



Improving the technical and tactical characteristics of elite wrestlers

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Abstract

Background and Study Aim. Technical and tactical actions in wrestling have different approaches to the implementation of the athlete's competitive activity. However, in practice, we can see that the use of scientific research to improve the technical and tactical actions of elite wrestlers is not used enough. **Purpose:** to explore the technical and tactical performance of elite wrestlers.

Material and methods. A total of 96 elite wrestlers aged 21-28 practicing Greco-Roman and freestyle wrestling were examined. All athletes were divided into two groups: control (n=48) and experimental (n=48).

Results. The obtained results showed that when using the program for improving technical and tactical movements in elite wrestlers, the indicators of throws improved by an average of 13% ($p < 0.05$). In addition, throws with a back bend, shoulder and backbend increased by an average of 11% ($p < 0.05$). Some technical throws improved by about 12% ($p < 0.05$). Analysis showed improvements in decision-making and movement skills in elite wrestlers in competitive wrestling. The obtained results show a decrease in the duration of the implementation of special wrestling skills in real conditions. The study of technical readiness revealed that a decrease in the time of implementation of special wrestling skills in elite wrestler's competitions leads to a faster implementation of throws.

Conclusions. The proposed approach to improving technical and tactical correction leads to an improvement in the ability to make decisions and implement motor skills among elite wrestlers in competitive fight.

Key words: elite wrestlers, technical and tactical characteristics.

Анотація

Удосконалення техніко-тактичних характеристик елітних борців

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Передумови та мета дослідження. Техніко-тактичні дії в боротьбі мають різні підходи до реалізації змагальної діяльності спортсмена. Однак на практиці ми бачимо, що використання наукових досліджень для вдосконалення техніко-тактичних дій елітних борців є недостатнім. Мета: вивчити техніко-тактичну результативність елітних борців.

Матеріал і методи. Усього було досліджено 96 елітних борців у віці 21-28 років, які займаються греко-римською і вільною боротьбою. Усі спортсмени були розділені на дві групи: контрольну (n=48) та експериментальну (n=48).

Результати. Отримані результати показали, що при використанні програми вдосконалення техніко-тактичних дій в елітних борців показники кидків покращилися в середньому на 13% ($p < 0,05$). Крім того, кидки з





прогином назад, плечем і прогином назад збільшилися в середньому на 11% ($p < 0,05$). Деякі технічні кидки досягли приблизно 12% ($p < 0,05$). Аналіз показав покращення навиків прийняття рішень і рухів у елітних борців у сучасній боротьбі. Отримані результати свідчать про зниження тривалості реалізації спеціальних навичок боротьби в реальних умовах. Дослідження технічної підготовленості виявило, що скорочення часу реалізації спеціальних навиків боротьби у змаганнях елітних борців призводить до більш швидкої реалізації кидків.

Висновки. Запропонований підхід до удосконалення техніко-тактичної корекції призводить до поліпшення здатності приймати рішення і реалізовувати рухові навички в елітних борців у змагальній боротьбі.

Ключові слова: елітні борці, техніко-тактичні характеристики.

Introduction

Due the strong competition among elite wrestlers in the world, the developing of modern sport wrestling characterized of using new technologies [1,2]. International wrestling competitions require the use of operational analysis of the characteristics of competitive activity. The leading properties of the effectiveness of competitive activity in wrestling are technical and tactical characteristics [3]. The development of technical and tactical abilities gives athletes additional advantages over opponents. But the methods of objective analysis of preparedness of athletes can give a add information which can be taken into account in correction of training process. Thus, in the modern system of sports training, there is a need to control the effectiveness of the training process using new technologies. Over the past ten years, wrestling has been characterized by changes in competition rules [4]. This situation leads to the need to revise the system of training elite wrestlers. Technical and tactical movements in wrestling have various approaches to the implementation of an athlete's competitive activity [5]. However, in practice we can observe that when conducting scientific research to determine the effectiveness of technical and tactical actions to provide elite athletes with special equipment, it is not used enough.

International experience has shown systematic work to identify talented athletes and create the necessary conditions for long-term physical training, training a sports reserve for national teams [6]. Analysis of modern research shows that many researchers are working on the problems of improving technical and tactical actions in wrestling [7,8]. Also, the problems of developing and improving the necessary sources and methods for managing the training process and operational control over the competitive activities of wrestlers are currently being studied [9,10].

Some studies have focused on new technologies to improve technical skills in elite athletes [11]. These approaches provide additional information about the structure of athletes' technical movements and the possibilities for correcting in-

dividual skills [12]. In addition, the use of dedicated systems to analyze the technical structure of wrestling throws will be useful in the preparation of elite wrestlers at different stages of training [13].

Traditionally, some authors believe that physical training is the most important factor in training in wrestling [14,15]. Handbooks on sports training offer various means of developing general physical abilities using special exercises with objects [16,17]. However, other experts believe that the readiness of the technical and tactical qualities of wrestlers is of great importance and can increase the level of achievements of athletes [18,19,20]. Early studies have shown that the implementation of special skills in the pre-competition period is of great importance for the technical and tactical potential of a wrestler [21].

Monitoring of technical and tactical skills in wrestling is accompanied by diagnostics of throwing abilities [22]. Also, some authors believe that monitoring of technical and tactical skills in wrestling can be carried out using special tests [23,24].

The issues of technical and tactical training in martial arts have a long history and approaches [25,26]. In previous studies provided evidence for the individualization of wrestler training [27]. Analysis of the level of technical and tactical training of elite wrestlers is a key factor in building a training program. That is why the study and improvement of the technical and tactical qualities of elite wrestlers is an important task of modern wrestling.

Purpose: to explore the approach to improving the technical and tactical performance of elite wrestlers.

Material and methods

A total of 96 elite wrestlers aged 21-28 practicing Greco-Roman and freestyle wrestling were examined. All athletes were divided into two groups: control ($n=48$) and experimental ($n=48$). The control group trained according to a special program to improve technical and tactical skills. The experimental group trained according to a



regular training program.

Ethics statement.

All athletes gave their consent to use the study results for scientific purposes. In addition, the study program was approved by the Ethics Committee of the Uzbek State University of Physical Education and Sports.

Procedure

Our special training program included adjustments to the movements based on the results of monitoring the technical and tactical skills of wrestlers. One of the main characteristics of monitoring is the time and quality of throws performed by wrestlers. Our study included Greco-Roman and Freestyle wrestlers. Due to it, we used technical tests which are characteristic of both wrestling styles.

Experimental program

Our research includes the performance of special technical skills of elite wrestlers. An assessed set of special capabilities of wrestlers was developed. This set includes movements of wrestling skills: transfers with throws, dives with throws, throws with rotation with throws, throws over the back, throws over the shoulder, throws with a backbend, throws with a squat, dump by knocking down and throws by twisting. All these exercises were performed for 10 minutes.

First of all, the wrestlers after the warm-up began to consistently perform these exercises. Between each approach, the wrestlers took a 30-second break. The execution time was recorded. Between each approach, the wrestlers took a

30-second break. The time of execution was recorded. The second condition for performing the tests was the optimal functional state of the athletes. All wrestlers had their functional state level examined: heart rate, ECG, and subjective health assessments.

The information system "Mubin Zask" was used to record the time and quality of the wrestlers' technical skills. This equipment allows us to evaluate the wrestlers' time and quality characteristics.

Statistical analysis

The sample of athletes was homogeneous and corresponded to a normal distribution. Therefore, we used parametric statistics. Student's t-test was used to assess the reliability of differences.

Results

Table 1 presents the technical and tactical characteristics of elite wrestlers in competitive activity at the beginning of the study. The results of the comparative analysis of the effectiveness of competitive activity did not reveal reliable differences between both groups of athletes. This result indicates the homogeneity of the groups of athletes.

Table 2 presents the results of the technical and tactical indicators of elite wrestlers at the end of the study. The results obtained indicate the presence of significant differences between the studied groups of athletes. The results also show a high level of effectiveness of the special pro-

Table 1. Technical and tactical parameters of elite wrestlers at the beginning of the study

Variables	Experimental group (n=48)			Control group (n=48)			t	P
	X ₁	σ	V%	X ₂	σ	V%		
Transfers with throws 10 times (s)	18,01	2,13	11,83	17,26	2,31	13,38	1,145	>0,05
Transfers by diving with throws 10 times (s)	16,69	1,99	11,92	17,05	2,02	11,85	0,609	>0,05
Transfers in rotation with throws 10 times (s)	27,02	2,95	10,92	26,78	3,39	12,66	0,256	>0,05
Throws over the back 10 times (s)	12,01	2,13	17,74	11,73	1,57	13,38	0,507	>0,05
Tilt throws 10 times (s)	12,22	1,61	13,18	11,65	1,94	16,65	1,084	>0,05
Shoulder throws 10 times (s)	9,98	1,31	13,13	9,87	1,12	11,35	0,306	>0,05
Backbend throws 10 times (s)	14,52	1,81	12,47	14,37	1,88	13,08	0,276	>0,05
Throwing with sitting out 10 times (s)	12,01	1,73	14,40	11,88	1,92	16,16	0,241	>0,05
Dump by knocking down 10 times (s)	6,01	0,83	13,81	5,99	1,01	16,86	0,073	>0,05
Bump by twisting 10 times (s)	8,31	1,15	13,84	7,92	1,21	15,28	1,120	>0,05

**Table 2. Technical and tactical parameters of elite wrestlers at the end of the study**

Variables	Experimental group (n=48)			Control group (n=48)			t	P
	X ₁	σ	V%	X ₂	σ	V%		
Transfers with throws 10 times (s)	15,69	2,11	13,45	17,54	2,21	12,60	2,904	<0,05
Transfers by diving with throws 10 times (s)	15,13	1,83	12,10	16,65	1,92	11,53	2,748	<0,05
Transfers in rotation with throws 10 times (s)	23,63	2,91	12,31	25,95	2,97	11,45	2,676	<0,05
Throws over the back 10 times (s)	10,09	1,11	11,00	11,21	1,61	14,36	2,747	<0,05
Tilt throws 10 times (s)	10,69	1,29	12,07	11,22	1,31	11,68	1,383	>0,05
Shoulder throws 10 times (s)	8,61	1,11	12,89	9,51	1,22	12,83	2,617	<0,05
Backbend throws 10 times (s)	12,75	1,37	10,75	13,97	1,77	12,67	2,614	<0,05
Throwing with sitting out 10 times (s)	10,81	1,21	11,19	11,14	1,42	12,75	0,848	>0,05
Dump by knocking down 10 times (s)	5,15	0,71	13,79	5,84	0,91	15,58	2,867	<0,05
Bump by twisting 10 times (s)	7,06	1,01	14,31	7,88	1,11	14,09	2,620	<0,05

Table 3. The tactical and technical efficacy between experimental and control groups of wrestlers

Variables	Stage of research	Experimental group (n=48)			Control group (n=48)			t	P
		X ₁	σ	V%	X ₁	σ	V%		
Duration of technical and tactical active (s)	at the beginning	21,22	2,19	10,32%	20,92	2,25	10,76%	0,458	>0,05
	at the finishing	16,02	2,11	13,17%	17,44	2,11	12,10%	2,282	<0,05
Duration of efficacy technical and tactical performance (s)	at the beginning	36,02	3,99	11,08%	35,44	3,85	10,86%	0,502	>0,05
	at the finishing	29,99	3,91	13,04%	32,89	3,88	11,80%	2,525	<0,05
Average points of technical technique (point)	at the beginning	1,04	0,16	15,38%	1,06	0,15	14,15%	0,437	>0,05
	at the finishing	2,11	0,28	13,27%	1,94	0,18	9,28%	2,449	<0,05

gram used for elite wrestlers.

Table 3 presents the data of the study of the effectiveness of the competitive activity of both groups of elite wrestlers. The results show that the time of performing technical actions at the start of the experiment does not differ in both groups of athletes. Moreover, by the end of the experiment, the time of performing technical and tactical actions in the competition decreases in both groups of athletes. Moreover, these changes are insignificant in the control group compared to the initial level. According to the experimental group, the time of performing technical actions is shorter relative to the initial stage. This fact indicates an improvement in the ability to quickly make decisions and implement motor skills in highly qualified wrestlers in competitive fight.

The obtained result is related to the special

conditions of wrestling activity between different groups of wrestlers and the level of performance. Thanks to the obtained data, it is possible to assume a higher level of performance in wrestlers of the experimental group. This result is related to the improvement of the quality of motor skills of elite wrestlers in competition conditions.

Analysis of technical and tactical indicators of elite wrestlers showed that at the beginning of the study there were no differences between the control and experimental groups. After the study, an increase in technical points for techniques in competitions was observed. At the same time, in the experimental group of wrestlers, the number of winning points in competitive wrestling increased significantly. This indicated an increase in the effectiveness of competitive activities of elite wrestlers training according to a special program.

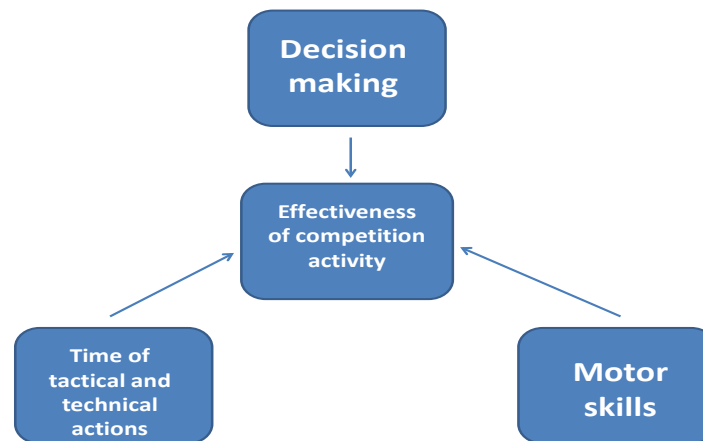


Fig. 1. Scheme of the triad of properties that improve the effectiveness of competitive activity of elite wrestlers

Discussion

Modern elite sports are characterized by the use of new approaches and technologies to improve the training process [28]. This also applies to wrestling [29]. Among the existing approaches to training athletes, one of the important ones is the technical and tactical analysis of motor skills [30]. Our study was devoted to the possibilities of improving the technical and tactical indicators of elite wrestlers. For this purpose, we used a special training program, including movement adjustments based on the results of monitoring the technical and tactical skills of wrestlers. The results obtained showed an improvement in the technical and tactical parameters of elite wrestlers using a special program.

The values of diving and rotational throws improved by an average of 13% ($p < 0,05$). In addition, back tilt, shoulder and backbend throws increased by an average of 11% ($p < 0,05$). Some technical throws improved by approximately 12% ($p < 0,05$). The obtained results are consistent with other studies that have shown an improvement in motor skills in wrestlers with the support of a certain biomechanical approach [31,32]. Moreover, the use of modern technologies to monitor the wrestlers' actions provides additional information for the correction of the training process [33].

The effectiveness of competitive activity based on a new special training program after their application was studied. The analysis showed that the influence of the special training program leads to an improvement in the ability to make decisions and implement motor skills in elite wrestlers in competitive fight. The results obtained show a decrease in the duration of the implementation of special wrestling skills in real conditions.

Reducing the time it takes to implement special wrestling skills in elite wrestler's competitions leads to faster implementation of throws. In addition,

an improvement in the technical and motor quality of the competitive activity of elite wrestlers was revealed.

Based on the results obtained, we proposed a triad of properties that increase the effectiveness of competitive activity of elite wrestlers (Fig. 1). This scheme includes: decision making, motor skills and time of tactical and technical actions.

The decision making as a result of perceiving and processing information about the opponent's actions in wrestling is accompanied by forming the wrestler's action algorithm. The action algorithm is implemented through the wrestler's technical and tactical activity. The wrestler's motor activity includes two factors: fast and high-quality execution. The presented scheme indicates the ways of development and improvement of technical and tactical preparedness of elite wrestlers. According to this scheme it is possible to develop personal programs for elite wrestlers.

Conclusion

The proposed approach to improving technical and tactical correction leads to an improvement in the ability to make decisions and implement motor skills among elite wrestlers in competitive fight. In addition, the use of a special training program leads to an increase in the level of competitiveness of elite wrestlers in real conditions.

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Conflict of interest

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