
Chapter 2

A Literature study on Mental skills
training in sport



A LITERATURE STUDY ON MENTAL SKILLS TRAINING IN SPORT

-
- 2.1 Introduction**
 - 2.2 The game of field hockey**
 - 2.3 The importance of MST in sport performance**
 - 2.4 Psychological components that should be included in MST programmes**
 - 2.4.1 MST and how it is assessed**
 - 2.4.1.1 Foundation skills**
 - a. Goal-setting**
 - b. Self-confidence**
 - c. Commitment**
 - 2.4.1.2 Psychosomatic skills**
 - a. Stress reaction**
 - b. Fear control**
 - c. Relaxation**
 - d. Activation**
 - 2.4.1.3 Cognitive skills**
 - a. Imagery and Mental practice**
 - b. Focusing and Refocusing**
 - c. Competition planning**
 - 2.5 The role of the Sport psychologist in the improvement of field hockey performance**
 - 2.6 Summary**
 - 2.7 Reference**
-

2.1 Introduction

This chapter presents a literature study on mental skills training (MST) in field hockey. Due to limited information regarding this topic, applicable research from other sport codes related to field hockey will be included. It is believed that this literature study will contribute to a better understanding of MST and more specifically the different sport psychological skills (and their contribution towards a hockey player's performance) that could be included in MST programmes. The literature review will focus on several aspects such as the game of field hockey, the importance of mental skills training (MST) in sport, psychological components which should be included in MST programmes, MST and how it is assessed, fundamental skills, psychosomatic skills, cognitive skills and the role of the sport psychologist in the improvement of field hockey performance.

2.2. The game of field hockey

Field hockey is a very popular game played in more than 118 countries by men and woman of all ages (Andres, 2008:iv). The game consists of 10 field players, divided into three main positions, each with their own specific responsibilities (defenders, midfielders and forwards), one goalkeeper and 5 reserve players (Anders, 2008:xvi). Field hockey places high demands on a player's aerobic and anaerobic energy systems (Boyle *et al.*, 1994:239) as the players cover a average distance of 8 000 - 10 000m during a match depending on the playing position (Konarski *et al.*, 2006:147). Boyle *et al.* (1994:239) further emphasize the physiological demands of the game by indicating that hockey players reach near maximal heart rate levels during matches. According to Elferink-Gemser *et al.* (2004:1054), the players are required to perform a range of technical skills such as sprinting and turning with the ball under control, passing the ball from one player to another and scoring goals, whilst anticipation and decision-making are seen as some of the tactical qualities of the game. Enumerative field hockey can be described as a fast, technical team sport (Anders, 2008:vi) and requires well-developed physiological, tactical, technical and psychological skills.

2.3 The importance of MST in sport performance

To be successful in sport (Martin *et al.*, 1999:247), athletes should be equipped with specific physiological and physical characteristics, depending on the demands of the particular sport. Cox and Yoo (1995:184) stated that it is not only these two mentioned characteristics that distinguish between successful and less successful athletes, but that the athlete's psychological skill levels also play an important role in this regard. The coaches' as well as the athletes' awareness of the importance of MST in sport and the development of MST programmes have increased lately (Hacker, 2000:363). Combining MST with physical training increases the athlete's ability to cope with the demands of the sport and enhances performance (Fallby *et al.*, 2006:112). Hardy *et al.* (2004:251) take the view that an MST programme should include a variety of psychological skills. Blakeslee and Goff (2007:290) added that an MST programme can only be successful when the demands of the game are taken into consideration when deciding which psychological skills should be included.

In South Africa, a study done by Andrew *et al.* (2007:12) with regards to the use and importance of MST, pointed out that more successful rugby players can be distinguished from less successful players, since the more successful players in that study out-ranked the other players in most of the sport psychological components tested. This was also the case in a study by Van den Heever *et al.* (2007:109) who found that successful netball players showed higher self-confidence intensity, mental rehearsal and peaking under pressure levels than their lesser counterparts. Edwards and Steyn (2008:15) reported that sport psychological skills not only contribute to athletes' sporting performance, but also have a positive effect on their overall psychological well-being. The importance of sport psychological skills are further emphasized by Grobbelaar (2007:37) who revealed that South African provincial netball coaches perceive MST to be very important and an effective sport performance enhancement technique.

Maynard and Cotton (1993:385), as well as Sewell and Edmondson (1996:167) noted that due to the demands of a hockey and soccer game, players experience pre-match anxiety. Their results showed that goalkeepers experienced the highest anxiety and the lowest levels of self-confidence compared to the other playing positions. Maynard and Cotton (1993:385) therefore suggested that the implementation of specific coping strategies will decrease the players' anxiety and

increase their self-confidence levels. Zinsser *et al.* (2000:349) perceive self-confidence to be a very important characteristic for players who wish to be successful in their sport. Grove and Hanrahan (1988:226) found hockey players' ability to maintain self-confidence and to use mental imagery to be very poor. According to numerous research findings it was stated that mental imagery, self-confidence (Grove & Hanrahan, 1988), goal-setting (Lee, 1988), coping with anxiety (Maynard & Cotton, 1993) and motivation (Elferink-Gemser *et al.*, 2006; Elferink-Gemser *et al.*, 2007) should be included in an MST programme for hockey players.

2.4. Psychological components that should be included in MST programmes

2.4.1 Mental skills training and how it is assessed

MST can be defined as the “systematic and consistent practise of mental or psychological skills for purposes of enhancing performance, increasing enjoyment or achieving greater sport and physical activity self-satisfaction” (Weinberg & Gould, 2007:25). Blakeslee and Goff (2007:288) are of the opinion that MST can be used to improve athletes' performance. An MST program consists of psychological components such as mental imagery, goal-setting, relaxation (Blakeslee & Goff, 2007:288), arousal control, confidence (Gordon, 1990:392), focusing and re-focusing (Howland, 2006:49), which is in agreement with the suggested mental skills that should be included in an MST programme for field hockey players, as outlined in the previous section.

The growing interest of coaches and players in MST raised the issue of assessing athletes' mental skills which resulted in the development of a variety of questionnaires that can be used to determine the mental skills levels of athletes (Durand-Bush *et al.*, 2001:1). Each questionnaire measures different sport psychological components. For the purpose of this study, the Ottawa Mental Skills Assessment Tool (OMSAT-3) of Durand-Bush *et al.* (2001) and the Psychological Skills Inventory (PSI) of Wheaton (1998) were used to determine the hockey players' mental skills levels regarding a variety of sport psychological skills.

The OMSAT-3 measures a broad range of mental skills. The different skills are grouped into three categories, namely foundation skills, psychosomatic skills and cognitive skills. Goal-setting, self-confidence and commitment are the foundation skills, with stress reaction, fear

control, relaxation and activation as the psychosomatic skills. The cognitive skills category consists of imagery, mental rehearsal, focusing, refocusing and competition planning. By applying the OMSAT-3 questionnaire, Salmela *et al.* (2009:361) found that the athletes who were selected for the Asian Games scored higher on mental skills than those athletes who were not selected. Stress reaction and refocusing were the two skills in which the most significant differences between the two groups of athletes were revealed. The PSI measures six psychological skills (achievement motivation, goal-setting, anxiety control, maintaining confidence, concentration and mental rehearsal) and derived psychological skills scores (average value of the six subscale scores). The results obtained from the questionnaires provide information regarding the players' psychological strengths and weaknesses. The following gives a description and explanation for each of these skills in the contexts of the OMSAT-3 questionnaire.

2.4.1.1 Foundation skills

Foundation skills (goal-setting, self-confidence and commitment) are the building blocks for all the other mental skills (Orlick, as quoted by Durand-Bush *et al.*, 2001:5). In a study by Durand-Bush *et al.* (2001) the results showed that athletes perceived goal-setting, commitment and self-confidence to be the most important performance-related mental skills.

a. Goal-setting

Goal-setting is a method applied by athlete's to set themselves objectives that give them direction and motivation to reach their main goal (Burton, 1993:467). Goal-setting can also be described as a method used by athletes to enhance their perception of control and motivation (Blakeslee & Goff, 2007:291). In this regard Blakeslee and Goff (2007:294) noted that the goals set by athlete's should be well balanced between the three types of goals, namely outcome orientated goals, performance goals and process goals. These different types of goals are defined by Weinberg and Gould (2007:346) as follows:

- i. Outcome goals can be defined as goals which are set with the focus directly on the outcome of the match, for example scoring more points in a match than the opponent.

- ii. Performance goals are set with the focus on the performance of the athlete during a match, for example, aim for a 70% success rate for short corner executions during the match.
- iii. Process goals focus on the actions an individual must engage in during a match, for example, executing ball to stick passes during the match.

Regarding these three types of goals, Kingston and Hardy (1997:289) noted that by compiling outcome and performance goals, it increases an athlete's motivation with regard to the match, whilst process goals focus an athlete's attention on what to do on the field to make every second of the match count. According to Locke and Latham (1990), setting specific and difficult goals leads to greater performance enhancement than vague and easy goals. Barron and Harackiewicz (2001:719) emphasized the importance of compiling outcome and performance goals as it contributes to success when learning a new skill. It is important that athletes should know what they want to accomplish during a season, during each training session and during each competition (Orlick, 2008:176) and to set a sequence of short-term and long-term goals that will help them achieve their set goals (Orlick, 2008:165).

The importance of goal-setting was previously also emphasized by Swain and Jones (1995:60) who found that by composing goals, basketball players' performance improved in three of the four tactical components of the game. This is also true for the sport of speed skating where Wanlin *et al.* (1997:225) found that goal-setting had a positive influence of the skaters' five hundred meter racing times. Goal-setting can thus be seen as one of the most regularly used performance enhancement strategies in sport (Burton & Naylor, 2002:461).

b. Self-confidence

Athletes who wish to excel in their sport should develop optimal levels of self-confidence which can be defined as one's belief that the desired behavior will be performed successfully (Weinberg & Gould, 2007:323).

Martens (1987:151) distinguished between three levels of confidence, namely a lack of self-confidence (diffidence), false self-confidence (over-confidence) and optimal self-confidence.

Lack of confidence can be described as the inability to believe that one is capable of succeeding (Wann, 1997:232). Weinberg and Gould (2007:326) point out that a lack of confidence may lead to anxiety and a decrease in concentration, resulting in poor performance. Athletes who are over-confident tend to exert low levels of effort during training and competitions as they believe that because of their superior abilities, mistakes and failure are unlikely to happen (Wann, 1997:232). When mistakes and failure do occur it disturbs them and leads to poor performances. Characteristics of players with optimal self-confidence levels are realistic goal-setting (Martens, 1987:152), a high level of effort during training and competitions and learning from mistakes in a positive manner (Wann, 1997:232).

Weinberg and Gould (2007:324) stated that self-confidence can be beneficial to athletes, since it facilitates positive emotions and concentration, setting challenging goals and increasing effort, and that it has a positive effect on game strategies, psychological momentum and performance.

c. Commitment

Orlick (2008:174) found that the main difference between successful and less successful athletes was their commitment towards each training session and competition. A player's level of commitment is reflected by the means of dedication and effort with regard to achieving their goals. Orlick (2008:173) stated that excellence in sport depends on a high level of commitment which will allow athletes to perform at their best under all circumstances. Furthermore, Scanlan *et al.* (1993:6) defined commitment as an athlete's aspiration to persist in his or her sport participation.

In a study by Barbour and Orlick (1999:22), the results showed that all the National hockey league players especially in ice hockey displayed a very high level of commitment. Carpenter and Scanlan (1998:362) found that soccer players' commitment levels decreased substantially over the season as their levels of enjoyment with regard to the sport decreased. This was further emphasized by Carpenter and Coleman (1998:207) who found that cricket players' commitment changed from the start of the season to the end as their enjoyment and involvement opportunities changed.

These findings support those of Scanlan and Simons (1992:200) who proposed a sport commitment model which shows that athletes' commitment levels towards their sport is mainly influenced by five factors, namely enjoyment, involvement alternatives, personal investments, social constraints and involvement opportunities. Scanlan *et al.* (1993:6) stated that enjoyment is an important construct with regard to motivation in sport, and that high levels of enjoyment will lead to high commitment levels and *visa versa*. Involvement alternatives refer to other activities the athlete finds more or less desirable than the current sport he or she is participating in (Scanlan *et al.*, 1993:7). More desirable alternative activities lead to lower commitment levels. Furthermore, Scanlan *et al.*, (1993:7) found that less time, effort and money invested in sport (personal investments), less pressure from others to participate (social constraints) and less valued involvement opportunities result in lower levels of commitment.

2.4.1.2. Psychosomatic skills

Psychosomatic skills refer to the various factors influencing physiological, physical and mental intensity of athletes that should be regulated (Landers & Boutcher, 1998:197). According to the Ottawa Mental Skills Assessment Tool (OMSAT-3) athletes' intensity can be affected by stress and fear which should be regulated by making use of relaxation skills. Furthermore, it is important that athletes should energize themselves before a competition and use this energy in a positive way during the competition. Stress reaction, fear control, relaxation and activation can be categorised as psychosomatic skills.

a. Stress reaction

Stress is a non-emotional reaction of the body towards an environmental demand (Wann, 1997:133) and can either be positive or negative (Rotella & Lerner, 1993:231) depending on the athlete's perception of the stressor(s). Wann (1997:135) stated that if the athlete's perception of the stressor is associated with excitement, the stressor is interpreted as positive, but if the athlete is overwhelmed and anxious, the stressor will have a negative effect on the athlete and can then be described as anxiety (Cox, 2007:198).

Weinberg and Gould (2007:83) distinguished between two main sources of stress, namely situational stress sources and personal stress sources. Situational stress refers to the importance

of the competition and any kind of uncertainty the athlete may experience. Trait anxiety, self-esteem and social physique anxiety (fear of physical evaluation) can be seen as the three personal sources of stress.

Wann (1997:135) defines anxiety as “the negative interpretation of past, present and future environmental demands”. There are two distinct anxiety categories; cognitive anxiety and somatic anxiety (Cox, 2007:201). Cognitive anxiety refers to the mental state of the athlete (Cox, 2007:201) and can be associated with feelings of fear, whereas somatic anxiety describes the physical and physiological response in reaction to stressful events.

Sewell and Edmondson (1996:167) showed that in team sports, the different demands of the playing positions influence players’ anxiety levels. These researchers found that goalkeepers in soccer and field-hockey displayed the highest level of somatic and cognitive anxiety in relation to the other playing positions. The negative effect of stress on performance were further emphasized by Liao and Masters (2002:300) who found that basketball players showed poor performance in the set-shot (a shot taken when the player is standing still and close to the basket with both feet on the ground (Oliver, 2004:31)), when they experienced feelings such as stress. Due to the effect of competitive stress it is important that athletes make use of specific coping strategies (Crocker & Graham, 1995:332). In this regard, Kim *et al.* (2008:98) identified three psychological coping strategies athletes can use to reduce competition anxiety:

- Task-orientated: This coping strategy includes problem solving, planning, exploring new information and effort to learn a new skill.
- Emotion-orientated: This strategy refers to acceptance and self-control regarding reaction towards anxiety.
- Avoidance-orientated: This strategy is associated with the disconnection from the situation causing the anxiety.

Nicholls *et al.* (2007:1526) found that men normally tend to use avoidance orientated coping strategies, whereas women make use of task-orientated coping strategies.

b. Fear control

Fear can be described as an emotional reaction towards a specific situation which one tends to avoid (Sagar *et al.*, 2009:75). In sport, fear exists when an athlete is confronted with specific stimuli, which he/she perceives as a threat with regard to his/her performance (Sagar *et al.*, 2009:76) and thus fears failure. Conroy *et al.* (2002:87) identified five types of fear of failure that athlete's mainly experience: fear of experiencing shame and embarrassment, fear of important people in their lives losing interest in their performance, fear of the future, fear of disappointing others and fear of devaluing one's self-esteem.

Conroy *et al.* (2002:87) further noticed that athletes who fear embarrassment and devaluation of their self-esteem are less likely to believe they are sufficiently competent to reach their goals. Fear of failure is a predominant source of stress and anxiety among athletes (Martens *et al.*, 1990:145) and has a negative effect on the athlete's cognitive performance, interpersonal behaviour as well as sport performance (Sager *et al.*, 2009:82). Because of the effect of fear on performance, it is important for athletes to learn how to control or cope with these fears.

In a study by Sager *et al.* (2009:88) it was found that athletes cope differently with fear and mainly apply avoidance-focused coping strategies, emotion-focused coping strategies or problem-focused coping strategies. Avoidance coping is a strategy one applies when one does not wish to deal with the stressor and thus tends to reduce the fear by sleeping, daydreaming or making use of other distractions (Carver *et al.*, 1989:279). Positive-self-talk is a method used to cope with fear when one is of the opinion that nothing can be done to modify the stressor (Sager *et al.*, 2009:74), and it is described as an emotion-focused coping strategy. Sager *et al.* (2009:74) define problem-focused coping strategy as task-orientated coping where one would focus on gathering information regarding the stressor, resolve conflicts, and/or make plans and means to monitor the fear stressor (Folkman & Moskowitz, as quoted by Sager *et al.*, 2009:74). They further emphasized the importance of learning and implementing the correct and most effective coping strategy to deal with these fears.

c. Relaxation

It is clear from the above-mentioned skills, that athletes experience high levels of anxiety and fear regarding their sport. Cox (2007:255) believes that the only way for an athlete to cope with fear and anxiety is by applying specific relaxation strategies. Cox (2007:255) identified four main relaxation strategies and although the techniques of these strategies differ from one another, they all result in the relaxation response. These strategies are progressive relaxation which can be described as a series of muscle contractions which progress from one muscle group to another (Williams, 2010:253). Autogenic training is another relaxation strategy and implies a sequence of exercises which leads to the feeling of warmth and heaviness (Williams, 2010:258). According to Cox (2007:255), meditation is also a relaxation strategy which can be applied. Williams (2010:257) noted that when athletes make use of meditation it is important that their surroundings need to be quiet, they need to be in a comfortable position, have a passive attitude, and also need to apply a mental device such as a mantra (“a non-stimulating, meaningless rhythmic sound of one or two syllables a person regularly repeats while meditating”).

Progressive relaxation, breath control and biofeedback are relaxation techniques used to help athletes cope with somatic anxiety whereas relaxation response and autogenic training are used to reduce cognitive anxiety (Weinberg & Gould, 2007:280).

According to Orlick (2008:73), the effective use of relaxation strategies can help athletes shift their focus from the stimuli creating the stress or fear to the task at hand. This can be done by firstly identifying the stimuli creating the stress or fear and then using one of the above-mentioned strategies to refocus one’s attention to the task at hand. Onestak (1991:12) found that by applying relaxation strategies, athletes’ anxiety levels were reduced significantly.

d. Activation

The OMSAT-3 questionnaire describes activation as skills used to energize oneself or to be mentally “psyched up” to an optimal level for performance in which anxiety levels are low (Mindeval Research Tools, 2002). Cox (2007:263) explains that athletes need to be energized or “psyched up” to perform at their best during training and competition, which is mainly referred to as a player’s arousal level. Weinberg and Gould (2007:78) define arousal as a combination of

psychological and physiological activation of an athlete. Arousal is the body's way of preparing for the intense activity associated with competition and can vary on a continuum from low arousal levels to high arousal levels (Burton & Raedeke, 2008:140). The level of arousal can be categorised into three zones, each of which has a different effect on the athlete's performance. Too low levels of arousal (psych-up zone) and too high levels of arousal ("psych-out zone") leads to poor performance (Burton & Raedeke, 2008:141). These researchers refer to the optimal energy zone as the arousal level at which the athlete's physical and mental stage is optimal to perform at his/her best. It is important to bear in mind that each athlete's optimal performance arousal level will differ, as some athletes will perform at their best at low arousal levels and others may prefer high levels of arousal (Burton & Raedeke, 2008:142). In this regard Hanin (as quoted by Cox, 2007:219) developed a theory known as the Individual Zone of Optimal Functioning (IZOF). The different zones in the IZOF model (Hanin, 2000:66) are used to understand, identify, assess and optimize an individual's optimal emotional state to perform at one's best. Hanin (2000:67) defines optimal emotional state as the athlete's most applicable and suitable emotions in a specific situation and emphasises that these optimal emotions are different for each individual. The IZOF model is multidimensional (Hanin 2000:75), which means that the athlete's zone of optimal performance is classified according to five basic dimensions, namely form (type of emotion (motivational, cognitive)), intensity (affect of emotions subjected to previous experiences and that can be experienced as negative or positive), content (emotions experienced in different situations), time (when the emotions occur, before, after or during a specific situation) and context (environmental characteristics). It is important to identify each player's IZOF so that they can control their emotions and perform at their best.

2.4.1.3. Cognitive skills

Mayer (as quoted by Durand-Bush *et al.*, 2001:5) defined cognitive skills as psychological skills which include any form of sensation, perception, learning and reasoning. Cognitive skills include the following components:

a. Imagery and Mental practice

Onestak *et al.* (1991:5) describe mental rehearsal as one of the most effective mental skills used to improve athletes' performance. Imagery is a mental process through which a specific

situation, stored by experience, is created or recreated in the mind and by means of which all sensorial responses can be experienced (Weinberg & Gould, 2007:296). Vealey and Greenleaf (2006:309) hold that mental rehearsal is the continuous and organized use of imagery. Cox (2007:293) describes imagery as an image formed from past experiences stored in the long-term memory which can be formed without any external stimuli and may involve one or more of the athlete's senses. Furthermore, imagery is a cognitive skill which could be used to enhance motor skills and performance (Cox, 2007:294). Hall *et al.* (as quoted by Horn, 2008:306) distinguish between five types of imagery. The first type is motivational specific imagery which focuses on achieving specific goals as set by the athlete. Motivational general-mastery imagery refers to the effective coping with difficult situations such as imagining having optimal self confidence during a competition. A third type is motivational general arousal which focuses on the emotional response towards a competition. The last two types, Cognitive specific and Cognitive general, refer to execution of technical and tactical orientated skills. According to Abma *et al.* (2002:72), successful athletes normally apply motivation orientated imagery more often than their less-successful counterparts.

Imagery can be used prior to competitions, during competitions (Wann, 1997:233) and when recovering from injuries (Weinberg & Gould, 2007:298). There are four main aspects athletes should take into consideration when using imagery (Weinberg & Gould, 2007:299). These aspects are the surroundings/venue (competition or training venue), nature of the images (positive or negative images), type of image (visual, kinaesthetic, auditory and/or olfactory), the image's perspective (internal perspective - creation of a mental image seen from the athlete's own vantage point or external perspective - creation of a mental image as seen by an outside observer).

Weinberg and Gould (2007:306) recommend mental rehearsal for improving an athletes' concentration, confidence, emotional control response (increase arousal levels or reduce anxiety) practicing skills and strategies. Shambrook and Bull (1996:40) noted that by making use of mental rehearsal, basketball players' free-throw performance on average increased. Similar results were obtained by Smith *et al.* (2001:415) who found that field hockey players' penalty

flick performance increased rapidly after using mental imagery as part of their training programme.

b. Focusing and refocusing

Focusing can be defined as the ability to direct one's attention at the task at hand (Orlick, as quoted by Barbour & Orlick, 1999:25), whilst refocusing is the ability to regain one's attention after a distraction. Williams (2009:337) further describes focusing as the ability to maintain one's concentration for a period of time and to shift the attention as the performance demands change. Optimal attention is considered to be a very important component for success in sport (Maynard & Howe, 1989:283).

Williams (2009:338) explain that attention consists of two dimensions, namely the width (broad and narrow) and the direction (external and internal) thereof. The attention width refers to the number of stimuli one should attend to in any given situation (Burton & Raedeke, 2008:156) whereas direction refers to whether the athlete's attention is directed inwardly (thoughts and feelings) or outwardly (external environment). The width and direction of the athlete's attention depend on the demands of the sport (Burton & Raedeke, 2008:156) as well as the playing position (Williams, 2009:339).

In cricket, Gordon (1990:393) identified four characteristics which are important with regard to the width and direction of cricket players' attention. These characteristics are firstly, focus on one selective stimulus during important moments in the game; secondly, focus on the present task at hand; thirdly, selectively focus on relevant stimuli; and lastly, the ability to vary between high and low levels of attention.

Gordon (1990:393) further emphasized the importance of attention by stating that cricket players should have in their gift the ability to focus on each delivery without thinking about the previous or upcoming deliveries. In a study by Maynard and Howe (1989:288) it was reported that the halfbacks in rugby (the decision makers in the team), predominantly used a broad attention width and an external direction. The task intensity of a sport also affects an athlete's attention. As the

intensity increases, athletes' attention tends to shift from external to internal (Hutchinson & Tenenbaum, 2007:240).

c. Competition planning

Jepperson (2008:9) defines competition planning as routines established by athletes to help them prepare for the upcoming competition. Such a competition plan requires specific routines which are implemented a few days prior to the competition as well as on the day of the competition with specific routines for the arrival at the competition venue, warm-up, just before the start of the competition and during the competition (Jepperson, 2008:10). Although athletes' routines vary considerably from one to another, their routines normally consist of arrive at venue, physical warm-up as well as mental preparation, which refers to visualising the game plan (Hanton *et al.*, 2008:483).

2.5 The role of the Sport psychologist in improving field hockey performance

From the above-mentioned, it is clear that MST can play an important part in performance and overall success in any sport and is thus a component which should be developed and implemented in the sport of field hockey.

Sport psychological consultants could help teams to plan and implement MST programmes (Weinberg & Gould, 2007:259). It is stated that before implementing an MST program it is important to evaluate the players' psychological strengths and weaknesses (Weinberg & Williams, 2010:371). By doing so, the sport psychological consultant could determine which psychological skills should be included in the MST program (Weinberg & Williams, 2010:372) considering the demands of the sport (Blakeslee & Goff, 2007:290). After assessing and designing the program, the coach and sport psychological consultant should set up a schedule for team meetings during which the MST program can be implemented (Weinberg & Gould, 2007:267). It is important to determine when to start with the programmes and how long the MST sessions should last. Weinberg and Williams (2010:366) believe MST should be implemented at the start of the season or even during the off-season and should form part of the daily training program. Another important component with regard to the success of an MST program is evaluating the program on a regular basis (Weinberg & Williams, 2010:377). This

could be done by means of questionnaires and individual interviews with the players and coaches. This will provide the consultant with feedback regarding the effectiveness of the program and whether any psychological skills should be added to or deleted from the program.

2.6 Summary

From the above-mentioned literature review it can be assumed that MST plays an extremely important role in enhancing sport performance. Although some research has been conducted regarding mental skills training programmes in field hockey, information is still lacking concerning the design and implementation of such programmes within this sport.

From the reviewed literature it is clear that before an MST program can be designed and implemented, players' psychological strengths and weaknesses as well as the demands of the game should be evaluated. Furthermore, it was indicated that each of the playing positions places different demands on the players and should also be taken into consideration when designing an MST program.

The next two chapters will consist of independent research articles which will integrate the information from the reviewed literature in the respective problem statements. The aim of article 1 in Chapter 3 was to determine field hockey players' previous exposure to MST, these players' perceptions regarding the importance of MST and their need for MST programmes in the sport, as well as their current mental skills levels. Chapter 4 (article 2) determined the mental skills levels of players in the different playing positions, thereby giving an indication of which sport psychological skills need to be included in an MST program, specifically for field hockey.

2.7 Reference

ABMA, C.L., FRY, M.D., LI, Y. & RELYEA, G. 2002. Differences in imagery content and imagery ability between high and low confidence track and field athletes. *Journal of applied sport psychology*, 14:67-75.

ANDERS, E. 2008. *Field hockey: Steps to success*. 2nd ed. Champaign, IL : Human Kinetics. 220p.

ANDREW, M., GROBBELAAR, H.W. & POTGIETER, J.C. 2007. Sport psychological skill levels and related psychological factors that distinguish between ruby union players of different participation levels. *South African journal for research in sport, physical education and recreation*, 29(1):1-14, Sept.

BARBOUR, S. & ORLICK, T. 1999. Mental skills of national hockey league players. *Journal of excellence*, 2:16-36.

BARRON, K.E. & HARACKIEWICZ, J.M. 2001. Achievement goals and optimal motivation: Testing goal models. *Journal of personality and social psychology*, 80(5):706-722, May.

BLAKESLEE, M.L. & GOFF, D.M. 2007. The effects of a mental skills training package on equestrians. *The sport psychologist*, 21(3):288-301, Sept.

BOYLE, P.M., MAHONEY, C.A. & WALLACE, W.F.M. 1994. The competitive demands of elite male field hockey. *The journal of sports medicine and physical fitness*, 34(3): 235-241, Sept.

BURTON, D. 1993. Goal setting in sport. In R.N. Singer, M. Murphey, & L.K. Tennat Eds. *Handbook of research in sport psychology*. (pp. 467-491) New York: Macmillan.

BURTON, D. & NAYLOR, S. 2002. The Jekyll/Hyde nature of goals: Revisiting and updating goal-setting in sport. In Horn, T.S. (Ed.) *Advances in sport psychology*. 2nd ed. (pp. 459-499). Champaign, IL: Human Kinetics.

BURTON, D. & RAEDEKE, T.D. 2008. *Sport psychology for coaches* 1st ed. Champaign, IL: Human Kinetics. 290p.

CARPENTER, P.J. & COLEMAN, R. 1998. A longitudinal study of elite youth cricketers commitment. *International journal of sport psychology*, 29:195-210, Jul-Sept.

CARPENTER, P.J., & SCANLAN, T.K. 1998. Changes over time in the determinates of sport commitment. *Paediatric exercise science*, 10:356-365.

CARVER, C.S., SCHEIER, M.F. & WEINTRAUB, J.K. 1989. Assessing coping strategies: A theoretically based approach. *Journal of personality and social psychology*, 56, 267-283.

CONROY, D.E., WILLOW, J.P. & METZLER, J.N. 2002. Multidimensional fear of failure measurement: The performance failure appraisal inventory. *Journal of applied sport psychology*, 14:76-90, Jun.

COX, R.H. 2007. Sport psychology: Concepts and applications 6th ed. McGraw-hill International. 531p.

COX, R.H. & YOO, H.S. 1995. Playing position and psychological skill in American football. *Journal of sport behavior*, 18(3):183-194, Sept.

CROCKER, P.R.E. & GRAHAM, T.R. 1995. Coping by competitive athletes with performance stress: Gender differences and relationship with affect. *The sport psychologist*, 9:325-338, Sept.

DURAND-BUSH, N., SALMELA, J.H. & GREEN-DEMERS, I. 2001. The Ottawa mental skills assessment tool (OMSAT-3). *The sport psychologist*, 15(1):1-19, Mar.

EDWARDS, D. & STEYN, B.J.M. 2008. Sport psychological skills training and psychological well-being. *South African journal for research in sport, physical education and recreation*, 30(1):15-28.

ELFERINK-GEMSER, M.T., VISSCHER, C., LEMMINK, K.A.P.M. & MULDER, T.W. 2004. Relationship between multidimensional performance characteristics and level of performance in talented youth field hockey players. *Journal of sports sciences*, 22(11):1053-1063, Nov/Dec.

ELFERINK-GEMSER, M.T., VISSCHER, C., VAN DUIJIN, M.A.J. & LEMMINK, K.A.P.M. 2006. Development of the interval endurance capacity in elite and sub-elite youth field hockey players. *British journal of sports medicine*, 40(4):340-345, Apr.

ELFERINK-GEMSER, M.T., VISSCHER, C., LEMMINK, K.A.P.M. & MULDER, T.W. 2007. Multidimensional performance characteristics and standard of performance in talented youth field hockey players: A longitudinal study. *Journal of sports sciences*, 25(4):481-489, Feb.

FALLBY, J., HASSMEN, P., KENITTÄ, G. & DURAND-BUSH, N. 2006. Relationship between locus of control, sense of coherence, and mental skills in Swedish elite athletes. *International journal of sport and exercise psychology*, 4(2):111-120, Jun.

GORDON, S. 1990. A mental skills training program for the Western Australian state cricket team. *The sport psychologist*, 4(4):386-399, Dec.

GROBBELAAR, H.W. 2007. A survey of South African provincial netball coaches' opinions, abilities and limitations regarding mental skills training. *South African journal for research in sport, physical education and recreation*, 29(2):27-39.

GROVE, R.J. & HANRAHAN, S.J. 1988. Perceptions of mental training needs by elite field hockey players and their coaches. *The sport psychologist*, 2(3):222-230, Sept.

HACKER, C.M. 2000. Women's World Cup: Performance enhancement through mental skills training. *Professional psychology: Research and practice*, 31(4):363-364, Aug.

HANIN, Y.L. 2000. Emotions in sport. Champaign, IL: Human Kinetics. 395p.

HANTON, S., WADEY, R. & MELLALIEU, S.D. 2008. Advanced psychological strategies and anxiety responses in sport. *The sport psychologist*, 22:472-490, Dec.

HARDY, J., CRAIG, C.R. & HARDY, L. 2004. A note on athletes' use of self-talk. *Journal of applied sport psychology*, 16(3):251-257, Sept.

HORN, T.S. 2008. *Advances in sport psychology*. 3rd ed. Champaign, IL: Human Kinetics. 499p.

HOWLAND, J.M. 2006. Mental skills training for coaches to help athletes focus their attention, manage arousal, and improve performance in sport. *The journal of education*, 187(1):49-66.

HUTCHINSON, J.C. & TENENBAUM, G. 2007. Attention focus during physical effort: The mediating role of task intensity. *Psychology of sport and exercise*, 8:233-245, Mar.

JEPPERSON, D. 2008. Competitive kumite preparation and training. [Web:] www.thejks.com/Docs/Articles/KumitePreparation.doc [Date of use: 23 October 2009].

KIM, B., JANG, K. & YOON, D. 2008. The effects on Korean National fencing players of training in the strategy of coping with acute stress. *International journal of applied sport science*, 20(2):96-128.

KINGSTON, K.M. & HARDY, L. 1997. Effects of different types of goals on processes that support performance. *The sport psychologist*, 11(3):277-293, Sept.

KONARSKI, J., MATUSZYNSKI, M. & STRZELCZYK, R. 2006. Different team defense tactics and heart rate during a field hockey match. *Studies in physical culture and tourism*. 13:145-147.

LANDERS, D.M., & BOUTCHER, S.H. 1998. Arousal-performance: An integrated approach. In J.M. Williams. (Ed.). *Applied sport psychology: Personal growth to peak performance*. 3rd ed. (pp. 197-218). Mountain view, CA:Mayfield.

LEE, C. 1988. The relationship between goal setting, self-efficacy, and female field hockey team performance. *International journal of sport psychology*, 20(2):147-161, Apr-Jun.

LIAO, C. & MASTERS, R.S.W. 2002. Self-focused and performance failure under psychological stress. *Journal of sport and exercise psychology*, 24:289-305, Sept.

LOCKE, E.A. & LANTHAM, G.P. 1990. A theory of goal setting and task performance. Englewood Cliffs, N.J: Prentice Hall. 235p.

MARTENS, R. 1987. Coaches guide to sport psychology. 1st ed. Champaign, IL: Human Kinetics. 195p

MARTENS, R., BURTON, D., VEALEY, R.S., BUMP, L.A. & SMITH, D.E. 1990. Development and validation of the Competitive State Anxiety Inventory-2. In Martens, R., Vealey, R.S. & Burton, D. (Eds.). *Competitive anxiety in sport*. (pp. 117-190). Champaign, IL: Human Kinetics.

MARTIN, K.A., MORITZ, S.E. & HALL, C.R. 1999. Imagery use in sport: A literature review and applied model. *The sport psychologist*, 13:245-268, Sept.

MAYNARD, I.W. & COTTON, C.J. 1993. An investigation of two stress-management techniques in a field setting. *The sport psychologist*, 7:375-387, Dec.

MAYNARD, I.W. & HOWE, B.L. 1989. Attention styles in rugby players. *Perceptual and motor skills*, 69(1):283-289.

MINDEVAL RESEARCH TOOLS <http://www.mindeval.com> Copyright © 2002 Gydle Inc.

NICHOLLS, A.R., POLMAN, R., LEVY, A.R., TAYLOR, J. & STEPHEN, C. 2007. Stressors, coping, and coping effectiveness: Gender, type of sport, and skill differences. *Journal of sports sciences*, 25(13):1521-1530, Nov.

OLIVER, J. 2004. Sports fundamentals series: Basketball fundamentals: A better way to learn the basics. Champaign, IL: Human Kinetics. 141p.

ONESTAK, D.M. 1991. The effects of progressive relaxation, mental practice, and hypnosis on athletic performance: A review. *Journal of sport behavior*, 14(4):1-22, Dec.

ORLICK, T. 2008. In pursuit of excellence (4th ed.). Champaign, IL: Human Kinetics. 311p.

ROTELLA, R.J. & LERNER, J.D. 1993. In R.N. Singer, M. Murphey, & L.K. Tennat (Eds.). Handbook of research in sport psychology. (pp. 528-541) New York: Macmillan.

SAGAR, S., LAVALLEE, D. & SPRAY, C.M. 2009. Coping with the effect of fear of failure: A preliminary investigation of young elite athletes. *Journal of clinical sports psychology*, 3:73-98, Mar.

SALMELA, J.H., MONFARED, S.S., MOSAYEBI, F. & DURAND-BUSH, N. 2009. Mental skill profiles and expertise levels of elite Iranian athletes. *International journal of sport psychology*, 39:361-373, Jul-Sept.

SCANLAN, T.K. & SIMONS, J.P. 1992. The construct of sport enjoyment. In G.C. Roberts. (Ed.). Motivation in sport and exercise. (pp, 199-225). Champaign, IL: Human Kinetics.

SCANLAN, T.K., CARPENTER, P.J., SCHMIDT, G.W., SIMONS, J.P. & KEELER, B. 1993. An introduction to the sport commitment model. *Journal of sport and exercise psychology*, 15:1-15, Mar.

SEWELL, D.F & EDMONDSON, A.M. 1996. Relationship between field position and pre-match competitive state anxiety in soccer and field hockey. *International journal of sport psychology*, 27(2):159-172, Apr-Jun.

HAMBROOK, C.J. & BULL, S.J. 1996. The use of a single-case research design to investigate the efficacy of imagery training. *Journal of applied sport psychology*, 8(1):27-43, Mar.

SMITH, D., HOLMES, P., WHITEMORE, L., COLLINS, D. & DEVONPORT. T. 2001. The effect of theoretically-based imagery scripts on field hockey performance. *Journal of sport behavior*, 24(4):408-419, Dec.

SWAIN, A. & JONES, G. 1995. Effects of goal-setting interventions on selected basketball skills: A single-subject design. *Research quarterly for exercise and sport*, 66(1): 51-63, Mar.

VAN DEN HEEVER, M., GROBBELAAR, H.W. & POTGIETER, J.C. 2007. Sport psychological skills and netball performance. *Journal of human movement studies*, 52:109-124.

WANN, D.L. 1997. Sport Psychology. Prentice Hall. 432p.

WANLIN, C.M., HRYCAIKO, D.W., MARTIN, G.L. & MAHON, M. 1997. The effects of a goal-setting package on the performance of speed skaters. *Association for the advancement of applied sport psychology*, 9(2):212-228, Sept.

WEINBERG, R. & GOULD, D. 2007. Foundations of sport and exercise psychology (4th ed.). Champaign, IL: Human Kinetics. 607p.

WEINBERG, R. & WILLIAMS, J.M. 2010. Integrating and implementing a psychological skill training programs. In J.M. Williams. (Ed.) *Applied Sport Psychology: Personal growth to peak performance* 6th ed. (pp. 361-391). McGraw-hill.

WILLIAMS, J.M. 2009. *Applied sport psychology: personal growth to peak performance*. (6th ed.). Boston: McGraw-Hill Higher education. 614p.

WILLIAMS, J.M. 2010. Relaxation and energizing techniques for regulation of arousal. In J.M. Williams. *Applied Sport Psychology: Personal growth to peak performance* 6th ed. (pp. 247-266). McGraw-hill.

ZINSSER, N., BUNKER, L. & WILLIAMS, J.M. 2000. Cognitive techniques for Improving confidence. In J.M. Williams. (Ed.) Applied Sport Psychology: Personal growth to peak performance 4th ed. (pp. 325-356). Mcgraw-hill.