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Sympathetic and parasympathetic changes in archers after a course of biofeedback training

Eskandarnejad, M.1, Fekrvand Leilabad, N.1, Zamanlu, M.2

1. University of Tabriz , 2. Gom University of Medical Sciences

Introduction
The autonomic nervous system has two main branches: the sympathetic nervous system, which is responsible for preparing the human body for action in times of danger and stress, and the parasympathetic nervous system, which regulates the resting state of the body. In this regard, biofeedback training can adjust these systems.
Methods
The method of the present study was quasi-experimental with pretest-posttest design with control group. The participants of the present study were 15 of the best archers in Tabriz. Statistical samples were selected as available and randomly assigned to experimental (n = 8) and control (n = 7) groups. The amount of sympathetic and parasympathetic changes of participants in the test stages (pre-test, post-test 1 and post-test 2) were recorded and measured through a biofeedback device that included breath, heart rate, galvanic and skin temperature. The duration of biofeedback intervention in the experimental group was 20 sessions, which began with breathing exercises, then HRV training and then skin temperature and galvanic exercises were added, respectively. Both groups practiced archery and the experimental group did biofeedback training in addition to archery exercises. Research data were analyzed using descriptive and inferential statistical methods including analysis of variance with repeated measures and using SPSS software version 26.
Results
The findings in the two control and intervention groups were descriptively different and analytically they reached the significant limit in some cases, the results were in skin conductivity (P=0.07) and heart rate (P=0.1). Also, the mend of the intervention group after stress (recovery) reflected by the parameters of skin conductance response, high frequency of heart rate and low frequency of heart rate in the intervention group was more favorable than the control. For the skin conductance response, the reduction of about (0.11 Usiemens) and for the LF/HF ratio of the heart beat frequency values of about (1-1.5) were obtained.
Discussion
The results showed that the changes of the obtained parameters indicate sympathetic and parasympathetic activity, which were descriptively. It can be concluded that biofeedback training help the athletes to recover better from the sympathetic arousal caused by tensions, in addition, the combination of sympathetic and parasympathetic, especially in the cardiovascular scale, is more optimum in archers trained by biofeedback, so they Physical and mental physiological point of view will have better flexibility and restoration and all these things can lead to better performance of athletes.

Topic: Psychology

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