

A Data Meaning Approach to Effect of 12 Week visual Motor Behavior Rehearsal Training on Mental Toughness of Table Tennis Players

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Abstract

Problem: The present study was conducted to determine the effects of Visual Motor Behaviour Rehearsal Training on Mental Toughness of Table Tennis players. **Methodology:** Fifty (50) male state level Table Tennis players with age group 17 to 23 years from Inspire Table Tennis Academy, Secunderabad Telangana were selected and all the subjects were divided randomly into two groups, each group consisting of 25 subjects. Experimental group under gone Visual Motor Behaviour Rehearsal Training for the duration of 12 weeks, three times a week whereas control group was not involved in any training programme except their daily practice. Measurements of Sports Mental Toughness Questionnaire (SMTQ) with three dimensions which were confidence, consistency and control developed by Michael Sheard, Jim Golby, and Anna Van Wersch were taken at the beginning and after the experimental period of 12 weeks. **Findings:** Descriptive statistics and dependent t-test taken as statistical techniques were employed. Result of Experimental Group found significant effect at 0.01 level of significance for Confidence, Consistency, and control from sports mental toughness dimensions among Table Tennis players. **Conclusion:** The study gives us an understanding of various psychological components that affect performance. Visual Motor Behaviour Rehearsal Training contribute to improved performance are; Technique enhancement, error analysis & correction, preparation for competition and improve psychological parameters, i.e., Mental toughness.

Keywords: Sports Mental Toughness Questionnaire (SMTQ), Visual Motor Behaviour Rehearsal (VMBR) Training, Confidence, Consistency, Control

Introduction

In modern world of competition cognitive intervention for players become a very essential and widely accepted by everyone (Sharma, A., & Prasad, B. K., 2023). In performance psychology, visualization technique has been widely popularized and Visual-Motor Behaviour Rehearsal (VMBR) is a standardized training method contributes to the enhancement of sports performance across a wide variety of different sports. It is a mental practice required the combin ed involvement of both relaxation and mental imagery. Visual-motor behaviour rehearsal (VMBR) was developed (Sharma, A., & Prasad, B. K., 2023). Relaxation training, visualization, and simulation of stressful environments are all components of VMBR. The VMBR is established on the fact that performing the task based on previous imagination; this makes the task easier and more

accurate to perform and imagination of exercise make physical and intellectual achievement (Alrahamneh & Elbokai, 2011; Sharma, A., & Prasad, B. K., 2023). The VMBR helps to make the player train under real match conditions. Anxiety and mental toughness are the most common concepts related to sports competitive environment and are widely discussed by the performers and the trainers. Anxiety disrupted the attention and worries about the performance in competitive situation (Sharma, A., & Prasad, B. K., 2023).

The technique known as Visual-Motor Behaviour Rehearsal (VMBR) involves mentally recording an event and playing it again piece by piece. Technique improvement, mistake analysis and repair, and completion preparation are all phases in VMBR that help athletes perform better. raise psychological thresholds and skill development (Chauhan et al., 2020). The foundation of VMBR is the idea that using imagination before doing a task may make it simpler and more precise. It is also feasible to achieve intellectual and physical feats by using imagination in ways that go beyond what is achievable for athletes. Through visualization exercises, VMBR training enables athletes to become aware of their motor performance flaws, which helps them to reduce errors and enhance performance (Chaudhary, 2018). VMBR is proven as one of the methods that can help novice learning process become faster and more accurate. Combining VMBR training with physical practice help in skill performance enhancement become more efficient (Sa'ari & Isa, 2018)

Table Tennis is a racket game which is of small playing surface and needs great accuracy and quickness with full self-confidence. There may be disadvantage to the player who is having high anxiety level which may lead to the problem such as shivering, lack of coordination and losing self-confidence (Schlager & Gross, 2011). VMBR (Visual motor behaviour rehearsal) which must major components i.e., relaxation technique and imagery training which is helpful to reduce the anxiety level of the player. Relaxation technique helps to enhance the mental image whereas imagery technique leads to visualization of successful performance.

Mental toughness is broadly viewed as an essential and popular in modern sports. It enables an athlete to handle better his opponents during competition which help him to perform better than his opponents and also increased the possibility of winning whilst showing continuous improvements (Gucciardi, 2010).

Therefore, the purpose of this study was to investigate the effect of Visual Motor Behaviour Rehearsal Training on selected psychological dimensions of mental toughness that were confidence, consistency, control. Through some previous studies on visual motor behaviour rehearsal training it, it was observed that, the intervention was conducted among athletes with a majority of team sports like Hockey, Football, Handball and closed skill sports where the movements were pre-defined like Archery (Sa'ari & Isa, 2018). The mental component of performance holds a special place in racket sports considering the inherent demands in such intense and emotional activities (Cece et al., 2020) and considering Table Tennis as a most popular racket sport in the world (Jiangzhou et al., 2020), the researchers thought to conduct Visual Motor Behaviour Rehearsal Training to examine its effect on selected psychological dimensions of Table Tennis players. Even extremely mentally tough athletes experience the strain, stress, and anxiety that come with competing in sports (Sharma, A., & Prasad, B.K., 2022). Psychology skill-training programme has positive impact on the performance of national Table Tennis players (Lim et al., 2018).

Methodology

To attain the purpose of the study, 50 male table tennis player of state level were selected as subjects from Inspire Table Tennis Academy, Secundarabad, Telangana. The age of the subjects was ranged between 17 to 23 years. For administration feasibility two intact groups were formed, one was Control group and second group was Experimental group.

Based on the available literature, findings of the related research studies, variables selected for the study were Confidence, Consistency and Control under Mental Toughness.

Research Design used for this study was Pre-Test Post-Test randomized group Design.

Training protocols

1. Control group:

The participants of the control group undertook only regular table tennis practice.

2. Experimental group:

The participants of this group went through the Visual motor BEHAVIOUR rehearsal training programme. This was scheduled for three days (Monday, Wednesday and Friday) per week in the morning between 6.30 a.m. to 7:10 a.m. for twelve weeks. The visual motor BEHAVIOUR rehearsal training programs consisted of warm up for 5-8 minutes of stretching and jogging. In evening they went for their regular table tennis practice. The training protocol involves the following procedure:

A: Phase 1- Progressive muscle relaxation technique that involved systematically tensing and relaxing specific muscle groups in a predetermined order of forehead and scalp, neck and shoulder, upper chest, thighs and calves for 5-8 minutes.

B: Phase 2- Visual presentation of game related contents like motivation, skills, technique and matches shown with help of projector for the duration of 5 to 7 Minutes. Then they were instructed to step into Visualization to recreate the mental image and see every detail through successful visualization for 5 to 7 minutes.

C: Phase 3- Subjects went through Imagery technique, whatever they had seen during second phase, they reconnected the skills with their own involving somatic sensations, sound of audience, colleagues' motivation, sights and emotions which they had experienced during actual game conditions for 5 to 8 minutes.

The tools used for the purpose of the study to examine Mental Toughness, (SMTQ) Sports Mental Toughness Questionnaire (Sheard et al., 2009) developed by Michael Sheard, Jim Golby, and Anna Van Wersch with 14 statements on a 4 point Likert scale anchored by Very true, Mostly true, A Little true and Not at all was used.

First, normality assumption of data was checked by Shapiro- Wilk test, after that Levene's test was used to test the Homogeneity of Variances between experimental and control group. The assumptions of normality and homogeneity was not violated, thus parametric test was implemented where data obtained from the control and experimental groups before and after the experimental period were statistically analyzed with dependent 't' test.

Results

Table 1 Descriptive Statistics (Mean and Standard Deviation) of Psychological Variables

Psychological Variables	Control Group		Experimental Group	
	Mean	Standard Deviation	Mean	Standard Deviation
Pre Confidence	16.36	1.46	16.92	1.35
Post Confidence	16.64	1.82	17.60	1.41
Pre Consistency	09.04	1.36	09.69	1.34
Post Consistency	09.16	0.98	10.20	1.25
Pre Control	09.12	1.45	09.44	1.47
Post Control	09.36	1.15	10.20	1.25

Table 1 showed the descriptive statistics (mean and standard deviation) of Control group and Experimental group before 12 week of training and after 12weeks of training on selected psychological variables (Confidence, Consistency, Control).

Table 2 Dependent sample t-test of Mental Toughness between control and experimental group of Table Tennis players

	Control Group			Experimental Group		
	t- Value	p-Value (.05)	Sig.	t- Value	p-Value (.05)	Sig.
Confidence	1.319	0.200	Not Sig.	3.180	0.004	Sig.
Consistency	0.499	0.622	Not Sig.	2.831	0.009	Sig.
Control	0.923	0.365	Not Sig.	4.106	0.000	Sig.

The Inferential statistics (dependent t-test) of Control group and Experimental group before 12 weeks of training and after 12 weeks of training on selected psychological variables (Confidence, Consistency, Control) shown significant effect in experimental group for Confidence, Consistency and Control from sports mental toughness dimensions of Table Tennis players at 0.01 level of significance.

Discussions

The present study evaluated the effect of 12 weeks Visual Motor Behaviour Rehearsal Training to examine its effect on Mental Toughness of Table Tennis players. As per the previous studies that were conducted with more frequency and duration of the VMBR Training has shown significant effect on psychological variables conducted with 8 and 12 weeks of training as well

(Chaudhary,2018; Choudhary et al., 2018; Sa'ari & Isa, 2018; Singh & Bhowmik, 2020) To achieve the purpose of the study dependent t-test was applied. One of the most systematically described and researched versions of imagery rehearsal is called Visual-Motor Behaviour Rehearsal. Visual-Motor Behaviour Rehearsal training contributes to the enhancement of sports performance across a wide variety of different sports, besides its approach to mental practice seems to require the synergistic involvement to both relaxation and mental imagery. The Effectiveness of Visual-Motor Behaviour Rehearsal (VMBR) to Reduce the Anxiety and to Improve Self Concept for Athletes with Special Needs. The VMBR includes imagery and breathing techniques that also allowed participants to significantly affect several of the dependent variables' subfactors of Mental Toughness. The belief that Visual-Motor Behaviour Rehearsal improves self-confidence, emotions, negative thoughts, and primarily anxiety of the players can be used to explain the marginally significant improvement. Participants are taught breathing techniques as a relaxation technique, which helps the players stay calm and react to situations positively and to remain calm under pressure. Negative energy control helps to ignore the negative thought, and distraction helps to refocus attention (Singh & Bhowmik, 2020).

In the present study, there was significant difference seen in all the dimensions like Confidence, Consistency and Control from Mental Toughness. The reason may be since the duration as well as frequency was sufficient to enhance the mental toughness in all the parameters. In fact researcher also found the supportive study regarding the significant factors.

Conclusion

The study gives us an understanding of various psychological components that affect performance. Previous literature also indicated that the visualization and imagery has been used as an effective tool for enhancing performance. However, Visual-Motor Behaviour Rehearsal is a systematic psychological technique helps Table Tennis players in overcoming psychological factors. Visual-Motor Behaviour Rehearsal (VMBR) is the method of creating a mental video of an event and replaying it step by step. The steps of Visual Motor Behaviour Rehearsal that contribute to improved performance are; Technique enhancement, error analysis & correction, preparation for completion improve psychological parameters. VMBR (Visual-Motor Behaviour Rehearsal) involves replaying an event step by step based on a mental video. The steps of Visual Motor Behaviour Rehearsal that contribute to improved performance are; Technique enhancement, error analysis & correction, preparation for completion improve psychological parameters. Thus, future research could be undertaken with Table Tennis skill related parameters to see the effectiveness of Visual-Motor Behaviour Rehearsal on skill competency or playing ability and applied as per the athlete's requirement, thus helping an athlete to enhance his/her performance and improve psychological parameters.

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