

CHAPTER I

INTRODUCTION

"My thoughts before a big race are usually pretty simple. I tell myself: Get out of the blocks, run your race, stay relaxed. If you run your race, you'll win... channel your energy. Focus"

- Carl Lewis (as cited in Pat Williams 2011)

Physical education can be a major contributing factor in the development of an individual in all aspects of life: physical, emotional, mental and social. The primary aims of physical education vary historically, based on the needs of the time and place. Often, many different types of physical education occur simultaneously, some intentionally and others not. Most modern school systems claim their intent is to equip students with the knowledge, skills, capacities, and values along with the enthusiasm to maintain a healthy lifestyle into adulthood. Some schools also require physical education as a way to promote weight loss in students. Activities included in the program are designed to promote physical fitness, to develop motor skills, to instill knowledge and understanding of rules, concepts, and strategies, and to teach students to work as part of a team, or as individuals, in a wide variety of competitive activities.

Physical education experience, an individual has the opportunity to understand the importance of obtaining and maintaining a high level of physical fitness, participate in a wide variety of physical activities to foster the desire to maintain an active lifestyle, enhance physiological and motor skill development, and develop fair play, teamwork and socially desirable behaviour, enhance self-esteem (Rao, 2008).

1.1 HOCKEY

Field Hockey is played on a field which is 91.40m long and 55m wide. Top-level field hockey is played on synthetic surfaces, which makes the ball run faster and more smoothly, but most high school games in the United States are played on grass. The high school game consists of two 30-minute halves. Each team is permitted two time-outs per game. The game is started and re-started after every goal by a center pass. The player taking the center pass puts the ball into play in any direction using a hit, push, or self-pass. The object of the game is to work the ball into the shooting circle - a semi-circle extending 16 yards from each goal line and score goals. Goals can only be scored when touched by the attacking team's stick inside the opponent's shooting circle. (This is an important rule to understand, since there are many times when a goalkeeper will allow the ball to enter the goal when she knows that it has been hit from outside the circle.) Each goal is scored when the ball completely crosses the goal line between the goal posts and under the crossbar. If the ball is lifted into the goal, the umpire may rule that it was a dangerous hit and may disqualify what looked to be a goal (Puhalla, Krans and Goatley, 2010).

1.2 HISTORY OF HOCKEY IN WORLD

Hockey is the oldest known ball and stick game. No one is certain exactly where or when the game was invented, but there is evidence that the game existed in ancient times. Four thousand year old drawings of men playing a form of field hockey were found in a tomb in Egypt. Over the centuries, different versions of the sport were played by the Arabs, Aztecs, Ethiopians, Greeks, Persian and Romans. Field hockey is

connected to other established games like German's Kolbe and the French game hocquet, from which sport historians believe the term "hockey" was derived. But it was in England in the mid 1800's that field hockey evolved into the sport we know today.

The origins of field hockey can be traced to ancient Egypt, Persia, and Greece; but the game as we know it, was developed in the British Isles in the late 19th century. In 1901, field hockey was brought to the United States by an English woman, Constance M.K. Applebee. She spread the game to Vassar, Wellesley, Holyoke, Radcliffe, and Bryn Mawr Colleges. Her influence helped field hockey grow in schools, colleges, and clubs. In 1920, the first US Touring Team set sail for England. In 1922, the United States Field Hockey Association was formed as the national governing body for the sport. Since field hockey was introduced into this country by a woman, the sport has been played mostly by female athletes in the US. However in other countries field hockey is widely played by both men and women. In 1930, the Field Hockey Association of America was formed as the governing body for the men's game. In 1993, the men's and women's associations merged into the USFHA, which is the official field hockey organization recognized by the Olympic Committee. The USFHA women qualified for the 1980 Olympic games, but the boycott prevented them from participating. In 1984, they earned a bronze medal in the Los Angeles games and have since competed in the 1988 (Seoul, Korea), 1996 (Atlanta), and 2008 (Beijing) Olympic games (Connolly, 2005).

1.3 HISTORY OF HOCKEY IN INDIA

The first hockey club came up in Calcutta in 1885-86 and soon Bombay and Punjab followed suit. Making its Olympic debut at the 1928 Amsterdam Games, Indian hockey team cruised home to its first Olympic gold, without conceding a single goal. The hallmark of this ruthless domination was the wizardry of Indian hockey legend - Dhyan Chand, who mesmerized the Amsterdam crowd with his dazzling skills. From 1928 to 1956, the Indian hockey juggernaut won six straight Olympic gold medals, while winning 24 consecutive matches. During this time, India scored 178 goals conceding only 7 in the process. This was the golden era of Indian hockey, when India loomed large in world hockey and produced some of the finest players the game has ever seen. During this dominance, one name that clearly comes to mind is Balbir Singh. For almost three decades, Indian team had about five players with the same name. The first Balbir Singh played with the great Indian teams of 1948, 1952 and 1956. He reached the pinnacle of success at Helsinki in 1952 when he scored five goals in a 6-1 gold medal victory over the Netherlands. The four later Balbir Singhs played with the later Indian champions. The Indian stranglehold over the Olympic hockey gold came to an end, when Pakistan defeated India in the final of the 1960 Rome Olympics. However, the record created by India is likely to stand strong through ages, as no other country has ever managed to come close to it, leave about beating it. Talking about some of the legendary and outstanding players of Indian hockey, Dhyan Chand, K.D. Singh, Dhanraj Pillay and Dilip Tirkey are some names that come to mind instantly. Their exceptional gaming technique and enduring enthusiasm, the position of India in the field of hockey achieved new heights (Taneja, 2009).

1.4 SPORT PSYCHOLOGY

Sport psychology is a science in which the principles of psychology are applied in a sport setting (Cox, 1990).

Sport Psychologists are interested in include, but are not limited to; what motivates an athlete, how athletes regulate their thoughts, feelings and emotions, and how they manage anxiety and arousal states in order to maximise performance (Parker, 2000).

The principles involved in Sport Psychology are usually applied to enhance performance. The field embraces many concerns and concepts, such as motivation, arousal, reinforcement, psychological preparation, attitudes, attention, emotional health, and stress management (Davies, 1989).

In 1995, Rushall proposed that sport psychology could assist athletes in the following ways:

- a) The actual words an athlete uses in self-talk have an effect on the quality of performance,
- b) It is possible to increase performance levels in elite athletes through thought processes alone,
- c) Mental imagery is important for enhancing performance.

Sport Psychologists assist people by helping them to develop the skills necessary to become mentally strong, and prevent them from choking in key situations.

The sport psychologist is interested in much more than performance enhancement and sees sport as a vehicle for human enrichment. A win-at-all-costs attitude is inconsistent with the goals and aspirations of the best sport psychologist. The sport

psychologist is interested in helping every sport participant reach his or her potential as an athlete. If helping a young athlete develop self-control and confidence results in superior athletic performance. However, it is also possible that quality sport experience can enhance an athlete's intrinsic motivation without the athlete's necessarily winning.

Sport and exercise psychology is the study of the effect of psychological and emotional factors on sport and exercise performance, and the effect of sport and exercise involvement on psychological and emotional factors. This is an easy-to-understand definition that shows clearly the interactive relationship between sport and exercise involvement and psychological and emotional factors. Athletic performance is influenced by psychological and emotional factors that can be fine-tuned and learned. Conversely, involvement in sport and exercise activities can have a positive effect upon an individual's psychological and emotional makeup (Cox, 2002).

Sport psychology focuses on teaching practical mental skills to athletes, so that they can develop their psychological abilities to the same high level as their physical abilities. The key difference between winning and losing, or a good performance and a poor performance, may be at the mental skill level rather than the physical skill level. As with physical skills, these mental skills need to be taught correctly, fine-tuned by the coach and athlete, and then practiced until they are mastered.

1.5 ETHICS IN SPORT PSYCHOLOGY

In recent years it has become clear that theories and techniques derived from the study of sport psychology can provide the winning edge for athletes and athletic teams.

The sport psychologist will learn many of the psychological theories and techniques that can make one as a more effective teacher and/or coach.

The practice of sport psychology, whether by a coach or by a licensed psychologist, involves two diverse components. The first has to do with teaching, while the second is clinical in nature. For example, the sport psychologist uses teaching principles to help athlete learn how to use imagery and/or relaxation techniques effectively. A well trained and informed coach or teacher should be able to give such service. However, when the sport psychologist is called upon to provide clinical services such as crisis counseling, psychotherapy, or psychological testing, it is important that that person be specifically trained and licensed. To do otherwise would be unethical and irresponsible (Cox, 2002).

1.6 PSYCHOLOGY OF HOCKEY PLAYERS

Psychology in recent years, a number of myths have developed relative to its role in assisting athletes in optimizing performance through mental training. Most athletes and sports psychology consultants strongly believe that psychological training is a crucial psychological requisite for success in sport. International Field Hockey Players identified that mental training such as progressive muscular relaxation, autogenic, meditation and mental imagery as the most critical mental skill defining toughness and these skills consistently appears as a key skill possessed by successful, elite athletes and the top level performance in competitions. Elite field hockey players identified that the development and maintenance of their mental aspects during practice sessions and during competitions as one of their biggest needs in terms of mental training.

Field hockey remains a historically popular team sport for men and women and for youth and adults on nearly every continent. Known internationally as hockey, field hockey incorporates fitness, psychological skills, techniques, and tactics. While playing the sport, a field hockey player will encounter numerous mental and emotional challenges in addition to the physical demands. Although physical size is unrelated to success in field hockey, the successful player needs to quickly and skillfully execute fundamental techniques and use her intelligence and physical prowess, including proper body balance, core muscular strength, anaerobic endurance, flexibility, exceptional hand-eye coordination and ball-to-foot relationship, and agile, speedy movement (Elizabeth Anders and Sue Myers, 2008).

1.7 RELAXATION TRAINING

Relaxation training is perhaps the simplest and easiest to use of all psychological interventions, and relaxation may be the key ingredient in other types of therapeutic for managing stress (Alter, 2004).

It has been observed that psycho-physical relaxation for an athlete off and on the field is necessary to produce the desired outcomes. During the actual competition and critical state physical and mental relaxation can be beneficial to the athlete. It has been seen that the athletes who learned to relax mentally and physically in a crucial moment (such as before the start of a sprint or a race) have better chances of winning where a good start is a decisive factor (Gangopadhyay, 2008).

1.8 PROGRESSIVE MUSCULAR RELAXATION TECHNIQUE

Hypothesizing that an anxious mind cannot exist in relaxed body, Edmond Jacobson (1938) coined the progressive relaxation technique. The assumption here is that if we learn how to reduce the muscular tension, mental tension producing anxiety can be reduced and controlled. In progressive relaxation, the subject is made to identify the highly tense muscle-groups, become aware of the degree of tension in them, induce tension in the affected muscles deliberately and finally progressively relax them. Jacobson's basic premise is that muscular system and emotional state are directly linked; when peripheral skeletal muscles are placed under conscious control, the inner state of the individual comes under better self-control.

Progressive relaxation technique has been widely used in sports circles but its results are said to be mixed. Most investigators have found it to be highly useful in streamlining physiological functioning but its effects on psychological aspects of anxiety are still under review. Some psychologists have used this technique in conjunction with other techniques, for instance, visualization (Kamlesh, 2002).

1.9 AUTOGENIC TECHNIQUE

In progressive relaxation, the athlete practices dynamic contraction-relaxation of the muscles, autogenic training rests on the feelings connected with limbs and muscles. Based on the idea of auto-hypnosis, the autogenic training, in its simplest form, consists of a series of mental exercises designed to bring about sensations of (1) heaviness in limbs, and (2) a feeling of general warmth in the body, arms and legs. Although exercises intended to bring about relaxation differ from author to author, the autogenic training basically consists of (a) auto-suggestion to the mind of a feeling of warmth in the body and heaviness in the limbs, (b) imagery or visualization of the relaxing scenes, and (c) specific themes such as self-sentiments (suggestion to the mind that the body is really relaxed).

The use of autogenic training as an adjunct to athletic training has tremendously increased over the years. Obviously, it does assist in achieving a relaxed state of mind under grueling competitive situation but the direct relationship between autogenic training and athletic performance is yet to be clearly established. Mastery over mind and feelings is one of the most difficult things to achieve (Kamlesh, 2002).

1.10 MEDITATION

Basically meditation is a yogic concept and is practiced in conjunction with other yogic exercises with the aim to concentrate (to pay selective attention) on a specific thought, object or sound (especially shunya - nothing in particular) and remove from the mind excessively heavy, useless and troublesome thoughts or experiences so as to

achieve a calm and serene state of mind. Meditation may be done with or without chanting of mantra (a magic word or sentence). However, the yogi's feel that meditation on the Brahma (or even the described object) may be impossible without strict controls on achara (conduct) vichara (thought), vyahavara (activities, behavior) and ahara (diet). Many westerners do not believe in this proposition: for them meditation means simply mental relaxation or selective attention.

Benefits of meditation in athletic context in terms of more stabilized cardio-respiratory and autonomic activity are well documented. Meditation helps athletes to effect thought-focusing and achieve a state of one-pointedness. Cratty (1989) refers to subjective reports of athletic teams that have employed meditational techniques indicating that the athletes are well-focused on the game and aggress appropriately without becoming overly aroused. Researchers, however, differ in their conclusion about the effect transcendental meditation on athletic preparation. Without regular practice, beneficial effects of meditation cannot be aroused (Kamlesh, 2002).

1.10.1 TRANSCENDENTAL MEDITATION

The Transcendental Meditation (TM) technique is a simple, natural, effortless procedure whereby the mind easily and naturally arrives at the source of thought, the settled state of the mind -- Transcendental Consciousness -- pure consciousness, self-referral consciousness, which is the source of all creative processes. Transcendental meditation is practised for 15–20 minutes in the morning and evening, while sitting comfortably with the eyes closed. During this technique, the individual's awareness settles down and experiences a unique state of restful alertness. As the body becomes

deeply relaxed, the mind transcends all mental activity to experience the simplest form of awareness, Transcendental Consciousness, where consciousness is open to itself. This is the self-referral state of consciousness.

The experience of Transcendental Consciousness develops the individual's latent creative potential while dissolving accumulated stress and fatigue through the deep rest gained during the practice. This experience enlivens the individual's creativity, dynamism, orderliness, and organising power, which result in increasing effectiveness and success in daily life.

The Transcendental Meditation technique is scientific, requiring neither specific beliefs nor adoption of a particular lifestyle. The practice does not involve any effort or concentration. It is easy to learn and does not require any special ability. People of all ages, educational backgrounds, cultures, and religions in countries throughout the world practice the technique and enjoy its wide range of benefits (Gupta, 2007).

1.11 MENTAL IMAGERY

Mental imagery is a skill athletes can tap into to help reach their goals. Mental imagery can be used to achieve goals through mental preparation for success. Imagery can also be used to help adjust pre-competitive and competitive mood and energy levels. Imagery can be effective when learning a skill through mental practice— an athlete can work on turns without getting in to the skills.

Most athletes already use mental imagery naturally, though often not in a systematic or purposeful manner. Similar to physical skills, mental skills such as imagery

need to be practiced and used in a variety of settings so that one can call on them when the pressure is on (Steven Ungerleider, 2005).

Mental Imagery can aid performance by enhancing the learning and execution of physical skills. This would be useful if an individual or team is not very skilled. Imagery can also be used to aid beginners in learning skills by helping to develop the appropriate mental blueprint of the skill (Parker, 2000).

Imagery may strengthen muscle memory, for a task, by having the muscles fire in the correct sequence for a movement, without actually executing that movement (Martin et al, 1999).

Mental Imagery helps reinforce a good competition strategy, and reinforces the nerve pathways that will be used during training and competition (Castella, 1996).

1.12 COGNITIVE ABILITIES

Proper perception of and cognition about a skill play an important role in its acquisition. This process has many facets, for example, the ability of the learner to perceive things correctly, to pay desired amount of attention to the on-going activity, to discriminate between relevant and irrelevant cues, to assimilate vital information, and translate important ideas into practice. It has been noticed that young children find it difficult to absorb too much of theoretical information because they are naturally very active and concentrate on “doing” things rather than attending to often boring dialogues. Much better results can be expected when children watch a crisp, perfect and neat demonstration of a skill adequately. Too much theorizing falls flat on their ears. Those who have learnt the gross elements of a skill have also developed the cognitive ability to

process information about fine elements of the skill. Therefore, demonstrations – whether live or through visual media – is of utmost importance in projecting skills as they should be performed by children. It serves as a model for the students to imitate by using their insight, skill of observation and mental abilities.

Most motor skills need no theorizing. They are practical activities and involve a few practical procedures; observing the skills, imprinting their image on the mind-screen using insight to understand the movement-sequence, performing the sequential movement to the point of automatization, improving performing efficiency by gradually removing blocks in the transmission channels, and using feed-back loop to bring about correct and adequate practice. Learning game strategies, tactics and techniques at a later stage requires a much higher level of cognitive abilities than learning of simple or fundamental game skills. Simple to complex and gross to subtle sequence in the acquisition of skills should be maintained (Kamlesh, 2002).

1.12.1 CONCENTRATION

Concentration is the ability to focus one's attention on the task at hand and thereby not be disturbed or affected by irrelevant external and internal stimuli (Schmid, 1986). Usually, an athlete faces a variety of distractions in his environment in the presence of which he has to concentrate on the situation in order to perform better. He needs to learn how to control his thoughts and focus his attention appropriately.

According to Schmid, (1986) the ability to concentrate is a skill and like any other skill it can be developed and improved through practice. We either learn to decrease

attention to irrelevant stimuli or increase it to relevant cues. In any concentration development programme, the specifics of the activity and the individual attentional style have to be identified. Pre-performance concentration is most required in closed skills, since they are performed in relatively constant and standard environment. Open skills on the other hand present varied stimuli and demand different response patterns from the performer.

Studies conducted in Eastern Europe and India evidence that top athletes show stability and consistency with regard to the span of concentration from one attempt to another especially in jumps and throws in athletics. Sandhu (1982) found that hammer throwers and shot putters who won the Asian medals demonstrated stability in temporal parameters of concentration. However, research needs to be directed to find out the effects of controlling and directing concentration on performance in 'closed skills'.

Hypothetically, concentration period which is too short may not allow mental representation of the task to be performed and thus can impair performance. Similarly prolonged concentration periods may lead to nervous fatigue.

The soviet research Petrovich (1965) pointed out that there are two phases of concentration of attention. The first relates to the awareness of the task at hand. The athlete perceives the skill as a whole or its important elements. In essence, it is a state of mental preparation for the execution of the motor task. The second phase appears to determine the movements of absolute mobilization to initiate the movement for the execution of the task. The athlete attends to the internal signals, evaluates and controls activation and waits for a moment of optimal readiness to initiate the skill execution.

However, concentration of attention demands a high level of self-control to avoid distractions. This helps one strive actively to perceive the task during the first phase and ensure the mobilization of energy during the second phase. The latter determines the moment to inhibit all irrelevant stimuli and attend to the excitants of the skill itself (Sandhu, 2002).

1.12.2 ATTENTION

Attention is a concept studied in cognitive psychology that refers to how we actively process specific information present in our environment. Attention is the taking possession of mind in clear and vivid form. It implies withdrawal from some things in order to deal effectively with others. Attention has been used to refer to all those aspects of human cognition that the subject can control and to all aspects of cognition having to do with limited resources or capacity and methods of dealing with such constraints.

Attention is focused concentration. Sometimes attention is selective, that is, directed toward a particular phenomenon in the face of competing stimuli. In psychology, the concept of attention helps explain cognitive processes such as learning and memory, as these would be difficult without the ability to concentrate (Styles, 2006).

Trail making tests (TMT) have been extensively used in neuropsychological assessment (for example: Butler, Retzlaff & Vanderploeg, 1991; Rabin, Barr & Burton, 2005; Sellers & Nadler, 1992). Most variants of this test, which was apparently introduced in 1938 by Partington (Parkington & Leiter, 1949), have at least two conditions. In condition A the participant is to draw lines to connect circled numbers in a

numerical sequence (like, 1-2-3, etcetera) as rapidly in possible. In condition B the participant is to draw lines to connect circled numbers and letters in an alternating numeric and alphabetic sequence (like, 1-A-2-B, etcetera) as rapidly as possible.

Although trail making tests are very simple, they have been hypothesized to reflect a wide variety of cognitive processes including attention, visual search and scanning, sequencing and shifting, psychomotor speed, abstraction, flexibility, ability to execute and modify a plan of action, and ability to maintain two trains of thought simultaneously (Salthouse, 2011).

1.13 ANXIETY

Anxiety has been defined in a variety of ways such as “a disturbed state” of the body (Johnson, 1951) “emotional reactivity” (Hardman & Johnson, 1952), “arousal” (Skubic, 1956), “nervousness” (Ekegami, 1970), “neuroticism” (kane, 1970) and “unrealistic and unpleasant state” of body and mind (Pikunas, 1969). In medical terminology, anxiety defined as “apprehension of danger accompanied by restlessness and a feeling of oppression in the epigastrium”. A variety of physiological reactions such as increased heart rate, rapid shallow breathing, sweating, muscle tension and dry mouth are associated with anxiety. Fear and anxiety differ in one important respect. Fear has an obvious cause and once that cause is eliminated, the fear will subside. In contrast, anxiety is less clearly linked to specific events or stimuli. Therefore, it tends to be more pervasive and less responsive to changes in the environment (Crooks & Stein, 1988). Rethlingshafer (1963) declares “A fear”, is a quickly passing cloud that moves across the sun, anxiety is the cloud that lingers and truly beclouds the man (Kamlesh, 2002).

1.13.1 COGNITIVE ANXIETY

Cognitive anxiety is closely associated with worry, a mental process pervasive in our society. Morris, Davis, and Hutchings (1981) defined cognitive anxiety state as “negative expectations and cognitive concerns about oneself, the situation at hand, and potential consequences”. In sport, cognitive anxiety state is most commonly manifested in negative expectations about performance and thus negative self-evaluation, both of which precipitate worry, disturbing visual images, or both (Martens, Vealey, and Burton, 1995).

1.13.2 SOMATIC ANXIETY

Martens et al. (1990) distinguished between two aspects of anxiety. When an athlete is anxious he/she experience the physiological changes associated with high arousal, including increased heart rate and blood pressure, ‘butterflies’ in the stomach, faster breathing and flushed face. These effects are similar (though not identical) to the physiological effects of excitement and anger. Sport psychologist call the experience of physiological changes associated with anxiety as somatic anxiety (from the Greek word soma, meaning ‘body’).

Sport psychologist can measure somatic anxiety directly by taking physiological measures, or indirectly by self-rating inventories. Direct physiological measures include urinalysis, galvanic skin-response and blood-pressure testing. Elevated levels of certain hormones released when an athlete’s are anxious (such as adrenaline) can be detected in urine. Athletes also tend to sweat more when anxious. This can be detected by a Galvanic

Skin Response (GSR) meter, which measures the electrical conductivity of the skin: the more athletes sweat the better conductor the skin becomes. The blood pressure also increases when athletes are anxious; this can be measured using a sphygmomanometer. There are two major problems with these physiological measures of anxiety. First, as athletes vary quite a lot in the normal physiological levels; every individual studied would have to have physiological measures taken over time to establish their levels with and without anxiety. Second, physiological measures require laboratory equipment and are difficult to administer in the field. Self-rating inventories can be used to indirectly measure somatic anxiety (Matt Jarvis, 2004).

1.13.3 SELF-CONFIDENCE

Sports psychologists define Self-Confidence as the belief that one can successfully perform a desired behavior. The desired behavior might be kicking a soccer goal, staying on an exercise regimen, recovering from a knee injury, serving an ace, or hitting a home run. But the common factor is that one should believe themselves that they will get the job done.

Although Vealey (1986) originally viewed self-confidence as both a disposition and a state, the latest thinking (Vealey, 2001) sees sport self-confidence as a social cognitive construct that can be more trait-like or more state-like, depending on the temporal frame of reference used. For example, confidence could differ if we look at confidence about today's competition versus confidence about the upcoming season versus one's typical level of confidence. In essence, confidence might be something you feel today and therefore be unstable (state-like), or it might be part of your personality

and thus be very stable (trait-like). Another recent development is the view that confidence is affected by the specific organizational culture as well as the general socio-cultural forces surrounding sport and exercise.

Confident athletes believe in themselves. Most importantly, they believe in their ability to acquire the necessary skills and competencies, both physical and mental, to reach their potential. Less confident players doubt whether they are good enough or have what it takes to be successful (Weinberg and Gould, 2003).

1.14 MOOD STATES

Mood is state of mind, which differs from emotion in that it is less specific, less intense, and less likely to be triggered by a particular stimulus or event. Moods either have a positive or negative valence. Although both mood and emotion are affective states, moods lack a clear referent, may come about gradually, may last for an extended period of time, and are often of low intensity. Mood is a part of our everyday life. Our overall behavior can change and be affected by our physical health. Mood and physical health interact with each other.

Mood state refers to “a situation specific, somewhat transient, psychological response to an environmental stimulus” (Cox, 2002).

Mood states are a process in which an individual attempts to adapt to environmental demands. Mood state as a temporary emotional state that fluctuates depending upon circumstances. Some of the circumstances that affect mood are external,

such as weather and physical activity, while others are internal, such as our appraisal of events (Cohen, Kessler, and Gordon, 1997).

The Profile of Mood States (POMS) is the most commonly used instrument for measuring mood states in psychology. The POMS is composed of 65 items that measures six mood states.

1. Tension
2. Depression
3. Anger
4. Vigor
5. Fatigue
6. Confusion

1.15 SKILL

Skill is an indicator of one's current level of proficiency on a given task and represents a combination of the athlete's abilities, capabilities and practices or experience with the task. Skills are classified into three categories technical, tactical and mental.

Technical Skill requires the effective execution of a particular movement.

Tactical Skill refers to the kind of decision making that enable athletes to gain an advantage over their opponent.

Mental Skill involves the effective mobilization of the thought and feelings. Athletes need mental skills in order to remain poised and confident while executing their technical and tactical skills (Craig Wrisberg, 2007).

1.15.1 SKILLS IN HOCKEY

All sports are made up of basic skills that athletes need in order to play the game with competence. Although they are called as basic skills, it doesn't mean these skills are easy, nor are they only relevant for beginners. The basic skills of the game of hockey include trapping, passing, tackling and moving the ball (dribbling). From these basic skills a player can develop skills such as elimination techniques and goal shooting, the components that make the game exciting and entertaining for the spectators (Elizabeth Anders and Sue Myers, 2008).

1.16 PLAYING ABILITY

Playing ability is the performance of the players on the field during practice and during competition. When the players get mastery over the fundamental skills, may put them into a specific game. To play better, the fundamental as well as advanced skills need to be worked on and perfected. The team with high offensive and defensive skills is capable of winning high percentage of competitive matches.

1.17 REASON FOR SELECTION OF THE TOPIC AND VARIABLES

Hockey is one of the most esteemed sports around the world. It includes fans of all ages due to its team spirit. Various researches have proved that psychological trainings will enhance performance. Still there are certain variables need to be improved like concentration, attention and self-confidence whereas certain variables to be controlled like anxiety, tension, depression, Hence, the investigator selected the above mentioned psychological variables for this research.

Hockey is a game in which a player desires the basic skills with the stick to run faster with ball, to make a shoot through the goal and to make ariel balls wherever necessary. Skills such as hit, flick and scoop are considered as the necessary skills of modern hockey. Research and experience have already proved that the hockey skills and overall playing ability during competition and practice session goes by the result of proper trainings and preparation. Hence, the investigator has selected the game skill variables namely hit, flick, scoop and playing ability for this study.

Psychological training deserves an equal importance to an athlete as like physical training. In most sports, success comes from utilizing and maximizing a combination of technical, tactical, physical, and psychological abilities. Having kept this in mind and since it was found that relaxation training yields a host of advantageous and vital role on team preparation among hockey players. Hence the investigator was motivated to ascertain the effects of progressive muscular relaxation, autogenic, transcendental meditation and mental imagery trainings in this research.

The variables were selected based on the discussions with experts, feasibility of the criteria, availability of tools, and the relevance of the variables to the present study. Hence, the investigator selected the research entitled “Effect of Progressive muscular relaxation, autogenic, meditation and mental imagery trainings on selected cognitive abilities, anxiety, mood states, game skill variables and playing ability among intercollegiate hockey players”.

1.18 OBJECTIVES OF THE STUDY

1. To measure the cognitive abilities, competitive anxiety, and mood states among intercollegiate hockey players.
2. To measure the game skill variables and playing ability among intercollegiate hockey players.
3. To find out the effect of progressive muscular relaxation, autogenic, meditation and mental imagery trainings on selected dependent variables of hockey players.

1.19 STATEMENT OF THE PROBLEM

The purpose of the study was to find out the effect of progressive muscular relaxation, autogenic, meditation and mental imagery training on cognitive abilities, competitive anxiety, mood states, game skill variables and playing ability among intercollegiate hockey players.

1.20 HYPOTHESES

On the basis of available literature and scholar own understanding of the problem; the following hypotheses were formulated:

1. It was hypothesized that the progressive muscular relaxation, autogenic, meditation and mental imagery trainings would have significant improvement on selected cognitive abilities namely concentration without distraction, concentration with distraction, attention (TMT A) and attention (TMT B) among intercollegiate hockey players.
2. It was hypothesized that the progressive muscular relaxation, autogenic, meditation and mental imagery trainings would have significant improvement on

competitive anxiety components namely cognitive anxiety, somatic anxiety and self-confidence among intercollegiate hockey players.

3. It was hypothesized that the progressive muscular relaxation, autogenic, meditation and mental imagery trainings would have significant improvement on mood states such as tension, depression, anger, vigor, fatigue and confusion among intercollegiate hockey players.
4. It was hypothesized that the progressive muscular relaxation, autogenic, meditation and mental imagery trainings would have significant improvement on selected game skill variables such as hit, scoop and flick among intercollegiate hockey players.
5. It was hypothesized that the progressive muscular relaxation, autogenic, meditation and mental imagery trainings would have significant improvement on playing ability among intercollegiate hockey players.

1.21 SIGNIFICANCE OF THE PROBLEM

1. This study would be useful to the physical educationists, coaches, players and the sport psychologists to use as an initial device for developing mental fitness, game skill and playing ability.
2. This study would help to know the importance of relaxation training on cognitive abilities, anxiety, and mood states among intercollegiate hockey players.
3. This study would be helpful for the players to improve their hockey skills.
4. This study would be helpful for the players to perform the required skills with perfection at the time of competition.

5. This study would be helpful for coaches to implement in the training schedule to improve the mental strength of the players.

1.22 DELIMITATIONS

This study was delimited to the following aspects.

1. The samples of the present study were delimited to hockey players participated in the inter-collegiate tournaments only.
2. Only seventy five intercollegiate level hockey players from Chennai city were selected for this study.
3. The samples for the present study were delimited to the men hockey players only and their age ranged between 18-25 years male hockey players.
4. The standardized questionnaires like Competitive State Anxiety Inventory (CSAI-2) and Brunel Mood Scale (BRUMS) were used to collect related data on the selected dependent variables.
5. The standardized test like Letter Cancellation Test, Trail Making Test and Munjals Hockey Skill test were used to collect related data on the selected dependent variables.
6. The dependent variables selected for this study were,
 - a) Cognitive abilities
 - (i) Concentration
 - a. Concentration without distraction

- b. Concentration with distraction
 - (ii) Attention
 - a. Attention (TMT A)
 - b. Attention (TMT B)
 - b) Competitive anxiety
 - (i) Cognitive Anxiety
 - (ii) Somatic Anxiety
 - (iii) Self-Confidence
 - c) Mood States
 - (i) Tension
 - (ii) Depression
 - (iii) Anger
 - (iv) Fatigue
 - (v) Vigor
 - (vi) Confusion
 - d) Game Skill Variables in Hockey
 - (i) Hit
 - (ii) Flick
 - (iii) Scoop
 - e) Hockey Playing Ability
7. Competitive anxiety components were used as anxiety variable in this study.
8. The selected independent variables for this study were,
- i) Progressive Muscular Relaxation Training

- ii) Autogenic Training
 - iii) Meditation
 - iv) Mental imagery training
9. Transcendental Meditation was used as the meditation training for this study.

1.23 LIMITATIONS

This study was limited in the following aspects

1. Factors like heredity, environment, life style, habits of the players would not be taken into consideration.
2. The height and weight of the subjects would never be considered.
3. Socio-economic and cultural status of the subjects would not be considered.
4. Emotional and other environmental factors which might influence the responses of the subjects to the test and questionnaire would never be taken into consideration.

1.24 DEFINITION OF TERMS AND OPERATIONAL DEFINITION

1.24.1 CONCENTRATION

Concentration can be viewed as focusing one's mental processes on internal (athletes may concentrate on bodily sensations of fatigue) or external events. Within the sport psychology literature the terms concentration and attention appear to be synonymous, although concentration is too general a term to describe the underlying psychological process associated with attention (Shaw, Gorely and Corban, 2005).

1.24.2 CONCENTRATION WITH DISTRACTION

Concentration with distraction is defined as that one can able to focus on the task with interference of any physical stimuli.

1.24.3 CONCENTRATION WITHOUT DISTRACTION

Concentration without distraction is defined as that one can able to focus on the task without interference of any physical stimuli.

1.24.4 ATTENTION

Attention is the ability to direct one's mental processes to the task at hand, although there is some argument over whether attention is a conscious or subconscious act, and as a consequence there is no one agreed definition of what is attention is. However attention can broadly be divided into two processes: focused attention and divided attention (Shaw, Gorely and Corban, 2005).

1.24.5 ANXIETY

Anxiety is a negative emotional state with feelings of nervousness, worry and apprehension associated with activation or arousal of the body'. (Matt Jarvis, 2006).

1.24.6 COGNITIVE ANXIETY

Cognitive Anxiety is characterized by worrying thoughts and negative expectations, about performance, self-evaluation and the evaluations of others (Shaw, Gorely and Corban, 2005).

1.24.7 SOMATIC ANXIETY

Somatic anxiety relates to perceptions of our bodily state, such as awareness of a pounding heart or dry mouth (Shaw, Gorely and Corban, 2005).

1.24.8 SELF-CONFIDENCE

Self-confidence is defined as the belief that one can successfully perform a desired behavior. The desired behavior might be kicking a soccer goal, staying on an exercise regimen, recovering from a knee injury, serving an ace, or hitting a home run. But the common factor is that you believe you will get the job done (Weinberg, 2003).

1.24.9 MOOD

In contrast to an emotion a mood refers to a more diffuse feeling state that does not always have a clear trigger. A mood also tends to be more long lasting than an emotion. For example, we might just be fed up for no obvious reason and consequently, not want to go to the gym (Shaw, Gorely and Corban, 2005).

1.24.10 TENSION

Tension is an undirected, nonspecific psychological impulsion inferred to exist within the individual that provides the necessary if not sufficient condition for behavior or change in the personality system (Jack Block, 2009).

1.24.11 DEPRESSION

Depression can be defined as a condition that primarily entails a disturbance of mood; this affective disturbance is often characterized by a mood that is sad, hopeless, discouraged or simply depressed (Andrew Steptoe, 2006).

1.24.12 ANGER

Anger as “an internal, mental, subjective feeling-state with associated cognitions and physiological arousal patterns.” (DiGiuseppe, Eckhardt, Tafrate, 1994).

1.24.13 FATIGUE

Fatigue can be defined as a psychophysical condition in which the individual’s mental and physical ability to work deteriorates (Ram Nath Sharma and Chandra, 2004).

1.24.14 VIGOR

Vigor is the sense of possessing physical strength, emotional energy and cognitive liveliness (Lopez, 2009).

1.24.15 CONFUSION

The state in which a person experiences or is at risk of experiencing a disturbance in cognition, attention, memory, and orientation, of an undetermined origin or onset (Lynda Juall Carpenito-Moyet, 2008).

1.24.16 HIT

Striking the ball using a swinging movement of the stick towards the ball (FIH Rules, 2013).

1.24.17 SCOOP

Raising the ball off the ground by placing the head of the stick under the ball and using a lifting movement (FIH Rules, 2013).

1.24.18 FLICK

Pushing the ball so that it is raised off the ground (FIH Rules, 2013).