

ORIGINAL SCIENTIFIC PAPER

Improvement of the Technical and Tactical Preparation of Wrestlers with the Consideration of an Individual Combat Style

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Abstract

The present research reviews a programme for improving athletes' technical and tactical preparation with a consideration of individual combat style. The program has included training models for each style and has considered the characteristics of the current competitive activities of Greco-Roman wrestlers. Thirty qualified Greco-Roman wrestlers of middle-weight categories have participated in the research. Throughout the experiment (a year-long preparation cycle) the indicators of technical and tactical preparedness of the athletes of the experimental group have improved: the efficiency of defence in stand and ground positions has become higher; the reliability and efficiency of attack and defence actions have increased; the wrestlers have begun to perform a greater number of exercises in stand and ground positions, and to perform successful attacks more often; the interval between the attacks has been shortened. During the experiment, the indicators of technical and tactical preparedness of the athletes of the experimental group have increased from 7.3% to 19.7%, while in the control group from 0.4% to 4.9%. It has been determined that all the considered indicators of the experimental group's technical and tactical preparedness after the experiment are statistically higher ($p < 0.05$; $p < 0.01$) than the indicators of the control group. This finding indicates the efficiency of the proposed programme of improvement of technical and tactical preparedness for athletes considering individual combat style and a possibility of its implementation into the training process.

Keywords: *wrestling, training process, individual combat style*

Introduction

One of the most pressing problems of modern sports science is searching for effective ways of achieving high results on the part of athletes. Simultaneously, the commercialization of sport, competition at the global level, and the social and political significance of athletes' sports achievements grow each year. These facts underscore the necessity of well-directed improvement of various aspects of athletes' training at every stage of a long-term multiannual preparation (Bompa &

Buzzichelli, 2018; Viru, 2017). One of the most effective ways of optimizing the training process is the individualization of qualified athletes' preparation. Individualization is built on the definition of leading factors and their development that immediately influence the achievement of maximum possible results in a competition for a given athlete (Dick, 2007; Kozina et al., 2015).

Individualization of the training of athletes plays an important role in various sports: team sports (Lovell & Abt,



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2013; Schelling, Calleja-González, Torres-Ronda, & Terrados, 2015), track-and-field athletics (Manzi, Iellamo, Impellizzeri, D'ottavio, & Castagna, 2009), and combat sports (Buse, 2006; Pavelec, Ostyanov, & Maydanyuk, 2013; Thomson & Lamb, 2016).

In combat sports, athletes can achieve results in various combat styles. A wrestler's combat style is formed in the process of many years of preparation and concerns its various aspects. The most significant indicators that influence the individual style are anthropometry, and the physical, technical, tactical, and psychological preparedness of an athlete (Polat, Cetin, Yarim, Bulgay, & Cicioglu, 2018; Utter, Kraemer, Fry, & Rubin, 2001). Specialists in wrestling delineate three basic combat styles: playing, strength, and tempo (Latyshev, Korobeynikov, & Korobeinikova, 2014; Mirzaei & Akbar, 2008).

In recent years, significant changes have been introduced in the wrestling competition rules, and the active search of the optimal competition rules continues; this significantly influences the competitive activities and, as a result, tactical and technical preparedness of athletes. It is necessary to consider this while planning an individual preparation of wrestlers (Bromber, Krawietz, & Petrov, 2014; Latyshev et al., 2020).

Therefore, the improvement of the technical and tactical preparedness of athletes with the consideration of individual combat style and the requirements of the modern competitive activity justify the present research and open new reserves for the improvement of successfulness of Greco-Roman wrestlers' competitive activity.

In recent years, sufficient studies have been devoted to various aspects of the analysis and development of technical-tactical skills in Greco-Roman wrestling. The technical-tactical performance in wrestling has been analysed (Boyko, Malinsky, Andriitsev, & Yaremenko, 2014); the time-motion analysis model based on technical-tactical interactions has been determined (González & Miarka, 2013); technical actions at competitions have been analysed (Soyguden & Imamoglu, 2017). Other studies (Boltikov et al., 2018; Firouzja, 2018) provide data about the development and the stages of the formation of technical-tactical skills. Unfortunately, there is a lack of empirical evidence about the impact of individualization on the development of technical and tactical preparedness in Greco-Roman wrestling.

The research aims to develop and substantiate a programme for improving the technical and tactical preparedness of athletes with consideration of an individual combat style.

Methods

Participants

Thirty wrestlers of the middle-weight categories (72 kg; 77 kg; 82 kg) took part in the research. The participants have been divided into two groups: a control group (CG) comprising 15 athletes, average age is (18.9±1.1) years; an experimental group (EG) comprising 15 athletes, average age is (19.1±0.9) years. All the athletes of the experimental group have been divided according to the individual combat styles based on video recordings of national championship and tournaments during 2017–2018. The distribution of wrestlers to a certain combat style has been conducted by a group of experts (n=7), the concurrence of the estimation of the experts has been proved by a concordance coefficient values ($W=0.55-0.70$; $p<0.05$). It has been estimated that four wrestlers conduct a fight in playing style, five athletes in tempo style and six wrestlers in strength style.

Description of the experiment

The analysis of scientific and methodical literature, video recordings of competitive matches of elite Greco-Roman wrestlers at the international competitions, has been conducted during the study's previous stages. The characteristics of basic combat styles in Greco-Roman wrestling (strength combat style, playing combat style and tempo combat style) have been formulated based on the conducted analysis (Tropin, Korobeynikov, Shatskikh, Korobeynikova, & Vorontsov, 2019). For greater accuracy, the term "individual combat style" is defined as certain predominant abilities (physical, psychological, technical, tactical, theoretical, etc.), which impact specific aspects of the competitive activity, and are formed in the process of sports improvement in wrestlers (Goranov, 2011; Latyshev et al., 2014). The characteristics of basic combat styles wrestlers:

1. Wrestlers of strength combat style grapple mainly at a moderate tempo at a close distance, occasionally attacking in single actions with serious preliminary preparation. Their good physical development allows them to enforce firm grabs, leading to an opponent's uncomfortable position in a match (Latyshev et al., 2014; Tropin et al., 2019).

2. High motor activity and a richness of technical and tactical actions during the whole combat are distinctive for wrestlers of tempo combat style. Wrestlers of this style conduct attacking movement incessantly, mainly at a medium or long distance, with a preliminary preparation (Tropin et al., 2019).

3. Wrestlers of playing combat style use a wide range of technical and tactical actions, creatively and innovatively resolve problematic situations in matches. Constant changes of distance, tempo, switch between attacking and counterattacking actions and combinations in accordance with an existing situation are distinctive for these wrestlers (Latyshev et al., 2014; Tropin et al., 2019).

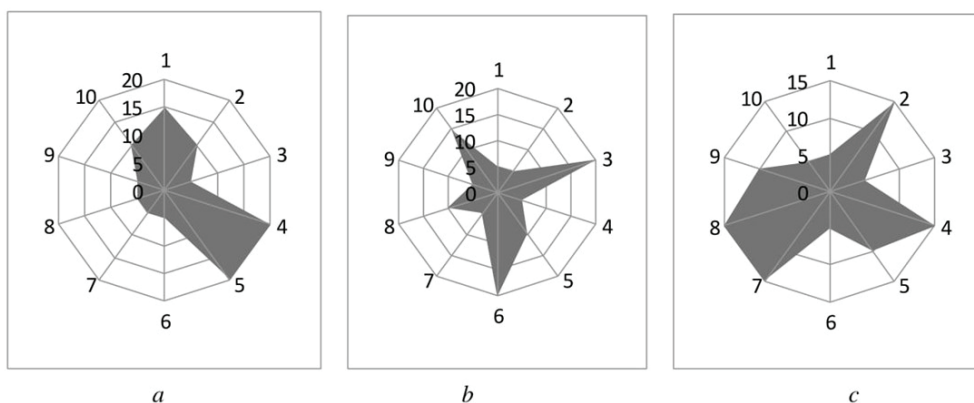
The programme of the improvement of technical and tactical preparation of wrestlers has been developed based on the conducted analysis of the data of the elite athletes. The proposed programme has considered the characteristics of the modern competitive activities in Greco-Roman wrestling, including the competition rules' most recent changes and an individual combat style. The programme for the improvement of technical and tactical preparation aims to identify the individual combat style and develop it with the proposed models. The models include the main combat indicators of technical and tactical actions for each style and the level to which athletes should aim: the number of attacks per unit of time; duration of the actions; the level of effectiveness of actions; the list of optimal actions to perform.

The main goals of technical and tactical preparation of a wrestler are increasing the volume of technical and tactical actions; the honing to perfection of three or four main actions; mastering various tactical combat style actions with consideration of the specific features of an opponent in a competitive situation; enlargement of a number of preliminary actions for conducting main actions; improvement of technical and tactical actions in various conditions; learning fragmentary elements of technical and tactical skills of wrestlers (the ability to enforce their grab, combat at the edge of a mat, pushing an opponent out, demonstration of the activity, maintaining advantage, defence in a ground position), that are characteristics of modern Greco-Roman wrestling.

A model of training exercises for improvement of wres-

tlers' technical and tactical preparation according to the individual combat style of wrestlers and the characteristics of the

modern competitive activity in Greco-Roman wrestling has been developed and presented in Figure 1.



Legend: 1–combinations with repeated attacks (%); 2–use of an opponent’s pressure for conducting an action (%); 3–use of a pressure on an opponent based on the pressing (%); 4–use of tactical actions for creating dynamic situations (%); 5–enlargement of a range of technical and tactical actions (%); 6–conducting technical actions amid growing fatigue (%); 7–conducting actions faster than an opponent does (%); 8–wrestling at a short distance, performing actions during firm grips (%); 9–maintenance of advantage during a match (%); 10–increase in advantage during a match (%).

FIGURE 1. Model of Training Exercises on Improvement of Technical and Tactical Preparation of Wrestlers of Playing (a), Tempo (b) and Strength (c) Combat Styles

Training exercises for improvement of the technical and tactical preparedness of wrestlers with consideration of an individual combat style and the characteristics of the modern

competitive activity of Greco-Roman wrestling has been realized in a one-year cycle (Table 1).

A pedagogical experiment for testing the impact efficiency

Table 1. Distribution of Means of Technical and Tactical Preparation of Wrestlers of the Experimental Group in a One-Year Cycle

Year		2018						2019					
		Pre-season		In-season		Off-season		Pre-season		In-season		Off-season	
Periods of a one-year preparation		5	6	7	8	9	10	11	12	1	2	3	4
Improvement of technical and tactical preparation	Actions in stand and ground positions	65	60	50	50	45	75	65	60	50	50	45	75
	Training exercises on the solution of a match episode	10	10	15	15	20	10	10	10	15	15	20	10
	Training exercises on combat in various grips	20	20	20	10	10	10	20	20	20	10	10	10
	Training exercises on solution of tasks in accordance with an individual style of a wrestler	5	10	15	25	25	5	5	10	15	25	25	5

of a developed programme on improving the technical and tactical preparation of wrestlers was conducted from May 2018 to April 2019. The experiment has been built according to the plan that suggested the organization of two identical study groups. In the experimental group, the training process was performed according to developed models of training exercises.

At the beginning and the end of the experiment, the wrestlers participated in competitions. Wrestlers' technical and tactical preparedness has been evaluated based on their performances in competitions (Tünnemann & Curby, 2016). The following indicators of the wrestlers have been noted:

1. The efficiency of the technique used in stand and ground positions (this has been defined by a division of the quantity of successful attacks by the number of real attempts to perform the action and multiplied by 100%).
2. The efficiency of defence in stand and ground positions (this has been defined by a division of the quantity of deflected

attacks by the number of real attempts to perform the action and multiplied by 100%).

3. The performance in stand and ground positions (this has been evaluated in points: 1 point, 2 points, 4 points, 5 points): the average number of points achieved by athletes, in stand and ground positions separately.

4. The interval of an attack (this has been defined as a ratio (correlation) of a number of the quantity of attempts to perform an attack to the duration of a match).

5. The interval of a successful attack (this has been defined as a ratio (correlation) of the number of performed attacks to the duration of a match).

Statistical analysis

Statistical analysis of the received data has been fulfilled with the help of a licensed MS Excel 2010. We have determined indicators of the descriptive statistics mean arithmetic value, stan-

dard deviation (Antomonov, 2006). The reliability of the differences in average values has been estimated by the Student's t-test; the withdrawal has been considered to be reliable at ($p < 0.05$).

Results

An experiment for testing the efficiency of the developed programme to improve the technical and tactical preparation of wrestlers has been conducted. Before the experiment, the received indicators of technical and tactical preparedness in

the experimental ($n=15$) and the control ($n=15$) groups did not have significant differences in every parameter, which indicates the homogeneity of the studied groups ($p > 0.05$); value t varies from 0.03 to 0.85 (with t critical 2.05).

All the indicators of technical and tactical preparedness of wrestlers of the experimental group have increased over the studied period. Statistically significant positive changes in all of the considered indicators ($p < 0.05$; $p < 0.01$; $p < 0.001$) have been discovered. The detailed results are shown in Table 2.

Table 2. Indicators of the Technical and Tactical Preparedness of Wrestlers of the Experimental Group before and after the Experiment ($n=15$)

Indicators	Before		After		t-test	p
	Mean	SD	Mean	SD		
Efficiency of an attack in stand position, %	49.00	4.31	57.33	6.31	4.08	<0.001
Efficiency of an attack in ground position, %	49.40	4.57	59.13	7.86	4.01	<0.001
Efficiency of defence in stand position, %	76.73	5.20	82.33	5.45	2.78	<0.01
Efficiency of defence in ground position, %	65.87	9.11	72.40	6.91	2.14	<0.05
Performance in stand position, points	2.84	0.49	3.26	0.49	2.22	<0.05
Performance in ground position, points	3.01	0.61	3.51	0.61	2.17	<0.05
Interval of an attack, s	60.07	8.71	53.13	6.66	2.37	<0.05
Interval of a successful attack, s	106.47	15.10	97.13	7.40	2.08	<0.05

Legend: critical values of t-test – $t=2.05$, $p < 0.05$; $t=2.76$, $p < 0.01$; $t=3.67$, $p < 0.001$.

The analysis of the results received for the control group demonstrated that all the results have improved throughout the experiment. However, statistically significant changes be-

tween the indicators of technical and tactical preparedness before and after the pedagogical experiment were not detected. The detailed results are presented in Table 3.

Table 3. Indicators of the Technical and Tactical Preparedness of Wrestlers of the Control Group before and after the experiment ($n=15$)

Indicators	before		After		t-test	p
	Mean	SD	Mean	SD		
Efficiency of an attack in stand position, %	48.00	5.30	49.53	5.25	0.77	>0.05
Efficiency of an attack in ground position, %	49.60	4.53	51.00	4.69	0.80	>0.05
Efficiency of defence in stand position, %	76.80	5.61	77.07	6.78	0.11	>0.05
Efficiency of defence in ground position, %	65.47	6.61	67.7	5.94	0.67	>0.05
Performance in stand position, points	2.76	0.49	2.79	0.48	0.18	>0.05
Performance in ground position, points	3.02	0.38	3.03	0.44	0.07	>0.05
Interval of an attack, s	59.87	6.66	59.20	7.00	0.26	>0.05
Interval of a successful attack, s	110.73	11.23	105.60	9.97	1.28	>0.05

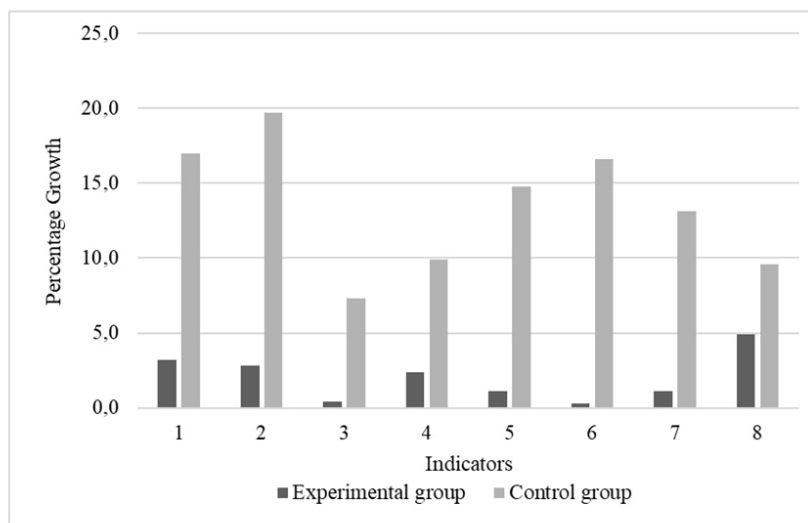
Legend: critical values of t-test – $t=2.05$, $p < 0.05$.

A statistical analysis of the values between the groups after the experiment demonstrates that the indicators of the experimen-

tal group are significantly higher than those of the control group: efficiency of an attack in the stand ($t=3.55$; $p < 0.01$) and in the

ground position ($t=3.33$; $p<0.01$) efficiency of defence in the stand ($t=2.27$; $p<0.05$) and in the ground position ($t=2.19$; $p<0.05$), performance in the stand ($t=2.54$; $p<0.05$) and in the ground position ($t=2.37$; $p<0.05$), the interval of an attack ($t=2.35$; $p<0.05$) and the interval of a successful attack ($t=2.55$; $p<0.05$).

The percentage (relative) growth of the indicators during the experiment is demonstrated in Figure 2. For the athletes of the experimental group, the studied indicators of technical and tactical preparedness have increased in the range from 7.3% to 19.7%, and from 0.4% to 4.9% in the control group.



Legend: 1–efficiency of an attack in the stand position; 2–efficiency of an attack in the ground position; 3–efficiency of defence in the stand position; 4–efficiency of defence in the ground position; 5–performance in the stand position; 6–performance in the ground position; 7–interval of an attack; 8–interval of a successful attack

FIGURE 2. The Increase in the Results of the Indicators of Technical and Tactical Preparedness of the Wrestlers of the Control Group ($n = 15$) and the Experimental Group ($n = 15$)

Thus, the results of a percentage increase in the indicators of technical and tactical preparedness indicate the superiority of the wrestlers of the experimental group compared to the similar indicators of the athletes of the control group, which indicates the effectiveness of the proposed program of improvement of the technical and tactical preparation of wrestlers of various combat styles and the possibility of its implementation in the training process.

Discussion

The programme's effectiveness for improving technical and tactical preparation for wrestlers of various combat styles has been confirmed in the pedagogical experiment. The analysis of the indicators' results after the experiment has demonstrated that there have been significant differences between the control and experimental groups in all the indicators of technical and tactical preparedness ($p<0.05$; $p<0.01$).

The programme's main guidelines are identifying the individual combat style and the development of the technical and tactical level, according to it. For the playing combat style, it is necessary to improve the combinations of actions: more attention was paid to creating favourable dynamic situations for the effective performance of actions; performing attack actions, taking into account the features of the created situation; using the errors of the opponent; performing forward attacks and counterattacks; acting creatively and originally; performing actions at the edge of the mat and dangerous positions.

Tempo combat style wrestlers need to improve: active start of the combat; performing many attacks and counterattacks; increasing the pace of the combat; performing throws; wrestling in a mutual grip; correctly performing the technical actions in the fatigue conditions. For the strength combat style,

it is necessary to improve: performing high-quality single actions; conducting combat at close distance; performing the actions of unbalancing the opponent and shackling.

As recent studies (Boyko et al., 2014; Zhumakulov, 2017) analysing the competitive activity in wrestling show, the ability to conduct an effective attack is critical to achieving victory. The present paper demonstrates that increases in the attack efficiency indicators are greater than the increases in defence efficiency indicators (in the experimental and control groups). This is due to the features of preparation in wrestling. The efficiency of an attack in the experimental group has increased from 15.8% to 15.9%, and in the control group from 2.8% to 3.2%. Simultaneously, the efficiency of defence has increased less both in the experimental (from 7.3% to 9.9%) and in the control groups (from 0.4% to 2.4%).

The performances of wrestlers in the stand and the ground positions determine the number of earned points for the match and successful athletes (Biac, Hrvoje, & Sprem, 2014; Tropin & Pashkov, 2015; Tünnemann & Curby, 2016). The athletes in the experimental group had a higher increase in performance in the stand and in the ground positions (14.8–16.6%) than the wrestlers in the control group (0.3%–1.1%).

Wrestling specialists (Sadowski & Gierczuk, 2009) believe that the necessary condition for the competitive activity's success is the conduct of matches that is most consistent with the individual style. The papers of other authors (Pavelec et al., 2013; Saienko, 2016) also confirm that in combat sports the formation and improvement of an individual style has a significant positive effect on an athlete's level and increases performance competitions. The positive influence of individualization for playing, tempo, and strength combat styles in free-style wrestling is also confirmed by research (Latyshev et

al., 2014).

In summation, it is possible to say that the process of wrestlers' preparation should be built individually, considering the patterns of athletes' training in the modern sports (Dick, 2007;

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Conflict of Interest

The authors declare that there are no conflicts of interest.

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