The psychological and physiological preparation of elite freestyle wrestlers

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Abstract

Objective of the study was to examination of the impact of ideomotor exercises on the performance of highly skilled freestyle wrestlers in competition.

Methods and structure of the study. The study involved the analysis and synthesis of literary sources, conducting a pedagogical experiment, conducting psychophysiological tests, and applying mathematical statistical methods. The research was conducted in the comprehensive school of high sports skills of St. Petersburg. The participants were wrestlers aged between 16 and 29. The group consisted of 34 freestyle wrestlers with varying levels of training. The wrestlers were divided into two groups. The first group included highly skilled athletes, such as candidates and masters of sports (16 individuals), while the second group consisted of wrestlers with II and III categories (18 individuals). In the second and third stages, the skilled wrestlers were divided into two groups: a control group and an experimental group. The psychophysiological characteristics were examined through tests. The study was based on the methodology of test control, which included tapping tests (E.P. Ilyin, 1983), reflexometry, and tremometry.

Results and conclusions. The application of the experimental approach yielded the following outcomes:

1. The wrestlers in the experimental group demonstrated significant improvements in two out of the three psychophysiological characteristics.
2. The study revealed a correlation between psychophysiological characteristics and the level of psychological and physical strain during training.
3. A method for enhancing the psychophysiological characteristics of athletes was developed.

Keywords: *wrestling, freestyle wrestling, ideomotor training, highly skilled wrestlers.*

Introduction. The high level of competition at major tournaments necessitates the improvement of the means and methods not only of comprehensive physical fitness, but also of the psychophysiological and psychological characteristics of athletes [5]. The problem of managing the psychophysiology of athletes affects various aspects of the training process – technical, tactical, physical, psychological, theoretical [1, 4]. Improving the psychophysiological characteristics of the strongest athletes, including with the help of the ideomotor training method, involves, firstly, finding relationships between various psychophysiological indicators that are important for successful performance in important competitions and, secondly, optimizing those that directly affect the success of the performance [2, 3, 6].

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Results of the study and discussion. In order to find and determine the main ways and patterns of the process of improving technical and physical training, a detailed analysis of the dynamics of the specified aspects of sports skills was carried out during long-term observations. The results of measuring the psychophysiological properties of wrestlers of various qualifications are presented in Table 1.

A significant difference in the level of development of psychophysiological properties was noted between wrestlers of high and lower qualification. This indicates that, firstly, psychophysiological properties can determine success in the sports activities of wrestlers and, secondly, that by monitoring the selected properties, it is possible to obtain an idea of the effectiveness of the training process of a specific wrestler or group of wrestlers. The results of the pedagogical experiment in both groups were processed using mathematical statistics methods (Table 2).

A significant difference in both groups was found between the first training session and the training session with competitive bouts. Based on the results in both groups, it can be concluded that the results of the tapping test after training sessions of various focus change very insignificantly. At the same time, the results of tremor changes in both groups have the same tendency - they increase after a training session with competitive practice (control and selection bouts) and are less significant after training sessions on practicing techniques in pairs and general physical training. This indicates the manifestation of mental stress in the conditions of a competitive bout. Such an important indicator for the sports activity of a wrestler as the time of a complex motor reaction also revealed a similar tendency in both training groups. The time of a complex motor reaction decreases after the use of competitive practice, which indicates the effectiveness of preliminary psychological preparation. At the same time, the following identified trends can be considered the most important result of the pedagogical experiment:

• In the experimental group, changes in the time of a complex motor reaction during the special preparatory period are more abrupt, and after the last measurement (the 11th training session), the time of a com-

Table 1. Differences between the psychophysiological properties of wrestlers of different qualifications

Psychophysiological indicator	MS, CMS	II-III category	Student's coefficient	Significance of differences
Simple reaction time s	0,146±1,95	0,174±1,91	4,65	<0,01
Complex reaction time, s	0,239±3,17	0,253±3,30	3,34	<0,01
Tapping test	57±1,85	45±1,86	3,77	<0,01
Tremor	39,6+3,09	56,7±3,10	2,07	<0,05

Table 2. Differences in the results of the study of the level of psychophysiological properties during the special preparatory stage in the control and experimental groups

Group	Psycho-physiological indicator	Average value after the 1st training	Lowest average value after training for the special preparatory stage	Significance of differences	Value at the end of the special preparatory stage	Significance of differences
Control	Complex reaction time	241,23±3,25	246,22±3,56	<0,01	243,07±3,21	<0,05
	Tapping test	58,00±1,90	55,75±1,80	<0,05	57,00±2,11	<0,05
	Tremor	39,13±3,10	45,25±3,10	<0,05	44,62±3,430	<0,05
Experimental	Complex reaction time	237,07±3,80	241,37±3,80	<0,01	236,12±3,88	<0,05
	Tapping test	57,38±1,00	55,63±1,00	--	57,88±0,810	--
	Tremor	38,88±3,30	42,75±3,30	<0,05	40,00±3,80	--

Table 3. Differences in the results of the study of the level of psychophysiological properties during the pedagogical experiment in the control and experimental groups

Group	Psychophysiological indicator	Average value before the experiment	Average value after the experiment	Significance of differences
Control	Complex reaction time	240,38±3,20	240,63±3,20	--
	Tapping test	58,75±1,90	58,88±1,90	--
	Tremor	38,63±3,12	38,38±3,10	--
Experimental	Complex reaction time	236,25±3,77	234,63±3,60	<0,05
	Tapping test	58,13±1,90	59,00±1,95	--
	Tremor	38,13±3,30	36,75±3,28	<0,05

plex motor reaction was less than after the 1st, i.e. the value of this psychophysiological indicator improved during the special preparatory stage. Tremor indicators also changed abruptly, but stabilized during the special preparatory stage.

• In the control group, changes in psychophysiological parameters were smoother, but by the end of the stage, absolute indicators worsened. Thus, the training load in the experimental group, without differing in total volume, ratio of various training tools and intensity, was more contrasting in nature compared to the control group. As a result, despite significant volumes of loads, the psychophysiological indicators of the subjects did not worsen. In the control group, psychophysiological indicators tend to decrease, which can be explained by the monotony of the loads.

At the next stage of the study, a pedagogical experiment was conducted to ensure the optimal level of psychophysiological indicators of qualified wrestlers through the use of ideomotor exercises. For this purpose, an experimental technique was developed, which was used at each training session in the experimental group (duration of the exercises was 7-10 minutes). Psychophysiological indicators were recorded immediately before the competitions at intervals of two months. The results are presented in Table 3.

Monitoring the dynamics of psychophysiological indicators allowed us to identify the features of the influence of the experimental methodology in the preparatory and pre-competition stages on the psychophysiological parameters characterizing the readiness of wrestlers. Improvements during the experiment were noted only in the experimental group.

Conclusions. As a result of using the experimental method: a) the wrestlers in the experimental group showed a significant improvement in two of the three psychophysiological properties studied; b) the study established a connection between psychophysiological properties and the degree of psychological and physical stress during training; c) a method for correcting the psychophysiological properties of athletes was developed.

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