Methodology for improving the physical and technical preparation of female freestyle wrestlers in a training group

https://doi.org/10.65149/eajss.2026.v6i4.a006

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Abstract
This article discusses issues related to developing the physical and technical preparation of 14-15-year-old female athletes engaged in women's wrestling during the training process. To improve the technical and tactical preparation of female freestyle wrestlers, suggestions and recommendations are provided for teaching linked technical maneuvers from standing and parterre positions.
Keywords: women's wrestling, physical preparation, technical preparation, adolescent female athletes, standing and parterre positions.

Introduction

Women's wrestling is one of the most popular and widespread sports in the Summer Olympic Games program, with thousands of athletes actively training on all five continents. The growing competition in women's wrestling necessitates finding ways to increase the organizational and methodological effectiveness of managing all stages of development, from initial training to the highest levels of athletic mastery. The methodology for improving the physical preparedness of female freestyle wrestlers in training groups for the effective execution of techniques, as well as the technology for correctly assessing training load norms, has not been sufficiently explored from a scientific standpoint. This, in turn, requires specialists to conduct scientifically-grounded research.

The issue of improving the technical training of athletes in wrestling is being deeply analyzed through an integrated approach combining sports science, biomechanics, and modern training methods. A series of research studies are being conducted on the phased learning of technical movements of female freestyle wrestlers, optimizing movement trajectories, scientifically controlling the distribution of force and momentum, increasing the energy efficiency of muscle work, improving coordination and balance, and developing reaction speed and decision-making mechanisms.

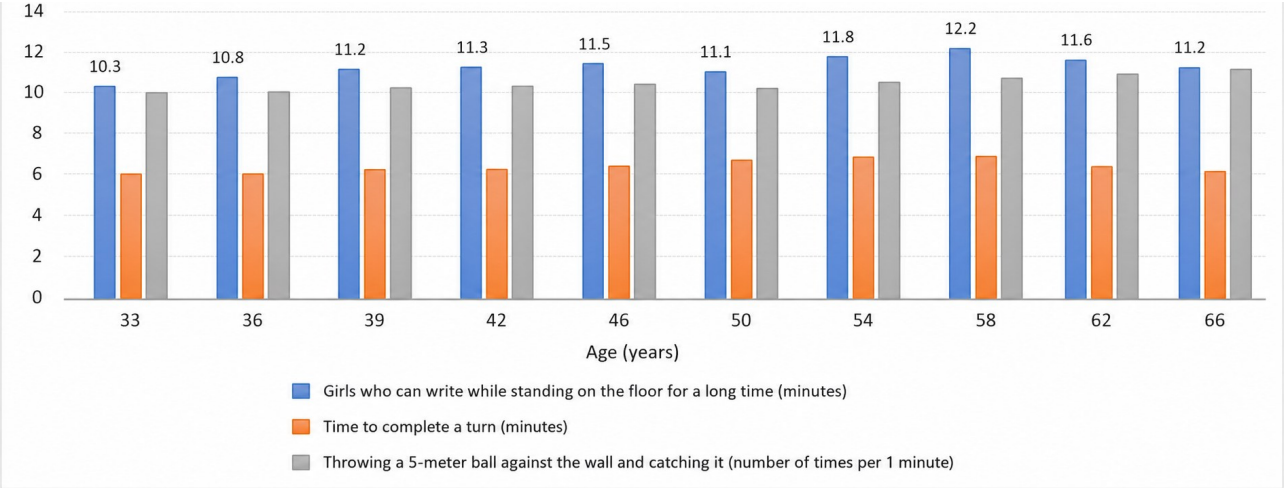
The technical training of female freestyle wrestlers is being continuously improved through several key methods. These include: developing techniques that correspond to their anthropometric characteristics; identifying technical errors using digital diagnostic tools; creating load and training programs tailored to the individual functional capabilities of the athletes; effectively utilizing video analysis and simulation technologies; clearly defining the stages for automating technical movements; progressively teaching complex coordination tasks; reinforcing techniques through repeated analysis; applying modern monitoring and evaluation methods; and developing methodological approaches based on scientific research. This ongoing process highlights the growing importance of enhancing the technical preparedness of female freestyle wrestlers.

The aim of the study is to develop proposals and recommendations for improving the technical and physical training of female freestyle wrestlers at the educational-training stage.

In our country, a number of efforts are underway to develop the sport of women's wrestling, and the effectiveness of this work is reflected in the results achieved at prestigious competitions. Currently, a series of consistent reforms, systematic measures, and comprehensive programs are being implemented to further advance women's wrestling, enhance it with modern methodologies, and train internationally competitive female athletes. The practical impact of these efforts is clearly demonstrated by the fact that in recent years, female athletes from Uzbekistan have consistently achieved high results at prestigious competitions such as the Asian Championships, World Championships, and the Olympic Games, with their level of technical, tactical, and physical preparedness steadily increasing.

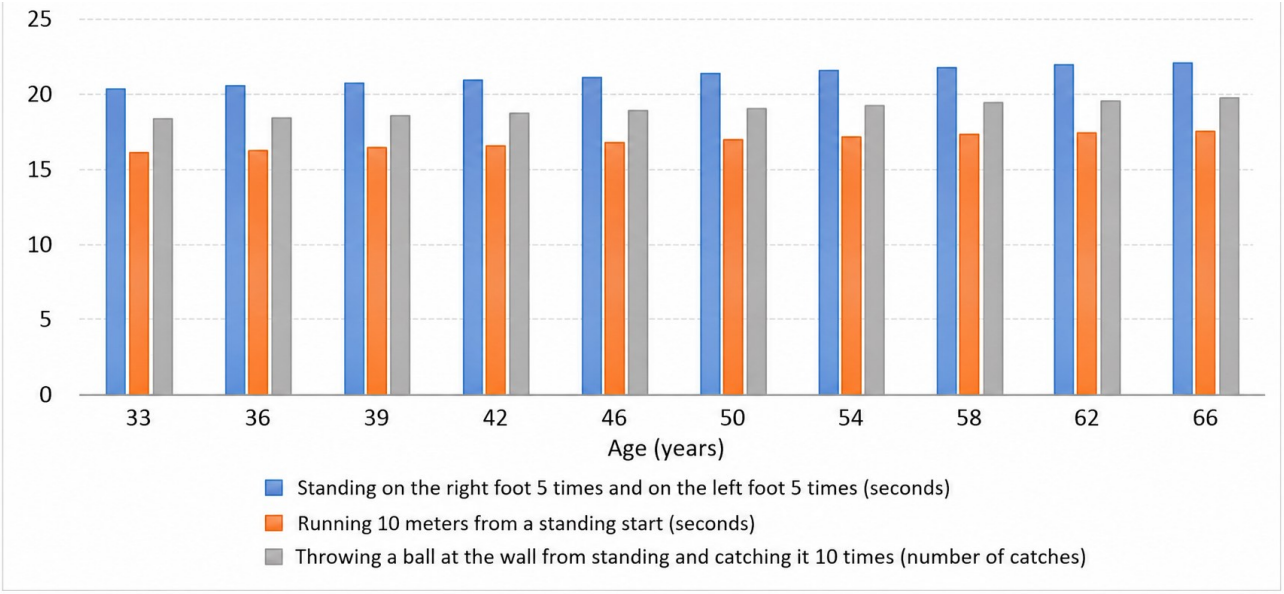
Results and discussion

Fig 1. .General physical fitness indicators of 14-15-year-old female freestyle wrestlers in the experimental group at the start of the experiment.



In leading countries with advanced women's wrestling schools, such as Japan, rankings. From this perspective, Uzbekistan considers it a pressing task to study the

Fig 2. Special physical fitness indicators of 14-15-year-old female freestyle wrestlers in the experimental group at the start of the experiment.



Russia, China, Kyrgyzstan, India, and Mongolia, cutting-edge methods and techniques are being developed and widely implemented based on the latest scientific approaches. These include optimizing training processes, assessing the functional capabilities of female athletes, expanding their technical-tactical repertoires, and developing training strategies based on an individual approach for each athlete. This, in turn, helps female athletes from these countries maintain their athletic form over the years, achieve stable results in the most important competitions, and secure top positions in world achievements of advanced women's wrestling schools, adapt them to local conditions, and develop new training methods for the national team's female athletes, drawing from international experience.

Developing the physical qualities of female freestyle wrestlers is of great importance in the execution of technical maneuvers.

At the beginning of the pedagogical experiment, the results of the comparative analysis of the general physical fitness indicators of the 14-15-year-old female

Table 1. The sequence for teaching standing and parterre techniques to U-15 female free-style wrestlers in the lightweight category

No.	Name of standing and parterre techniques	Complexity of Teaching Techniques
	Sequence of Techniques for Transitioning from a Standing Position to the Parterre Position	
1	Transitioning to the parterre position by pulling the arm	1
2	Transitioning to the parterre position by pulling from a front head and arm lock	2
3	Transitioning to the parterre position by stepping to the side and grabbing the legs	3
	Sequence of Techniques in the Parterre Position	
4	Overturning by grabbing the waist and rolling	1
5	Overturning by locking the neck and arm and twisting	2
6	Overturning by crossing and locking the legs and twisting	3
	Sequence of Throwing Techniques from a Standing Position	
7	Throw over the shoulders	1
8	Throw over the waist	2
9	Throw by wrapping the arm around the neck	3

freestyle wrestlers in the experimental group are presented in Figure 1.

The results of the comparative analysis of the special physical fitness indicators for 14-15-year-old female freestyle wrestlers in the experimental group at the start of the pedagogical experiment are presented in Figure 2.

Based on their weight category, it is necessary for female freestyle wrestlers in the training stage to master a total of nine techniques in the standing and parterre positions.

U-15 female freestyle wrestlers in the lightweight category at the training stage must master the following standing techniques:

Table 2. The Sequence of Teaching Technical Techniques from Standing and Parterre Positions to U15 Middleweight Female Freestyle Wrestlers

No	Name of Standing and Parterre Techniques	Complexity of Teaching Techniques
	Sequence of techniques for transitioning from a standing to a parterre position	
1	Pulling by the arm to transition to the parterre position	1
2	Grasping the neck and arm together from the front top, pulling to transition to the parterre position	2
3	Stepping to the side and grabbing the legs to transition to the parterre position	3
	Sequence of techniques in the parterre position	
4	Rolling over by grasping the waist	1
5	Twisting over by grasping the neck and arm together	2
6	Twisting over by crossing and grasping the legs	3
	Sequence of throwing techniques from a standing position	
7	Throw over the shoulder	1
8	Throw over the shoulders	2
9	Throw over the waist	3

Table 3. Sequence for teaching standing and parterre techniques to U-15 female freestyle wrestlers in the heavyweight category

No	Name of standing and parterre techniques	Difficulty of teaching the techniques
Sequence of techniques for transitioning from a standing to a parterre position		
1	Wrapping an arm around the neck to transition to the parterre position	1
2	Grabbing both legs to transition to the parterre position	2
3	Pulling the opponent to the parterre position by grabbing their arm from the side with both hands	3
Sequence of techniques in the parterre position		
4	Rolling the opponent by grabbing their waist	1
5	Rolling the opponent by running in a circle with a keylock grip on their shoulder	2
6	Rolling the opponent by grabbing and twisting their shoulder and neck	3
Sequence of throwing techniques from a standing position		
7	Throwing over the back (waist-lift throw)	1
8	Throwing with an inside leg hook	2
9	Throwing by wrapping an arm around the neck	3

pulling the opponent to the parterre position by the arm, taking a step to the side and grabbing the legs to bring them to the parterre position, and securing the neck and arm, grabbing from the front top, and pulling to the parterre position. Next, the parterre techniques are mastered: a rollover by holding the waist, a turnover by crossing and holding the legs, and a turnover by securing and holding the neck and arm. Standing throws are then mastered: shoulder throw,

Table 4. Sequence for teaching 14-15-year-old female freestyle wrestlers to link standing and parterre techniques

No.	Name of Standing Technique	Name of Parterre Technique
1	Arm drag to parterre position	Waist lock roll
		Neck and arm bind gut wrench
		Leg lace gut wrench
2	Front headlock and arm drag to parterre position	Waist lock roll
		Neck and arm bind gut wrench
		Leg lace gut wrench
3	Sidestep to leg grab to parterre position	Waist lock roll
		Neck and arm bind gut wrench
		Leg lace gut wrench
4	Over-the-shoulder throw	Waist lock roll
		Neck and arm bind gut wrench
		Leg lace gut wrench
5	Throw over the waist	Waist lock roll
		Neck and arm bind gut wrench
		Leg lace gut wrench
6	Arm-around-the-neck throw	Waist lock roll
		Neck and arm bind gut wrench
		Leg lace gut wrench

Table 5. Physical and technical fitness indicators of 14-15-year-old female freestyle wrestlers in the training group at the beginning of the experiment (n=30)

No.	Tests	Experimental group			Control group			t	P
		±	σ	V%	±	σ	V%		
General physical fitness									
1.	Push-ups (reps)	15.4	1.1	3.9	12.3	1.3	3.4	4.6	<0.001
2.	Pull-ups (reps)	9.1	1.4	3.5	7.2	1.8	3.3	2.6	<0.05
3.	Standing long jump (cm)	174.3	1.3	3.3	167.2	1.7	3.9	4.1	<0.01
4.	30m sprint (seconds)	5.2	1.5	2.9	5.5	1.4	4.1	2.5	<0,05
5.	4-meter rope climb (seconds)	8,3	1,2	3,7	9,4	1,6	3,9	3,2	<0,01
Special Physical Preparation									
1.	Circling in a bridge position, 5 times to the right 5 times to the left (seconds)	17,6	1,4	3,5	19,4	1,9	3,6	4,8	<0,001
2.	10 head-over jumps from a bridge position (seconds)	13,1	1,2	3,4	15,2	1,7	4,4	3,4	<0,01
3.	10 drops from a standing to a bridge position (seconds)	15,4	1,3	3,6	17,3	1,4	3,9	4,6	<0,001
Technical Preparation									
1.	10 takedowns by pulling the arm into a parterre position (seconds)	20,1	1,3	4,5	21,2	1,1	3,9	4,1	<0,001
2.	10 back-arching throws (seconds)	20,5	1,2	6,8	23,6	1,2	7,2	3,6	<0,01
3.	10 shoulder throws (seconds)	20,4	1,5	3,7	23,2	1,8	3,2	3,4	<0,01

waist throw, and a throw with the arm wrapped around the neck (Table 1).

U15 female freestyle wrestlers in the middleweight category at the training stage must master technical techniques from a standing position with the following descriptions: transitioning to the parterre position by ducking under the arm, transitioning to the parterre position by grabbing the leg, and transitioning to the parterre position by moving to the front and sitting.

Next, techniques in the parterre position are mastered: overturning by grabbing the waist and rolling, overturning by running in a circle while holding the shoulder in a key-like grip, and overturning by twisting with a reverse waist hold. Throws from a standing position are mastered: throw over the shoulder, throw over the shoulders, and throw over the waist (Table 2).

U-15 female freestyle wrestlers in the heavyweight category at the training stage must master the following technical techniques from a standing position: wrapping an arm around the neck to transition to the parterre position, grabbing both legs to transition to the parterre position, and grabbing the opponent's arm with both hands from the side and pulling to transition to the parterre position. Then, techniques in the parterre position are mastered: rolling over by grasping the waist, running in a circle and rolling the opponent over with a key-lock grip on the shoulder, and twisting over by grasping the shoulder and neck (Table 3).

A classification system of interconnected techniques was developed for teaching standing and parterre position techniques to female freestyle wrestlers at the training-group stage (see Table 4).

From a standing position, the following techniques are performed: pulling the opponent to the parterre position by their arm, and in the parterre position, rolling them by grabbing the waist, rolling them by securing the neck and arm, and rolling them by crossing their legs.

From a standing position, the following techniques are performed: pulling the opponent to the parterre position with a front headlock (securing the neck and arm from the top front), and in the parterre position, rolling them by grabbing the waist, rolling them by securing the neck and arm, and rolling them by crossing their legs.

From a standing position, the following techniques are performed: taking a step to the side and grabbing the legs to bring the opponent to the parterre position, and in the parterre position, rolling them by grabbing the waist, rolling them by securing the neck and arm, and

rolling them by crossing their legs. Throw; and from a parterre position, a roll by gripping the waist, a turnover by locking the neck and arm, and a turnover by tripping the legs. From a standing position, an over-the-waist throw; and from a parterre position, a roll by gripping the waist, a turnover by locking the neck and arm, and a turnover by tripping the legs are performed. From a standing position, an arm-wrap-around-the-neck throw; and from a parterre position, a roll by gripping the waist, a turnover by locking the neck and arm, and a turnover by tripping the legs are performed.

As a result of the analysis, at the end of the pedagogical experiment, significant statistical differences were identified between the studied parameters in the 14-15-year-old female freestyle wrestlers of the experimental and control groups. The results of the comparative statistical analysis of the average indicators of control standards in both groups are presented in Table 5.

As shown in Table 4, the groups under study, consisting of 14-15-year-old female freestyle wrestlers, were approximately the same at the beginning of the research. In the push-up exercise (repetitions), the control group of female freestyle wrestlers performed an average of 12.3 repetitions, while the experimental group performed 15.4. In the pull-up exercise (repetitions), the control group of female freestyle wrestlers performed 7.2 repetitions, while the experimental group performed 9.1. In the standing long jump, the results for the control group of female freestyle wrestlers were 167.2 cm, compared to 174.3 cm for the experimental group. In the 30-meter run (seconds), the average result for the control group of female freestyle wrestlers at the start of the study was 5.5 seconds, while the experimental group's result was 5.2 seconds. In the 4-meter rope climb (seconds), the results for the control group of female freestyle wrestlers were 9.4 seconds, whereas the experimental group's results were 8.3 seconds.

For the "bridge and circle" drill (5 times to the right, 5 times to the left), the average time for the female freestyle wrestlers in the control group was 19.4 seconds, while in the experimental group, it was 17.6 seconds. For the 10 head-overs from a bridge position (in seconds), the female freestyle wrestlers in the control group averaged 15.2 seconds, and in the experimental group, 13.1 seconds. For dropping into a bridge from a standing position 10 times (in seconds), the female freestyle wrestlers in the control group averaged 17.3 seconds, while in the experimental group, it was 15.4 seconds.

For pulling an opponent to the parterre position by the arm 10 times (in seconds), the average time for the female freestyle wrestlers in the control group was 21.2 seconds, and in the experimental group, it was 20.1 seconds. For the suplex throw (bel-dan oshirib tashlash) 10 times (in seconds), the average time for the female freestyle wrestlers in the control group was 23.6 seconds, while in the experimental group, it was 20.5 seconds. For the shoulder throw 10 times (in seconds), the average time for the female freestyle wrestlers in the control group was 23.2 seconds, while in the experimental group, it was 20.4 seconds.

Conclusion

Based on an analysis of best practices and scientific-methodological literature, a need was identified to improve the sequence of technical maneuvers and training tools, considering the anthropometric indicators of the female freestyle wrestlers under study in both standing and parterre positions. For 14-15-year-old female freestyle wrestlers in the lightweight category, a sequence for teaching techniques was developed and practically substantiated. This sequence includes: transitioning from a standing position to parterre by pulling the arms, taking a step to the side and grabbing the legs for a takedown to parterre, and executing a takedown to parterre by securing the neck and arm from the front. In the parterre position, techniques include rolling an opponent over by holding the waist, turning them over by crossing and holding the legs, and turning them over by securing the neck and arm. From a standing position, the sequence covers throws such as the over-the-shoulder throw, the over-the-waist throw, and the arm-wrap throw.

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