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The Effects of Physical and Mental Anxiety Reduction Techniques on Athletes

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Abstract: The aim of this research was examination some methods to reduction anxiety base on apply muscles and mind. Statistical population of this study included all male athlete's students in single and team sports. Sample includes 9 group of student athletes with age 18-28 that selected randomly and cluster (n = 20). Measurement tool of this study is Sports Personality Questionnaire (SPQ 20). Subjects divided into a control and experimental athlete groups for 8 weeks, three sessions a week and 30-45 min per session and regular activities are designed. Results showed significant difference between control and experimental groups, body and mental methods, body methods, mental methods between pre-post tests in some methods between single and team sports to reduction sport anxiety of athletes. According to results body methods that used most muscles and had most physiological changes had most effective to reduction anxiety and increase self-concept and self-esteem in athletes.

Key words: Anxiety, body, mental, students, athletes

INTRODUCTION

Success or failure in sports fields depends on many factors, athletic goals and their character, their relationships with other athletes, incentives, recognition of the athletes coach and many other social and psychological factors such as anxiety, sports all are factors can affect on quality performance and results. There are different ways to reduce anxiety. Given the importance of anxiety and its influence on learning and performance researcher intends to answer these questions. Whether these methods can reduction anxiety? Whether between mental and physical techniques to reduction anxiety is difference? Whether between physical techniques to reduction anxiety is difference? Whether between mental techniques to reduction anxiety is difference? Whether between these methods have effective different on individual and team sports? Which of these methods can most decrease anxiety? So, the researcher is trying to determine influence some of the methods to reduce anxiety in a specific time and recommend the best method to reduce anxiety. One of the variables that are closely relationship with athletic performance is sport anxiety which appears in athletic competition positions. Anxiety often has a more significant and more pronounced effects in the spot activity. Findings accent on relationship between anxiety and performance and express anxiety have negative effect on the performance of athletes. Anxiety affect on the sports performance athletes and any more anxiety is higher the performance of athletes during competition will be lower most athletes suffer from negative effects of anxiety (Hatzigeorgiadis *et al*., 2009). Often seen athletes with high athletic abilities in sports because they have anxiety cannot present his abilities. In exercising anxiety pressure on the muscles and caused severe contraction and reduce their power and accurately done skills (Conroy and Metzler, 2004) there are many methods to reduction anxiety, some of these mehods use most muscles and some of them use most mind. Although, many researcher notify mental and body together are most effective but this method can done in professional antheles with regard most of athletes in socially and universities are amateur and in many studies, researchers did not examine body and mental methods to reduction anxiety, if they were examin it not very wide, therefore, the effects of body (muscles) and mental (nervous or mind) methods to reduction anxiety in sports is importance and necessary.

MATERIALS AND METHODS

Participants: Statistical population of this study included all male athlete's students in single and team sports that they participate in the courses of preparation to academic competitions. Sample includes 9 group (experimental

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group and one control group (of student athletes with age 18-28 that selected randomly and cluster from basketball, handball, futsall, football, volleyball as team sports and wrestling, taekwondo, judo, badminton, ping pong, athletic sports as single sports (n = 20).

Instruments: This study has been done descriptive-field and using questionnaires to investigate factors personality characteristics. As pre-post test is done.

Variables: Variables included anxiety (dependent variable) and body or mascles (biofeedback, massage, breathing, relaxation) and mental or mind or nervous (self-talk, Imagery, goal setting, music) methods to reduction anxiety) independent variable).

Tools for data collection: Measurement tool of this study is Sports Personality Questionnaire (SPQ 20). One of the factors measured by this questionnaire is anxiety. Validity of this questionnaire based on the criterion validity and through the study questionnaire in p<0/05 was significant and its reliability by Cronbach's alpha 0/800 and in p<0/05 was significant.

Procedure: After selecing the study subjects were selected randomly and cluster, questionnaires to complete as pre-test subjects were given after completion were collected. Subjects divided into a control and experimental athlete groups for 8 weeks, three sessions per week and one 30-45 min per session and regular activities are designed to per-test. After 8 weeks of the regular activities the subjects completed the questionnaire again as post test was considered. At end of all subjects were obtained appreciation.

Statistical analysis:

- Descriptive statistics including indicators of central tendency and measures of variability and linear regression
- Inferential statistics including independent t, t-test and one-way Analysis of Variance (ANOVA) test and Thuky test
- Using software tools Excel, SPSS 18 for analysis data and significance level in this study is p = 0/05

RESULTS AND DISCUSSION

According to analysis results of t-test of the 8 weeks methods to reduction anxiety, Table 1 shows significant difference between control and experimental groups. As it is obvious in Table 1, values t = 5.372 and p = 0.008 show significant difference between control and experimental groups. According to analysis results of t-test of the 8 weeks body and mental methods to reduction anxiety, Table 2 shows significant difference between body and mental methods. As it is obvious in Table 2, t = 2.650 and p = 0.020 show significant difference between body and mental methods to reduction anxiety in athletes.

According to analysis results of one-way variance (ANOVA) of 8 weeks body methods to reduction sport anxiety; Table 3 shows significant difference between body methods to reduce sport anxiety of athletes. As it is obvious in Table 3, F = 5.942 and p = 0.004 show significant difference between body methods to reduction anxiety.

To determine the different between body methods to reduction sport anxiety is used Tukey test that result is showing in Table 4. Also, the results of tukey test are showing in Table 4, we can see mean of methods to reduction sport anxiety, biofeedback 50, massage 71, breathing 37 and relaxation 34 that show there are different between relaxation, massage (p = 0.007), breathing, massage (p = 0/008) and biofeedback, massage (p = 0.019).

According to analysis results of one-way variance (ANOVA) of the test for 8 weeks mental methods, Table 5 shows significant difference between mental methods to reduction sport anxiety of athletes. As it is obvious in Table 5, F = 2.154 and p = 0.024 show significant difference between anxiety of athletes. To determine the different between mental methods of reduction sport anxiety is used Tukey test that results are showing in Table 6. we can see mean of mental methods to reduction sport anxiety, self talking 56, imagery 62, music 78 and goal setting 68 that show there are different between self talking, music (p = 0.018) .

According to analysis results of one-way variance (ANOVA) of 8 weeks methods to reduction sport anxiety, Table 7 shows significant difference between methods to reduction sport anxiety of athletes. As it is obvious in Table 7, F = 5.130 and p = 0.003 show significant difference between anxiety of athletes. To determine the different between methods of reduction sport anxiety is used Tukey test that results are showing in Table 8, we can see mean of methods to reduction sport anxiety, biofeedback 50, massage 71, breathing 37, relaxation 34, self talking 56, imagery 62, music 78 and goal setting 68 that show there are different between biofeedback, massage (p = 0.019), biofeedback, music (p = 0.012), biofeedback, goal setting (p = 0.023), massage, breathing (p = 0.008), massage, relaxation (p = 0.007), massage, music (0.015), breathing, self talking p = 0.023), breathing, imagery (0.016), breathing, music (0.009), breathing, goal setting (0.011), self talking , music (0.018), relaxation, self

Table 1: Sports personality questionaire

Factors	Methods	Protocol
Relaxation	Edmund Jacobson	Training involved tensing the specific muscle group's of body for 7-10 sec, followed by releasing them for 15-20 sec. The sequence of muscle groups involved is given in Table 1. After 20 min of training, pulse rate was again recorded on day 1. Criterion validity in 0.790 and its reliability 0/780 and in p<0/05 was significant
Massage	Slow-stroke back massage	Slow-stroke back massages were originally described by Elizabeth as a slow rhythmic stroking with the hands at a rate of 60 strokes per minute and lasting for 3-10 min. Massage was done upper limbs and lower and center to beside. Was planned at same time more than two people are not present in the local massage. Criterion validity in 0.760 and its reliability 0/820 and in p<0/05 was significant
Breathing	Sama vritti	Relax your shoulders. Make your exhalation long and smooth. To start, inhale for a count of four and then exhale for a count of four-all through the nose which adds a natural resistance to the breath. More advanced yogis can aim for six to eight counts per breath with the same goal in mind: calm the nervous system, increase focus and reduce stress. Repeat 15 min times, criterion validity in 0.780 and its reliability 0/840 and in p<0/05 was significant
Biofeedback	Electromyography (EMG) biofeedback	In this study, treatment with biofeedback EMG according to the protocol provided by the community biofeedback bio california (30) and using manufacture ghraf, procom infiniti canada, software thought technology Myo scan-pro sensor, physiology suite T3402M triode electrodes and electrodes, EMG was performed. Single band T 3404
Self talking	Positive self talk Adapted from Weinberg and Gould	Choose a mantra Practice multiple scenarios Create a positive mental image or visualization
Imagery	The PETTLEP model was developed by Holmes and Collins	The PETTLEP model was developed by Holmes and Collins to be used as a 7-point checklist helping athletes create more effective imagery. It was proposed that incorporating each pettlep element into the imagery experience will increase the similar areas of brain activation and consequently the imagery's success on the desired outcome. PETTLEP is an acronym which stands for the following different elements that should be addressed and correctly incorporated when using imagery to enhance athletic performance: physical; environment; task timing; learning; emotion; perspective
Music	Theory of Terry	Relaxing music includes those of music that have Tempo <120 then with the help of an music expert used of some music's without Singer, active with MP3 format, quantity with 192 kbit/sec with BRI form
Goal setting	GROW Model	As a coach or mentor you may help others to solve problems, make better decisions and learn new skills or otherwise progress in their role or career. One proven approach that helps with this is the GROW Model G for goal find out what they want to work on/discuss and their specific goal for the mentoring session and the short and long term goals R for reality ask questions that help them to think about the current situation related to the goal. This means asking questions that raise awareness and promote self-reflection and thinking O for option encourage them to generate as many options as possible without judging them This is the time to help them to think outside the box to find more creative solutions. If they have run out of ideas, they may ask you for further ideas or you may wish to offer suggestions (if agreed) W for will use questions to help them determine which option to take how and when to take it. Agree the first step(s)

Table 2: The t-test of 8 weeks methods to reduction anxiety between control and experimental groups

	Mean		Post-test		
Groups	Pre	Post	t-test	df	p-value
Control	98	97	5.372	178	0.008
Experimental	104	57	-	-	-

Table 3: The t-test of 8 weeks body and mental methods to reduction anxiety

	Mean		Post-test		
Groups	Pre	Post	t-test	df	p-value
Body	99	48	2.650	158	0.020
Mental	101	66	-	-	-

talking (0.018), relaxation, imagery (p = 0.012), relaxation, music (p = 0.006), relaxation, goal setting (p = 0.008).

According to analysis results of pre-post test of 8 weeks methods to reduction anxiety, Table 9 shows

Table 4: One-way Variance (ANOVA) of body methods to reduction sport anxiety in student athlete's

Changing source	Sum of square	df	Mean of square	F-value	p-value
Between group	645.383	4	215.128	5.942	0.004
Within group	2027.467	75	36.205	-	-
Total	2672.850	79	-	-	-

significant difference between pre-post test in biofeedback (t = 2.481, p = 0.021), breathing (t = 2.573, p = 0.018), relaxation (t = 2.601, p = 0.016), self-talk (t = 2.213, p = 0.023), imagery (t = 2.087, p = 0.024). According to analysis results of t-test of 8 weeks methods to reduction anxiety in single and team sports, Table 10 shows significant difference between single and team sports. As, it is obvious in Table 11, t = 2.327 and p = 0.022 show significant difference between single and team sports.

Table 5: Tukey test results about the mean difference of body methods to reduction sport anxiety in student athletes in post test

Variables/Methods	Mean	Biofeedback (50)	Massage (71)	Breathing (37)	Relaxation (34)
Body methods					
Biofeedback	50	-	2.121**	1.872	1.941
		-	n = 80	n =80	n = 80
		-	p = 0.019	p = 0.033	p = 0.027
Massage	71	-		2.612**	2.826**
		-		n = 80	n = 80
		-		p = 0.008	p = 0.007
Breathing	37	-			1.413
		-		-	n = 80
		-		-	p = 0.049
Relaxation	34	-		-	

Table 6: One-way Variance (ANOVA) of mental methods to reduction sport anxiety in student athletes

Changing source	Sum of square	df	Mean of square	F-value	p-value
Between group	266.533	4	75.511	2.154	0.024
Within group	2720.400	75	48.579		
Total	2946.933	79			

Table 7: Tukey test results about the mean difference of mental methods to reduction sport anxiety in student athletes in post test

Variable/Methods	Mean	Self talking (56)	Imagery (62)	Music (78)	Goal setting (68)
Mental methods					
Self talking	56	-	1.437	2.213**	1.851
		-	n = 80	n = 80	n = 80
		-	p = 0.048	p = 0.018	p = 0.035
Imagery	62	-	-	1.948	1.434
		-	-	n = 80	n = 80
		-	-	p = 0.027	0.0427
Music	78	-	-	-	1.653
		-	-	-	n = 80
		-	-	-	0.040
Goal setting	68	-	-	-	-

Table 8: One-way variance for methods to reduce sport anxiety in student athletes

Changing source	Sum of square	df	Mean of square	F-value	p-value
Between group	563.067	7	187.689	5.13	0.003
Within group	2048.667	150	36.583		
Total	2611.733	157	-	-	-

Table 9: Tukey test results about mean difference methods to reduction sport anxiety in student athletes in post test

Variable/Methods	Mean	Biofeed back (50)	Massage (71)	Breathing (37)	Relaxation (34)	Self talking (56)	Imagery (62)	Music (78)	Goal setting (68)
Sport reduction methods									
Biofeed back	50	-	2.121**	1.872	1.941	1.435	1.852	2.853**	1.98**
		-	n = 160	n = 160	n = 160	n = 160	n = 160	n = 160	n = 160
		-	p = 0.019	p = 0.033	p = 0.027	p = 0.048	p = 0.035	p = 0.012	p = 0.023
Massage	71	-	-	2.612**	2.826**	1.387	1.503	2.383**	1.921
		-	-	n = 160	n = 160	n = 160	n = 160	n=160	n = 160
		-	-	p = 0.008	p = 0.007	p = 0.052	p = 0.043	p = 0.015	p = 0.030
Breathing	37	-	-	-	1.402	1.994**	2.435**	3.358**	3.182**
		-	-	-	n = 160	n = 160	n = 160	n = 160	n = 160
		-	-	-	p = 0.049	p = 0.023	p = 0.016	p = 0.009	p = 0.011
Relaxation	34	-	-	-	-	2.213**	2.857**	3.957**	3.602**
		-	-	-	-	n = 160	n = 160	n = 160	n = 160
		-	-	-	-	p = 0.018	0.012	p = 0.006	p = 0.008
Self talking	56	-	-	-	-	-	1.437	2.213**	1.851
		-	-	-	-	-	n = 160	n = 160	n = 160
		-	-	-	-	-	p = 0.048	p = 0.018	p = 0.035
Imagery	62	-	-	-	-	-	-	1.948	1.434
		-	-	-	-	-	-	n = 160	n = 160
		-	-	-	-	-	-	p = 0.027	0.0427
Music	78	-	-	-	-	-	-	-	1.653
		-	-	-	-	-	-	-	n = 160
		-	-	-	-	-	-	-	0.040
Goal setting	68	-	-	-	-	-	-	-	-

Table 10: Results of pre-post test of 8 weeks methods to reduction anxiety

	Mean				
Groups	Pre	Post	t-test	n-value	p-value
Biofeedback	100	50	2.481	20	0.021**
Massage	97	71	1.761	20	0.036
Breathing	98	37	2.573	20	0.018**
Relaxation	102	34	2.601	20	0.016**
Self-talk	100	56	2.213	20	0.023**
Imagery	102	62	2.087	20	0.024**
Goal setting	96	68	1.962	20	0.031
Music	98	78	1.602	20	0.039

Table 11: Results of t-test of 8 weeks methods to reduction anxiety in single and team sports

	Mean		Post test		
Groups	Pre	Post	t-test	df	p-value
Single	104	54	2.327	158	0.022
Team	97	67	-	-	-

CONCLUSION

As previously explained, the aim of this study is methods to reduction anxiety in athletes. To achieve to this aim some hypotheses are tested that this study examine and compare results of these hypotheses to other results. Anxiety is caused to activation of the immune system and is causes the secretion of adrenaline from the adrenal from central of the adrenals (Raymond *et al*., 2005), blood pressure rises, heart activity increases, chang in breathing heavily and rhythm, muscles veins are open, muscles are cramping, increases the muscular and nervous energy, increases the glucose in blood. Some of studies results (Edvardsson *et al*., 2012; Wolframm and Micklewright, 2011; Conroy and Metzler, 2004; Patel *et al*., 2010) have implicated of different anxiety between control and experimental groups. There was show most stiff muscles in control group when performing skills and also lower attention and centralization in control group and heartbeat and different in blood pressure and blood glucose. According of coaches observations and athletes statements, control groups had sweat and stiff in their muscles and also change in body physiological can change in anxiety.

Some of studies results (Waterhouse *et al*., 2010) have implicated of different anxiety between body and mental, researchers represented mental methods effected on self-confidence and changed motivation, attention focus that can control anxiety. And also these methods are most effect on learning and focus and body methods are most effect on physiological change. Mental methods are appropriate for stable and predictable environment and indirect effect on anxiety. Body methods effect direct on anxiety and done some physiological changed. Researcher represented goal-setting can increase motivation and effect indirect on anxiety. Mental methods most remove mind of anxiety position and delay anxiety process.

Some researcher (Franklin, 2001; Bonnie, 2002; Huang, 2011) showed anxiety of individual players was higher than team players in pre test and in post-test individual players have most reduction in anxiety. Researchers represented individual players had goal setting. Then, they have better motivation and lower anxiety. There was significant different between individual and team players in self-concept and anxiety.

There was significant relationship between self-concept and anxiety. Researcher represented cause of anxiety was unclear responsibility in team and do not have self-concept.

According of the result of this research and results of other researches. Body methods have most effect on body physiological change and mental methods are better for learning and stable positions. Then suggest teachers and coaches with respect to possible, experience their abilities and their athletes abilities can select one of these methods to reduction anxiety that have most physiological changes in body and increase self-concept and self-esteem in athletes.

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