



Case Study of Mental Skills Training for a Taekwondo Olympian

by

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The purpose of this study was to identify the effect of systematic mental skills training (MST) for a taekwondo gold medallist. Based on MST of other sports, this programme was designed for a single subject who competed in the Olympics. The Korean test of performance strategies, Sport Attributional Style in Korean Athletes, and a few sessions of interviews were applied to investigate the effect of MST. The pre and post-test mean scores of both the Korean test of performance strategies and Sport Attributional Style in Korean Athletes were compared. Interviews recorded the athlete's psychological characteristics. Excluding the 'activation' variable, all of the psychological skills, e.g. self-talk (4.25–5), emotional control (3.75–4.5), automaticity (3.75–4.25), goal setting (4.5–5), imagery (4.25–5), negative thinking (3.25–4.75), anxiety management (4.5–5), and physical and mental condition (4.5–5) improved. MST is believed to have helped the athlete succeed.

Key words: martial arts, combat, psychology.

Introduction

What are the factors most important for winning in taekwondo? This is a question that has sparked discussion and debate between many players and coaches alike. According to Yun et al. (2006) top performance occurs when physical fitness, skill, psychology, strategy, etc. are optimized. However, the weighting of these critical factors is sport specific. For squash, the complex interaction among physical fitness, psychological stability, and strategy are reported to be determinate factors for competitive success (Philip, 1997). Similarly in soccer, psychology, fitness, and strategy are reported to be the decisive factors. Likewise, in taekwondo proficient technique, psychology, fitness, and strategy are reported to be most influential for success (Lim, 2007). The significance of psychological skills for optimum performance can be realized with high frequency that is stated in other research.

For taekwondo athletes maintenance of peak physical condition during a competition is vital, therefore, they must know how to deal with pressure, control stress and anxiety in the period preceding a competition. They must also deal with thoughts of previous losses, injuries, and/or knock out experiences. The larger and more important the competition, the more stress the athlete experiences. With all of these strains, an athlete may find it difficult to enter the flow state and thus, not be able to react to an opportunity and miss the timing of a critical technique. Athletes frequently complain that they could read their opponent and knew what to do, but their body would not follow their mind (Lim, 2007).

Some studies focusing on the psychological skills in taekwondo have drawn parallels among the psychological skills in archery (Yun et al., 2006). The value of mental skills training (MST) such as self-talk, imagery, and pre-

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performance routine has been well established (Cohn, 1990; Hardy et al., 2001; Lim, 2007; Thewell et al., 2006). According to Lim (2007) in a study focusing on the self-regulation of combat athletes such as boxing, judo, and taekwondo, the winners are ranked significantly higher in the areas of self-confidence and positive thinking. Elite athletes are shown not only to have superior technique and a fitness level, but also to possess excellent mental skills (Vealey, 2007), which are believed to help them deal more efficiently with both anxiety and stress. The feasibility and effectiveness of MST interventions in various sports have been tested and proven (Cohn et al., 1990; Kim, 2003; Thelwell et al., 2006).

It is estimated that approximately 70–80% of our daily 66,000 thoughts are negative (Weinberg and Gould, 2003). These negative thoughts may be amplified in a competitive sporting situation, which can be further magnified in combat sports like taekwondo. Elite athletes manage negative thoughts by converting them into positive situations, which they can use to build themselves up. It has been recommended that motivational self-talk may be a helpful strategy to overcome high levels of anxiety and reduce negative thoughts (Hardy et al., 2001). Similarly motivational self-talk coupled with repetition of a technique can ease the mind of an athlete under pressure. Positive self-talk has been demonstrated to be able to reduce the number of thoughts that interfere with optimum performance (Hatzigeorgiadis et al., 2004). Reports investigating the different effects of instructional and motivational self-talk show significant improvements in the performance of accuracy-based and power-based tasks (Weinberg and Gould, 2003).

In addition to self-talk, effective imagery interventions have been shown to be more effective when they include more detail about the pre-performance routine (Lee, 1990) and during the competition routine (Driskell et al., 1994). Moritz and his associates (1996) report the most effective imagery for enhancing confidence is motivational general-mastery as one can control everything involved in a competitive arena. It is particularly useful in combat sports as the athlete can practise without the risk of injury. Also, for any athlete dwelling on past losses, imagery can be used to repeat high-end performances and help

them gain confidence.

In 1990, Cohn reported the strengths of cognitive processes such as pre-performance routine, self-talk, decision-making and imagery to alter behaviour. By an athlete focusing on the sequence of their routine, they can minimize detrimental distractions (Cohn et al., 1990; Weinberg and Gould, 2003). A detailed bowling routine can help players control their stress so that they can focus more on their performance. Research shows that medal winners in wrestling and bowling that used a pre-performance routine enhanced performance under high-pressure situations (Gould et al., 1992; Mesagno et al., 2008).

For success in taekwondo, an athlete must have positive thoughts, self-talk, imagery, routine, etc. Lim (2007) suggests the three most important mental skills for an elite taekwondo athlete are self-talk, imagery and routine. However, this is only one study and therefore, further studies are required to conclusively report what the most important mental training skills are and how they need to be enhanced.

Even though players and coaches are aware of the importance of MST in other sports, in reality, existing MST programmes in taekwondo are uncommon. Taekwondo athletes spend the majority of time practising and improving their technique and this leaves them little or no time for MST. With the emphasis on traditional training in martial arts, in addition to the lack of high quality articles focusing on MST for taekwondo, there are not many reliable sources for taekwondo athletes to turn to for an MST programme. Therefore, the purpose of this article was to present and evaluate the effect of systematic MST for an elite taekwondo athlete. Based on MST of other sports, this systematic MST programme including self-talk, imagery, and routine was designed for a single subject.

Material and Methods

Participant

The participant, Kim (pseudonym), was a female member of a professional taekwondo team and had an impressive record of winning the first prize at the Olympics, the World Championship, and the Asian Games.

Design

This case study on the intervention of MST had an A-B design, measuring the athlete's

psychological and mental state by using the test of performance strategies (KTOPS) before and after the treatment. In addition to the KTOPS, an attribution test and an interview were carried out during and after the period of MST to investigate its effects.

Measures

1) Sports Performance Strategy (Test of Performance Strategies (TOPS))

A TOPS questionnaire was developed by Thomas et al. (1999) and measures an athletes' use of psychological skills and strategies in both practice and competition for activation, relaxation, imagery, goal setting, self-talk, emotional control, negative thinking, and automaticity. Based on this competition KTOPS, a Korean version of the TOPS, was created and validated (0.67–0.81) by Kim and Oh (2002). It has a total of 36 questions divided into nine sub-factors, with an additional sub-factor relating to physical and mental condition (Figure 1), each having four questions. Each of these questions was rated on a Likert scale ranging from 1 (never) to 5 (always) and higher scores indicated a positive improvement in psychological skills and strategies.

2) Sport Attribution

The Sport Attributional Style in Korean Athletes (SASKA) (Kim and Yun, 2003) was developed based on the Sport Attributional Style Scale (Hanrahan et al., 1989). The internal reliability ranges from 0.73 to 0.84 (Kim and Yun, 2003). The SASKA was performed a few days after the Olympics and consisted of a total of 23 questions related to seven sub-factors: opponent analysis (2), mentality (6), instructor authority (3), luck (4), teamwork (4), effort (2), and a fitness level (4).

3) Interview

The first step was to conduct an interview to explore any factors related to physical and mental preparation, best and worst performances, and previous mental training experience. Based on discussion of these factors, the next step involved the development of an MST programme together with an in depth explanation of its field application. After the Olympics, the effect of MST was confirmed through further interviews to provide qualitative data.

4) Competition Results

As taekwondo competition results are based on a multitude of factors, such as strength

of an opponent and physical as well as psychological condition, it is difficult to relate the results of a competition with MST. Even though an athlete may perform their best, there is no guarantee that they will win. To help overcome this complication, additional two factors should be considered. Together with her coach, we analysed Kim's and her opponents technical game records, i.e. the attack/defence ratio, kicks to the head and the body ratio. To win, it was recommended that she should attack more frequently, especially to the head as an electronic chest gear was going to be used for scoring and recent rule changes allocated higher points for head kicks. The second factor was to use the SASKA to find the reason why she had lost twice in other international competitions.

Procedure

This study was performed over a period of four months prior to the London Olympics. The Taekwondo Association made initial contact and the researcher was introduced to the coach and the athlete. The MST intervention was spread over eight sessions, twice a week for two months at the national training centre.

The first session took place on the 30th of April and was during training at the high altitude national training centre. Since the athlete had a busy schedule the next session was not until the 20th of June when MST started. Until then Kim was provided with a simple booklet, a short presentation and an explanatory video, the contents of which were made as simple as possible so that they could be easily understood. Kim had previous experience of MST and she was willing and agreed to practise MST four to five times per week.

Based on the results of the interview and the KTOPS (Kim, 2011), the MST programme was developed. At the first three sessions, the subject's goal setting, best and worst performance, self-talk, and routine were analysed and practised. From the fourth session the MST programme focused on the application of self-talk. In the fifth and sixth sessions imagery, and in the seventh session pre-performance routine was practised. These skills were practised at weekly practice competitions organized by the coaches that consisted of a simulation of the competition conditions as much as possible and therefore, employed electronic chest protectors and a

scoring system, different opponents, referees and judges.

1) Session 1: MST Orientation

The first session, lasting 50 min, aimed to describe an outline of elite player's MST by presenting case studies to both the player and the coach. The concept and the aim of MST, taekwondo ranking, athlete's profiles, dates of the London Olympics, a self-talk poster, imagery, and pre-performance routine were all discussed.

2) Session 2: Psychological Testing

The aim of the second session was to categorize the athlete's overall psychological state. This session lasted 90 min and took place in the afternoon following morning training and 1 h after lunch. The session started off on a positive note by discussing the athlete's motivation and why she believed she had won a gold medal at the Olympics. Afterwards, the differences between the player's performance at her first Olympics, and gold winning performance during the other Olympics were discussed. Kim commented that one of the main reasons she thought that she had lost was lack of fighting spirit

From the opponent analysis (Table 1), she and her coach decided that there were five strong contenders for the Olympic gold medal. Her personal best performances were at previous Olympics and at the current year's team trials. At the team trials she particularly felt no stress as she had won the Olympics just four years ago. She had feared that because of stress she would be unable to correctly react during the competitions, however, she overcame it with self-talk, imagery, and the routine from her previous MST. The remaining time was spent answering a performance strategy questionnaire and creating an MST schedule.

3) Session 3: Performance Strategy

The third session focused on the results of the performance strategy questionnaire (Figure 1) and further development of her MST. The athlete's strengths were goal setting, anxiety management, and control of physical condition, with positive results for self-talk and imagery. However, she believed her current MST programme was not based on her overall strengths. The reasons for some of her weaknesses were investigated and the MST programme was revised. Since she had many problems with

additional training for MST, time management solutions were provided. She was not sure how and when to use positive self-talk and how to control emotions during competition. For automaticity she found it difficult to allow the whole movement to happen naturally without breaking it down and concentrating on each part. For imagery she found it hard to imagine the competition turning out the way she wanted it to be. For negative thoughts she imagined herself making mistakes and found it difficult to think positively. For anxiety management she said she was really stressed out and found it difficult to relax.

4) Session 4: Self-Talk and Self-Imagery at the Competition Arena

The objective of the fourth session was to provide an anchor as a treatment to reduce negative thoughts when entering the competition arena. Large photographs, printed as posters of the arena, were posted on the walls of the national taekwondo training camp and the office to help familiarize herself with the arena. Self-talk that she associated with her best performances was practised so it became automated. When she was stressed out self-talk was practised as an anchor. Examples of her self-talk are as follows: "I'm not going to get hurt"; "it's going to be fun"; "I can do it"; "let's give it a go"; "if I enjoy it then I can do anything". The self-talk to be practised was printed on A4 sheets and laminated with photographs of the layout of the competition arena. After the athlete got up in the morning she had to look at the sheets and practise her self-talk five times either out loud or in her head.

5) Sessions 5 and 6: Imagery

The next two sessions focused on developing an imagery programme based on the results of opponent analysis, ways to reduce negative thoughts, and stress relief (Kim and Oh, 2002). Opponents' previous matches were viewed and a strategy for the image training was designed. For the opponent analysis the top five opponents were selected and videos from the last two years were analysed with assistance of the coach. Each player's strategies were classified into their most frequent scoring techniques, strengths and weaknesses (Table 1). With the introduction of the electronic scoring chest protector, the importance of kicking to the head increased as it became more difficult to score with body kicks.

Furthermore, with recent changes in the rules (WTF rules) the allocated points for head strikes increased reinforcing the significance of a strategy including head strikes. Internal imagery therefore included numerous head kicks, which was practised daily just before going to sleep.

External imagery was performed with a video application on the athlete's smart phone. Videos of her winning games, winning points, and her best performances during the previous Olympics and National team trials were uploaded to the phone. Imagery training was especially important during times that she could not physically participate in team training due to filming commercials and other personal reasons. The advantage of having the videos on the phone made it easy for her to access at any time.

6) Session 7: Routine

This session was split into two sections: first, the process of developing pre-performance routine, and secondly, strategy of internal imagery against opponents. The main aim was to develop a routine involving the day before and the day of the competition. The routine was constructed based on suggestions from sports like golf (Cohn et al., 1990). The routine began from the weigh-in the day before the competition as during the time of waiting the most negative thoughts occur. The athlete's routine involved self-talk, behaviour, imagery, and breathing techniques from her routine before her best performances (Table 2). She expressed the satisfaction felt about her routine programme sheet and confirmed that she would try her best to revise it regularly. It was then placed in her accommodation and just beside the bed so she had to look at it and watch her videos that included images of her entering the arena. In addition, she practised her routine daily in the accommodation, arena, and waiting room from the time of her arrival 20 days before the competition.

7) Session 8: Interview with the Coach

The aim of this session was to enhance the relationship between the coach and the athlete so that they could communicate more efficiently. The coach stated "Not only is there a large amount of pressure on the coaches and athletes alike, but if the coach cannot keep cool then the athlete feels extra nervous". With the coach, we developed and implemented various coaching

strategies to be enacted during the competition. These strategies mainly used imagery, such as a routine where the coach had to imagine being confident and keeping cool. As the coach stated he was a little nervous about the timing for requesting a video replay; this situation was added into their imagery with a positive outcome for both the coach and player.

With the athlete's permission the coach was informed of the MST programme including self-talk, a self-talk poster, and routine so that the coach would be able to play a part in. The coach began to use imagery every night lying in the bed to try and control his anxiety levels. With the changes in rules at the Olympics and introduction of video analysis, it was important to know how to talk to the referee in English about the reason why they needed a video replay. Thus, talking to the judges and the referee about the reasons why a video replay was warranted became part of the athlete's daily imagery routine. After her success Kim said that "for success in competition a Taekwondo MST programme is a must", and "this time the MST programme was a real help".

Results

Effects of Psychological Training

1) Psychological Skills

The results of the KTOPS before and after are presented in Figure 2. This is what Kim said about MST after her successful Olympics. Self-talk: "When I felt anxious, I thought positively and I believe that this really made it happen". Emotional Control: "I was able to control my emotions". Imagery: "Since I was able to use whatever technique I wanted when I wanted it was easy to control the situation". Negative Thoughts: "When I was in the waiting room I had no thoughts about making mistakes; I was only thinking positively, I never thought about losing". Anxiety Management: "I wasn't really nervous at all, this time".

2) Competition Results

Table 3 shows an analysis of the athlete's game strategies winning gold in the last two Olympics. In the preliminary round she dominated with a 4-1 win, in the quarterfinals she won 8-4, in the semi-finals she won 7-0, and in the finals she won 12-5. During these wins and her performances at international competitions, her most frequently used techniques were defensive

counter-attacks to the body. In the previous two Olympics there was no chest protector for automatic scoring and therefore, body shots would be difficult to score; consequently, more head shots were necessary for high scoring games. In practice she increased her attacking head shots and for external imagery training she watched more head shots. Table 3 indicates that she changed her style in these Olympics with 64.5% of her points from attacks and 67.7% from head shots.

The results of the SASKA show the importance of MST for top performance. With the help of MST it was possible for the athlete to be able to maintain physical and mental fitness at the highest level, control her anxiety levels, and still maintain the drive needed to win gold at the Olympics. In this study, the MST programme primarily helped the athlete maintain her mental condition and analyse the opponents' strategy.

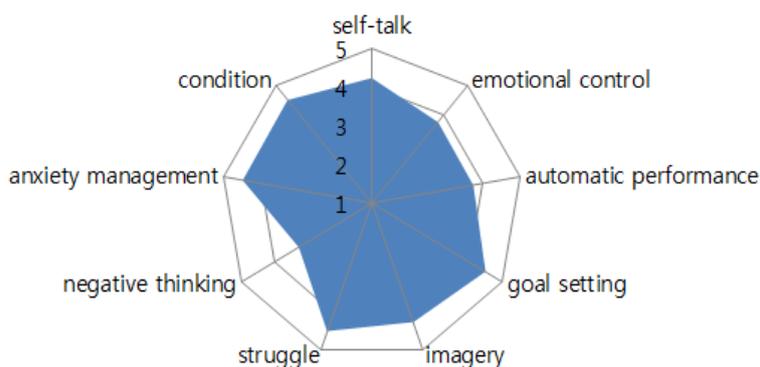


Figure 1

Sports Performance Strategy Variables

Table 1

Opponent Technique Analysis

Opponent	Special Technique	Strengths	Weaknesses
A	<ul style="list-style-type: none"> •right side form •front leg attack/ defense to the face, tornado kick, turning kick 	<ul style="list-style-type: none"> •high fitness level •spinning kick to the head when in range 	<ul style="list-style-type: none"> •none
B	<ul style="list-style-type: none"> •left leg fast kick •right leg cut kick followed by left leg turning kick •right leg head shot 	<ul style="list-style-type: none"> •excellent flexibility and head shots •combination kicker 	<ul style="list-style-type: none"> •defensive turning kick
C	<ul style="list-style-type: none"> •right side turning kick •right side defensive turning kick •left leg axe kick •axe, turning and spinning kick combination 	<ul style="list-style-type: none"> •head shots and combination kicking 	<ul style="list-style-type: none"> •use of big motion kicks too often •weak left leg defensive kick
D	<ul style="list-style-type: none"> •right side attacking right leg turning kick 	<ul style="list-style-type: none"> •very confident •strong attacker 	<ul style="list-style-type: none"> •habitually moving forward with the right leg
E	<ul style="list-style-type: none"> •right side form right leg attack while moving back •right leg back kick •left leg defensive turning kick 	<ul style="list-style-type: none"> •cutting well with the front leg for opponent's attack 	<ul style="list-style-type: none"> •tries to do the moving back leg turning kick after the clench

Table 2

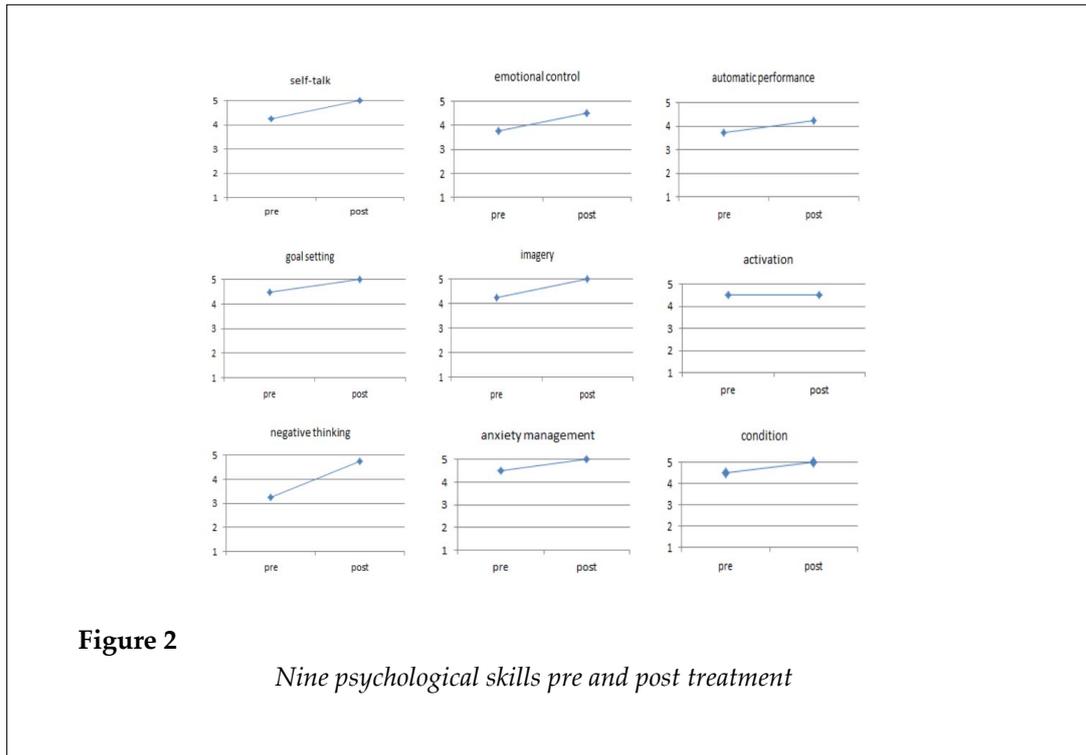
Personal Pre-competition Routine from the weigh in to entering the arena

Content	
Weigh In	1) Wear shorts and a t-shirt 2) Ensure weight is between 66-67kg 3) Be on time for weigh in at 11:00 to 11:30 4) Watch each player as they have height and weight
Accommodation	1) Watch an action movie 2) Have dinner, take a walk around the village 3) Message with friends via cell phone 4) External imagery with a smart phone (peak performance) 5) Internal image training about the opponents strategy
Before Sleep	1) Prepare your mind by getting uniform and protectors ready for the following day (If possible put them on the ground – Jinx) 2) Sleep around 11 pm (If you can't sleep, listen to relaxing music)
Competition Day	1) Get up and shower at 6:30 am 2) Have breakfast and brush teeth 3) Check all equipment that is required for competition 4) Depart for the arena
Arrive at arena	1) Listen to music and relax 2) Take a walk around the arena 3) Stretching (standing, sitting and light jogging) 4) Practice basic and combination kicking 5) Check physical condition
Waiting Room	1) 20 min before competition get the protectors ready and concentrate/focus only on the protectors "Focus" 2) Just before entering the waiting room (self-talk) "I am going to enjoy this and I'm not going to get injured". 3) Just before going on the court/mats: 3 deep breaths and make a fist (self-talk) "Let's do this"
Enter Arena	1) Look at the audience once. 2) Take one deep breath. 3) Talk with the coach 4) Greet the director, referee, ready bow (self-talk) "I am going to focus on the opponent.

Table 3

Strategy Analysis (breakdown of points) after MST

Techniques	Qualifiers (pre.)	Quarter finals	Semi Finals	Finals	Total
offensive kick 1 point	1	1		3	5
offensive kick 2 points					
offensive kick 3 points	1	1	1	1	12
punch		1		2	3
offensive shots Total	20 points (64.5%)				
defensive kick 1 point			1	1	2
defensive kick 2 points					
defensive kick 3 points		1	1	1	9
defensive kicks Total	11 points (35.5)				
3 points total	21 points (67.7%)				



The SASKA highlighted the significance of imagery that had helped change the athlete’s fighting style to be more offensive and to attack to the head.

Discussion

The development of this MST

programme was based on previous recommendations (Lim, 2007; Weinberg and Gould, 2003) to follow an adaptable workflow of planning, orientation, MST, application, and evaluation. With regard to an athlete willing to follow an existing MST programme, the strengths and weaknesses of their current programme need

to be reinforced. When considering the results of the present study and their interpretation, it is vital to note that they are only based on the MST program specifically designed for one single athlete and thus, cannot be applied to everyone.

Even though Kim had an existing MST programme, the KTOPS scores indicated that she could not control her negative thoughts. Kim's self-talk, goal setting, imagery, activation, anxiety management, and maintaining peak physical fitness were her strengths, however, she did not know how to use her strengths efficiently. Therefore, one of the initial aims of this MST programme was to retrain the athlete in the correct use of her MST. The results show that the more she practised the MST programme, the more confident she became. More importantly, this encouraged the athlete to invest more time to develop her MST. Ultimately, this increased her overall feeling of confidence and induced a more positive state of mind, which also helped during training.

In this study, not only were qualitative and quantitative methods applied, but also a behavioural interview was performed to further consider individual characteristics. The interview provided insights into how easy and efficient communication was vital between the coach and the athlete. If a coach can help the athlete maintain their nerves then they can give them a boost to confidence (Lim, 2007).

In this study, the coach also participated in MST focusing on coaching imagery, especially the use of the video replay during the match as not to miss the opportunity and disrupt the athlete's flow. As this relationship can have such an influence on athlete's performance, future research should further investigate how the relationship between the coach and the athlete can affect their performance and behaviour. Furthermore, research shows the effect that MST for a coach can have on the athlete's self-confidence (Lim, 2007).

The secondary purpose of this study was to investigate the effect that MST had on the psychological skills, competition performance, and the sport attribution style. There were noticeable improvements in all of the measured variables except activation. The athlete's strategy to increase the number of head shots and attack more was successful. From her KTOPS results, the

main variables that seemed to be critical were physical condition, rival analysis and effort. Self-talk, imagery and routine provided were based on recommendations for taekwondo athletes by Lim (2007). Self-talk is a powerful tool that can be used for motivation to induce a positive psychological state (Hatzigeorgiadis et al., 2004) and its positive effects have been shown to improve their score in golf (Hayslip Jr. et al., 2010), increase concentration, and reduce negative and disrupting thoughts (Hatzigeorgiadis et al., 2004).

Imagery, including competitive situations, the stadium, particular strategic actions, and both internal and external methods need to be used in combination to maintain an ideal psychological state (Martin et al., 1999; Moritz et al., 1996; Rushall, 1988). For a taekwondo athlete this has to be taken under consideration to ensure that while they are practising they must be in a state of mind that is as close to competition performance as possible. Thus, if done regularly, it can help create a positive psychological state during both practice and competition, and can help prepare the athlete to conquer their anxiety, control confidence, and perform their best. In a taekwondo competition, high speed reaction is required as it is reported (O'Sullivan et al., 2009) that the time to execute a taekwondo's most popular attacking kick - the turning kick - takes approximately 30 ms from the time the player's foot leaves the ground to the target, either the body or the head. Similarly, as an athlete's body moves in and out of rhythm, "bouncing" and "feinting", it becomes more difficult for a defending athlete to predict their opponent's attack. External imagery can, therefore, provide an opportunity to learn the bouncing and feinting pattern of an opponent, as has been used in soccer (Thelwell et al., 2003).

Routine has been demonstrated to help control attention and automatic performance. For taekwondo, automatic skill execution is imperative to intentionally control one's movement and response. Hayslip Jr. and colleagues (2010) reported the predictability of automaticity. Pre-performance routine was illustrated to reduce the anxiety experienced by wrestling medallists at the 1988 Olympics (Gould et al., 1992). By comparing medallist and non-medallist wrestlers, authors were able to show that medallists with a pre-performance routine

starting from the day of the weigh-in until the completion of competition were more likely to win.

Kim is a taekwondo athlete that has won three gold medals consecutively, with two of her wins requiring her to come back from behind her opponents. From a strategic and technical point of view, this has been possible owing to her new strategy as she has increased the number of kicks to the head and the number of points from attacking. This change in strategy is thought to be due to her change in pre-performance routine and self-talk. Likewise, the importance of imagery and mental skills is reported to be vital for high-level performance at events such as the Olympics (Calmels et al., 2004; Hall and Martin, 1997; Orlick and Partington, 1988).

As predicted by Lim (2007), the ability of an athlete to maintain top physical condition was key to optimum performance, which was further supported by the content of the interview where the athlete stated that maintaining top physical condition, effort, opponent analysis, and her spirit

to never to give up were key to the success. Athletes who have participated in imagery training are reported to train for longer hours, have higher self-expectation, and work harder during training (Martin and Hall, 1995).

All athletes feel stressed out during important competitions. One of the best ways for an athlete to control this is by controlling their psychological state. Orlick and Partington (1988) show that Olympians are more confident before competitions than other athletes. Thus, with the considerable differences between training and competition stress, it is essential for an athlete to use MST to help transfer the automaticity in training to main competitions.

Conclusion

Ultimately, this is one of the first studies to describe systematic MST for a successful taekwondo athlete. It also provides the theoretical and practical background of how MST for a taekwondo athlete should be developed and highlights its benefits.

Acknowledgements

We thank the participant for agreeing to allow this information to become public.

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