400 meets track, stopwatch.

**Procedure:** The subjects were asked to take a standing start, at the signal Ready! Go! The subject starts running the 600 yard distance. The test is usually run and walking is permitted but the performer is to cover the distance in the shortest period of time.

**Scoring:** The time taken to run 600 yards recorded in minutes is the score of this test item.

**Physiological Health**

**Blood Pressure**

**Purpose:** To measure the Systolic and Diastolic Blood Pressure of the subject.

**Materials needed:** Sphygmomanometer, stethoscope score sheet.

**Procedure:** A sphygmomanometer (Dial type) and a Stethoscope were used to measure the blood pressure (Systolic and Diastolic) of the subject were asked to sit relaxed on chair. The Cuff of The sphygmomanometer was wrapping around the left upper arm of the subject just above the elbow. The cuffs were connected to the pressure pump and manometer after closing the outlet valve of the pressure pump. The pressure in the inflatable runner bag is rapidly raised to 180 mmHg by pumping which was sufficient to sheet of the practical artery which is arrested and radial pulse disappeared.

**Scoring:** The systolic and diastolic blood pressure was recorded in mmHg.

**Resting Pulse Rate**

**Purpose:** To measure the Resting Pulse Rate of the subject.

**Materials needed:** Stop watch, score sheet.

**Procedure:** The subject sitting on the chair in easy condition and radial pulse was counted for one minutes.

**Scoring:** Total pulse rate count in one minute.

**Respiratory rate**

**Purpose:** To measure the Respiratory Rate of the subject.

**Materials needed:** Stopwatch, score sheet.
Procedure: Respiratory rate was taken early in the morning. The subject was asked to rest in supine lying position on their beds. The respiratory rate was felt by placing the hand just below the thoracic cavity that is on diaphragm. The research scholar used stopwatch for taking the no of respiratory rate.

Scoring: Total number of inhalation or exhalation per minute was recorded for each of the subjects.

Vital Capacity

Purpose: To measure the Vital Capacity of the subject.

Materials needed:- Dry Spirometer, score sheet.

Procedure: Vital capacity of the subject was measured with the help of dry spirometer in standing position. It was ensured that the inner pointer of the spirometer was set on zero mark at the beginning of the test. The subject took a deep breath before starting the test and then after the fullest inhalation the subject placed the mouth piece of the spirometer in his/her mouth taking care to see that no air escaped through the edges of the mouth piece. The subject exhaled slowly and steadily while bending forward slightly until the maximum volume of air could be exhaled without taking in a second breath. The subjects were instructed to take care that they blew out only through the mouth and not through the nose ever partially. Then level of rising of the indicator was holed and the score of vital capacity for each subject was recorded in liters. Each subject was provided a trial, before the final test.

Scoring: Highest level of rising of the indicator was noted in liters as vital capacity of the subject.

Weight

Purpose: To measure the Body Weight of the subject.

Materials needed:- Weighing Machine, score sheet.

Procedure: The Body weight of the subject was taken with the help of weighing machine. The subject was asked to climb on the centre of the weighing machine exhorting equal pressure on both the feet’s without movement. The Body weight was recorded to wear minimum possible clothes at the time of measurements.
Scoring: Body Weight shown by machinery nearest half kilogram was recorded.

Haemoglobin
Laboratory profile routine blood was examined for total leukocyte count, differential leucocytes count hemoglobin percentage and erythrocyte sedimentation rate to exclude any infection or any other haematological abnormality.
Haemoglobin also plays an important role in maintaining the shape of the red blood cells. In their natural shape, red blood cells are round with narrow centers resembling a donut without a hole in the middle. Abnormal haemoglobin structure can, therefore, disrupt the shape of red blood cells and impede their function and flow through blood vessels.

Mental Health
Purpose: To assess the mental health of the subject.
Material needed: Mental Health Inventory (M.H.I.).
Procedure: All the subjects were taken to the Basketball court and details of M.H.I. were explained by the research scholar. After explaining about Mental Health Inventory was distributed to them. M.H.I. Consists of 56 questions divided into VI part as follows:-

<table>
<thead>
<tr>
<th>Dimensions of Mental Health</th>
<th>Items</th>
<th>Positive</th>
<th>Negative*</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Positive self evaluation</td>
<td>1*, 7*, 13*, 19, 23*, 27, 32, 38, 45, 51</td>
<td>06</td>
<td>04</td>
<td>10</td>
</tr>
<tr>
<td>2. Perception of reality</td>
<td>6, 8, 14*, 24*, 35*, 41, 46*, 52</td>
<td>04</td>
<td>04</td>
<td>08</td>
</tr>
<tr>
<td>4. Autonomy</td>
<td>3*, 10*, 29, 42*, 48*, 54, 55</td>
<td>02</td>
<td>04</td>
<td>06</td>
</tr>
<tr>
<td>5. Group oriented attitudes</td>
<td>4, 11*, 16*, 21*, 26, 30, 39, 43, 49*, 55</td>
<td>06</td>
<td>04</td>
<td>10</td>
</tr>
<tr>
<td>6. Environmental mastery</td>
<td>5*, 12, 17*, 22*, 31, 34, 37, 44, 50, 56</td>
<td>07</td>
<td>03</td>
<td>10</td>
</tr>
<tr>
<td>Total Test Items</td>
<td></td>
<td>26</td>
<td>30</td>
<td>56</td>
</tr>
</tbody>
</table>
Mental Health Inventory constructed & standardized by Dr. Jagdish and Dr. A.K. Srivastava 1986. In the Present scale, 4 alternative responses have been given to each statement i.e. 4 scores to ‘Always’, 3. Scores to ‘often’, 2 scores to ‘Rarely’, and 1 scores to ‘Never’ marked responses as to be assigned for true keyed (positive) statement where as 1, 2, 3 and 4 scores for ‘Always’, ‘often’, ‘Rarely’, and ‘Never’ respectively in case of false keyed (negative) statement. The over lined items are negative while remaining positive. The subjects were given an hour to evaluate and respond it in a very sincere manner. The group was also told that the results of tests helps in self knowledge and strictly confidential and no statement is to be left out.

**Scoring:** - Scoring was done according to mentioned in the manual.

**Positive:** - 4, 3, 2, 1,

**Negative:** - 1, 2, 3, 4,

**Prakriti Pariksha**

Two types of prakriti were assessed. Deha prakriti and Manasa prakriti.

**Deha prakriti:** In the present study prakriti of each player was assessed on the basis of individual physical, physiological and psychological make-up. For this purpose, a test proforma was specially designed based on classical text to identify an individual of a particular prakriti as per methods described by Dubey and Singh (1970). Based on individual prakriti, the players will divided into three groups- i.e., vatika, pattika and kaphaja.

**Manasa prakriti:** Assessment of manasa prakriti viz, sattvika, rajasika and tamasika was done based on parameters developed by Singh R. H.(1980). For present study modified preforme was utilized.

**Administration of Test**

The intervention program was scheduled for eight weeks and five days in a week. Physical exercises and Bharamari Pranayama were introduced to the participants approximately forty five minutes in morning. All the participants were encouraged to attend the training session regularly. The Physical exercises and Bharamari
Pranayama practices have been conducted by the experts and research scholar herself.

**Repetition Period**- Test will be conducted as follows:

**All the tests were conducted as per given protocol:**
- Before the test all necessary data were collected in all four groups of players.
- After eight Weeks again all data in terms of Physical, Physiological & Mental health variables were collected in different of all four groups of players.
- Results were declared in front of all participants for their Reinforcement.

**Administration of Programme**

The research scholar along with one physical education student administered the Physical exercises and Bhramari Pranayama activity as training programme after pilot study. The programme was refined and was given a final shape with the help of Supervisor and Co- Supervisor was also Takes before finally implementation of the programme. The subjects were participated in bhramari pranayama & physical exercises programme for 5 days in a week at play ground of IIT B.H.U., M.G.K.V.P. Varanasi and A.M.P.G. College Varanasi only for a period of eight weeks for forty five minutes respectively. The schedules of the training programme given as below.

**DESCRIPTION OF PHYSICAL AND PHYSIOLOGICAL HEALTH TRAINING PROGRAMME**

<table>
<thead>
<tr>
<th>Duration of programme</th>
<th>: 08 weeks.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of days per week</td>
<td>: 5 days. (Monday to Friday)</td>
</tr>
<tr>
<td>Duration of each class</td>
<td>: forty five minutes</td>
</tr>
<tr>
<td>Programme for</td>
<td>Undergraduate Players</td>
</tr>
</tbody>
</table>

**1 Week - VIII Week (Monday to Friday) First Experimental Group**

<table>
<thead>
<tr>
<th>Introductory Part Time:5 minutes</th>
<th>Bhramari Pranayama (BHP) Time :15 minutes</th>
<th>Re-assembly and Dismissal Time:08 minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly, Roll Call &amp; Warming up</td>
<td>Bhramari Pranayama</td>
<td>Re-assembly, feedback and Dismissal</td>
</tr>
</tbody>
</table>
**I Week - VIII Week (Monday to Friday) Second Experimental Group**

<table>
<thead>
<tr>
<th>Introductory Part</th>
<th>Physical Training (PT)</th>
<th>Re-assembly and Dismissal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time: 5 minutes</td>
<td>Time: 20 minutes</td>
<td>Time: 05 minutes</td>
</tr>
<tr>
<td>Assembly, Roll Call &amp; Warming up</td>
<td>Cooper 12 minutes Run and Walk (one time) sit-up and shuttle run, 2 repetitions</td>
<td>Re-assembly, feedback and Dismissal</td>
</tr>
</tbody>
</table>

**I Week - VIII Week (Monday to Friday) Third Experimental Group**

<table>
<thead>
<tr>
<th>Introductory Part</th>
<th>Bhramari Pranayama &amp; Physical Training (BPPT)</th>
<th>Re-assembly and Dismissal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time: 5 minutes</td>
<td>Time: 35 minutes</td>
<td>Time: 05 minutes</td>
</tr>
<tr>
<td>Assembly, Roll Call &amp; Warming up</td>
<td>Bhramari Pranayama 15 Minutes, Cooper 12 minutes Run and Walk (one time) sit-up and shuttle run 2 repetitions</td>
<td>Re-assembly, feedback and Dismissal</td>
</tr>
</tbody>
</table>

**I Week - VIII Week (Monday to Friday) Fourth Control Group**

<table>
<thead>
<tr>
<th>Introductory Part</th>
<th>Control group</th>
<th>Re-assembly and Dismissal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time: 5 minutes</td>
<td>No Work</td>
<td>Time: 05 minutes</td>
</tr>
<tr>
<td>Assembly, Roll Call</td>
<td></td>
<td>Dismissal</td>
</tr>
</tbody>
</table>

**Experimental Procedure**

All subjects were assembled in the Play Ground of M.G.K.V.P. Varanasi (April to May 2015) & IIT B.H.U. (June to August 2015) Play Ground of A.M.P.G College Varanasi (April to May 2015) at 6.00A.M. All subjects were voluntarily ready to do Physical training and Bhramari Pranayama. The scholar briefed the subjects about the objectives of the study and also explained both varieties of Physical training and Bhramari Pranayama in details with practical demonstration. Training was continued eight weeks according to schedule.

Control group did not undergo any training programme rather than their routine work.

**Bhramari Pranayama**: All subjects were made to sit in any comfortable posture sukhasanas with erect spine with their eyes closed. At this position, they were asked to take slow and deep inhalation through both the nostrils followed by deep and slow exhalation in the same way 15 secs approx. While exhaling, first inhale deeply one has to make a sound form the throat via the nose as there is a humming of a bee in performing. Then simulate the sound of humming through the neck.
Keep the continuation of humming as long as it is possible depending on the capacity of containing the breath. Do not continue making an..... un.......un.......un....sound unnecessarily, if the breath gets exhausted. Keep the sound neither too high nor too low depending on the sound produced in your neck and bring the sound out through the nose. This pranayama was done continuously without pause for 15 minutes.

**Physical Training:-** Cooper 12 minutes Run and Walk:- All subjects were asked to stand on the starting position and were given instructions to cover as much distance as possible by running, jogging or walking, if running throughout the twelve minutes period was not possible. They were instructed to continue till the final whistle was blown and to stop before. With the starting whistle they started and at the end of twelve minutes the whistle was blown. The number of minutes left was announced to the subjects every minute, and the subjects jogged with moving forward for the final whistle. When the signal to stop was given, they immediately stopped their running.

**Sit-ups:-** The subjects were asked to take a supine lying position on the ground, knees bent to an angle less than 90 degrees, and hands clasped behind neck. The angles were held firmly on the ground by another subject. The performer lifted his trunk, touched his/her knees with forehead and then lowered his/her trunk touching the ground with his/her elbows. This exercise was done continuously without pause for one minute.

**Shuttle Run:-** Two lines 10 meters apart were used by marking tape or cones. The two blocks were placed on the line opposite the line they are going to start at. On the signal ready the participant placed their front foot behind the starting line. On the signal go the participant sprints to the opposite line. Picked up a block of wood, run back and placed it on or beyond the starting line. They run back to retrieve the second block and carry it back across the finish line. Also make sure the participants run through the finish line to maximize their score. In addition to running speed, turning technique and coordination are also significant.
Constitutional Profile
Each Subject was examined for Physiological Parameters by way of detailed interview and physical examination to label their Prakriti i.e. Vata, Pitta and Kapha and Manasa Prakriti i.e. Sattvika, Rajasika and Tamasika. Under the demographic profile the following formations were recorded- Name, Age, Sex, Education, Sports achievement, Dietary Habit (Vegetarian/ Mixed vegetarian) and Habitat (Rural/Urban).

Collection of Data
The necessary data related to physical, mental health and Prakriti were collected from IIT B.H.U., M.G.K.V.P. Varanasi and A.M.P.G. College Varanasi in April 2015 to August 2015. The purpose of this study was explained to the head of the Institution and permission to conduct the programme with the help of their specialized staff was taken from the authority. Necessary instruction was given by the research scholar and explained all the test to the subjects before the administration of each test. Confidentiality of response was guaranteed. The required data in different components was collected from all the groups during first two morning classes. Basic physical fitness test for measuring physical health variables organized at one day while physiological measurement were taken another day. MHI was given to them at next day for pre test. Prakriti was assessed after one day. After collection of pre test scores on all the selected variables, experimental group participated in physical exercises and bhramari pranayama program me and control group did not participated in any activity programme. After completion of eight weeks activity programme post test was conducted and all data were collected (as pre test was collected) on all health variables.

Statistical Analysis
For analysis of the data collected from 120 players mean was computed. To know the effect of Bhramari Pranayama and physical exercises on different groups. One way analysis of variance (ANOVA) was utilized and to see the difference between pre test and post test score,’t’ test was utilized. For testing the hypotheses the level
of confidence was set at 0.05 level of significance. All statistical analyses were performed using the SPSS version 16.0 for Windows (SPSS® Inc., Chicago, IL). The statistical significance level was set at $p < 0.05$. Vega D.M et al; (2013). When the ‘F’ ratio was found significant Schaffer’s Post-Hoc test was used.

The formats for mean and standard deviation are given below:

\[
\text{Mean} = \frac{\sum x}{n}\]

\[
\text{Standard Deviation} \quad SD = \sqrt{\frac{\sum (x - \bar{x})^2}{n-1}}
\]

To test the significance of mean of difference of paired observations (Pre test versus Post test) paired t test was applied.

\[
\text{Paired} \quad t = \frac{\text{Mean of difference}}{\text{SE of difference}}
\]

\[
\text{SE} = \text{Standard Error} = \frac{SD}{\sqrt{n}}
\]

\[
n = \text{no. of cases (sample size) and}
\]

\[
d.f. = \text{degree of freedom} = n-1
\]

**Inter-group comparison (Between the group)**

To test the significance of difference of means of two independent groups, unpaired t test (independent sample t test) was applied

\[
t = \frac{M_1 - M_2}{\sqrt{\frac{1}{n_1} + \frac{1}{n_2} \cdot SD}}
\]

Where \( M_1 \) = Mean of Group 1

\( M_2 \) = Mean of Group 2
\[ S^2 = \frac{\sum x_i^2 - \left( \frac{\sum x_i}{n_1} \right)^2 + \sum y_i^2 - \left( \frac{\sum y_i}{n_2} \right)^2}{n_1 + n_2 - 2} \]

Here \( d.f. = n_1 + n_2 - 2 \)

When the groups (samples) are of equal size then the above formula reduces to

\[ t = \frac{M_1 - M_2}{\sqrt{SE_1^2 + SE_2^2}} \]

Corresponding to \( t \) value, \( p \)-value was determined.

\( p < 0.05 \) was considered statistically significant

\( p < 0.01 \) as statistically highly significant

\( p > 0.05 \) not statistically significant.
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<th>Page No.</th>
</tr>
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<td>I-IV</td>
</tr>
<tr>
<td></td>
<td>List of Figures</td>
<td>V-VII</td>
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<td>INTRODUCTION</td>
<td>1-13</td>
</tr>
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