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Dr. Anidev Singh
Student Activity and Sports
Officer, National Institute of
Technology Delhi, Delhi, India

Effect of mental imagery training on the selected psycho- motor abilities and counter-attack performance of male taekwondo players

Dr. Anidev Singh

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Abstract

Purpose: The study was conducted to determine the effect of Mental Imagery Training on the selected psycho-motor abilities namely attention, kinesthetic perception and counter-attack performance of male taekwondo players.

Method: 38 male taekwondo players from Delhi in the age group of 17- 21 years underwent mental imagery training of 20 minutes, thrice a week for six weeks. All the subjects selected were administered Attention Grid Test (Harris & Harris (1984)), Horizontal Space Test, and Counter Attack test for measuring Attention, Kinesthetic Perception and counter-attack performance. All the tests were administered twice i.e. before and after the six weeks of mental imagery training. Mean, Standard Deviation, Percentage Change and Paired Sample 't'- test were used as a statistical procedure for analyzing the data.

Results: The results of the study revealed a significant improvement in attention (39.97%), kinesthetic perception (28.66%) and counter-attack execution (48.35%) of taekwondo players as the paired t' values obtained were 15.076, 12.089, and 8.135 at $p \leq 0.001$.

Conclusion: It was concluded that mental imagery training should be included in taekwondo trainings as it is an effective training technique to improve the psycho-motor abilities of the taekwondo players.

Keywords: Mental imagery training, attention, kinesthetic perception

1. Introduction

In recent years the use of cognitive strategies to facilitate optimum performance has gained increased acceptance. Cognitive strategies teach the athletes psychological skills that they can employ in their mental preparation for the competition. In addition to focusing on alleviating the harmful effects of anxiety and arousal, these cognitive strategies can also be used to enhance motivation and self-confidence and to improve performance consistency (D. A. Wuest and Charles A. Bucher, 1994) [20].

Mental practice devotes the cognitive rehearsal of action without overt performance of the physical performance of the physical movement involved (Oriskell, copper and Moran, 1994) [21]. It has also been defined by Richardson (1967) [28] as "The Symbolic Rehearsal of a Physical Activity in the absence of any Gross Muscular Movements". The importance of mental factors in sport was also underlined by Mike Marsh, the American Champion Sprinter, who claimed that the ability to win comes "90% from the mind and 10% from the body" (Chadban, 1995) [22].

In recent years the study of mental imagery has sparked the interest of many scholars in the field of sport psychology. It is now recognized that, in general, imagery is used daily by most people (Barr & Hall, 1992) [23]. In addition, many athletes and coaches have realized the important role that imagery plays (Salmon, Hall, & Haslam, 1994) [24] and have incorporated its use in into their training regimens (Martin, Moritz, & Hall, 1999) [25].

Mental imagery can be defined as the process that occurs when we recreate experiences in the mind using information that is stored in the memory. Dreaming is an unstructured form of imagery, but the type of imagery we're interested in here is structured imagery, where the athlete uses his or her imagination in a controlled fashion to recreate specific images. There are a number of different ways of visualizing images or experiences recreated in the mind (e.g. you can visualize yourself feeling movement internally, or externally as a spectator) but research shows that the more able an athlete is to control his or her imagined movements, the greater the potential performance enhancement (Advances in Sport Psychology (2nd ed), Champaign IL: Human Kinetics, 2002:405-439)

Corresponding Author:
Dr. Anidev Singh
Student Activity and Sports
Officer, National Institute of
Technology Delhi, Delhi, India

These aspects of the mental imagery need to be constantly practices in order to elicit results. Even though individual differences exist in mental imagery ability, generally, better imagery control correlates to better performance in the motor skill (Annett, 1995) [26]. Another approach is to combine the techniques of mental imagery with physical practice of the intended skill labelled visual-motor behaviour rehearsal, which in fact till date, had not been used or applied in the field of taekwondo hence the study has been undertaken.

2. Objectives and Hypothesis

The study was conducted with the objective to determine the effect of Mental Imagery Training on the selected psycho-motor abilities namely attention & kinesthetic perception and counter attack performance of male taekwondo players. After thoroughly going through the literature it was hypothesized that there would be significant effect of Mental Imagery Training on attention, kinesthetic perception and counter attack performance of male taekwondo players.

3. Procedure and Methodology

3.1 Subjects: Thirty eight male taekwondo players belonging to 17- 22 years age group and had secured medal in the state level taekwondo championship in the past three years.

3.2 Training Protocol: All the selected subjects underwent Mental Imagery (Internal) training of 20 minutes, thrice a week for six weeks. The mental imagery training script used was as follows:

- In order to begin, you need to become very relaxed.
- I want you to be in a comfortable lying position.

- Take three deep, slow breaths that will fill your lungs and chest with air, breathe in..... and breathe out..... breathe in..... breathe out.
- Good, your mind is relaxed, and ready to start our imagery session.
- Visualize your routine in the training hall from standing motionless to completion of the day workout.
- Imagine yourself changing into your warm ups.
- Hear the talk and noise of your team mates, and feel yourself pulling up your uniform and tying your belts.
- Visualize and feel yourself jogging with your team around the arena, stretching, and bouncing.
- Create the images of warming up kicking on the target.
- Visualize the images your goal.
- Imagine kicking on the target with your dominant leg and visualize kicking each technique as accurately as possible. Focus on the movement of your leg. If you mentally feel inaccurate, try to fix it or change it on the next attempt by refocusing on the imagined movement of your leg. After you have finished mentally kicking each technique, say ‘done’ to complete the trial.”

3.3 Testing Procedures: All the subjects selected were administered Attention Grid Test (Harris & Harris (1984)) [27], Horizontal Space Test, and Counter Attack 10 times for measuring the Attention, Kinesthetic Perception and counter attack performance. All the tests were administered two times i.e. before and after the six weeks mental imagery training. Mean, Standard Deviation, Percentage Change and Paired Sample ‘t’- test were used as statistical procedure for analyzing the data.

4. Findings of the Study

Table 1: Effect of Mental Imagery Training on the Selected Psycho-Motor Abilities and Counter-Attack Performance of Male Taekwondo Players

S No	Variables	Pre Test	Post Test	Improvement	‘t’
1	Attention	13.16±1.98	18.42±1.67	39.97%	15.076*
2	Kinesthetic Perception	1.57±0.19	1.12±0.20	28.66%	12.089*
3	Counter Attack Performance	4.84±0.88	7.18±1.66	48.35%	8.135*

*Significant at 0.001 level

As indicated in Table 1, the selected psycho-motor abilities i.e. attention & kinesthetic perception and counterattack performance of the male taekwondo players had improved by 39.97%, 28.66% and 48.35% respectively. These

improvements were found to be highly significant as the paired t’ values obtained were 15.076, 12.089 and 8.135 at $p \leq 0.001$.

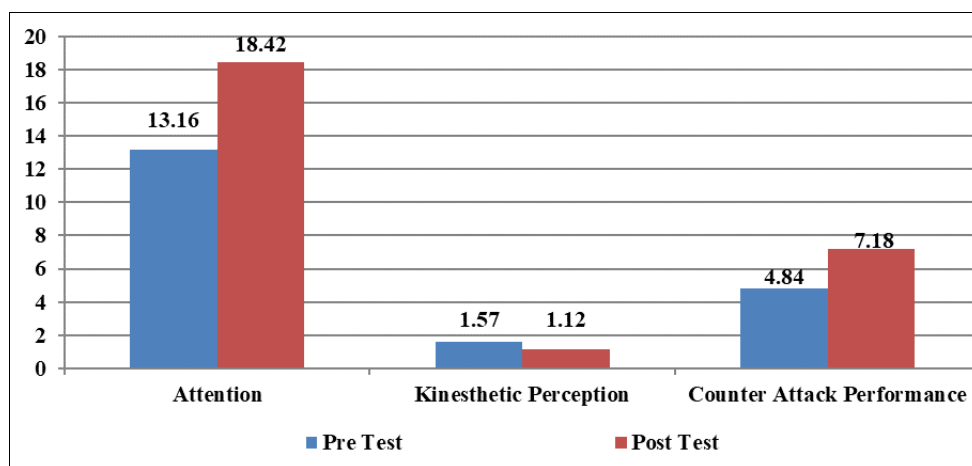


Fig 1: Effect of Mental Imagery Training on the Selected Psycho-Motor Abilities of Male Taekwondo Players

5. Discussion and Conclusion

The results of the study indicated that the six weeks of mental imagery training significantly improves selected psycho-motor abilities namely attention & kinesthetic perception and counter attack performance of male taekwondo players. The attention of the male taekwondo players measured by attention grid had improved from 13.16 ± 1.98 to 18.42 ± 1.67 showing an improvement of 39.97%, and the kinesthetic perception measured by horizontal space test was decreased from 1.57 ± 0.19 cms to 1.12 ± 0.20 cms, showing an improvement of 28.66%. The mean of successful counterattacks had increased from 4.84 ± 0.88 kicks to 7.18 ± 1.66 kicks showing an improvement in a counterattack by 48.35%. The result of the study supports previous research that mental imagery training has enormous positive effects on human cognitive as well as physical performance abilities by improving various psycho-motor abilities. Hence further it is recommended that sports coaches, physical trainers, and training experts use the findings of the present study to design appropriate training programmes to help athletes acquire greater attention and accuracy in performing counterattacks so as to enhance their sports performance at the training time as well as the performance on the field.

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