SLOBOZHANSKYI HERALD OF SCIENCE AND SPORT

UDK 796.012.656+793.324

ISSN (English ed. Online) 2311-6374
2017, №5(61), pp. 51-55

An influence of classical dance on a technical preparedness level of athletes in acrobatic rock and roll at the preliminary basic training stage

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Purpose: *experimentally substantiate the technique for improving the technical training of acrobatic rock'n'roll athletes with classical dance at the stage of preliminary basic training.*

Material & Methods: *the following research methods were used: theoretical analysis and generalization of data from special scientific and methodological literature; pedagogical observation; pedagogical testing; method of expert evaluation; methods of mathematical statistics. Expert assessment of 12 sports couples (12 male partners and 12 female partners) before and after the research.*

Results: *on the basis of the evaluation scale (Rules of the WRRC, 2017), the estimated results of the performance of the competition program were obtained. Dynamics of the level of technical mastery of performance of competitive programs is determined separately for each sports pair of athletes.*

Conclusion: *found that the use of classical dance means significantly affect the level of technical training of athletes in acrobatic rock'n'roll.*

Keywords: *acrobatic rock'n'roll, competitive program, athletes, classical dance.*

Introduction

Classical dance is one of the main types of choreographic preparation in various sports of dance direction. More attention is paid to the influence of classical dance on the criteria for evaluating competitive exercises and the competitive program in general [3; 6]. Of great importance is the classical dance in the structure of posture construction of athletes of artistic gymnastics, their technical mastery of performing competitive compositions at all stages of preparation. The same effect classical dance has in technical training in acrobatic rock'n'roll. However, as the analysis of scientific and methodical literature in acrobatic rock'n'roll has shown, the classical dance in the technical training of athletes is not at the proper level. The rapid development of world sports constantly requires a relentless search for increasingly effective means, methods and forms of training athletes [4]. Despite this, our study of the impact of classical dance on the level of technical training of athletes in acrobatic rock'n'roll is actual [1; 2].

The purpose of the research: experimentally substantiate the technique for improving the technical training of acrobatic rock'n'roll athletes with classical dance at the stage of preliminary basic training.

Objectives of the study:

1. To study the problem of improving the technical training of acrobatic rock'n'roll athletes by means of classical dance at the stage of preliminary basic training.

2. To substantiate the effectiveness of the technique for improving the technical training of acrobatic rock'n'roll athletes by means of classical dance and to analyze the dynamics of indicators of the level of technical preparedness of athletes of acrobatic rock'n'roll.

Material and Methods of the research

Research methods: theoretical analysis and generalization of data from special scientific and methodological literature; pedagogical observation; pedagogical testing; method of peer review; methods of mathematical statistics.

The study involved 12 athletes (6 male partners and 6female partners) aged 10–12 years of the control group (CG) and 12 athletes (6 partners and 6 partners) 10–12 years of the experimental group (EG).

Results of the research and their discussion

At the beginning of the pedagogical experiment, statistical indicators were obtained for expert assessments of the performance of competitive programs of sports pairs of acrobatic rock'n'roll 10–12 years (EG, n=12), (CG, n=12).

On the basis of the Rules of the WRRC (2017) [7], we have estimated the scores of the components of the criteria of the competitive program (the component "Rhythm" (criterion "main move") in the table is missing).

Statistical indicators of the performance of competitive programs of sports pairs of acrobatic rock'n'roll CG are shown in Table 1.

In all components of the criteria of the competitive program, the control group was homogeneous. Closer to the maximum result in the percentage ratio are the component *complexity* –

Table 1

Statistical indicators of the performance of competitive sports couples programs at the beginning of the pedagogical experiment (CG, n=12)

Sports couples	Main move, points (10+10; male partner + female partner)				Dance figures, points (max 25)			Criterion	Ranking
	Foot work, points (max 6,2)	Posture, points (max 4,6)	Hands work, points (max 4,6)	Lines, points (max 4,6)	Difficulty, points (max 10)	Accuracy, points (max 7,5)	Diversity, points (max 7,5)	"Composition", points (max 20)	
1	3,8	3,7	3,5	4,3	9,3	6,8	5,9	14	6
2	3,9	3,8	3,6	3,4	9,1	5,5	5,5	13	5
3	4,3	4,1	4,2	3,9	9,6	6,6	6	15	2
4	3,6	3,5	4,5	4,3	9,0	6,7	6,8	15	3
5	4,1	3,9	3,9	4,1	9,1	7,4	6,7	14	4
6	4	3,9	3,9	4,2	9,7	7	7,1	16	1
$\bar{X}$	3,95	3,82	3,93	4,0	9,03	6,67	6,33	14,5	
σ	0,24	0,20	0,37	0,34	0,29	0,64	0,62	1,05	
V, %	6,1	5,2	9,4	8,5	3,1	9,6	9,8	7,2	

90,3% (criterion "dance figures") and the line component – 86,9% (criterion "main move"). More than the average value of the components are *working hand* is 85,4% (the criterion "main move") and the component *accuracy* is 85,3% (criterion "dance figures"). Closer to the average are the *posture* component – 83,0% (criterion "main move") and component *diversity* – 82,6% (criterion "dance figures"). The lowest average values in the group from the maximum result are the "composition" criterion – 72,5% and the component of the *foot work* – 63,7% (criterion "main move").

The difference in the results of sports couples in components: *foot work* – from 3,6 points to 4,3 points (V – 6,1%); *posture* – from 3,5 points to 4,1 points (V – 5,2%); *hand work* – from 3,5 points to 4,5 points (V – 9.4%); *lines* – from 3,4 points to 4,3 points (V – 8,5) *complexity* – from 9,0 points to 9,7 points (V – 3,1%); *accuracy* – from 5,5 points to 7,4 points (V – 9,6%); *diversity* – from 5,5 points to 7,1 points (V – 9,8%), "*composition*" criterion – from 13,0 points to 16,0 points (V – 7,2%).

Statistical indicators of the performance of competitive sports programs for acrobatic rock'n'roll EG are shown in Table 2.

The small coefficient of variation showed that the experimental group is homogeneous, except for the component *diversity* (criterion "dance figures") (V –11,1%). Closer to the maximum result in the percentage ratio are the component *complexity* –92% (criterion "dance figures") and the component *work of hands* –91,3% (criterion "main move"). More than average, the *line* component is 89,1% (criterion "main move") and the component accuracy is 88,0% (criterion "dance figures"). Closer to the average, the component has a *diversity* of – 84% (criterion "dance figures") and the *posture* component – 80,4% (criterion "basic move"). The lowest average values in the group from the maximum result are the "composition" criterion – 71% and the *foot work* component – 64,2% (criterion "main move").

The difference in the results of sports couples in components: *foot work* – from 3,5 points to 4,3 points (V – 7,8%); *posture* – from 3,5 points to 4,1 points (V – 7,6%); the *hands work* – from 3,9 points to 4,5 points (V – 5,5%); *lines* – from 3,9 points to 4,5 points (V – 5,9%); *complexity* – from 9,2 points to 9,7 points (V – 5,9%); *accuracy* – from 5,7 points to 7,4 points (V – 8,3%); *diversity* – from 5,4 points to 7,2 points (V – 11,1%), the criterion "*composition*" – from 13,0 points to 15,0 points (V – 11,1%).

Based on the pedagogical experiment, we developed a technique for improving the technical training of athletes of sports

Table 2

Statistical indicators of the performance of competitive sports couples programs at the beginning of the pedagogical experiment (EG, n=12)

Sports couples	Main move, points (10+10; male partner + female partner)				Dance figures, points (max 25)			Criterion "Composition", points (max 20)	Ranking
	Foot work, points (max 6,2)	Posture, points (max 4,6)	Hands work, points (max 4,6)	Lines, points (max 4,6)	Difficulty, points (max 10)	Accuracy, points (max 7,5)	Diversity, points (max 7,5)		
1	4,3	3,5	4,3	4,5	9,1	6,6	5,8	14	5
2	3,8	3,7	4,0	3,9	8,2	5,7	5,4	13	6
3	4,0	3,7	4,3	4,1	9,7	7,4	6,7	15	1
4	3,5	3,3	4,5	4,3	9,2	6,7	6,8	14	4
5	4,3	4,1	4,4	4,0	9,6	6,6	5,9	15	2
6	4,0	3,9	3,9	3,9	9,5	6,9	7,2	14	3
$\bar{X}$	3,98	3,7	4,2	4,1	9,2	6,6	6,3	14,2	
σ	0,31	0,28	0,23	0,24	0,55	0,55	0,70	0,75	
V, %	7,8	7,6	5,5	5,9	5,9	8,3	11,1	5,3	

Table 3

Statistical indicators of performance of competitive sports couples programs after pedagogical experiment (CG, n=12)

Sports couples	Main move, points (10+10; male partner + female partner)				Dance figures, points (max 25)			Criterion "Composition", points (max 20)	Ranking
	Foot work, points (max 6,2)	Posture, points (max 4,6)	Hands work, points (max 4,6)	Lines, points (max 4,6)	Difficulty, points (max 10)	Accuracy, points (max 7,5)	Diversity, points (max 7,5)		
1	4,1	4	3,8	3,6	9,3	5,6	5,7	14	6
2	3,9	3,9	3,7	4,4	9,4	6,9	6,2	15	5
3	4,3	4	4	4,2	9,2	7,4	6,9	15	4
4	3,7	3,6	4,5	4,4	9,2	6,8	7	16	3
5	4,4	4,3	4,5	4,1	9,2	6,7	6,3	16	2
6	4,1	4,1	4,2	4,1	9,7	7,2	7,2	17	1
$\bar{X}$	4,08	3,98	4,12	4,13	9,33	6,77	6,55	15,50	
σ	0,26	0,23	0,34	0,29	0,20	0,63	0,58	1,05	
V, %	6,4	5,8	8,3	7,0	2,1	9,3	8,8	6,7	

couples of acrobatic rock'n'roll for 10–12 years using classical dance. It included exercises of classical dance in the form of exercise at the support and in the middle of the hall.

The technique for improving the technical training of athletes sports couples aged 10–12 years, we used in the experimental group. The training process in the control group was conducted according to the traditional method of training athletes of sports couples. Exercises of classical dance were used in the preparatory and final parts of the training.

We obtained statistical indicators of the performance of competitive programs of sports pairs of acrobatic rock'n'roll after the pedagogical experiment.

Statistical indicators of the performance of competitive programs of sports pairs of acrobatic rock'n'roll CG after the pedagogical experiment are shown in Table 3.

The coefficient of variation showed that the group is homogeneous. Closer to the maximum result in the percentage ratio are the component *complexity* – 93,3% (criterion "dance figures") and component *accuracy* – 90,3% (criterion "dance figures"). More than average, the *line* component is 89,8% (the criterion is the "main move") and the component of the *hand work* is 89,6% (criterion "main move"). Closer to average have a component of the *diversity* – 87,3% (criterion "dance figures") and the component of *posture* – 86,5% (criterion "main course"). The lowest average values in the group from the maximum result are the "*composition*" criterion – 77,5% and the component of the *foot work* – 65,8% (criterion "main course").

The difference in the results of sports couples in components: *foot work* – from 3,7 points to 4,4 points (V – 6,4%); *posture* – from 3,6 points to 4,3 points (V – 5,8%); *hands work* – from 3,7 points to 4,5 points (V – 8,3%); *lines* – from 3,6 points to 4,4 points (V – 7,0) *complexity* – from 9,2 points to 9,7 points (V – 2,1%); *accuracy* – from 5,6 to 7,4 points (V – 9,3%); *diversity* – from 5,7 points to 7,2 points (V – 8,8%), the criterion "*composition*" – from 14,0 points to 17,0 points (V – 6,7%).

Statistical indicators of performance of competitive programs of sports couples, acrobatic rock 'n' roll EG shown in the Table 4.

Coefficient of variation showed that the group is homogeneous. Closer to the maximum result in the percentage ratio are the *posture* component – 97,2% (criterion "main move") and the component *hand work* – 94,1% (criterion "main move"). Component of the *line* has a more average value – 93,9%

Table 4

Statistical indicators of performance of competitive sports couples programs after pedagogical experiment (EG, n=12)

Sports couples	Main move, points (10+10; male partner + female partner)				Dance figures, points (max 25)			Criterion "Composition", points (max 20)	Ranking
	Foot work, points (max 6,2)	Posture, points (max 4,6)	Hands work, points (max 4,6)	Lines, points (max 4,6)	Difficulty, points (max 10)	Accuracy, points (max 7,5)	Diversity, points (max 7,5)		
1	5,6	4,5	4,3	4,5	9,4	6,6	5,8	16	5
2	5,8	4,5	4,2	4,4	8,8	5,9	6,4	15	6
3	5,9	4,5	4,3	4,2	9,7	7,4	6,7	19	1
4	5,7	4,4	4,5	4,3	9,3	6,7	6,8	17	4
5	5,8	4,4	4,4	4,3	9,7	7	6,9	18	2
6	5,9	4,5	4,3	4,2	9,6	6,9	7,2	17	3
$\bar{X}$	5,78	4,47	4,33	4,32	9,42	6,75	6,63	17	
σ	0,12	0,05	0,1	0,12	0,34	0,5	0,48	1,41	
V, %	2,1	1,1	2,3	2,7	3,8	8,3	9,0	8,3	

Table 5

Statistical indicators of the level of technical preparedness of acrobatic rock'n'roll athletes at the beginning of the pedagogical experiment (P<0,05)

Criterion, components	Control group (n=12)	Experimental group (n=12)	t	t_{cr}	P
	$\bar{X}$±m				
1. Foot work, points	3,98±0,09	3,95±0,07	0,26	2,2	>0,05
2. Posture, points	3,7±0,08	3,82±0,06	1,20	2,2	>0,05
3. Hand work, points	4,2±0,07	3,93±0,11	2,07	2,2	>0,05
4. Lines, points	4,1±0,07	4±0,1	0,82	2,2	>0,05
5. Complexity, points	9,2±0,16	9,03±0,09	0,93	2,2	>0,05
6. Accuracy, points	6,6±0,16	6,67±0,19	0,28	2,2	>0,05
7. Diversity points	6,3±0,2	6,33±0,18	0,11	2,2	>0,05
8. Criteria "Composition", points	14,2±0,22	14,5±0,32	0,77	2,2	>0,05

(criterion "main move") and the component – *complexity* of 94,2% (criterion "dance figures"). Closer to the middle, the *foot work* component has 93,2% (criterion "main move") and the component *accuracy* is 90,0% (criterion "dance figures"). The smallest average values in the group from the maximum result have a *diversity* component – 88,4% (criterion "dance figures") and the criterion "composition" – 85%.

Difference in the results of sports pairs in components: *foot work* – from 5,6 to 5,9 points (V – 2,1%); *posture* – from 4,4 points to 4,5 points (V – 1,1%); the *hands work* – from 4,2 points to 4,5 points (V – 2,3%); *lines* – from 4,2 points to 4,5 points (V – 2,7%); *complexity* – from 8,8 to 9,7 points (V – 3,8%); *accuracy* – from 5,9 points to 7,4 points (V – 8,3%); *diversity* – from 5,8 to 7,2 points (V – 9,0%). Criteria *composition* – from 15,0 points to 19,0 points (V – 8,3%).

Statistical indicators of the level of technical preparedness of acrobatic rock'n'roll athletes EG (n=12) and CG (n=12) at the beginning and after the pedagogical experiment are shown in Tables 5, 6.

Using the methods of mathematical statistics, we can say that: the difference between mean values across the experimental group increased by 12,3%; the difference in mean values across the control group increased by 4,2%. Difference between the mean values of the experimental and control groups is 7,8%. With the help of the proposed technique for improving the technical training of acrobatic rock'n'roll athletes by means of classical dance, the experimental group significantly improved the indices of the differences in the mean values as a percentage: component *foot work* – 45,2%; component of *posture* – by 20,8%; component *hand work* – by 3,1%; component the *line* – by 5,4%; component *complexity* – by 2,4%; component *accuracy* – by 2,3%; component *diversity* – by 5,2%; criterion of "composition" – by 19,7%. High percentages show a significant influence of classical dance instruments on the level of technical skill in the components of foot work, posture and the "composition" criterion. The control group shows a much worse result: component *foot work* – by 3,2%; component of *posture* – by 4,1%; component *hand work* – by 6,8%; component the *line* – by 3,2%; component *complexity* – by 3,3%; component *accuracy* – by 1,5%; component *diversity* – by 3,5%; criterion of "composition" – by 6,9%, which confirms the effectiveness of the proposed methodology for improving the technical training of athletes of acrobatic rock'n'roll by means of classical dance in the experimental group during the pedagogical experiment. The results of the statistical indicators of sports pairs from the acrobatic rock'n'roll of the experimental and control groups before the study were compared with their indicators after the study. Comparative statistics of sports couples from acrobatic rock'n'roll experimental and control groups are shown in Figure 1, 2.

Conclusions

1. Analysis of scientific and methodical literature showed that the level of studies of the influence of classical dance on the technical training of athletes in acrobatic rock'n'roll was insufficient at the stage of preliminary basic training.

2. A technique was developed aimed at increasing the level of technical excellence in the performance of competitive programs by sports couples in acrobatic rock'n'roll at the stage of preliminary basic training.

Table 6

Statistical indicators of the level of technical preparedness of acrobatic rock'n'roll athletes after of the pedagogical experiment (P<0,05)

Criterion, components	Control group (n=12)	Experimental group (n=12)	t	t_{cr}	P
	$\bar{X}$±m				
1. Foot work, points	5,78±0,04	4,08±0,08	19,01	2,2	<0,05
2. Posture, points	4,47±0,02	3,98±0,07	6,73	2,2	<0,05
3. Hand work, points	4,33±0,03	4,12±0,1	2,01	2,2	>0,05
4. Lines, points	4,32±0,04	4,13±0,09	1,93	2,2	>0,05
5. Complexity, points	9,42±0,1	9,33±0,06	0,77	2,2	>0,05
6. Accuracy, points	6,75±0,15	6,77±0,19	0,08	2,2	>0,05
7. Diversity points	6,63±0,14	6,55±0,17	0,36	2,2	>0,05
8. Criteria "Composition", points	17±0,42	15,5±0,31	2,87	2,2	<0,05

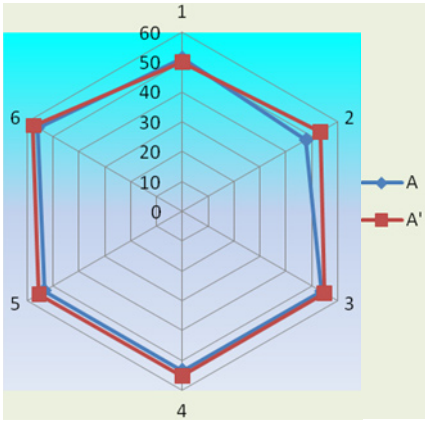

Fig. 1. Comparative statistics of sports couples in acrobatic rock'n'roll (CG):
A – statistical indicators at the beginning of the pedagogical experiment;
A' – statistical indicators after the pedagogical experiment.

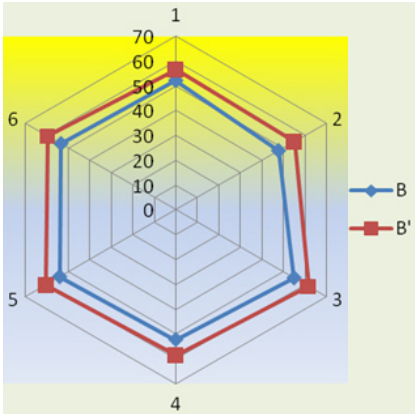

Fig. 2. Comparative statistics of sports couples in acrobatic rock'n'roll (EG):
B – statistical indicators after the pedagogical experiment;
B' – statistical indicators after applying the experimental technique during the pedagogical experiment.

3. Statistical indicators of the level of technical preparedness of acrobatic rock'n'roll athletes as a percentage were determined: the difference in the mean values over the entire experimental group increased by 12,3%; the difference in mean values over the entire control group increased by 4,2%; the difference in the mean values of the experimental and control groups of the pedagogical experiment is 7,8%.

With the help of the proposed technique for improving the technical training of acrobatic rock'n'roll athletes in the experimental group, the indices of the differences in mean values as a percentage. In the control group, a much worse result is shown, which confirms the effectiveness of the proposed technique for improving the technical training of athletes of acrobatic rock'n'roll by means of classical dance in the experimental group during the pedagogical experiment.

Prospects for further research will be directed to the search for new means and methods for the special physical and technical training of athletes in acrobatic rock'n'roll.

Conflict of interests. The authors declare that no conflict of interest.
Financing sources. This article didn't get the financial support from the state, public or commercial organization.

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Received: 07.09.2017.
Published: 31.10.2017.

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