CHAPTER I

INTRODUCTION

Volleyball is a non-body-contact sport. Though the non-body contact is less aggressive in nature, it demands a high-level mental toughness. In reality, physical components are the very basic things for participation in any sport. Even if it is a basic necessity for the sport, the efficiency of its functions depend on the functions of mind towards the situations. The very feature of the psychological functioning in sport is dragging all components that are required for peak performance to the direction of the player where he is. Therefore the player or the coach should concentrate on the psychological strength of players.

In high level competitions, during the competitive situations, the psychomotor functions of a player, such as the source of perceptions and reactions towards the competitive environments are the major determinants of success of a game. Successful execution of psychomotor functions of a player underlies the players’ coping skills during competitive pressures. Coping skills are the essential ingredients to maintain the physiological aspects of optimism during the competitive situations. In such a way, the psychological strength of players is the basic functional utility to perform better on psychomotor functions and uphold the physiological systems optimally under competitive situations. As a result of this, the player can enhance his overall playing ability, sufficiently. Such a systematic functional association exists between the performance and the psychological strength of a volleyball player, stressing the need of psychological training in addition to traditional physical training to achieve the goal.
Generally, psychological skills of coping with the stressful situations can be trained up by psychological trainings in the areas of anxiety management, stress management, inner-mental training, and progressive relaxation and so on. Of the available mind related trainings, the indigenous activity of yogic exercises is the feasible one to develop psychic aspects of players in addition to physical. Having the conceptual aspects to study the effect of yogic exercises along with the traditional training on psychomotor and psycho-physiological aspects, the present study has been carried out on “Effects of Combination of Traditional Training with Yogic Exercises and Traditional Training on Selected Psychomotor and Psycho-physiological Variables of Male Volleyball Players at State Level”.

1.0. Nature of the Game

Volleyball is a team sport. The game volleyball is unique because it is a team rebound sport. It is very fast and explosive in nature, entertaining both forms, indoor or beach. When the ball is played over higher net, the participants gain an advantage in offence and defense. Moreover they can be segmented into three major aspects as serving, passing, hitting and blocking. Each of these is briefly explained.

1.1. Serving

Serving is one of the fundamental skills in volleyball. It can be classified as a) under hand serve and b) overhand serve by its nature of movement. In the under hand serve the serving player stands facing the net with the foot opposite and the hitting hand forward. The ball is held at waist level. The player leans forward as he or she swings an arm forward and contacts the ball. The hand holding the ball is dropped just before the contact. The player then hits the ball underneath with the fist or heel of the hand. The hitting arm follows through in the direction of the target.
Likewise in the overhand serve with a firm wrist, the player tosses the ball 18 inches above his or her head so that the ball falls to the spot just inside the lead foot and in line with the hitting shoulder. The player's elbow and hand are at shoulder height or above throughout the entire serving motion. The player shifts his or her weight to the lead foot and contact is made with the ball. *(Chindi Gregory, 2006)*

1.1.1. Passing

Once the ball is served and is in play, the teams take turns passing the ball back and forth. Players can use a variety of passes to get the ball over the net including forearm Pass/dig, passing with movement, Setting/Overhand Pass and Hitting/Spiking. The basic skill is called “pass,” when receiving the serve and “dig” when handling an opponent's attack. The player begins by getting into the "ready position" with his or her arms away from the body. As the ball comes to the player, he or she contacts the ball with the forearms. The pass or dig is completed with the player's hands pointing at the target. The player begins this pass by getting into the ready position. The player raises the arms above the head, with fingers spread in the shape of a ball. Then the player forms a triangle with thumbs and pointer fingers - but keeps hands apart. Hands are directly in front of the face and close to the forehead. This is called the neutral position. When making contact with the ball, the player extends his arms so the ball goes over the net. The player gets into the ready position and waits for the ball with his hands raised 4 to 6 inches above his / her forehead. Then the player keeps his thumbs and index fingers in a triangle through which he can see the ball and has his hands in the shape of a ball. Now he contacts the ball just above the forehead, moves his hands in one direction and extends and "freezes" his arms in the direction in which he wants the ball to go. *(Chindi Gregory, 2006)*
1.1.2. Hitting and Blocking

As the ball comes towards him, he jumps up and pulls his arm back with his elbow and hand at shoulder height. The player keeps his hand open and relaxed with the palm facing away from his ear. He then swings his elbow forward, and raises his arm above his head to make contact with the ball with the wrist of his hand. Blocking refers to the actions taken by players standing at the net to stop or alter an opponent's attack. A block that is aimed at completely stopping an attack will make the ball remain in the opponent's court and is called offensive. A well-executed offensive block is performed by jumping and reaching to penetrate with one's arms and hands over the net and into the opponent's area. It requires anticipation of the direction of the ball once the attack takes place. It may also require calculating the best foot work for executing the "perfect" block. The jump should be timed so as to intercept the ball's trajectory prior to it crossing over the net. Palms are held deflected downward about 45-60 degrees toward the interior of the opponent's court. A "roof" is a spectacular offensive block that redirects the power and speed of the attack straight down to the attacker's floor, as if the attacker hits the ball into the underside of a peaked house roof. By contrast, it is called a 'defensive' or "soft" block if the goal is to control and deflect the hard-driven ball up so that it slows down and becomes more easy to be defended. A well-executed soft-block is performed by jumping and placing one's hands above the net with no penetration into the opponent's court and with the palms up and fingers pointing backward. Blocking is also classified according to the number of players involved. Thus, one may speak of single (or solo), double, or triple blocks. Successful blocking does not always result in a "roof" and many a time does not even touch the ball. While is obvious that a block is a success when the attacker is roofed, a block that consistently forces the attacker away from his or her 'power' or preferred attack into a more easily
controlled shot by the defense is also a highly successful block. At the same
time, the block position influences the positions where other defenders
place themselves while the opponent hitters are spiking. (Chandra Mirsha,
2007)

1.2.0. Prerequisites for a Volleyball Player

The important prerequisites for a good performance in volleyball are
the skills related to physical, psychomotor and psycho-physiological
Factors.

1.2.1. Physical Skills

Volleyball is widely accepted as a competitive game. The objective
of the game is to send the ball regularly over the net to ground it on the
opponent's court, and to prevent the ball from being grounded on its own
court. This is applicable to each team. The ball is put into play by the right
back-row player who serves the ball by hitting/spiking it over the net to the
opponent's court. A team is allowed to hit the ball three times (in addition to
the block contact) to return it to the opponent's court. A player is not
allowed to hit the ball twice consecutively, except when attempting a block.
The rally continues until the ball touches the ground/floor, goes "out" or a
team fails to return it to the opponent's court or commits fault. Balakrishnan
(2007) In the game of volleyball a player should have physical speed,
speed endurance, strength, strength endurance, cardio-respiratory
endurance, and explosive power. This game demands the involvement of
whole body for attaining maximum performance. For instance, blocking
and spiking, the fundamental skills, requires both lower extremity strength
and upper extremity strength in addition to arm and leg explosive power,
besides, in some of the situations, specifically during deciding set, a player
has to play this game for about five sets, it will take more than one and a
half hour time in such instance. Apart from the strength and power related factors a player should have sound endurance related factors such as muscular strength and cardio respiratory. Thus the game of volleyball requires the above said physical fitness aspects for its successful physical movements.

1.2.2. Psychological Skills

The development of mental skill of a volleyball player is as important as the development of physical skills. A player should be able to think, understand and analyze each movement during the game and should act. A player should be able to make split-second decisions on the spot and develop determination and will power. The player must have self-confidence and positive attitude. Practicing a skill over and over to perform it correctly in a game adds to self-confidence.

Apart from various physical and mental factors, the very important thing to be considered for a top-level player is emotional factors. Emotional factors such as anxiety, stress, fear and anger play a very crucial role in the game of volleyball. At the beginning of the game, while taking the serve the anxiety of a player is less than that of the same player taking the serve, in the last minute of the game, when his team is down by one point. Stress in competition arises out of both internal and external pressures. A player should develop to control his feelings that otherwise would make him tense, fearful and angry. The fear of failure, the feeling of being inferior when comparing him with the opponent will affect the performance of a player.

1.2.3. Psychomotor

Psychomotor means a muscular activity associated with mental processes. According to The American Heritage Dictionary, “Psych” for mind, and “motor” for the motor neuronal system in brain and spinal cord.
Hebb (1980) “broadly speaking, the mind is that which controls behavior”. Unertan (2007) presented a new theory to explain the neural origins of human mind, which is referred as psychomotor theory. Accordingly, a psychomotor theory is used to explain the psychomotor coupling in health and disease, stating that, not the mind-brain duality or unity, but the mind-brain-body triad as a functional unit may be essential in health and disease, because mind does not end in the brain, but further controls movements, in a reciprocal manner; mental and motor events share the same neural substrate, cortical, and spinal motoneurons; Mental events emerging from the motoneuronal system expressed by the human language may be closely coupled with the unity of the mind-brain-body triad. So, the psychomotor theory rejects the mind-brain duality and instead advances the unity of the psychomotor system, which will have important consequences understanding and improving the human mind, brain, and body in health and disease.

1.2.4. Psychomotor Factors

Psychomotor components are functioning as a complement to the physical components to execute in the desirable way. The psychomotor components of balance, co-ordination, reaction time and perception are functioning as tuners in the completion of physical movements not only in the game of volleyball but also in day to day life of human beings. Among these, the present study is selectively concentrated on psychomotor components of eye-hand co-ordination, reaction time and depth perception that are closely associated with skills of volleyball. The nature of these components is briefly described below:

1.3. Reaction Time

Reaction time involves an integration of the higher centers of the nervous system. It is the elapsed interval of time from the presentation of a stimulus to the initiation of a response.
1.4. Perception

Perception is usually distinguished from other processes involving thought consciousness and judgment. According to Bartley (1958) perception is a form of discriminating behavior which involves an overall activity of a person immediately following or accompanying the stimulation of the sense organs. Perception is a knowledge through the senses of existence and properties of matter and the external world. It causes actions which in turn change it and it is a continuous process. Friedman et al (1961) offers a clear distinction between sensation and perception that helps us to understand these terms better. A sensation involves "the presence of apparatus and means for reception of stimuli". Perception, on the other hand, involves "the presence of apparatus and means for the interpretation of stimuli".

The role of perception in motor learning and performance is a positive one evident. A person’s ability to receive and distinguish among available cues in a given situation enables him to perform more skillfully. There is no doubt that the senses underlie perception and that several senses probably interact simultaneously during the perceptive process. While spiking, the volleyball player concentrates on the ball and disregards irrelevant uses. Similarly, in the successful blocking, player requires attention to the feel of the ball movement and concentration on the direction and point of application of force that he has applied. Singer (1968).

Perception depends on differences between stimuli and perceptibility or ease of discrimination. In volleyball, a player has to concentrate and attend at once to be successful in exacting his solves in high level stressful situations; otherwise his performance will be hampered. Perception is also influenced by factors namely personality, attitudes, emotional factors, experience and expectations, in addition to environmental variables.
1.5.0. Co-ordination

Co-ordination was first recorded in 1605. It meant "orderly combination". According to Schur (1980) co-ordination is "the ability to integrate muscle movements into an efficient pattern of movement" and "the use of muscles in such a manner that they work together smoothly and effectively rather than hinder one another" Hunter (1966). Co-ordination is the ability to perform complex motor skills in sport. According to Hudson and Hills (1991) movement analysts ranging from spectators and sportswriters, to teachers and coaches, to biomechanics and kinesiologists, to neuroscientists and robotists believe that co-ordination is a desirable aspect of performance. Roget's association of co-ordination and skillful movement was echoed by Schurr: "Co-ordination makes the difference between good performance and poor performance". Wilmore (1977) opined that neuromuscular co-ordination reflects the ability of athletes to perform their sports activities or events with a smooth, balanced, and fluid motion.

Espenschade and Eckert provide the most complete conception of co-ordination (1967) "An individual is said to show good co-ordination when he moves easily and then the sequence and timing of his acts are well controlled. It is probably the best to think of co-ordination as referring in a specific task in terms of objectives accomplished through movement patterns with efficient and effective use of musculature. More complex tasks require more co-ordination. Sports skill represents co-ordinate movement patterns that is movements are spatially and temporally organized parts of body, involved in the execution of a set more into appropriate places at the right time in proper sequence.

According to Cratty and Bryant (1964) sporting activities involving eye-hand co-ordination constitutes, the first type of sporting event. Examples of sports persons, whose entire performance falls in the category
which includes archery in addition to specific skills with some more complex team sports involving this type of examples of serving, spiking and blocking in volleyball penalty goal kicking in soccer, free-throw shooting in basketball, throwing and catching in cricket activities.

1.5.1. **Eye – Hand Co-ordination**

Eye-hand co-ordination is one of the most important complex tasks. According to *Singer (1968)* in eye-hand co-ordination, work is involved with the combination eyes and hands, which is extremely complicated and requires an extended period of time to perfect. Its need in sports as stressed by *Barrow (1954)* that the co-ordination of hands, feet and even the head with the eyes is one of the most important factors in performance of some motor skills. These include all movements involving a ball or similar object and are concerned with primary objective such as skills involving serving, passing, receiving, spiking, blocking. The eye must be trained on the primary objectives. During the initial phase of movements and skillfulness this factor requires steadiness, accuracy and control. No doubt this factor is related to other qualities such as depth perception, kinesthetic sense, agility and relaxation. All major games have the two vital strategies such as defensive and offensive which are to win the game. In this case, so many factors are interrelated such as strength, power, agility, endurance, flexibility and co-ordination. Eye-hand, eye-foot co-ordinations are to overcome the unnecessary movements and waste of time.

1.6.0. **Anxiety**

Anxiety is distinguishable from other unpleasant affective states (emotional) such as anger, grief, or sorrow by its unique combination of phenomenological and physiological qualities. This gives anxiety, a “character of unpleasure” which although difficult to describe, seems to
possess a particular note of its own. *Freud (1936)* emphasized that apart from generalization, in day to day human life and in sports and games, anxiety plays very crucial role as a determinant factor. *Smith (1986)* cited anxiety as a product of stress and persistent feature of competitive sport. It can be a positive factor as accorded by the need to reach and maintain the optimal arousal prior to or during the event or a negative one as evident in both externally derived pressures such as meeting the expectation of coaches, fans and teammates and internal emotions. When these unpleasant sources of stress are chronic, the output may lead to burn-out, demonization, poor sports performance, and eventual withdrawal of the athlete from competitive sport.

### 1.6.1. Concept of Anxiety

According to *Spielberg (1966)*, anxiety seems to be the dominant factor and is threatening to become the dominant cliché of modern life. It shouts in the headlines, laughs nervously at cocktail parties, nags from advertisements, speaks suavely in the board room, whines from stage clatters from the wall ticker jokes with sake youthfulness on golf course and whispers in privacy each day before the shaving mirror and the dressing table. The three main attributes of anxiety are specific pleasurable quality, efferent or discharge phenomena and the perception of these. According to *Freud (1933)*, Anxiety is characterized by subjective, consciously perceived feelings of apprehension and tension which are accompanied by or associated with activation (arousal) of the autonomic system. Anxiety level of individuals fluctuated over time in response to both internal and external stimulation, anxiety would be manifested in any given situation (*Spielberger et al., 1958)*.
In learning theory, anxiety state is viewed as a complex process of largely internal response that has both stimulus, and stimulus-drive properties (Dollard and Miller 1950).

1.6.2. Competitive Trait Anxiety

Competitive anxiety is a personality disposition akin to trait anxiety. It reflects an individual’s tendency to perceive threat and experiences stress in situations that involve open competitions. Individuals with higher levels of competitive trait anxiety respond to competitive situations with state anxiety on transitory feelings of tension and apprehension more frequently or more intensely with lower competitive trait anxiety of those people. Literatures on competitive state anxiety portray anxiety as a multidimensional phenomenon with relatively independent somatic and cognitive components. Somatic aspects of anxiety include perception of autonomic arousal and physiological responses. Cognitive anxiety expressions encompass worries or concerns about the adequacy and consequences of one’s performance.

1.6.3. Predictors of Competitive Trait Anxiety

Experience of stress and preciseness of threat are possible when the perception of individual believes that necessary resources are not available to meet environment demands in situations where important consequences are expected and resource imbalances are expected of. Moreover, the variables like self esteem, generalized expectancies for performance, the relative importance to an athlete of performing well and winning a tournament and the degree of negative effect typically experienced with poor performance, are highly associated with cognitive and somatic state anxiety (Lewthwaite and Scanlam 1989).
1.6.4. Anxiety and Sport

A great deal of research has been devoted to the effect of anxiety on sports performance. Researchers have found that as the components of competitive state anxiety and cognitive anxiety. They have powerful influences on performance. This statement holds true regardless of the individual's skill level. *Krane et al (1994)* clearly states that the cognitive interpretation of an individual gives a situation an effect. Earlier research findings reported that the strongest predictor of cognitive anxiety had many years of experiences and that the more experience an individual had the lower the level of cognitive anxiety. This conclusion is supported by the research of *Jones et al (1990)* that he found that cognitive anxiety was best predicted by an evaluation of the previous performances, individual's perception of preparedness, and goal setting.

*Martens et al (1990)* found self confidence is one of the strongest predictors in the measure of competitive state anxiety. Self-confidence has been found to be the amount of ability that an individual has *(Gould et al 1984)*. This makes sense of an individual’s previous experience in a given situation. Self-confidence has been found to account for a greater proportion of variance in performance than cognitive or somatic anxiety *(Hardy, 1996)*.

This suggests that the most powerful quality that elite performers possess is a high level of self-confidence which may act as a protective factor from cognitive anxiety.

Sport psychologists define self-confidence as “the belief that one can successfully perform a desired behavior” *(Bandura 1984)*. Confident athletes expect success and have a high level of self-belief that appears crucial in determining how far they strive towards their goals. It is
confidence that largely determines whether people give up or remain committed to their goals following a series of setbacks. For the sake of simplicity, self-confidence may be considered as conceptually opposite to cognitive anxiety (negative beliefs and performance worries). Both are related to one’s beliefs and both, ultimately, influence one’s performance. Coaches can often see the fluctuations in the balance between these two opposing states being reflected in the behavior of their athletes. While confident athletes are not afraid of making mistakes, often taking calculated risks in order to take charge of a situation, self-doubters often avoid responsibility, becoming over-conservative and paralyzed by fear of failure. At this juncture, it is appropriate to think of a football striker who has not scored for a number of successive matches and is riddled with self-doubt. When presented with a half-chance which would usually result in a snapshot, he may elect to avoid responsibility and pass the ball to a team mate.

According to Bandura (1984), performers’ situational-specific confidence, or ‘self-efficacy’, is based on four primary sources of information, represented graphically in Figure 1 below.
Unfortunately, the flip side of this principle is that repeated failures can give rise to a downward performance, spiral and a ‘snowball effect’ whereby a performer starts to believe that success is unattainable. Of course, such an athlete does not mysteriously lose his or her physical skills and talents, but without confidence in these abilities, high-level performance is rarely achieved.

Bandura’s work related to self confidence highlighted the following aspects: for the coach, the perception of athletes are of overriding importance that could gain confidence by viewing successful performance of others at similar levels better known as ‘modeling’ or ‘vicarious experience’. Coaches can build confidence among their athletes by verbal persuasion i.e. confidence building measure. Confidence building could be
done using deception to persuade their athletes. Verbal persuasion can also take the form of 'self-talk', whereby the athlete convinces himself that success will follow. Clearly, confidence is enhanced by good preparation, planning and a sense of optimism. Conversely, negative thinking and pessimism can undermine performance and limit progress. By expecting failure, one can set their belief system to a negative channel and start favouring information that is consistent with these beliefs.

1.7.0. Yoga

Yoga is one of the India’s wonderful gifts to mankind. One of its valuable qualities is that it builds up a store of physical health through the practice of a system of exercises called asana which keeps the body cleansed and fit. Kuvalayananda (1977). Yoga believes that exercise is essential for speedy removal of toxins and for keeping blood circulation and all internal processes functioning smoothly. Yoga has a complete message for humanity as a message for the human body, human mind and human soul Kuvalayananda (1977). Yoga enables one to learn to unite his jeevatma (individual soul) with the paramatma (universal soul) and the final union is the fulfillment of 'yoga'. Even the techniques which promote one’s progress towards realization of the supreme are called "Yoga" (Chakrabarthi et al., 1984).

1.7.1. Nature of Yoga

Yoga postures are the physical positions that co-ordinate breath with movement and with holding the position to stretch and strengthen different parts of body. Yogic exercises are the ideal complement to other forms of physical exercises such as running, cycling, and swimming. Yogic postures systematically work on all the major muscle groups, including the back, neck and shoulders, deep abdominal, hip and even ankles, feet wrists and
hands. By their very nature, yogic exercises affect all the muscle groups and organs as they simultaneously impart strength, increase flexibility and bring nourishment to internal organs, which enable both mind and body to function more efficiently. Yoga helps to prevent injuries by bringing balance back to the body along with relaxation and focused concentration of the mind. Thus the salient feature of yoga is the combination of both physical conditioning and focused concentration and is a great cross training for any sport (Chandrasekaran, 1999).

1.7.2. Physical aspects of Yoga

Yoga is well known as a practice that improves mental health and stress tolerance. Accordingly, a large number of research studies on yoga and meditation practice have documented the improvements possible in mood, cognitive function and mental well-being in normal, healthy individuals. A recent review of the research literature in this area has revealed the strong proportion of this work documenting the effectiveness of yoga and meditation in the treatment of psychological conditions and psychiatric disorders such as depression, anxiety, addictive and criminal behaviors. There has also been significant research effort recently in elucidating the basic psychophysiology of the mind-body connection (Khalsa, 2004).

1.7.3. Psychological Aspect of Yoga

Emotional factor is very important in the performance of sports. If rightly used, emotions can contribute to the improvement of the performance in sports. Emotions are governed by the working of autonomic nervous system. Control over the autonomic nervous system brings the emotional disturbances down. A yogic exercise is a group play of a significant role in training the autonomic nervous system using stretching
exercises like asanas, relaxation techniques and breathing exercises in the form of Pranayama. Pranayama is excellent in conditioning the autonomic nervous system. A few studies made on the effect of short term yogic routine has shown the utility of yoga in the achievement of emotional stability.

1.7.4. Physiological Aspects of Yogic Discipline

Asanas and all yogic exercises are confined to minimum motions involved with everything done at a slow tempo, which is the direct opposite of gymnastics, calisthenics, Swedish drills, all of which emphasize speed and rhythm. Further by influencing the autonomic nervous system the yogic exercises ensure better food utilization and improved nourishment besides proper relaxation and sleep due to superior voluntary control of such individuals (Chakrabarthi et al., 1984).

1.8. Asanas

In yoga, the physical exercises are called Asanas. Asanas are non-violent and provide a gentle stretching that acts to lubricate the joints, muscles, ligaments, kerdors and other parts of the body. Asanas help to tone the nervous system, to improve circulation, to release tension, and to increase flexibility. Asanas have an extraordinary capacity to overhaul, rejuvenate and bring the entire system into a state of balance. Asanas are not only practiced for spiritual gains but also they are used as physical exercises involving great deal of skill, flexibility and neuromuscular coordination. It is presumed that they predominantly work at the cerebellum level rather than the cortical level, because the cerebellum does the responsible function for the maintenance of tone, posture and equilibrium.
Developing awareness of breathing movements in different regions of the body while the posture i.e. asana is maintained for some length of time further helps to release tension and to develop a kind of balance and equilibrium at different levels of the body musculature. Thus one may be able to appreciate the role that can be played by asanas in releasing tension, initiating relaxation of the skeletal muscles and establishing a condition of balance and equilibrium. The understanding about asanas as postures will also indicate its application in games and sports. They could be used as conditioning practices to develop flexibility and better proprioceptive awareness and to train the individuals to release tensions, restore balance and equilibrium and to develop relaxation. Thus they could be used after any hectic activity or from time to time in between a prolonged activity.

1.9. Pranayama

Pranayama is a compound term ('prana' and 'yama') meaning the maintenance of prana in a healthy manner throughout one's life. More than a breath-control exercise, Pranayama is all about controlling the life force or prana. Ancient yogis, who understood the essence of prana, studied it and devised methods and practices to master it. These practices are better known as Pranayama. Since breath or prana is the basis to life, the practice of Pranayama, helps in harnessing the prana in and around us, and by deepening and extending it to a state of inner peace. Pranayama is the practices to control the respiratory impulses which form one of the main channels of the flow of autonomic nerve currents. They are practiced for bringing control over the autonomic nervous system and thereby diminishing the mental fluctuations. By becoming aware of the nature of the breath and by restraining it, the whole system becomes controlled. When retaining the breath, you are stopping nervous impulses in different parts of the body and harmonizing the brain wave patterns. In Pranayama, it is the
duration of the breath retention, which has to be increased. The longer the breath is held, the greater the gap between nervous impulses and their responses in the brain. When the retention is held for a prolonged period, mental agitation is curtailed.

In Pranayama, on the other hand, the basic aim seems to develop a capacity to perceive internally aroused sensations from different regions of the body so that the awareness could get internalized and one could get guided by them till one can get established in a relatively different kind of awareness, usually termed as self-awareness. Through the routinely followed physical activities in games and sports, the awareness gets related with the external objects and ideas related with them. Pranayamic breathing, as a conditioning exercise, will help an individual to develop better ability of 'self-imaging' and a short session before the actual performance will help one to take care of anticipatory tensions due to anxiety and fear.

1.10. Yoga and Sports

Yoga is an excellent method of enhancing the performance of sportsmen. Excellent performance in any sport is governed by several factors of physical fitness. The important ones may be mentioned speed, strength, stamina, suppleness, stability and neuromuscular co-ordination. Although not many scientific researches have been done, the works of Gharote (1973) have shown enough evidence about how yoga could be gainfully employed in the promotion of basic fitness factors. Using elaborate Fleishman battery of Basic fitness tests, Gharote (1971) has shown how even a short term yogic training could improve different basic fitness factors.

Many world class sports persons have found that the practice of yoga helps them to achieve greater skills in their sport. This is because yoga not
only works on the physical level but also has benefits for the mental, emotional and energy levels. It enables them to realize that 'winning is not everything' and that there is 'more to life' than sporting 'highs' and 'lows'.

1.11. Objectives of the Present Study

The primary objectives of the present study is to study the effect of yogic exercises combined with the traditional physical training on selected psychomotor and psycho-physiological variables of highlevel participations compared with traditional training group.

Further it extends itself to the following objectives such as

1. To identify the status of subjects on psychomotor and psycho-physiological variables.

2. To study the inter-relationship between the psychomotor and psycho-physiological variables.

3. To study the individualized effects of traditional training and a combination of traditional training and yogic exercises on psychomotor and psycho-physiological variables.

4. To study the level of psychomotor components of players.

5. To identify the psychological and physiological pressures.

1.12. Statement of the Problem

The existing training system in the game of volleyball emphasizes mostly on strengthening the physical components alone rather than strengthening the psychological components. Even though previous studies and theoretical constructs stress and confirm the equal value of both body and mind in success, the trainers and coaches from basic level to high level
are not giving sufficient importance to develop the psychological strengths. Resultant of this, under the completive pressures due to lack of coping skills, players could not exhibit their physical and psychomotor skills successfully and lose their goal in a mild difference. To overcome this issue, and extract their full potentials as coacher and physical educationists it is a study to impart the training program that is helpful to strengthen and psychological components. With this conceptual problem, the present study is carried out with the purpose to test the individualized effect and compared effect of combination of traditional training and yogic exercises (TTYEG) and traditional training (TTG) on selected psychomotor and psycho physiological variables of male volleyball players at state level.

1.13. Hypotheses

The hypotheses formulated in the present study are:

1. It is hypothesized that the volleyball players practiced yogic exercises with traditional training have significant improvement in the performance of eye-hand co-ordination, reaction time, depth perception (psychomotor) cognitive anxiety, somatic anxiety, self-confidence, heart-rate, systolic blood pressure and diastolic blood pressure (psycho-physiological) on changes made from their baseline to the post treatment of twelve weeks of training.

2. It is also hypothesized that there will not be any significant improvement on changes made from their baseline to the post treatment on the performance of eye-hand co-ordination, reaction time, depth perception (psychomotor) cognitive anxiety, somatic anxiety, self-confidence, heart-rate, systolic blood pressure and diastolic blood pressure(psycho-physiological) of volleyball players practiced in traditional training only.
3. It is hypothesized that the volleyball players practiced yogic exercises in traditional training will have significant improvement in the performance of eye-hand co-ordination, reaction time, depth perception (psychomotor) cognitive anxiety, somatic anxiety, self-confidence, heart-rate, systolic blood pressure and diastolic blood pressure (psycho-physiological) as compared to the volleyball players of traditional training group who are the players participated in their regular training schedule.

1.14. Significance of the study

The present study has significance in the following aspects.

1. The present study has the significance in order to identify their level of performance on selected psychomotor and psycho-physiological variables.

2. Physical education teacher and coaches can certainly be benefited to manage their players specially during the period of competitive situation by availing the data on selected psychomotor and psycho-physiological variables.

3. The yogic exercise used as treatment to have the positive changes on the performance of psychomotor and psycho-physiological of volleyball players is a compatible one as compared to other mind related training.

4. The present study helps the physical education teachers and coaches to impart the yogic exercises as part of their regular training schedule to improve the performance of psychomotor and psycho-physiological components.
1.15. Delimitation

The present study are confined to the following aspects.

1. The subjects for the present study are confined only to players participated in the state level tournament whose ages are between 18-24.

2. In terms of psychomotor variables, the present study is confined to eye-hand co-ordination, reaction time, depth perception. In terms of psycho-physiological variables, the present study is confined to cognitive anxiety, somatic anxiety and self-confidence, heart-rate, systolic blood pressure, and diastolic blood pressure.

3. The standardized tools of mirror tracing apparatus, chronoscope, depth perception apparatus, CSAI 2, stethoscope and sphygmomanometer are used to measure the psychomotor and psycho-physiological variables.

4. As for as the treatment concerned, the present study is confined to select yogic exercises only.

5. The duration of the training period is 12 weeks.

1.16. Limitation

The following factors are considered as limitations in the present study.

1. The life style, food habits and the family background of the subjects are to be considered as limiting factors.

2. The influence of individual motivational structure on the response of data is not taken into account.
3. The influence of socio economic conditions prevailing in the performance of criteria variables are also considered as a limiting factor.

1.17. Definition of Terms

Co-ordination

According to Barrow et al., (1989) co-ordination may be defined as, the flow of movement in the execution of motor task. It involves the blending of forceful and explosive movements, with accurate and less forceful movements and the sequential blending of different movements to achieve some purposeful movement.

Reaction Time

Lawther defines that the reaction time is the time that elapses from the occurrence of the stimulus till we act or the time from the occurrence of the stimulus to the completion of a simple muscular contraction (Singer 1968).

Depth Perception

Depth perception is the ability to see the world in three dimensions and to perceive distance. Although this ability may seem simple, depth perception is remarkable when you consider that the image projected on each retina is two-dimensional. From these flat images, we construct a vivid three-dimensional world. To perceive depth, we depend on two main sources of information: binocular disparity, a depth cue that requires both eyes; and monocular cues, which allow us to perceive depth with just one eye.
Cognitive Anxiety

Cognitive anxiety expressions encompass worries or concerns about the adequacy and consequences of one’s performance (Morries et al., 1989).

Somatic Anxiety

Somatic anxiety, a measure of one’s perceptions of his physiological assessments such as hear-rate and brain wave activity (Morries et al., 1989).

Competitive Anxiety

Competitive anxiety is a personality disposition akin to test (trait) anxiety that reflects an individual’s tendency to perceive threat and experience stress in situations that involve sports competitions (Martens 1977).

Self-Confidence

Self-confidence may be defined as the amount of ability that an individual believes that he or she has (Gould et al., 1984).

Heart-Rate

Heart-rate or pulse-rate is known today as the rate of beating of the heart per minute.

Blood Pressure

“Blood pressure is the pressure in a blood Vessel (or) the force that the blood exerts against the wall of vessels.” (Guyton1980).
Systolic Blood Pressure

The highest level to which the arterial blood pressure rises during the systolic rejection of blood from the ventricles (Morehouse and Miller 1976).

“Systolic pressure is the highest blood pressure of the cardiac cycle occurring immediately after systolic of the ventricles of the heart” (Gnyton 1980).

Diastolic Blood Pressure

“Diastolic pressure is the lowest arterial blood pressure of the cardiac cycle occurring during diastolic of the heart” (Thomson 1985).

“The lowest level to which the arterial blood pressure tells in the interval between successive heart beats” (Miller 1976).

Physical Exercise

Physical Exercises improve the circulation of voluntary system, thereby resulting in better muscular development as a result of improved function of the muscles.

Yoga

Yoga is a way of life which can be practiced by any human being regardless of age and condition of health. Yoga is a gaining process of control over the mind. Thereby improving the physiological and psychological behavior of an individual.

Yogic Exercises

Yogic Exercises are a form of physical exercises. They involve stretching and contracting of the parts of body in a specific sequence.
Asanas

Asanas are certain special patterns of posture that stabilize the mind and the body.

Combination of Physical and Yogic Exercises Group

In the Combination of Physical and Yogic Exercises group, the subjects are treated with the physical and yogic exercises. The subjects of this group differ from the subjects of physical training group only by treatment of yogic exercises specifically prepared for the present study. As for the physical training is concerned, the physical exercises are the same for the subjects both Combination of Physical and Yogic Exercises Group and Physical Training group.

Physical Training Group

In Physical Training group the subjects are treated with specific physical training designed for the present study.