Chapter One

INTRODUCTION
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Volleyball, probably the most popular indoor game in the world, is an Olympic sport played in virtually every country. In Holyoke, Massachusetts, (USA), on February 9, 1895, William G. Morgan, a YMCA Physical Education Director, created a new game called “Mintonette” as a pass time to be played indoors. Later in 1896, this game was renamed by Alfred Halsted, an observer from Spring Field College as “Volleyball”. The popularity of this game made most of the countries to accept and implement in both men and women sections and since it was safe (no body contact with the opponents), it was successfully introduced in the 1964 Tokyo Summer Olympics (both for men and women).

Volleyball is played by six players on either side with an intention of grounding the ball on the opponent’s court. Even though a team is allowed only six players on the court, it usually has twelve players on its roster, in an official competition. Each player has a special task to perform on the court. To exhibit an individual skill, the player must possess the basic physical fitness with the presence of mind and an understating between the team mates. For this, one should undergo a systematic and scientific physical, physiological and psychological training for the effective performance.

Volleyball is the only sport in which a player’s maximum force is typically applied while the body is unsupported (in the air). Some of the acrobatic skills executed artistically attract huge crowds and that is the reason volleyball is one of the most popular team sport in the world. The game is characterized by short, high
energy burst and periods of rest. Unlike most other sports, volleyball games are most often determined by negative play, for example, a team failing to control the ball. The playing environment in volleyball changes quickly and constantly because of the movements of the players, the speed of the ball, the variety of formations and movements of the two teams, the relationship of the ball to the players and interpersonal relationship among the players on both sides. The movements required for each player changes at an extremely fast speed, and the great variety of offensive and defensive maneuvers (for individual players or for whole teams) makes the environment even more changeable. Volleyball also requires a great deal of planned deception on the part of the two highly trained teams. Thus, volleyball players require a wide range of physical, physiological and psychological characteristics and abilities along with a broad based scientific training for the successful performance.

**PHYSICAL REQUIREMENTS OF VOLLEYBALL PLAYERS**

Volleyball has developed into a highly competitive sport which requires a high level of fitness. The different skills involved in volleyball have their own different physical requirements. Consequently, the players either male or female must work on a wide ranging programme designed to enhance their strength, muscular endurance, cardiovascular efficiency, flexibility and agility (Scates, 1972). The minimum requirements of individual techniques demand a certain degrees of physical abilities, example, volleying requires strength of fingers and wrists. Blocking and spiking requires the ability to jump high enough to contact the ball when it is above net height. The game in itself, at a high level of competition requires quick, sudden movement and fast reactions. To do this the player must be tall and must be agile. Volleyball matches have no time limit and some matches can last several hours, if the
teams are evenly matched. This requires that the players must have a good muscular and cardio respiratory endurance. Power volleyball consists of several major skills: the serve, the pass, the reception, the spike and the block. Each skill consists of specific physical elements that must be maximally developed if optimal performance to be obtained.

**PHYSIOLOGICAL REQUIREMENTS OF VOLLEYBALL PLAYERS**

The physical abilities that are required for volleyball players to perform optimally are; muscular power, strength and speed of movement, endurance, flexibility and agility. To satisfy the demands of the volleyball skills, the fast motor units will be recruited and energy will be produced through anaerobic metabolism (Fox and Mathews, 1974).

High power and power endurance are seen in the spikes and blocks will require the energy through ATP-CP systems. During a volleyball game, there exist numerous stops of plays. During such relief intervals, the ATP-CP depleted can be restored by the energy release from the CP breakdown. In general the shorter the duration of the relief interval, the less ATP-CP will be restored and the less ATP-CP system can be used as an energy source during subsequent intermittent jumps or quick movements. This means that the greater will be the energy contribution by the lactic system and therefore the greater will be the accumulation of lactic acid. Power volleyball will necessitate an increase in speed of movement to successfully retrieve the ball, from the block or a spike, from a tip pass, using the one hand dig, the dive or the roll. The players must therefore rely totally on their ATP-CP system because it can produce ATP at a fast rate (Karlson and Saltin, 1970). To continually sustain a low body posture throughout an entire match, especially in the back court area, which
requires little tension but prolonged contraction, the slow oxidative fibers will be recruited and therefore the aerobic capacity of such fibers must be developed to a certain extent. Optimal performance depends greatly on an effective training programme of specific physical fitness components. Knowing scientifically the predominant energy sources for muscular work in volleyball and obeying the specific principles of physical training, are crucial in programming training methods. The physiological characteristics of volleyball players should be determined so as to give an indication of the whereabouts the volleyball players lie on the physical fitness continuum.

**PSYCHOLOGICAL REQUIREMENTS OF VOLLEYBALL PLAYERS**

High level volleyball performance requires a perfect blend of physical and psychological abilities. Volleyball training involves preparation in a complex combination of physical, technical, tactical and psychological factors. The results should be long lasting adaptation of the organism to various loads or stresses experienced in volleyball. There are two significantly different situations in sport: training situations and competition situations. While the physical activity is the same, the conditions of each situation differ. Training is preparation for competition, while the competition is a test of the effectiveness of previous training. The essential difference is the psychological stress that is present in the competitive situations. Volleyball training is characterized by a predominance of physical loads (physio-psychic). Volleyball competition, on the other hand, is characterized by a predominance of psychic stress (psycho–physical). These differences between training and competition are of significant importance in volleyball. (Orlick, and Botterill, 1975).
Just like physical and physiological preparation, the psychological preparation of a volleyball player is not an instant thing. The most important implications of sport psychology lie in long term planning and development and the prevention of crisis and psychic or problem athletes. Psychologists have gathered evidence to suggest that involving the group in discussion and decisions can increase the awareness of and the commitment to group goals. Involving the group in goal setting also results in a form of "psychological counteracting" which can be effective motivational and leadership technique.

Sports psychology is the science dedicated to understanding the psychological factors that lead to maintaining and improving performance in sport and exercise settings and the psychological effects of participation in sports and exercise. The concepts of psychology that volleyball coaches and players can use help in many ways to improve team performance. Coaches may or may not criticize players after a loss. Either way they are trying to influence player's performance, and either way they have an effect on the players, helpful or harmful. Coaches who know more about psychology will be more effective in achieving the desired changes in player's behaviours and performance. Their primary means of achieving these goals is through changing their player's behaviour and performance (Robert and Gould, 1995).

Volleyball team consists of six players on the court and six substitutes. The role of the players can be divided into offensive and defensive categories. Offensive players are the spikers and servers. The defensive players are the blockers, setters, libero and those who play at the back court. It is obvious that each main player has to function in all these capacities during the game. However, each player will have a
specialization in either offensive or defensive roles mentioned above. During the
game according to their positions the roles of the players will be keep on changing.
But after the service by the opponent the position can be changed according to their
skill proficiency. All these adjustments and combinations require utmost
understanding and cohesion. Each player has to perform his role so that the other
teammate will be benefited if the skill performed by a particular player correctly. In
most of the situations, the ball will be passed on to the other player either to set or to
spike. The success of attack depends on the quality of first pass and set.

Both attacking and defensive skills are interdependent in nature and its success
depends on correct execution and perfect understanding between the players as well.
For this each player should understand the strength and weakness of all her teammates
and a proper decision must be taken at the time of handling the ball. It can be
summarised that Volleyball game requires a high level of team cohesion and spirit
among the players.

TEAM COHESION AND VOLLEYBALL PERFORMANCE

Volleyball is a type of sport characterized by maximal effort and close
interaction by teamwork and deep cohesion. The term “teamwork” universally
connotes cooperation on the part of a number of individuals working toward a
common goal. Cooperation exists in all walks of life and is an integral part of every
success. Festinger et. al., (1950) defined cohesion as “the total field of forces which
act on members to remain in the group”. According to Festinger (1950) two distinct
forces are acting on members who remain in a group. The first class of forces,
attractiveness to the group, refers to the individual’s desire for interpersonal
interactions with other group members and a desire to be involved in the group’s
activities. The second class of forces, means control refers to the benefits that a member can derive by being associated with the group.

Carron et. al., (1997) defined cohesion as “a dynamic process that is reflected in the tendency for a group to stick together and remain united in pursuit of its instrumental objectives and/or for the satisfaction of member affective needs”. By this it is understood that cohesion is multidimensional (many factors are related to why a group sticks together), dynamic (cohesion in a group can change over time, instrumental (group are created for a purpose), and affective (members social interactions produce feelings among group members). The above definition alludes to cohesion as a combination of task and social dimensions. Task Cohesion reflects the degree to which members of a group work together to achieve common goals. In volleyball, a common goal would be winning a championship, which depends on the team’s coordinated effort or team work. Social Cohesion on the other hand, reflects the degree to which members of a team like each other and enjoy one another’s company. Social Cohesion is often equated with interpersonal attractions. In a volleyball training session, a common goal would be enhanced fitness and it has been showed that adherence to the training programme increases as the social cohesion of the group increases. Individual Attractions to Group-Task (ATG-T) deal with individual team member’s feelings about her personal involvement with the group task, productivity and goals and objectives. Individual Attractions to Group-Social (ATG-S) deal with individual team member’s feelings about her personal acceptance and social interactions with the group. Group Integration-Task (GI-T) deals with individual member’s feelings about the similarity, closeness, and bonding within the team as a whole around the group’s task. Lastly, Group Integration-Social (GI-S)
deals with individual team member’s feelings about the similarity, closeness and bonding within the team as a whole around the group as a social unit.

Cohesion is the glue that binds a team together to help them rise to greatness. Cohesion within a team enhances communication, minimizes conflict and provides an extra edge of motivation and commitment, all because the team members respect each other. Volleyball players work as a cohesive unit working together to achieve a common goal by maintaining the interpersonal relationship among team members. This can be seen in execution of different skills during game situations. The player performs service individually, achieves success and thereby scores a point being appreciated by all the team members immediately. This helps that particular player to perform more effectively with precision in aiming at scoring one more point directly. Similarly, the attackers after a successful smash appreciates the setters and the players helped in receiving the served ball (first pass). So here either the attacker or the setter depends upon the skill execution by a particular player who receives the opponent’s service. This can be seen in each and every game situation by all the players on the court. The success of a volleyball team depends upon the careful and perfect skill execution by all the six players either in attack or defensive actions irrespective of the area of specialization. Ace attackers have to go for service execution, floor defence, block and even serve reception. All the six players work as a team achieves a common goal that is to score a point, win a set and the match.

Team cohesion plays a prominent role even when a volleyball team fails to achieve success. After scoring successive points either through service, block, attack or counter attack, suppose the same player commits a fault, the entire team members joins as a cohesive unit in consoling and encouraging that particular player to be the
part and parcel of the team. Here the interpersonal relationship among the team mates is exhibited. Even if the team falls short of its ultimate goal, the experience and memories of that competitive season will be greatly improved through the benefits of greater cohesion. Merely being together at workouts and games does not necessarily guarantee a team will be cohesive and successful, it simply means that they are occupying the same space at the same time.

The development of team cohesion among female teams is one of the most difficult tasks faced by coaches. A well knit team should consist of players who are willing to sacrifice, cooperate and work hard. To have a truly cohesive group, each individual must be willing to contribute for the welfare of the team than trying to fit her into the team. This depends upon the execution of the given task by working together and maintaining interpersonal relationship among group members.

Volleyball ball is an open skill game and the competition environment changes constantly. No one can predict the success or failure of the team till the completion of the match. There are several instances the team was leading by many points but lost miserably at the last. The players should not get puzzled when they lose some points. The players must control their emotion and keep a balanced mental state while playing the game. Lot of attention, concentration and focusing is required while executing different skills especially during the serve. Even serving for the deciding point the player should not reduce the quality and intensity of the serve. The same can be applicable while scoring a deciding point in attacking also. Mental toughness is a decisive factor in the game of volleyball and each player should develop mental toughness to become a successful volleyball player especially at higher level of competition.
MENTAL TOUGHNESS AND VOLLEYBALL PERFORMANCE

Mental toughness is the attitude that makes a successful volleyball player willing to do what it takes to get the job done. It takes more than relaxation, visualization, meditation and other quick fix self-improvement techniques to achieve success. In volleyball a player have to develop the attitude of “you don’t have to like it, you just have to do it” is atleast the beginning a substantial key to successful performance. The demand for peak performance is simply a form of challenge. The better our mental toughness, the more likely we are to handle the challenge rather than give away. So a volleyball player’s level of mental toughness also exerts a major influence over the extent to which she is able to perform to her best abilities. Mental toughness is the link between peak performance and stress management because; any player cannot function to the best of her abilities unless it is being dealt with effectively with stressors and challenge.

Becoming a champion on the court requires any player to “pay her physical dues”. There are no short cuts to reach the goals. Volleyball players have to work hard, build muscle strength, improve quickness, increase endurance and sharpen the skills required to play the game at a high level. By making this kind of physical investment and working hard at it, players move closer to achieve success. But one just cannot stop at this point like lot of volleyball players do. To become champion all the team members must also work on the mental side of the game.

Once the players walk onto the volleyball court for an important game, the difference between playing well or poorly lies completely between their ears. When the game is on the line and the competitive pressure is turned up high, playing to one’s potential is all about how well a player can execute mentally. That is, are you
able to stay calm and composed under pressure? If you go into a game too nervous, you play tentatively, make lot of mistakes and come out of it bitterly disappointed. Staying relaxed under big game pressure is one of the secrets to being able to play the game, the way you are capable of playing.

Concentration, when controlled is the key to performance excellence in volleyball. If a player loses control of focus and concentrate on wrong things either before or during the game then she undermine (damages) her confidence, will become nervous and underachieve. Volleyball is too fast a game to play well unless the concentration of a player is in right place when it counts the most. The ability to focus on what is important and block out everything else is one of the primary keys to performance excellence. This can be practically seen during execution of service, serve reception, blocking, organization of set, attack combinations, and defensive formations. All the six players’ attention will be on the ball and any player on the court may have to receive the ball irrespective of the game situations. Poor concentration is the major reason why players choke and get stuck in declined performance. Getting psyched out or intimidated is a direct result of concentrating on the wrong things.

Mental toughness depends on a player’s ability to quickly leave the mistakes and failures behind. Hanging onto the already committed mistakes will get that particular player into big trouble, performance wise. She should forget the mistakes and mentally bounce back quickly. This can be seen if a player misses the service and the opponents definitely make her to receive the first pass. So the quality of reboundability is a must for a volleyball player irrespective of game situations.
Volleyball players must possess the ability to handle the pressure. They must stay calm and come up to the expectations at times of crisis. Peak performance demand that you are relaxed once the performance begins. Even though the team is trailing back by more than 5 or 6 points, the players on the court can handle the game situation with utmost care and come out of the pressure.

One of the best characteristics of a mentally tough volleyball player is confidence. The level of confidence should be high enough in all the players to come out of the setbacks and failures. Under the pressure of competition, low confidence will neutralize natural ability, hard work and talent. Similarly, high confidence will enhance a player's training and hidden talents, lifting their performance to a higher level.

Motivation is the fuel to volleyball players to drive the overall training to a successful completion and accomplishment of the given goals. Without adequate motivation the players get stuck having "Permanent Potential". Without motivation players or the entire team won't put in the work necessary to become a winner. A good motivation makes the team to perform better even after a setback.

Mental toughness is learned, not inherited. This is an important understanding. Tough mindedness plays a significant role in volleyball performance. Mental toughness is nothing to do with heredity, intelligence or your character—mental toughness is an acquired skill. The process through which it is acquired is precisely the same as that which applies to physical skills-hard work, understanding and practice. If you want to be a mentally tough player, you can. Performance in Volleyball is task oriented. Any good team performs better against an inferior team. Whereas, playing against an equally good team or superior team requires a good
amount of physical, physiological and mainly psychological preparations. Specifically the mentally tough teams can create surprises by winning against superior teams. There are many areas a team can excel and over power their opponents. For example, serve placement. An intelligent player, after getting some feedback from her coach focuses herself to serve to the weak point of serve reception formation of their opponents. For this, that particular player should be mental tough to go for an effective serve placement and scores a point. Likewise, an attacker or a blocker can also score points with grit and determination. Ultimately success in performance at higher levels of competitive volleyball can be seen by mentally tough players only.

Mental or psychological training helps Volleyball players to summarise and adopt a set of working formulae, creeds or tenets as a habitual model for action, for self-encouraging, self-consoling, self-assessing, self restricting, self-motivating and self-mobilising. Mental toughness training is a method whereby, through self-hinting or self-suggestion, one train to relax, to remain in a state of calm and composure, to imagine emotions or maneuvers, to idealise and to fancy, concentrating and so forth. Such an exercise in the regular training work outs will be good to eliminate fatigue, storing up a maximum amount of pre-match energy and preventing pre-game excitement and nervosity. Such an exercise may be done after a session of practice in techniques and tactics or done prior to a formal game. This method of training is essential to expect higher level of performance especially among female volleyball teams.

It is well understood that volleyball game requires a perfect blend of physical, technical, tactical and psychological capabilities. Out of the psychological traits required for successful volleyball game, the most important are team cohesion and
mental toughness. Team cohesion plays a vital role because it is a team game and the success depends on the collective efforts of all the players. This collective effort is possible only when each player is playing her role and putting up her best efforts in her position. Volleyball is a tough game by nature and at higher level it becomes the war of nerves. The mental toughness of the players is a determinant factor in the game situation and the players who have better mental toughness usually win the match.

Volleyball is a very popular game in our country and a huge number of youth are training throughout the year. In the recent past, Indian volleyball men teams have made some substantial achievements and won some international tournaments. Unfortunately Indian Women volleyball team could not make any remarkable achievements at the international scenario, even though our women teams are participating in many international tournaments. But they could not make any podium finish. The reasons could be many. But one of the most important factors of this failure could be their poor mental make-up especially poor team cohesion and mental toughness. The investigator himself is a volleyball coach having 28 years of service experience, also produced international players in volleyball and also worked as National Panel Coach for senior men volleyball team during 1989. The investigator is presently training the women volleyball team of University of Mysore which won Bronze medal in All India Inter University Tournament held at LNUPE, Gwalior (M.P.) during October 2010. This was the maiden medal for University of Mysore in Volleyball and First of its kind for Karnataka State in women section at Varsity level.

It is the personal feeling of the investigator out of many years of experience in handling the women volleyball team that the women are good in skills and to a great
extent in physical fitness, but very much lacking the mental skills such as team cohesion and mental toughness. Hence it is the felt need to investigate the difference of mental toughness and team cohesion among senior, junior and sub junior national level women players.

**THE STATEMENT OF PROBLEM**

The purpose of the study was to compare mental toughness and team cohesion among the senior, junior and sub junior national level female volleyball players.

**THE DELIMITATIONS OF STUDY**

1) The study was delimited to 180 national level female volleyball players.

2) The study was delimited to 60 female players in each category, namely senior, junior and sub junior.

3) The study was delimited to the mental toughness and team cohesion of the national level female volleyball players.

4) Mental toughness was measured by using a standardized questionnaire on mental toughness by Alan Goldberg (1998).

5) Team cohesion was measured through a standardized, the Group Environment Questionnaire (GEQ) by Albert V. Carron, W. Neil Widmeyer and Lawrence R. Brawley (1985).

**THE LIMITATIONS OF STUDY**

1) The mental toughness and team cohesion were measured by the questionnaires and the responses obtained from the subjects were considered as genuine, was one of the limitations of the study.

2) Any malpractice in the date of birth and any player found a place in the lower age group categories were considered as another limitation of the study.
3) The training age and experience of the subjects were considered as another limitation.

**HYPOTHESES**

1) It was hypothesized that there would not be any significant difference in the Individual Attraction to Group-Task (AIG-T) among senior, junior and sub junior national level female volleyball players.

2) It was hypothesized that there would not be any significant difference in the Individual Attraction to Group-Social (ATG-S) among senior, junior and sub junior national level female volleyball players.

3) It was hypothesized that there would not be any significant difference in the Group Integration-Task (GI-T) among senior, junior and sub junior national level female volleyball players.

4) It was hypothesized that these would not be any significant difference in the Group Integration-Social GI-S) among senior, junior and sub junior national level female volleyball players.

5) It was hypothesized that there would not be any significant difference in the “Reboundability” among the senior, junior and sub junior national level female volleyball players.

6) It was hypothesized that there would not be any significant difference in the “Ability to handle pressure” among the senior, junior and sub junior national level female volleyball players.

7) It was hypothesized that there would not be any significant difference in the Concentration ability” among the senior, junior and sub junior national level female volleyball players.
8) It was hypothesized that there would not be any significant difference in the “Level of Confidence” among the senior, junior and sub junior national level female volleyball players.

9) It was hypothesized that there would not be any significant difference in the “Motivation” among the senior, junior and sub junior national level female volleyball players.

10) It was hypothesized that there would not be any significant difference in the “Total Score of Mental Toughness” among the senior, junior and sub junior national level female volleyball players.

THE DEFINITIONS AND EXPLANATION OF TERMS

MENTAL TOUGHNESS

Jones et. al., (2002), defined mental toughness as a natural ability or developed through psychological training to win over the opponent from a few aspects (competition, training and life style) depending on the needs of the particular sport.

According to Loehr (1986), mental toughness is the ability to consistently maintain an ideal performance state during the heat of competition.

Alan Goldberg (1998), described mental toughness as standing tall in the face of adversity and as the ability to rebound from repeated set backs and failures.

TEAM COHESION

Group cohesion was defined by Carron et. al., (1982), as “the dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives.”
According to Bob Davis et. al., (2000), cohesion is the extent to which members of a group exhibit a desire to achieve common goal and group identity. As with interaction, we identify Social Cohesion, the extent to which members of a group get on with each other, and Task Cohesion, the extent to which group members cooperate with each other in achieving the groups’ goals.

**VOLLEYBALL**

According to Arie Selinger (1986), “volleyball is a game with an object of sending the ball over the net in such a way that the opponent is unable to return it without committing a fault”.

Volleyball is a sport played by two teams on a playing court divided by a net. There are different versions available for specific circumstances in order to offer the versatility of the game to everyone (FIVB, 2009).

**THE SIGNIFICANCE OF STUDY**

1. The result of this study may help to understand the mental toughness among the national level female volleyball players of different categories.

2. The results of this study may help in understanding the team cohesion among the national level female volleyball players of different categories.

3. The result of this study may help to design an appropriate training programme for the development of mental toughness.

4. The results of this study may help to design a suitable training programme for the development of team cohesion.

5. This study may help to take necessary steps to improve various aspects of mental toughness required for female volleyball players.

6. This study may help to take appropriate steps to enhance the various aspects of team cohesion required for the female volleyball players.