

Improvement of the competitive program of woman's pair in acrobatics by means of choreography at a stage of the specialized basic preparation

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Purpose: to prove experimentally the technique of improvement of the competitive program of woman's pair in acrobatics by means of choreography at a stage of the specialized basic preparation.

Material & Methods: the following methods of the research were used: theoretical analysis and synthesis of data of special scientific and methodical literature; pedagogical supervision; pedagogical testing; methods of mathematical statistics. 10 competitive programs of woman's pair in acrobatics are analyzed before and after the pedagogical experiment.

Results: the estimated results of the technique of execution of the competitive program of each woman's pair separately were received on the basis of a rating scale of criterion of implementation of the competitive program of woman's pair in acrobatics (Rules of FIG, 2013–2016). The dynamic of the level of the competitive program of each woman's pair separately is defined.

Conclusions: it is established that additional resources of choreography influence significantly the level of the competitive program of woman's pair in acrobatics at a stage of the specialized basic preparation.

Keywords: competitive program, woman's pair, choreography, acrobatics.

Introduction

Women's pairs in sports acrobatics – is one of the beautiful, dynamic, spectacular and popular sports. The World Cups and Europe, competition on the World Cup and other prestigious international tournaments are constantly held on this sport [1; 5].

As the analysis of scientifically methodical literature showed, the type of sports acrobatics, – women's pairs tested considerable changes in recent years, both in improvement of technical skill of sportswomen, and in internal structure of the competitive program. Together with skill of performance of elements, more and more requirements disclosure of dramatic art of music of the competitive program belongs to the level of choreographic preparedness of sportswomen also. So, our research concerning the influence of means of choreography on the level of the competitive program is relevant [1–3; 6; 7].

Communication of the research with scientific programs, plans, subjects

The research was conducted in the implementation of the complex scientific project for 2015–2017. "Theoretic-methodical bases of formation of culture of physical health at student's youth".

The purpose of the research

To prove experimentally a technique of improvement of the competitive program of an acrobatics woman's pair by means of choreography at a stage of the specialized basic preparation.

Tasks of the research:

1. To learn a problem of improvement of the competitive program of woman's pair on acrobatics by means of choreography at a stage of the specialized basic preparation on the basis of the analysis of scientifically-methodical literature.
2. To prove efficiency of a technique of improvement of the competitive program of an acrobatics woman's pair by means of choreography and to analyze dynamics of indicators of the level of their performance.

Material and Methods of the research

The research was conducted from September, 2015 till March, 2016, the following methods of the research were used in the research: theoretical analysis and synthesis of data of special scientifically-methodical literature; pedagogical supervision; pedagogical testing; methods of mathematical statistics. 10 competitive programs of women's pairs on acrobatics are analyzed before and after the pedagogical experiment.

10 sportswomen (5 acrobatics women's pairs) of 11–16 years old of the control group (CG) and 10 sportswomen (5 acrobatics women's pairs) of 11–16 years old of the experimental group (EG) took part in the researches (the 1st category, candidates of the Master of Sports).

Results of the research and their discussion

The analysis of an expert assessment showed the level of implementation of the competitive program of acrobatics women's pairs before the pedagogical experiment in tab. 1

and 2. The variation coefficient (V, %) shows that groups are uniform.

The provided referee's points in tab. 1 and 2 are average values of three partial estimates of criteria: "A" – choreography (artistic compositions) – from 0 till 10 points; "D" – difficulty of exercise (0–10 points); "E" – exercise performance (0–10 points). Also we gave penalties for technical mistakes taking into account a scale of decreases: small mistakes – 0,1–0,2; considerable mistakes – 0,3; gross errors – 0,5; 1,0. The reduction for performance of a separate element, including an entrance at it, can't exceed 1,0 point. Errors of virtuosity are subtracted from the maximum assessment of 10,00 points and include the following scale of decreases: small, considerable, gross errors – from 0,1 till 0,5 points.

The foundation of a technique of improvement of the competitive program of a woman's pair on acrobatics by means of choreography and its appendix in the experimental group are carried out [1]. Results of indicators of implementation of the competitive program of a woman's pair on acrobatics in tab. 3 and 4 after the pedagogical experiment are reported.

The analysis of results of indicators of implementation of the competitive program of acrobatics women's pairs showed that women's pairs No. 4 and No. 5 were perspective in EG, No. 2 and No. 1 lagged behind at the beginning of the pedagogical experiment. These ranks remained practically and after the pedagogical experiment.

Inter-rank differences: the only change is that women's pairs No. 1 and No. 3 traded places.

Women's pairs No. 1 and No. 5 were perspective, No. 2 and No. 4 lagged behind at the beginning of the pedagogical experiment in CG. These ranks remained practically and after the pedagogical experiment.

Inter-rank differences: the only change is that women's pairs No. 1 and No. 5 traded places.

We established dynamics of their changes in the experimental and control groups on the basis of indicators of criteria for evaluation of implementation of the competitive program of a woman's pair on acrobatics before and after the pedagogical experiment, (tab. 5 and tab. 6)

The indicator of changes of criterion "A" (artistic compositions) grew by 5,2% in the experimental group in a percentage ratio. The indicator of changes of criterion "A" grew by 0,8% in the control group in a percentage ratio. The difference of indicators of changes of criterion "A" makes 4,4% during the pedagogical experiment. The indicator of changes of criterion "D" (difficulty) grew by 1,7% in the experimental group in a percentage ratio. The indicator of changes of criterion of "D" grew by 1,1% in the control group in a percentage ratio. The difference of indicators of changes of criterion of "D" makes 0,6% during the pedagogical experiment. The indicator of changes of the criterion "E" (performance) grew by 2,3% in the experimental group in a percentage ratio. The indicator of changes of the criterion "E" grew by 1,1% in the control group in a percentage ratio. The difference of indicators of changes of the criterion "E" makes 1,2% during the pedagogical experiment. The total difference of dynamics of changes of indicators of criteria ("A" + "D" + "E") implementation of the

Table 1

Results of indicators of implementation of the competitive program of a woman's pair on acrobatics before the pedagogical experiment (EG, n=10)

Criterion for evaluation of the competitive program of a woman's pair on acrobatics	Women's pairs				
	1	2	3	4	5
A Choreography (artistic compositions) points	9,1	8,9	9,1	9,5	9,3
D Difficulty of exercise, points	9,1	9,1	9,2	9,1	9,3
E Exercise performance, points	9,4	9,1	9,2	9,4	9,1
Total point score ("A"+"D"+"E"), points	27,6	27,1	27,5	28,0	27,7
Rank	3	5	4	1	2
Average arithmetic	9,26	9,2	9,2	9,3	9,26
Average square deviation	0,17	0,11	0,05	0,21	0,11
The variation coefficient, %	1,8	1,2	0,5	2,2	2,5

Table 2

Result of indicators of implementation of the competitive program of a woman's pair on acrobatics before the pedagogical experiment (CG, n=10)

Criterion for evaluation of the competitive program of a woman's pair on acrobatics	Women's pairs				
	1	2	3	4	5
A Choreography (artistic compositions) points	9,2	9,2	9,1	9,1	9,4
D Difficulty of exercise, points	9,4	9,1	9,3	9,0	9,2
E Exercise performance, points	9,2	9,0	9,2	9,3	9,4
Total point score ("A"+"D"+"E"), points	27,9	27,3	27,6	27,4	28,0
Rank	2	5	3	4	1
Average arithmetic	9,3	9,1	9,2	9,13	9,33
Average square deviation	0,1	0,1	0,1	0,15	0,11
The variation coefficient, %	1,1	1,1	1,1	1,6	1,2

Table 3

Result of indicators of implementation of the competitive program of a woman's pair on acrobatics after the pedagogical experiment (EG, n=10)

Criterion for evaluation of the competitive program of a woman's pair on acrobatics	Women's pairs				
	1	2	3	4	5
A Choreography (artistic compositions) points	9,6	9,5	9,7	9,8	9,7
D Difficulty of exercise, points	9,3	9,3	9,4	9,3	9,3
E Exercise performance, points	9,5	9,4	9,4	9,6	9,4
Total point score ("A"+"D"+"E"), points	28,4	28,2	28,5	28,7	28,6
Rank	4	5	3	1	2
Average arithmetic	9,46	9,4	9,5	9,56	9,53
Average square deviation	0,15	0,1	0,17	0,25	0,21
The variation coefficient, %	1,6	1,1	1,8	3,1	2,2

Table 4

Result of indicators of implementation of the competitive program of a woman's pair on acrobatics after the pedagogical experiment (CG, n=10)

Criterion for evaluation of the competitive program of a woman's pair on acrobatics	Women's pairs				
	1	2	3	4	5
A Choreography (artistic compositions) points	9,3	9,3	9,2	9,2	9,4
D Difficulty of exercise, points	9,5	9,2	9,4	9,1	9,3
E Exercise performance, points	9,4	9,1	9,3	9,4	9,4
Total point score ("A"+"D"+"E"), points	28,2	27,6	27,9	27,7	28,1
Rank	1	5	3	4	2
Average arithmetic	9,4	9,2	9,3	9,23	9,36
Average square deviation	0,1	0,1	0,1	0,15	0,05
The variation coefficient, %	1,1	1,1	1,1	1,6	0,5

Table 5

Dynamics of changes of indicators of criteria for evaluation of implementation of the competitive program of a woman's pair on acrobatics after the pedagogical experiment (EG, n=10) (P<0,05)

Criterion for evaluation of the competitive program	\bar{X}		σ		m		t_r	t_{gr}	P
	before	after	before	after	before	after			
1. "A" Choreography, points	9,66	9,18	0,11	0,23	0,05	0,11	3,97	2,57	<0,05
2. "D" Difficulty, points	9,32	9,16	0,04	0,08	0,02	0,04	3,57	2,57	<0,05
3. "E" Performance, points	9,46	9,24	0,08	0,15	0,04	0,03	4,4	2,57	<0,05

Table 6

Dynamics of changes of indicators of criteria for evaluation of implementation of the competitive program of a woman's pair on acrobatics after pedagogical experiment (CG, n=10) (P<0,05)

Criterion for evaluation of the competitive program	\bar{X}		σ		m		t_r	t_{gr}	p
	before	after	before	after	before	after			
1. "A" Choreography, points	9,28	9,2	0,08	0,12	0,04	0,06	1,11	2,57	>0,05
2. "D" Difficulty, points	9,3	9,2	0,15	0,15	0,07	0,07	0,94	2,57	>0,05
3. "E" Performance, points	9,32	9,22	0,13	0,14	0,06	0,07	1,5	2,57	>0,05

Table 7

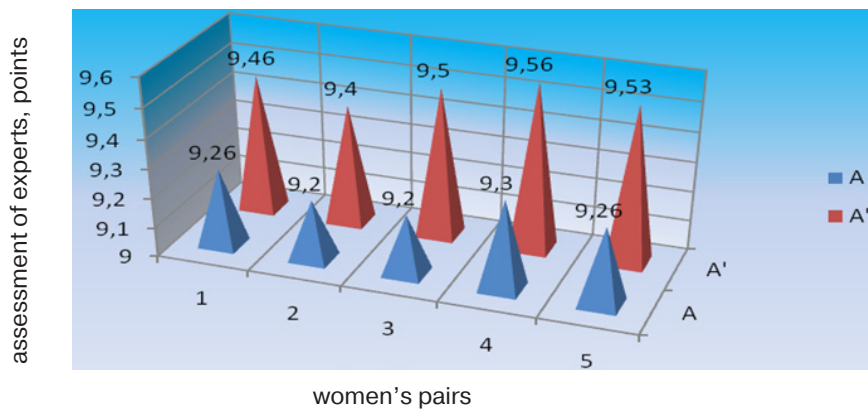
Statistics of implementation of the competitive program of a woman's pair on acrobatics before the pedagogical experiment (p<0,05)

№ of women's pairs and their criterion for evaluation of the competitive program	Experimental group (n=10)	Control group (n=10)	t	t _{gr.}	p
	$\bar{X} \pm m$				
1. ("A"+"D"+"E"), points	9,26±0,08	9,3±0,05	0,14	2,57	>0,05
2. ("A"+"D"+"E"), points	9,2±0,05	9,1±0,05	0	2,57	>0,05
3. ("A"+"D"+"E"), points	9,2±0,02	9,2±0,05	0,10	2,57	>0,05
4. ("A"+"D"+"E"), points	9,3±0,1	9,13±0,07	0,13	2,57	>0,05
5. ("A"+"D"+"E"), points	9,26±0,1	9,33±0,05	0,13	2,57	>0,05

Table 8

Statistics of implementation of the competitive program of a woman's pair on acrobatics after the pedagogical experiment (p<0,05)

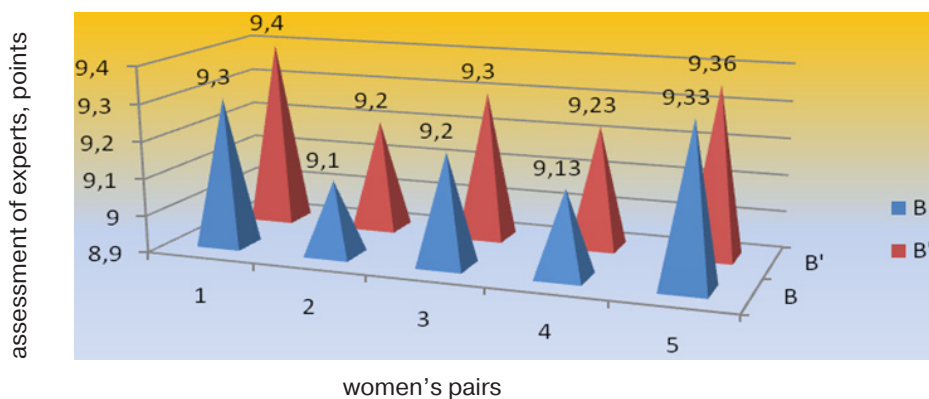
№ of women's pairs and their criterion for evaluation of the competitive program	Experimental group (n=10)	Control group (n=10)	t	t _{gr.}	p
	$\bar{X} \pm m$				
1. ("A"+"D"+"E"), points	9,46±0,07	9,4±0,05	0,69	2,57	>0,05
2. ("A"+"D"+"E"), points	9,4±0,05	9,2±0,05	2,82	2,57	<0,05
3. ("A"+"D"+"E"), points	9,5±0,08	9,3±0,07	1,88	2,57	>0,05
4. ("A"+"D"+"E"), points	9,56±0,12	9,23±0,07	2,37	2,57	>0,05
5. ("A"+"D"+"E"), points	9,53±0,1	9,36±0,02	1,66	2,57	>0,05



Pic. 1. Comparative statistics of acrobatics women's pairs (EG):

A – statistics to carrying out the pedagogical experiment;

A' – statistics after application of the experimental technique during the pedagogical experiment.



Pic. 2. Comparative statistics of acrobatics women's pairs (CG):

B – statistics to carrying out the pedagogical experiment;

B' – statistics after carrying out the pedagogical experiment.

competitive program of a woman's pair on acrobatics makes 6,2% after the pedagogical experiment between EG and CG in percentage a ratio. Statistics of implementation of the competitive program of a woman's pair on acrobatics before and after the pedagogical experiment of the experimental and control groups presented in tab. 7, 8.

Using methods of mathematical statistics, we can say that: difference of average values on the whole experimental group grew by 2,7%; difference of average values on the whole control group grew by 0,9%. The difference of differences of average values of the experimental and control groups of the pedagogical experiment makes 1,8%. Difference of average values in a percentage ratio for 3,1% improved by means of the offered technique of improvement of the competitive program of acrobatics women's pairs by means of choreography in the experimental group in indicators of criteria for evaluation of the competitive program ("A" + "D" + "E"). The worst result (1,0%) is shown considerably in the control group that confirms efficiency of the offered technique of improvement of the competitive program of acrobatics women's pairs by means of choreography in the experimental group during the pedagogical experiment. We compared the received results of statistics of acrobatics women's pairs of the experimental and control groups before carrying out the pedagogical experiment to their indicators after carrying out the pedagogical experiment. Comparative statistics of acrobatics women's pairs of the experimental and control groups are presented in pic. 1, 2.

Conclusions

1. The analysis of scientifically-methodical literature confirms the insufficient level of researches concerning the improve-

ment of the competitive program of a woman's pair on acrobatics by means of choreography at a stage of the specialized basic preparation.

2. The content of the educational and training process is developed which is directed to the improvement of the competitive program of woman's pair on acrobatics by means of choreography.

3. The technique of improvement of the competitive program of woman's pair on acrobatics at a stage of the specialized basic preparation is developed.

4. Statistics of implementation of the competitive program of woman's pair on acrobatics in a percentage ratio are defined: difference of average values on the whole experimental group (EG) grew by 2,7%; difference of average values on the whole control group (CG) grew by 0,9%; the difference of differences of average values of the experimental and control groups of the pedagogical experiment makes 1,8%.

The average value of a percentage ratio for 3,1% improved by means of the offered technique of improvement of the competitive program of women's pairs on acrobatics by means of choreography in the experimental group in indicators of criteria for evaluation of the competitive program ("A" + "D" + "E"). The worst result (1,0%) is shown considerably in the control group, which confirms the efficiency of the offered technique of improvement of the competitive program of woman's pair on acrobatics by means of choreography in the experimental group.

Prospects of the subsequent researches will be sent to the search for new means and methods of special physical and technical training of acrobatics women's pairs.

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