# CHAPTER I

# INTRODUCTION

Modern man lives in a world of mind power in which the important skills of success are based on his psychological activities. Increasing pressures on human mind in the pursuit of materialistic philosophy are making in roads into the happiness of life.

Moreover, the twentieth century is a revolt against the traditional practices prevalent in the past. To keep pace with the fast and vast changes that are taking place in the various disciplines, there is a tremendous demand and responsibility cast on the training system to meet the challenges of preparing men and women to achieve tasks with success and excellence. Sports is no exception to this and so emphasis is placed on psychological aspects of a player to attain success.

## 1.1 PSYCHOLOGY

Psychology is an academic and applied discipline involving the scientific study of mental functions and behavior. Psychologists study such phenomena as perception, cognition, emotion, personality, behavior, and interpersonal relationships. Psychology also refers to the application of such knowledge to various spheres of human activity, including issues related to everyday life (example family, education, and employment) and the treatment

of mental health problems. Psychologists attempt to understand the role of these functions in individual and social behavior, while also exploring the underlying physiological and neurological processes. Psychology includes many sub-fields of study and applications concerned with such areas as human development, sports, health, industry, media, and law.

Psychology is a science of behavior of the organism. The world 'psychology' has come from the Greek work 'psyche' meaning 'soul' and the 'logos' meaning 'study. Thus, the literal meaning of psychology is the science or study of soul (Ajmer Singh et al. 2000) Greek philosopher believe that soul was responsible for various mental activities such as learning; thinking; feeling etcetera. It was believed that soul was the essence or true being of an organism, the cause and the principles of life. As the relation of soul to the body and the functions of soul could not be explained, some philosophers tried to define psychology as a 'science of mind and gradually it has been known as the study of consciousness and finally as a study of behaviour. Today, it is considered as a science of behaviour, behaviour activity and experience of all living organisms.

### 1.1.1 SELF CONFIDENCE

Self-confidence is an attitude which allows individuals to have positive yet realistic views of themselves and their situations. Self-confident people

trust their own abilities, have a general sense of control in their lives, and believe that, within reason, they will be able to do what they, plan, and expect. People who are not self-confident tend to depend excessively on the approval of others in order to feel good about themselves. As a result, tend to avoid taking risks because they fear failure. They generally do not expect to be successful.

### 1.1.2 EMOTIONAL ADJUSTMENT

Emotional adjustment (also referred to as personal adjustment or psychological adjustment) is the maintenance of emotional equilibrium in the face of internal and external stressors. This is facilitated by cognitive processes of acceptance and adaptation. An example would be maintaining emotional control and coping behavior in the face of an identity crisis. This capacity is an important aspect of mental health and where it is compromised, or not developed, psychopathology and mental disorder can result.

### 1.1.3 ASSERTIVENESS

Assertiveness is a trait taught by many personal development experts and psychotherapists and the subject of many popular self-help books. It is linked to self-esteem and considered an important communication skill. As a communication style and strategy, assertiveness is distinguished from aggression and passivity. How people deal with personal boundaries; their

own and those of other people, helps to distinguish between these three concepts. Passive communicators do not defend their own personal boundaries and thus allow aggressive people to harm or otherwise unduly influence them. They are also typically not likely to risk trying to influence anyone else. Aggressive people do not respect the personal boundaries of other and thus are liable to being afraid to speak his or her mind or trying of others. They are also willing to defend themselves against aggressive incursions.

### 1.1.4 INTERPERSONAL RELATIONSHIP

Interpersonal relationships are social associations, connections, or affiliations between two or more people. They vary in differing levels of intimacy and sharing, implying the discovery or establishment of common ground, and may be centered around something(s) shared in common. The study of relationships is of concern to sociology, psychology and anthropology. It is essential for college women.

### 1.1.5 STRESS MANAGEMENT

Stress management is the amelioration of stress, especially chronic stress. Stress is caused by distinct, measureable life events, and further, that these life stressors can be ranked by the median degree of stress they produce. Thus, Stress was traditionally conceptualized to be a result of external insults beyond the control of those experiencing the stress.

## 1.2 PHILOSOPHICAL AND SCIENTIFIC ROOTS OF PSYCHOLOGY

The study of psychology in philosophical context dates back to the ancient civilizations of Egypt, Greece, China, and India. Psychology began adopting a more clinical and experimental approach under medieval Muslim psychologists and physicians, who built psychiatric hospitals for such purposes.

Though the use of psychological experimentation dates back to Alhazen's Book of Optics in 1021, psychology as an independent experimental field of study began in 1879, when Wilhelm Wundt founded the first laboratory dedicated exclusively to psychological research at Leipzig University in Germany, for which Wundt is known as the "father of psychology". The year 1879 is thus sometimes regarded as the "birthdate" of psychology. The American philosopher William James published his seminal book, Principles of Psychology, in 1890, while laying the foundations for many of the questions that psychologists would focus on for years to come. Other important early contributors to the field include Hermann Ebbinghaus (1850–1909), a pioneer in the experimental study of memory at the University of Berlin; and the Russian physiologist Ivan Pavlov (1849-1936), who investigated the learning process now referred to as classical conditioning.

## 1.3 BEHAVIORISM

Founded by John B. Watson and embraced and extended by Edward Thorndike, Clark L. Hull, Edward C. Tolman, and later B.F. Skinner. Founders of early psychology in the late 19th and early part of the 20th century, Wilhelm Wundt and William James, studied the mind via introspection. During the early decades of the 20th century behaviorism gained popularity as a guiding psychological theory. The behaviorists (example Watson) argued the contents of the mind were not open to scientific scrutiny and that scientific psychology should only be concerned with the study of observable behavior. There was no consideration of the internal representation or the mind. The rise of behaviorism was partly due to the success of laboratory based animal experimentation and partly in reaction to Freudian psychodynamics which tended to rely on case studies and clinical experience. Freud's theories and practice focused on the resolution unconscious conflict often arising from childhood experiences to treat psychological trauma and psychosis. However, it was argued that Freud's theories were difficult to test empirically.

Behaviorism differs from other perspectives in a number of ways. Behaviorists focus on behavior-environment relations and analyze overt and covert (that is private) behavior as a function of the organism interacting with its environment. Behaviorists do not reject the study of covert or private events (example dreaming). What behaviorists reject is an autonomous

causal entity inside the organism that causes overt (example walking, talking) or covert (example dreaming, imagining) behavior. Concepts such as "mind" or "consciousness" are not used by behaviorists because such terms do not describe actual psychological events (such as imagining) but are used as explanatory entities hidden somewhere in the organism. By contrast, behaviorism treats private events as behavior, and analyzes them in the same way as overt behavior (hence the name "behaviorism"). Behavior refers to the concrete events of the organism, overt or private.

Linguist Noam Chomsky's critique of the behaviorist model of language acquisition is regarded by many as a key turning point in the decline in the prominence of the theory of behaviorism generally. But Skinner's behaviorism has not died, perhaps in part because it has generated successful practical applications. The ascendancy of behaviorism as an overarching model in psychology, however, gave way to the next dominant paradigm, cognitive approaches.

## 1.4 HUMANISM AND EXISTENTIALISM

Humanistic psychology was developed in the 1950s in reaction to both behaviorism and psychoanalysis. By using phenomenology, inter subjectivity and first-person categories, the humanistic approach seeks to glimpse the whole person--not just the fragmented parts of the personality or cognitive functioning. Humanism focuses on uniquely human issues and fundamental

issues of life, such as self-identity, death, aloneness, freedom, and meaning. There are several factors which distinguish the Humanistic Approach from other approaches within psychology, including the emphasis on subjective meaning, a rejection of determinism, and a concern for positive growth rather than pathology. Some of the founding theorists behind this school of thought were Abraham Maslow who formulated a hierarchy of human needs, Carl Rogers who created and developed Client-centered therapy, and Fritz Perls who helped create and develop Gestalt therapy. It became so influential as to be called the "third force" within psychology (along with behaviorism and psychoanalysis).

From the existential perspective, not only does the quest for meaning follow from an acceptance of mortality, but the attainment of meaning can overshadow the prospect of death. As existential psychiatrist and Holocaust survivor Viktor Frankl observed.

We who lived in concentration camps can remember the men who walked through the huts comforting others, giving away their last piece of bread. They may have been few in number, but they offer sufficient proof that everything can be taken from a man but one thing: the last of the human freedoms—to choose one's attitude in any given set of circumstances, to choose one's own way.

In addition to May and Frankl, psychoanalyst Ludwig Binswanger and psychologist George Kelly may be said to belong to the existential school.

Both existential and humanistic psychologists argue that people should strive to reach their full potential, but only humanistic psychologists believe that this striving is innate. For existential psychologists, the striving only follows an anxiety-producing contemplation of mortality, freedom and responsibility.

## 1.5 PHYSIOLOGY

The term physiology was derived from a Greek word 'Physiologikos' meaning discourse on natural knowledge, physiology deals with the normal functioning of human body (Shamal Kaloy, 2007).

Exercise physiology is the scientific study of physiological changes in athletes body with the effects of exercise, whether long term or short term. Different environmental changes, namely, altitude, climate, temperature, humidity, nutritional status etc have some close associations with the optimal performance of an athlete. (Shamal Kaloy, 2007).

For the physiological systems of the body to be fit, they must function well enough to support the scientific activity that the individual is performing moreover different activity make different demands upon the organism with

respect to the circulatory, respiratory metabolic and neurologic processes which are specific to the activity.

### 1.5.1 IMPORTANCE OF PHYSIOLOGY

High level of performance in sports and games might be dependent upon the physiological make up and it was recognized that physiological proficiency was needed for the high level performance. (Gianetti, et al. 2008).

For specific physiological systems of the body to be fit, they must function well enough to support the particular game that the player is playing. Since different games make different demands up on the organism with respect of neurological, respiratory, circulatory and temperature regulating functions physiological fitness is specific to the activity. Physiological systems are highly adaptable to exercise. (Gianetti, et al. 2008).

In order to find out the influence of varied aerobic exercises on physiological variables, the researcher selected variables, vital capacity, resting heart rate, mean arterial blood pressure, breath holding time and respiratory rate.

### 1.5.2 VITAL CAPACITY

Vital capacity is the maximum amount of air a person can expel from the lungs after a maximum inspiration. It is equal to the inspiratory reserve volume plus the tidal volume plus the expiratory reserve volume.

A person's vital capacity can be measured by a spirometer which can be a wet or regular spiro meter. In combination with other physiological measurements, the vital capacity can help make a diagnosis of underlying lung disease. The unit that is used to determine this vital capacity is milliliters.

### 1.5.3 RESTING HEART RATE

Resting heart rate which is the number of beats felt exactly one minute. The average rate of the pulse in a healthy adult is 72 beats in each minute. There may be variation of up to five beats per minute within the normal range. The number of beats of a pulse per minute or the number of beats of the heart.

The resting heart rate varies greatly among different people and in the same person under different situations. The American Heart Rate Association accepts as normal range from 50 to 100 beats per minute. The average rate is 72 beats per minute but the rate can accelerate to 220 per minute. The lesser heart rate given good performance for all the sports and games. (Strukic, 1981).

### 1.5.4 MEAN ARTERIAL BLOOD PRESSURE

The mean arterial blood pressure is a term used ito describe an average blood pressure in an individual. It is defined as the average arterial pressure during a single cardiac cycle. (Zheng, Sun Li, et al. 2008).

Mean arterial blood pressure is considered to be the perfusion pressure seen by organs in the body. It is believed that a mean arterial blood pressure that is greater than 60 mmHg is enough to sustain the organs of the average person. If the mean arterial blood pressure falls significantly below flow, and will become ischemic.

At high heart rates mean arterial blood pressure is more closely approximated by the arithmetic mean of systolic and diastolic pressures because of the change in shape of the arterial pressure pulse.

### 1.5.5 BREATH HOLDING TIME

Breath holding time is defined as the duration of time through which one can hold his/her breath without inhaling and exhaling after a deep inhalation.

There are two types of breath hold time:

- Positive Breath holding time
- Negative Breath holding time

Endurance type of training will improve the breath holding time. Breath holding time also plays a vital role in the sports performance. (**Strukic, 1981**)

### 1.5.6 RESPIRATORY RATE

Respiratory rate which is number of breath inspired and expired in one minute. It indicates our lung capacity. The lesser respiratory rate given good performance for all the games and sports. Regular participation in endurance activity such as jogging, cycling and distance swimming can be done to reduce the respiratory rate.

## 1.6 SPORTS PSYCHOLOGY

Sports psychology is a science in which the principles of psychology are applied in a sports or exercise setting. (Richard H. Cox, 2002) .

The word psychology refers to the study of human behaviour and sports psychology denotes a sub-category of psychology that deals with the behaviour of the athletes and teams engaged in competitive sport. Sports psychology is that branch of psychology which is intimately connected with human behaviour on the play field, both under practice and competitive situation, with a view to bring about qualitative improvement in performance. (Ajmer Singh, et al. 2000) .

Morgan defines, “Sports psychology is the study of psychological foundation of physical activity”.

According to Robert N.Singer, “Sports psychology is the applied psychology, the science of psychology applied to athlete and athletic

situations. It further improves individual of all ages both and with varying degree of skill".

Alderman defines, "Sports psychology studies the effects of sports itself on human behaviour".

Sports psychology is the scientific disciple the object of which is to study psychological manifestation of those who systematically practice competitive physical exercise.(Gangopadhyaya, 2008).

Sports psychology is an important ingredient of sports training programme and deals with the way in which various psychological states and traits influence sports performance. It is the application of psychology to the issues and problems in the field of sports as the problems of sports person are quite unique, different, subtle and complex. Therefore, the main purpose of sports psychology is to understand the behaviour of an athlete, to modify it according to the demand of situations, and to optimize the benefits for elite performance and excellence. (Ajmer Singh et al. 2000).

According to Singer (1981), "Sports psychology encompasses various branches of psychology as they are related to our ability to understand athlete performance, how to make it better, and exercise programmes. It is believed that the most helpful type of intellectual behaviour in which an athlete may engage is intellectual flexibility, the willingness to cast off inappropriate but previously employed methods, strategies and skills. According to Robert N.

Singer, “Sports psychology explosre one’s behaviour in athletes”. The idea is to improve the performance of athletes by exploring their ‘psychic energy’. Athletic training is in complete without mental training of athletes who have to cope with extremely stressful situations on and off the play field. Sports psychology steps into guide athlete and the coach. Psychological approach to athletic training plays an important part today.

Sports psychology examiners various aspects of sports activities and physical culture. It denotes a subcategory of psychology focusing on athlete. It is an applied area of psychology and new developing science. According to Cratty, there are four main sub divisions of sports.

### 1.6.1. EXPERIMENTAL SPORTS PSYCHOLOGY

Experimental psychologists regard psychology as a natural science; research is conducted with the help of experimental methods. The concern of experimental psychology is discovering the processes underlying behavior and cognition. Experimental psychology is a methodological approach rather than a subject and encompasses varied fields within psychology. Experimental psychologists have traditionally conducted research, published articles, and taught classes on neuroscience, developmental psychological, sensation, perception, attention, consciousness, learning, memory, thinking, and language. Recently, however, the experimental approach has extended to motivation, emotion, and social psychology.

Thus experimental sports psychology involves research on the psychological variables that effect athlete and his performance, through field as well as experimental studies.

### 1.6.2 EDUCATIONAL SPORTS PSYCHOLOGY

Educational psychology is the study of how humans learn in educational settings, the effectiveness of educational interventions, the psychology of teaching, and the social psychology of schools as organizations. Educational psychology is concerned with how students learn and develop, often focusing on subgroups such as gifted children and those subject to specific disabilities. Educational psychology in turn informs a wide range of specialities within educational studies, including instructional design, educational technology, curriculum development, organizational learning, special education and classroom management. Educational psychology both draws from and contributes to cognitive science and the learning sciences. Thus, the broad goal of educational sports psychology is to educate coaches, athletes and others concerned with sports regarding factors that are particularly important in sports setting, especially those related to sports performance and interpersonal variables that influence the performance of athletes and teams.

### 1.6.3. CLINICAL SPORTS PSYCHOLOGY

Clinical psychology includes the scientific study and application of psychology for the purpose of understanding, preventing, and relieving psychologically-based distress or dysfunction and to promote subjective well-being and personal development. Central to its practice are psychological assessment and psychotherapy, although clinical psychologists also engage in research, teaching, consultation, forensic testimony, and program development and administration. In many countries clinical psychology is a regulated mental health profession. In practice, clinical psychologists often work in multidisciplinary teams with other professionals such as psychiatrists, occupational therapists, and social workers to bring a multimodal approach to complex patient problems.

Thus, clinical sports psychology utilizes psychological interventions to improve the performance of athlete and to increase the psychological well being of the athlete by preventing the problems and by assisting him to solve the problems.

### 1.6.4. DEVELOPMENTAL SPORTS PSYCHOLOGY

Developmental sports psychology deals with psychological variables that impose themselves on children and youth of various ages as they engage in competitive sports.

Sports psychology, in the words of Singer, “encompasses research, counseling, clinical, educational and practical / programmatic activities associated with understanding, explaining and influencing selected behaviours of individuals and groups involved in high level sport, recreational sport, exercise and other vigorous activities”. Sports psychology is striving hard to investigate athletic performance, to stabilize it, and to improve sports performance by seeking an appropriate balance between physiological and psychological dimensions of performance. Sports psychology is striving hard to investigate athletic performance, to stabilize it, and to improve sports performance by seeking an appropriate balance between physiological and psychological dimensions of performance. Sports psychology is a healthy field with a bright future and within physical education, the field continues to grow.

## 1.7 IMPORTANCE OF SPORTS PSYCHOLOGY TO PHYSICAL EDUCATORS AND COACHES

1. Physical educators are interested in making the movements of an individual efficient and through this develop his personality. That’s why psychology of physical education / sports must take into account various aspects of human growth.

2. Motor skills are the basis of our conative (feeling and cognitive) behaviour, cognition, affect and conation making one continuum. All physical activities are nothing but an expression of the organism/s motor activity. Hence, psychology of physical education delves (to see patiently and carefully) deep into the mechanics of motor learning and strives to improve the individual's motor ability.

3. Psychology of physical education studies instincts and emotions which are the 'prime movers' of the child's behaviour and the 'real springs of life energy.

4. The physical educators take into accounts, the hereditary and environmental forces which ultimately determine an indivudal's qualitative as well as quantitative improvement in motor ability and physical activity performance.

5. Individual and sex differences are the most important areas with which the teacher of physical education is deeply considered.

6. Physical education aims at the individual's personality. It is psychology which informs the teacher of physical education as to what is the structure and the dynamics of personality. Hence, 'personality dynamics' must be considered as one of the most important problem areas which the psychology of physical education deals with so that the teacher is able to achieve the objectives of physical education.

7. Psychology helps the physical educator and the coach to understand the real springs of behaviour of players and how desirable changes and modifications can be brought in the behavioural patterns to the advantage of the individual and the society.

8. Sports psychology gives the athlete and the coach an opportunity to introspect themselves. (Gangopadhyaya, 2008).

## 1.8 PSYCHO-SOMATIC REGULATIVE PROGRAMME IN SPORTS TRAINING

Sports training are done for improving sports performance. the sports performance, as any other type of human performance, is not the product of one single system or aspect of human personality. On the contrary, it is the product of total personality of sports person. the personality of person has several dimensions e.g. physical, physiological, social and psychic. In order to improve sports performance, the social and psychic capacities of the sports of the sport person also have to be improved in addition to the physical and psychological ones. In other words, the total personality of a sportsman has to be improved in order to enhance his performance. Sports training, therefore, directly and indirectly aim at improving the personality of the sportsman. No wonder, therefore, sports training is an educational process.

Researches found that several methods of psychological preparations and regulations are programmed by coaches, sports administrators, physical

educationists etc. These psycho regulative programmes includes Yogic practices, autogenic training, relaxation techniques, mental health trainings etc. For the purpose of this study, the investigator selected two different methods of psycho regulative programmes, namely, Yogic practice and autogenic training.

Psychosomatic regulative programme is an interdisciplinary field studying the relationships of social, psychological, and behavioral factors on bodily processes and well-being in humans. The influence that the mind has over physical processes including the manifestations of physical abilities is based on intellectual infirmities. Such manifestations could be through different forms of treatments by phrases such as the power of different forms of physical exercises, suggestion, the use of "positive thinking" and concepts like "mind over matter".

The academic forebear of the modern field of behavioral treatment and a part of the practice of consultation-liaison psychiatry, psychosomatic regulative programmes integrates interdisciplinary evaluation and management involving diverse specialties, such as yoga, relaxation techniques, physical exercises, including psychiatry, psychology, neurology, surgery, allergy, dermatology and psychoneuroimmunology. Such situations where mental processes act as a major factor affecting physical and

physiological outcomes are areas where psychosomatic regulative programme has competence.

A positive relationship between physiological indicators of physical fitness (such as aerobic capacity) and indices of cognitive performance was noted by (van Boxtel et al., 1996). The following advantages act powerfully in the psycho-somatic domain.

**i)** Decreases the risk for Chronic Diseases and Illness.

**ii)** Increases levels of energy and job productivity.

**iii)** Slows down the aging process.

**iv)** Relieves tension and helps in hoping with stress of life.

**v)** Improves self image and morale and aids in fighting depression.

**vi)** Motivate towards positive life style change.

**vii)** Facilitates quick recovery following injury or disease.

**viii)** Decreases recovery tissue following physical exertion.

**ix)** Regulates and improves overall body function.

**x)** Eases the process of child bearing and child birth

**xi)** Improves the overall quality of life.

## 1.9 YOGA

Yoga is the universal religion, a way of life, which is above all castes, creeds, languages, regions and nations. Yoga consists of eight Angas or Parts,

namely, Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dyana and Samadhi. All these put together stands for yoga. Yamas and Niyamas are to be given to the children upto the age of puberty, that is, upto twelve years of age. Asanas and Pranayama constitute the aspect of physical training in the field of yoga. These should be introduced only from the age of twelve onwards and never before that age. Children under twelve possess a very mobile spinal column. Asanas are supplying agents and the children under twelve, positively need only strengthening exercises and not supplying exercises at all. (Sarma, 1994)

Yoga is defined as the silencing of the mind's activities which leads to complete realisation of the intrinsic nature of the supreme being. (Ross, 1973) It is universal, benefiting all people of all ages. The study of yoga is fascinating to those with a philosophical mind. It is a practical holistic philosophy designed to bring about profound state of well being to body, mind and spirit. Yoga is also said to be harmony. It is thus an integral subject, which takes into consideration man as a whole. The aim of yoga is to devise ways and means of helping the body and mind to maintain their state of balance. Yoga helps one to achieve better emotional and intellectual concentration.

According to Indira Devi (1967) the aim of Yogic practices is not only to develop the muscles and the body but also to regulate the proper activities of all the internal organs and glands that affect the nervous system and that which control our well being to a much greater degree than we actually suppose.

The body is the temple of soul and to reach a harmony of the mind, body and spirit, the body must be physically fit. The human body is built for physical activity and movement. Throughout the ages, man has had to be physically active in order to procure his daily food to succeed in the battle for survival. Every individual physical activity is essential for harmonious physical and mental development.

“Yoga is a system of integrate education of the body, the mind and the inner spirit. It is a way to attain salvation and to get oneself freed from the cycle of birth and death. It’s main purpose is the elimination of the forces harmful to the soul.

### 1.9.1 IMPORTANCE OF YOGA

The body becomes strong and healthy, excessive fat disappears, the face glows, the eyes are bright and the whole personality radiates a special charm. The whole body is purified and the mind improves in ability to concentrate other importance are

- The blood in the different blood vessels is purified through different Yogic practices.
- Yogic practices helps the mind to experience tranquility. This is progressive intellectual development because of the calm mind.

The proper function of the body depends on the several limbs. The absence or the sickness of any one limb affects the health of the whole body. The same principle applies to the study of yoga and its branches. Any inadequacy in the study and the perfection any of the eight steps of yoga will not lead to self – realization.

### 1.9.2 ASANA

Yogic practice are simple actions for keeping the internal and external parts of the body in good health. The third anga or limb of yoga is Asana. Asanas are postures it is Astute of complete equilibrium of body mind and spirit. There are literally hundreds of posture in asnas, bring steadiness, agility, flexibility and so on. Thus, asana is one of the ancient yogic practices forming a base for all other practices and plays an important role in every kind of yoga sadhana. Asana is a special type of exercise, which is not only physical out also psychological in nature.

### 1.9.3 PRANAYAMA

Pranayama means a pause in the movement of the breath. In Sanskrit “Prana” means “Breath” and “Ayama” means “Pause”. In modern literature on yoga prana, even in the compound Pranayama has been often interpreted to mean a “subtle psychic force (or) a subtle cosmic element”.

Pranayama is the fourth state of Astanga yoga. Pranayama means breath control. There are three important movement in Pranayama, inhalation of the breath, exhalation of the breath and retention of the breath.

### 1.9.4 ASANAS AND HEALTH

Asanas make our body supples brings alertness to our mind, while soothing our nerves and glands relaxing our brain and maintaining a physical, physiological and emotional balance.

The breathing process is closely related to the rhythms of one physical, mental and emotional life. knowing the principles that "when the breath is unsteady the mind is unsteady and when breath i calm, the mind is also calm,. "Yogis devised pranayama as part of the yogic science so as to employ the breathing process to win mastery over the mind and inhabit its modifications.

Narendra Prasad (1995), stated that yoga has played a key role in changing the prisoners mentality, developing their personality and in converting them into law-abiding citizens.

Yoga deals with health, strength and conquest of the body. Next, it lifts the veil of difference between the body and the mind. Asanas purify the body and mind and have preventive and curative effects. They are innumerable, catering to the various needs of the muscular, digestive, circulatory, glandular,

nervous and other systems of the body. It brings health, beauty, strength, fitness and expression, calmness of the nerves and happy disposition.

### 1.9.5 YOGA AS RELAXATION TECHNIQUE

Relaxation involves the body and mind, along with the interaction between the two. There are many things one can do to relax, including physical and social activities, entertainment or specific methods of relaxation and meditation, such as with music or guided imagery.

There are many techniques of relaxation being taught in a variety of contexts, including for physical health, stress management, psychological inquiry, as well as spiritual purposes. Many of these methods are extremely useful and serve their practitioners well.

However, here we are addressing Yogic practices as one of the relaxation techniques, which is a process of knowing ourselves at all levels, such that we may eventually come to experience ourselves at the deepest level, the center of consciousness that goes by many names.

The practices in Yoga are not merely means of inducing relaxation through an external stimulus or creating internal fantasies, though they are definitely relaxing, which has direct and indirect influences on one's psychological and physiological conditions.

In Yoga, one is trying to become systematically aware of all of our levels of being, such that we may encounter and let go of each level, and gradually move to the direct experience of the center of consciousness and using autosuggestion to bring relaxation, saying to the body or body parts that they should "Relax, relax, relax...." even though such techniques can be useful to some extent.

In yogic relaxation techniques, two keys, our attention, particularly in conjunction with breath awareness (which is the grossest aspect of the energy flowing throughout our body), the relaxation comes of its own accord. These two principles or practices, attention and breath, are the key features in the relaxation phase of Yoga.

The importance of attention and breathing in relaxation cannot be overstated. Again, the key principles for relaxation are:

1. Attention to the various aspects of our being
2. Breath awareness

These two work together naturally in allowing the relaxation of the physical body, as well as the mind. It is extremely useful for a practitioner of Yoga Meditation to remember these two simple principles.

If the mind is restless, it does not want to "relax". The mind may want to open the eyes or move the body, which is the Manas (sensory-motor mind)

wanting to express through the five Karmendriyas (elimination, procreation, motion, grasping, speaking).

There may be a temptation to increase the external stimulus, such as having music a little louder, or to divert the mind with even stronger visualizations. However, these miss the point of needing to train the mind. The mind itself must eventually be trained; there is no escaping this fact. To train the mind means not relying on secondary means, but working directly with focusing the mind itself.

The way to train the mind when it is restless is to first acknowledge that, for this moment, the mind is simply not going to sit still. Therefore, we give it something to do, but something internal, not external. This is part of the beauty of the various Yoga "relaxations" (such as below); they focus on what "is" within our own body and being.

When we have accepted that the mind is restless, and are giving it something to do internally, that is reality based, and then the next question is the speed at which the mind is allowed to move. If the mind is restless, and you tell it to sit still, it fights. But if you let in move at a comfortable pace, it will be happy. Moving one’s attention from one "part" to another (shoulder, arm, wrist, etcetera.) can be too slow for the restless mind. Speeding up the rate of surveying can have a comfortable effect on the mind.

Think of times that you and a friend were walking somewhere, when you wanted to walk at different speeds, one fast, and the other slow. It is the same principle with attention or "relaxation" exercises; find the proper rate to move the attention, which is a bit faster when the mind is restless. So, with the restless mind, accept that it is restless, don't just divert it; practice self-awareness and self-training, giving the mind an internal travel plan of where to journey, speed up the rate at which attention moves through the points of focus and remembering to breathe smoothly, quietly, with no jerks or pauses, and at a comfortable, somewhat slow rate.

## 1.10 PROGRESSIVE MUSCULAR RELAXATION TECHNIQUE

According to Jacobson (1997) progressive muscular relaxation technique consists of systematically going through the major muscle groups of the body with instructions to study the difference between relaxation and tension. It is called as progressive muscular relaxation technique as the exercise proceeds from hands to head and from head down towards the rest of the body. The individual is bound to feel progressively more and more relaxed.

Jacobson (1997) “Progressive Muscular Relaxation Technique”, as cited by Swaminathan and Kaliappan, Psychology for effective living_(The Madras Psychology Society) p. 25.

Edmund Jacobson created the progressive relaxation method. At the beginning of the 20th century, he conceived a method to relax whose goal was to achieve mental tranquility by progressively eliminating all muscular tensions. It's intended to learn to relax step by step all the different groups of muscles. Subsequently, Bernstein and Borkovec (1973/1983) carried out an integration and systematization of this method to escape from the array of variations that had been emerging.

The final objective of this kind relaxation is to reduce the physiological symptoms of anxiety. The relaxation works on the Peripheral Nervous System (PNS) the opposite way from stress, so one can't be anxious and relaxed at the same time. It's important that you carry it out correctly and on a daily basis, until you master it and you're able to whenever and wherever you wish.

Carnwath and Miller presented a pattern in 3 stages. The first stage uses breathing, the second one is based upon progressive relaxation and the third one uses a visualization technique.

### 1.10.1 ANTI-STRESS RELAXATION

This was an adaptation frosm Jacobson's progressive relaxation and from Bernstein and Borkovec's methods, to incorporate Dr. Carnwath and Dr. Miller's breathing and visualization techniques. It deem necessary to undergo

a supervised training at a doctor's office, to do this relaxation techniques accurately. Modified and adjusted it to fit it into this do-it-at-home version.

## 1.11 WALKING

Human beings have a bipedal gait, that is they walk on two legs. In the standing position the weight of the body is balances over two legs. When a stride is taken by the right limp, the first –thing to happen is that the right heel is raised by contraction of the calf muscle. This action serves to push the ball of the right foot against the ground and so exert a forward thrust. The right limp pushes further against the ground as it pulled forwards, slightly bent at the knee. As this occurs, the weight of the body is brought over the left foot, which is still in contact with the ground and acting as a prop for the rest of the body. When the right limp extends, the heel is the first part of the foot to touch the ground. The weight of the body is gradually transferred from the left side to a position over the right heel and then, as the body continues to move forwards, over the right toe, backward pressure against the ground generally being exerted through the right big toe. With of the body now over the right leg, the right heel is raised and the whole sequence is repeated.

The clothing you wear while you walk you walk be comfortable and non–restrictive, such as loose fitting everyday clothes or tracksuit. It is important to maintain good form and posture while you walk. keeping the head up, the pelvis back and the abdomen tight will improve the respiration and blood circulation. Many people exhibit poor posture while walking. Poor posture makes unbalanced and forces the muscles in the head and body to strain to keep the balance. In addition to increasing fatigue, poor walking habits may result in ship splints, lower back pain, and neck and shoulders aches.

The primary activity to recommend to someone who has been sedentric for a long period of times is walking. Start at a level that is comfortable for you. Be aware of new aches or pains. Don’t progress to the next level if you are not comfortable. Monitor the heart rate and record it. It would be healthful to walk at least every alternate day.

Walking, also called ambulatory is the main form of animal locomotion on land, distinguished from running and crawling. When carried out in shallow waters, it is usually described as wading and when performed over a steeply rising object or an obstacle it becomes scrambling or climbing. The word walk is descended from the Old English wealcan "to roll".

Walking is generally distinguished from running in that only one foot at a time leaves contact with the ground: for humans and other bipeds running begins when both feet are off the ground with each step. (This distinction has the status of a formal requirement in competitive walking events, resulting in disqualification at the Olympic level.) For horses and other quadrupedal species, the running gaits may be numerous, and while walking keep three feet at a time on the ground.

For humans, walking is the main form of transportation without a vehicle or riding animal. An average walking speed is about 4 to 5 km/h (2 to 3 mph), although this depends heavily on factors such as height, weight, age, terrain, surface, load, culture, and fitness. A pedestrian is a person who is walking on a road, sidewalk or path.

Human walking is accomplished with a strategy called the double pendulum. During forward motion, the leg that leaves the ground swings forward from the hip. This sweep is the first pendulum. Then the leg strikes the ground with the heel and rolls through to the toe in a motion described as an inverted pendulum. The motion of the two legs is coordinated so that one foot or the other is always in contact with the ground. The process of walking recovers approximately sixty per cent of the energy used due to pendulum dynamics and ground reaction force.

Walking differs from a running gait in a number of ways. The most obvious is that during walking one leg always stays on the ground while the other is swinging. In running there is typically a ballistic phase where the runner is airborne with both feet in the air.

Another difference concerns the movement of the center of mass of the body. In walking the body "vaults" over the leg on the ground, raising the center of mass to its highest point as the leg passes the vertical, and dropping it to the lowest as the legs are spread apart. Essentially kinetic energy of forward motion is constantly being traded for a rise in potential energy. This is reversed in running where the center of mass is at its lowest as the leg is vertical. This is because the impact of landing from the ballistic phase is absorbed by bending the leg and consequently storing energy in muscles and tendons. In running there is a conversion between kinetic, potential, and elastic energy.

There is an absolute limit on an individual's speed of walking (without special techniques such as those employed in speed walking) due to the upwards acceleration of the center of mass during a stride - if it's greater than the acceleration due to gravity the person will become airborne as they vault over the leg on the ground.

Brisk walking is a popular form of exercise, especially when it comes to women. Brisk walking essentially means walking at a swift pace. It is believed

that walking briskly burns almost as many calories as running or jogging for the same distance, and poses less risk for injury. This kind of walking is also considered aerobic activity and is often a part of an entire aerobic set.

### 1.11.1 BENEFITS OF WALKING

To overcome depression, fight against stress and aids in relaxation. Further it helps to overcome sleepless night and burn fat.

Thus, physical activity is associated with reduced risk of type II diabetes. Researchers have proved that the frequency and intensity of physical activity make a difference to the risk of type II diabetes.

Both vigorous exercise (example running) and moderate exercise (that is walking) reduce the risk of type II diabetes. The more exercise taken, the greater the risk reduction. Just over three hours a week of vigorous exercise reduces the risk by 46%. Just three hours a week brisk walking reduces the risk by 42%. In other words, a daily brisk walk of thirty minutes approximately halves the risk of type II diabetes.

## 1.12 JOGGING

Jogging begins when a person moves at a speed and form that results in a period of flight between foot strikes this may be three or four mph, or six seven mph, depending on the fitness of the individuals. The net energy cost of jogging or running is about twice that of walking and consequently requires

a grater cardio –vascular response. This is not the only reason for the jogging programme to follow a walking programme there is also more stress to joints and muscles due to the impact forces that must be tolerated during the push off and landing during jogging (Rajeski Walter,1988).

### 1.12.1 BENEFIT OF JOGGING

Like many other common exercises, jogging is rather simple but it takes dedication and effort to do it on a regular and healthy basis. improving the heart rate, toning the muscles and bones, relieving the stress and fighting to prevent many common diseases and aging issues.

1. Weight loss. This is a no-brainer, and it really doesn't get any simpler than this. Running is essentially one method of losing weight, while running the individual burning the calories which make up the pounds that the is trying to lose. Typically, there are 3500 calories contained in one pound.

2. Prevention of bone and muscle loss. Let's face it, our bones are not going to get any healthier or stronger just by sitting on the couch in front of the television all day long. The skeleton will stay in shape because the jogging you're keeping it active.
3. Disease prevention: It's no secret that jogging is one method of lessening the likelihood of diseases such as breast cancer, stroke, diabetes, hypertension and so forth. Jogging helps to strengthen the heart as well as decrease the blood pressure. If you don't want to end up in a nursing

home at 60, then you're on the right path if you're jogging on a regular basis.

4. Improved sleeping patterns: It's a proven fact that exercise in general, including jogging in particular, helps to bring about sleepiness much easier. Getting a sufficient amount of sleep is a crucial factor for improving one's overall fitness and diet as a whole.

5. Stress relief: Life throws problems at us all the time; however, there are many ways to counteract and relieve them. Jogging is one great way to do it. For a headache run the distance and eliminate all those nagging problems.

6. Decreased laziness: This is in much correlation to sleep improvement. Jogging helps to keep the energy level up and active. That is not to say that practice will turn into a walking and talking twenty-four hour Red Bull, but you seldom have moments of laziness.

7. Improved sex drive: Just as jogging is a remedy for laziness reduction and proper sleep, it helps with the sexual drive as well. The reason that are individuals feel tired after climbing flights of stairs is most likely the same reason the feel tired halfway through lovemaking with the significant other. Therefore, jogging is improve cardio.

8. Improved sense of discipline: Aside from other healthy benefits, there's a reason behind why the military uses jogging as a method of their training exercises. It helps to build up a good sense of discipline by building goals like reaching for a certain distance under a specified timeframe without giving up.

9. Life expectancy: Ultimately, what the previous nine benefits all boil down to is this: In the end, jogging helps to live longer by helping to live a much healthier life, one that doesn't require to spend the final days in a nursing home as the common old age stereotype would suggest.

## 1.13 AEROBIC EXERCISES

The word aerobic meaning with oxygen to represent idea. Even so the dynamics of the idea are more complicated than implied by the definition. Aerobic can be viewed as an intricate system of bodily supply and demand. That is the body needs energy for any kind of activity and the need is filled by burning off the foods that eat. Oxygen is the spark the fuel needs to burn regardless aerobics is the word in general use. The fact is that Cooper (1969) codified and organized what fitness means to many people. He is generally credited with being one of the main forces of the current fitness craze. The

majority medical opinion is that aerobic programs strengthen heart muscle, increase the efficiency of lungs and offer other wonderful benefits.

Aerobic exercise refers to exercise that involves or improves oxygen consumption by the body. Aerobic means "with oxygen", and refers to the use of oxygen in the body's metabolic or energy-generating process.

Many types of exercise are aerobic, and by definition are performed at moderate levels of intensity for extended periods of time. To obtain the best results, an aerobic exercise session involves a warming up period, followed by at least 20 minutes of moderate to intense exercise involving large muscle groups, and a cooling down period at the end.

Both the term and the specific exercise method were developed by Kenneth H. Cooper, an exercise physiologist, and Col. Pauline Potts, a physical therapist, both in the United States Air Force. Dr. Cooper, an avowed exercise enthusiast, was personally and professionally puzzled about why some people with excellent muscular strength were still prone to poor performance at tasks such as long-distance running, swimming, and bicycling. He began measuring systematic human performance using a bicycle ergometer, and began measuring sustained performance in terms of a person's ability to use oxygen. His groundbreaking book, Aerobics, was published in 1968, and included scientific exercise programs using running, walking, swimming and bicycling. The book came at a fortuitous historical moment,

when increasing weakness and inactivity in the general population was causing a perceived need for increased exercise. It became a bestseller. Cooper's data provided the scientific baseline for almost all modern aerobics programs, most of which are based on oxygen-consumption equivalency. (World Book of Encyclopedia, 1993).

## 1.14 DANDS AND BAITHAKS

The most features of Dands and Baithaks is that they have done rhythmically and at steady phase. One can do and practice as many as to improve strength, focus and mental clarity by increase in numbers. Dands and Baithaks are two different exercises but together constitute the core wrestling Vyayam regimen. Dands are Jack Knifing pushups and Baithaks comparable to western style knee bend. One start a baithak from a standing position with feet set to 45 angles and heals about 15cm apart. One’s eyes should be fixed on a point about 4 meters forward. Dands and Baithaks make the muscle of the body. So incredibly strong that the wrestling appears divine. Dands and Baithaks are the minor in which auro of wrestling reflected. They are the two flowers which are offered to the “wrestlers God”. Dands and Baithaks are two sacrifices made to Goddess of wrestling. (Alter 1974).

## 1.15 NEED OF THE STUDY

Stress can destroy self-confidence by leading the individual to believe that they are incompetent. It can deny the joy of demonstrating skills that they have mastered through countless hours of hard work. And it can deprive the individual to experiencing the ecstasy of low. Stress because interpersonal conflict, induces physical injury and drives to early retirement.

Stress can bring intensity heart disease, peptic ulcers, and hypertension. Stress can lead to significant loss in body weight. Many do not know how to deal. Medical progress in recent years has nor been one that keeps man imbalance as a bio psycho social being. (Magnussion, 1974).

Psychological stress produce somatic complaints that are wholly imaginary but in some other cases, emotional maladjustment contributes to an illness that is primarily organic in nature and still other cases, psychological problems actually produce genuine organic illness. These are also called psychosomatic reactions, which are disorders of adjustment that have because associated with certain bodily processes in such a way as to produce a genuine organic illness. In such cases, the chronic maladjustment or emotional problems are and the organic disturbances are secondary.

Each one of us has our own level of stress, a level of equilibrium within which stress could be stimulating experience. It is only when stress goes beyond this level it become distress and difficult to manage. ‘when it happens

everything appears to go wrong, in this situation, one will feel hopeless, helpless and his action become dull. This results in reducing individual efficiency and effectiveness in playing his assigned role in the family, institution, and organization, which further compounds his misery. Professional college students are no exception to this problem of stress. (Bestowitz, 1955).

The investigator being an experienced physical director, closely associated with the engineering college women students found that when students were facing stress, the situation creates among them lack of emotional intelligence, problem solving ability, imbalances in temperaments, frustrated with tension. They are being advised to involve themselves in physical exercises to reduce their stress, which helped to regulate their psychosomatic conditions. This made the researcher to think to develop a suitable psychosomatic regulative programme for those students. Hence, in this study, the researcher was interested to test influence of selected psychosomatic regulative programmes, such as, yogic practices, Jacobson's relaxation techniques and physical exercises on selected psychological variables, such as, stress, emotional intelligence, problem solving ability, tension, frustration, and temperament; and physiological variables, such as, heart rate, blood pressure, breath holding time, vital capacity and aerobic capacity of the engineering college women students.

## 1.16 OBJECTIVES OF THE STUDY

1. The study is aimed at formulating suitable psychosomatic regulative programmes to the engineering college women students.

2. The study further aims to test the influence of selected psychosomatic regulative programmes, namely, yogic practices, Jacobson relaxation method and physical exercises on selected psychological variables, such as, stress, emotional intelligence, problem solving ability, tension, frustration, and temperament.

3. The study aims to find out the influence of selected psychosomatic regulative programmes, namely, yogic practices, Jacobson relaxation method and physical exercises on selected physiological variables, such as, heart rate, blood pressure, breath holding time, vital capacity, and aerobic capacity of the engineering college women students.

4. The objective of this study further included to find out which of the selected psychosomatic regulative programme is more effective on selected psychological and physiological variables of engineering college women students.

## 1.17 STATEMENT OF THE PROBLEM

Psychological stress produce somatic complaints that are wholly imaginary but in some other cases, emotional maladjustment contributes to an illness that is primarily organic in nature and still other cases, psychological problems actually produce genuine organic illness. These are also called psychosomatic reactions, which are disorders of adjustment that have because associated with certain bodily processes in such a way as to produce a genuine organic illness. To counter these situations effectively, psychosomatic regulatory programmes are necessitated.

The purpose of this study was to find out the effect of Psycho-somatic Regulative programmes, namely, yogic practices, Jacobson relaxation techniques, physical exercises and its combination on selected psychological variables such as Self confidence, Emotional adjustment, Assertiveness, Interpersonal relationship, Stress management and physiological variables such as, Resting heart rate, Mean arterial blood pressure, Breath holding time, Vital capacity and Respiratory rate among engineering college women.

## 1.18 HYPOTHESES

1. It was hypothesized that the psycho somatic regulative progamme of Combined of Yogic practices , Jacobson Progressive Muscular Relaxation Technique and Physical exercises would have significantly greater influence on the selected psychological variables such as Self confidence, Emotional adjustment, Assertiveness, Interpersonal relationship, Stress management than the Yogic practices, Jacobson Progressive Muscular Relaxation Technique and Physical exercises among engineering college women.

2. It was hypothesized that that the psycho somatic regulative progamme of Combined of Yogic practices, Jacobson Progressive Muscular Relaxation Technique and Physical exercises would have significantly greater influence on the selected physiological variables such as, Resting heart rate, Mean arterial blood pressure, Breath holding time, Vital capacity and Respiratory rate than the Yogic practices, Jacobson Progressive Muscular Relaxation Technique and Physical exercises among engineering college women.

## 1.19 SIGNIFICANCE OF THE STUDY

1. The study is significant in assessing the psychosomatic problems associated with the psychological and physiological limitations among engineering college women.

2. The study is significant in finding out suitable psychosomatic regulative programme on psychological and physiological problems among engineering college women.

3. In view of the fact that there are different psychosomatic regulative programmes available, the findings of this study would high light which psycho somative regulative programme would be more effective on psychological and physiological variables of engineering college women.

4. The findings of this study would be beneficial to pinpoint which of the selected psychosomatic programme would be beneficial for influencing selected psychological variables among engineering college women.

5. The findings of this study would be beneficial to pinpoint which of the selected physiological variables among engineering college women.

6. The results of this study would be helpful to motivate the engineering college women to involve in selected psychosomative regulative programmes to manage their stressors.

7. The findings of this study would be a contribution in the area of psychosomative regulative progammes and might introduce new area of research for future researchers.

## 1.20 DELIMITATION

1. This study was conducted among 125 women students studying in different colleges (Velammal Engineering College, Sri Ram Engineering College, Gojan Engineering College, Jaya Engineering College and S.A. Engineering College) in Chennai in the age group of 18 to 21 years.

2. The subjects were divided into five groups consisting of 25 in each group.

3. The following dependent variables were selected for this study

**Psychological Variables**

1. Self Confidence
2. Emotional Adjustment
3. Assertiveness
4. Inter Personal Relationship
5. Stress Management

**Physiological Variables**

1. Vital Capacity
2. Resting Heart Rate
3. Blood Pressure
4. Breath Holding Time
5. Respiratory Rate

4. The following independent variables, were selected for this study

   i. Twelve weeks of Psycho-Somatic Regulative Programme-Yogic Practices.

   ii. Twelve weeks of Psycho-Somatic Regulative Programme-Jacobson Progressive Muscular Relaxation Technique.

   iii. Twelve weeks of Psycho-Somatic Regulative Programme-Physical Exercises.

   iv. Twelve weeks of Psycho-Somatic Regulative Programme-Combination of Yogic Practices, Jacobson Progressive Muscular Relaxation Technique and Physical Exercises.

## 1.21 LIMITATIONS

1. Factors like environment conditions, life style, playing ability, food habits were not considered which might influenced the selected variables of the subjects.

2. The differences that exited among the subjects due to varied social, cultural, economic, religion factors were not considered.

3. All the subjects were taken from the same atmosphere of living.

4. The subject's academic standard and their economic status were not considered.

## 1.22 MEANING AND DEFINITIONS OF THE TERMS USED

### 1.22.1 PSYCHOLOGY

"Psychology is the science of the activity of an individual in relation to his environment" (Kamlesh, 1993).

### 1.22.2 SELF CONFIDENCE

A person's belief that he or she can succeed. Self-confidence is usually specific to particular tasks, but some people seem to display it in a wide range of activities. In sport, it has long been thought of as an important determinant of performance. It tends to be self-generating: confident athletes

set themselves difficult training goals and persevere until they have achieved them. (Albert V.Carvon, 1980).

### 1.22.3 EMOTIONAL ADJUSTMENT

Emotional adjustment is the maintenance of emotional equilibrium in the face of internal and external stressors. This is facilitated by cognitive processes of acceptance and adaptation. An example would be maintaining emotional control and coping behavior in the face of an identity crisis. (Albert V.Carvon, 1980).

### 1.22.4 ASSERTIVENESS

Assertiveness is a trait taught by many personal development experts and psychotherapists and the subject of many popular self-help books. It is linked to self-esteem and considered an important communication skill. (Alderman, 1974).

### 1.22.5 INTER PERSONAL RELATIONSHIP

An interpersonal relationship is a relatively long-term association between two or more people. (Alderman, 1974).

### 1.22.6 STRESS MANAGEMENT.

Stress management is the amelioration of stress, especially chronic stress. (Sedgeman, 2005).

### 1.22.7 VITAL CAPACITY

The volume of air that can be moved out of the lungs after maximum inspiration is called vital capacity. (Morehouse and Miller, 1967)

### 1.22.8 RESPIRATORY RATE

Number of breath inspirited and expired in one minute (Morehouse and Miller, 1967).

### 1.22.9 BREATH HOLDING TIME

Breath holding time is define as the duration of time through which one can hold his breath without the study of all living things. (Laurence E. Morehouse and Augustus T.Miller, 1967).

### 1.22.10 SYSTOLIC BLOOD PRESSURE

As blood is ejected into the aorta and other arteries during ventricular systole, the pressure increased to a maximum called systolic blood pressure. (Guyton, 1979)

### 1.22.11 DIASTOLIC BLOOD PRESSURE

As blood drains from the arteries during ventricular diastole the pressure decreases to a minimum called diastolic blood pressure. (Guyton, 1979)

### 1.22.12 YOGIC PRACTICE

Yogic practice refers to a family of self-regulation practices that focus on training attention and awareness in order to bring mental processes under greater voluntary control and thereby foster general mental well-being and development and/or specific capacities such as calm, clarity and concentration. (Roger Walsh & Shauna L. Shapiro, 2006).

### 1.22.13 PROGRESSIVE MUSCULAR RELAXATION TECHNIQUE

Progressive muscle relaxation (PMR) is a technique for reducing anxiety by alternately tensing and relaxing the muscles. (Jacobson, 1938).

### 1.22.14 PHYSICAL EXERCISE

Physical exercise is any bodily activity that enhances or maintains physical fitness and overall health and wellness (Stampfer, et al. 2000). It also improves mental health, helps prevent depression, helps to promote or maintain positive self esteem, and can even augment an individual's sex appeal or body image, which is also found to be linked with higher levels of self esteem (Hu, et al. 2001).

### 1.22.15 RESTING PULSE RATE

The time from the end of one contraction to the end of the next contraction is a complete heart beat or pulse or cardiac cycle. The complete

cardiac cycle takes less than one second (about 0.08 sec) in a normal adult at rest and it shortened by exercise. (Astrand, 1977).

### 1.22.16 MEAN ARTERIAL PRESSURE

It is defined as the average arterial pressure during a single cardiac cycle. As blood is pumped out of the left ventricle into the arteries, pressure is generated. The mean arterial pressure (MAP) is determined by the cardiac output, systematic vascular resistance and central venous pressure according to the following relationship, which is based upon the relationship between flow, pressure and resistance. (Edward and Mathews, 1981).

### 1.22.17 EMOTIONAL ADJUSTMENT

Emotional adjustment is the maintenance of emotional equilibrium in the face of internal and external stressors. This is facilitated by cognitive processes of acceptance and adaptation. An example would be maintaining emotional control and coping behavior in the face of an identity crisis. (Albert V. Carvon, 1980).