



ORIGINAL RESEARCH PAPER

Physiotherapy

PROGRESSIVE MUSCULAR RELAXATION TECHNIQUE ON COMPETITIVE STATE ANXIETY : COHORT STUDY

KEY WORDS:

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ABSTRACT

Objective: Effect of progressive muscular relaxation technique and autogenic relaxation technique on pre competitive state anxiety and self- confidence in athletes.

Design: Pre-test and Post test control group design.

Participants: 30 subjects were selected on the basis of their CSAI-2R score, they were randomly allocated to one of the three groups. Group 1 (progressive muscular relaxation) group 2 (control).

Intervention: Progressive muscular relaxation technique for 15-20 minutes.

Main Outcome Measures: somatic anxiety, cognitive anxiety, self-confidence.

Results: There was significant reduction in somatic anxiety & cognitive anxiety and improved self confidence found in Group 1 whereas no significant difference observed in group 2.

Conclusion: From the result of the study it was concluded that relaxation technique is an effective intervention for reducing pre competitive state anxiety and improving self-confidence in athletes. As progressive muscular relaxation was significantly effective on reducing competitive state anxiety & improving self-confidence in group 1 as compared to control group.

INTRODUCTION

Sport for leisure can be both fun and thrilling but when competition sets in, it may no longer be so. With competition the first thought that comes to mind is the pressure, tension, stress or anxiety. There can be tons of pressure in any sport, it can come from expectations of the coach, friends and supporter's who expect you to win. It can also come from within a person, some time we can be very hard on ourselves. We push ourselves to excel and this further adds to the stresses that come with playing in competitive sport.

Coakley (1994) define competition as "a social process that occurs when rewards are given to people on the basis of how their performance compare with the performance of other doing the same task or participating in the same event". Today's sporting arena is highly competitive. Sport competition is well known for placing extremely high demand on athlete and that ever-increasing demand put the athlete in stressful condition. People have been using relaxation techniques for many years. Relaxation techniques have been used in some Asian cultures and in many of the Eastern religions to promote meditative practices to control the mind and relax the body. Benson and Klipper (1976) also reported that yoga was part of Indian culture thousands of years ago to provide a higher level of brain control. Currently, yoga is considered to be one of the most important types of relaxation techniques. In the medical field positive impacts on some diseases such as cardiovascular disease, hypertension and asthma were reported (Sangthong et al., 2004; Kellett and Mullan., 2002). In relation to sports, Solberg et al. (2000) reported positive effects of relaxation in enhancing recovery from training, mitigating champion anxiety and improving performance. "Anxiety is a negative emotional state in which a person experiences a combination of nervousness, worry and fairness, and activation of the autonomic nervous system" (Ampofo-Boateng, 2009). Anxiety is also "multidimensional in nature with cognitive and somatic responses. The cognitive anxiety is the mental component of anxiety, while somatic is the physical component of anxiety" Anxiety reflects a threat of negative evaluation or negative performance, and can manifest itself in all aspects of the competition from beginning to end. This implies that anxiety is one of the major problems facing players as well as the team (Murphy, 2005).

Researchers have tried to resolve problems of stress and anxiety in

players by using different strategies. According to Ampofo-Boateng (2008) there are many strategies in sports for coping with stress and anxiety in elite athletes, including self talk, thought control, identification of symptoms, self-monitoring, stress inoculation training, and relaxation techniques.

METHOD

Subjects

30 male athletes (10 Table tennis, 10 Bad- minton, 6 Karate, 4 Skating) with the mean age of 17.8 ± 4.6 were selected for the study after fulfilling the all inclusion & exclusion criteria. Subjects were randomly assigned to one of three groups. Group 1 received Progressive muscular relaxation technique (n=15), group 2 subjects form a control group (n=15).

Measure: Pre competitive state anxiety and self confidence was measured by using revised version of competitive state anxiety inventory 2 (CSAI-2R) This is 17 items measure & has three subscales cognitive anxiety, somatic anxiety and self confidence. 7 items in somatic anxiety subscale and 5 items in each of the subscales of cognitive anxiety and self-confidence. The 17-item revised CSAI-2 was subjected to a confirmatory factor analysis (CFA) using the validation data sample, resulting a good fit of the data to the model which comparative fit index was .95, non-normed fit index was .94 and the root mean squared error of approximation was .054 (Cox, Martens & Russell, 2003).

Protocol

1 hour prior to the competitive performance Subject were asked to fill the revised version of competitive state anxiety inventory 2 (CSAI 2R) on the basis of fulfillment of all inclusion and exclusion criteria subject were selected for the study and their CSAI 2 score consider as a pre intervention data. Than subject were randomly assigned to one of two groups. Group (1) received Progressive muscular relaxation technique [PMR]. Group (2) was control group. Subject of intervention group [PMR] explained about the procedure and effect of their respected intervention while subject of control group was kept blind about the purpose of the study. Subject of intervention group [PMR] received relaxation technique in quiet and suitable place for 15 – 20 min. after that subject were returned back to competitive environment. 30 min. prior to competitive performance subject was again asked to fill the CSAI 2R scale and score were collected as post intervention data.

Dependent variables: somatic anxiety, cognitive anxiety, self confidence

Procedure

The selected place was quite and well ventilated, with dim lighted and favorable for relaxation with no external noise or distraction.

Subject were asked to wear comfortable light clothing, and asked to remove shoes, watches or any band if wear. Every subject received relaxation technique in supine lying position.

All the procedures were properly explained to the subject, and they were asked to listen & follow the instruction carefully.

Progressive muscular relaxation technique:

Progressive muscular relaxation is the systemic technique developed by Edmund Jacobson's in (1938). It is widely used active procedure for aid relaxation and relieves tension.

The procedure involve, asking the subject to focus on a specific muscle group which are going to be tense than taking deep breath and simultaneously tense that specific muscle group & feel the tension for 5 - 7 sec. which are guided by the therapist counting (1 to 5) followed by exhale and simultaneously released the tension and feel the sense of relaxation for 10 - 15 sec.

RESULTS

The data were analyzed using SPSS (version 15) in within group comparison by using paired t - test results revealed that PMR group showed significant difference in pre test post test mean value of somatic anxiety, cognitive anxiety and self-confidence than the control group at $p < 0.05$ level of significance.

Table 1 showed that there is no significant reduction in somatic & cognitive anxiety and increased self confidence in group 2. The mean value change of pre test to post test of somatic anxiety was 14.06 ± 1.4 to 14.2 ± 3.2 , cognitive anxiety 12.6 ± 0.9 to 12.9 ± 3.4 & self confidence 5 to 5.2 ± 1 .

The result of two tailed paired 't' test analysis showed that there is no statistically significant difference found in pre test post test value of somatic anxiety ,cognitive anxiety & self confidence at $p < 0.05$ level of significance.

TABLE 1. Within group analysis: Group 2

	Pre-test Mean \pm SD	Post-test Mean \pm SD	Std. Error Mean diff	t value	P value
Somatic anxiety	14.06 \pm 1.4	14.2 \pm 3.2	0.682	-0.195	0.848
Cognitive anxiety	12.6 \pm 0.9	12.9 \pm 3.4	0.753	-0.442	0.665
Self-confidence	5	5.2 \pm 1	0.266	-1.00	0.335

*significant at $p < 0.05$

Table 2 showed that there is significant reduction in somatic & cognitive anxiety and increased self confidence in (group 1), after receiving PMR technique. The mean value of somatic anxiety is reduced from 14.27 ± 2 to 10 ± 3.8 . the mean value of cognitive anxiety is reduced from 13 ± 1.8 to 9 ± 3.8 7 the mean value of self confidence increased from 5 to 8.6 ± 4.1 .

The result of two tailed paired 't' test analysis showed that there is statistically significant difference found in pre test post test value of somatic anxiety ($t=4.17, p<0.001$), cognitive anxiety ($t=5.20$, $p<0.00$) & self confidence ($t=-3.39$, $p<0.004$) at $p < 0.05$ level of significance.

TABLE 2 With in group analysis : Group 1

	Pre-test Mean \pm SD	Post-test Mean \pm SD	Std.Error Mean diff	t value	P value
Somatic anxiety	14.27 \pm 2	10 \pm 3.8	1.021	4.17	0.001*
Cognitive anxiety	13 \pm 1.8	9 \pm 3.8 7	0.768	5.20	0.00*
Self-confidence	5	8.6 \pm 4.1	1.059	3.39	0.004*

*significant at $p < 0.05$

DISCUSSION

The purpose of this study was to asses the effectiveness of PMR technique on pre competitive state anxiety and self-confidence in athletes The within group analysis results revealed that there was a significant reduction in the competitive state anxiety and improved self- confidence in group 1 (somatic $t = 4.17$ $p < 0.001$, cognitive $t = 5.2$ $p < 0.00$, self confidence $t = - 3.39$ $p < 0.004$) and there was no significant difference found in pre test & post test measures of competitive state anxiety and self-confidence in group 2

These findings were consistent with previous research of David C. et al¹⁸ they found that single session of PMR technique significantly reduced the snake-phobic behavior in adults. Result confirms the considerable effect of PMR technique on autonomic activity. This finding was similar with the finding of William et al.⁸⁴, who reported that brief relaxation training did not significantly affect either verbal report of anxiety or autonomic level, following training but did affect autonomic response in the anxiety condition. Similarly Khanna et al.⁷, found that PMR technique does effective reduction in pulse rate on first day of treatment. Other studies also confirm the immediate effect of relaxation training on ANS activity (Thomas W.Vodde⁷⁹, Jan Falkowski³⁷, Karen S.Lucic⁴²).

These findings also consisted with the previous research of Peter E.Crocker et al.⁶¹ they found that single session training significantly reduced the induced state anxiety. He further revealed that more the level of anxiety, more powerful the relaxation effect. In group analysis of findings revealed that the group 1 had significantly reduced competitive state anxiety and improved self-confidence. These finding support the previous finding of Rodney K. Millere et al.⁶⁵ who reported that 30 min. of PMR training significantly reduced the state anxiety. These findings also consistent with the previous finding of Gordan L. Paul et al.³⁰ they reported that PMR intervention produced significantly greater reduction in physiological response to stressful images than the control group.

CONCLUSION

From the result of the study it was concluded that relaxation technique is an effective intervention for reducing pre competitive state anxiety and improving self-confidence in athletes. As progressive muscular relaxation were significantly effective on reducing competitive state anxiety & improving self-confidence than the control group.

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