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Experience of coordination abilities development using the elements of basketball among 9-10 year-old children, engaged into sports ballroom dancing

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Abstract: Sports ballroom dancing is a duet kind of sport. It demands not only athletes' individual coordination qualities development, but also the ability to coordinate own movements with a partner. During the last ten years the level of technical mastery of athletes considerably increased. Nowadays the main tendencies of dancing programs development are the following: the use of high-amplitude athletically distinct elements, high dynamics of dance, the difficulty and diversity of programs increase. At the same time the level of coordination abilities development in this kind of sport is one of priority ones. ***Material.*** The materials for the research were official results of the protocols of control standards of coordination abilities development among 9-10 year-old children, who are engaged into sports ballroom dancing, the protocols of competitions and testing tasks. ***Research methods.*** During the work we analyzed profile scientific-methodical sources, official documents concerning sports dancing located on the official site of Dance Sport Federation of Russia (www.ftsr.ru). We also used the resume of the practicing specialists in the sphere of dance sport. Statistical processing of the received data was carried out using standard packages (Microsoft USA). The validity of the studied indices differences was established using generally accepted methods of mathematical statistics. Differences were considered significant at the probability of accepting the hypothesis $p<0.05$. ***Results.*** The study showed that the use of basketball elements helped to increase significantly the level of coordination abilities within the studied age. ***Conclusion.*** Using a wide range of difficult for coordination motor tasks, it is possible to increase significantly not only basic coordination abilities, but also create prerequisites for the specific motor actions development and improvement. That demand a high differentiation of movement parameters in the definite sports discipline.
Keywords: coordination abilities, sports ballroom dancing, 9-10 year-old athletes, elements of basketball.

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Introduction

Coordination abilities development almost in all kinds of sport is extremely important [11,13]. Coordination abilities should be understood first of all, as the ability to build expediently integral motor acts, secondly, the ability to transform the mastered forms of actions or the ability to switch from one action to another one, depending on situation demands [2]. Coordination abilities have their own specificity in each sports specialization [1]. The main role in coordination abilities interpretation belongs to coordination functions of central nervous system [5,6]. High level of coordination abilities development is the basis precondition for an effective motor actions teaching [3,4]. They influence the tempo, kind and way of sports techniques mastering, on its further stabilization and situation based-adequate different use [9]. Coordination abilities are directed toward density and variability of movements control processes,

toward motor experience increase [7]. Coordination abilities provide a rational energy resources spending among children and influence the volume of their use, as exactly dosed in time, space and degree of muscle groups lability and acceptable use of the corresponding relaxation phases leads to a rational spending of strength [8]. During coordination abilities upbringing it is important to master new motor tasks. They have the increasing difficulty of fulfillment [10]. Different variants of exercises, necessary for coordination abilities development, can guarantee that it is possible to avoid the monotony during the lessons [12]. In terms of the urgency of coordination abilities development problem and formation of a steady base of difficult for coordination motor tasks mastering, we studied coordination abilities development among 9-10 year-old children. They are involved into sports ballroom dancing.

Materials and methods

44 children (9-10 years-old) took part in the research. They were involved into sports ballroom dancing and formed two groups; the group of observation (n1 – 22) and the group of control (n2 – 22). During the research work the structure of educational-training lessons of (n1 -22) group included basketball elements. The criteria of the research:

1. Age group of children (9-10 years-old).
2. Time period of Dance Sport attendance no less than 2 years.
3. The permission to attend sport dance lessons given by profile medical specialists.

Exclusionary criteria:

1. Acute and chronic diseases, pain syndromes.
2. The absence of parents' information agreement to include their children into the program of the research.

The effectiveness of the carried out research was defined according to the criterion of skills formation to fulfill testing tasks for basic coordination development and also difficult for coordination dancing elements and compositions. Mathematical handling of the received results was held using the standard package of programs Microsoft Office Excel 2013 (USA), and Statistica 12.6 (StatSoft, Russia).

Results and discussion

The research was held on the basis of a dancing club "Dance empire" (Astrakhan) during 2021/22 academic year. 22 pairs at the age of 9-10 took part in the research. They were involved into sports ballroom dancing and divided into the control and experimental groups.

The 1st stage is an initial stage. During the profile sources of information analysis we defined the research methodology, methods, its conceptual construct, problem, object, subject, objectives, methods and hypothesis.

The 2nd stage is the main one. At this stage we tested the content of the teaching the basic movements in European and Latin-American program for 9-10 year-old children, formed scientific notions, checked the hypothesis and handled the received results.

The 3rd stage was the final one. This stage included material handling and systematization, the results introduction into practice.

The group of control, which included 11 pairs (n2 – 22) trained according to sports ballroom dancing program of a state standard. The group of observation included 10 pairs (n1 – 22) and trained according to the created author's methodology using the elements of basketball, directed toward an effective motor tasks mastering. It had the aim of coordination abilities complex formation.

The testing tasks were the following:

Table 1

Testing tasks for the development level of general coordination determination

№	Testing tasks	Result of measurement				
		Beginning of the research		The end of the research		
		n1 - 22	n2 - 22	n1- 22	n2- 22	P
1	Shuttle run 3 parts 10 meters each (s.)	10,4±0,7	10,1±0,5	8,8±0,3	9,5±0,4	<0,043
2	Tennis balls throwing (m.)	10,7 ± 1,5	11,3 ± 1,1	12,9 ± 1,3	11,2 ± 1,4	<0,047
3	Standing long-jump (cm.)	119,2 ± 5,5	117,7 ± 6,2	117,7 ± 6,2	117,7 ± 6,2	<0,039
4	Skipping	55,4±3,2	59,7±2,4	64,5±2,7	61,1±2,2	<0,045

Table 1 shows that during the initial testing the level of coordination abilities development in the studied groups didn't have statistically significant differences. Further dynamics of general coordination development in group n1 – 20 differed, having valid predominance of coordination development in comparison with the group of control.

The lessons in a group were held according to the created methodology of coordination abilities improvement using the elements of basketball.

Pedagogical observations were held directly in terms of the training and competitive cycles. They helped to estimate and timely correct the content of the training process, selecting necessary exercises.

Table 2

Technical characteristics estimation *

№	Indices	Result of measurement				
		Beginning of the research		The end of the research		
		n1 - 22	n2 - 22	n1- 22	n2- 22	P
1	Musical talent	7,9±0,8	8,4±1,1	8,2±0,9	8,5±0,9	>0,05
2	Individual mastery	6,7±0,5	7,0±0,4	8,7±0,6	7,4±08	<0,047

3	Lines and patterns / figures	6,5±0,8	6,3±0,3	6,9±0,5	6,9±08	>0,05
4	Distance between the athletes	7,1±0,4	7,3±0,5	8,7±0,3	7,5±02	<0,049
5	Stability of centring on the ground	7,0±0,5	6,9±0,5	8,7±0,3	7,2±05	<0,043
6	Mastering the ground	7,1±0,4	7,2±0,5	8,8±0,5	7,3±05	<0,041
7	Dancing interaction of the pair	7,4±0,5	7,7±0,5	7,9±0,4	7,7±03	>0,05

** Technical characteristics estimation was realized according to points system from 0 till 10 points*

Table 2 shows that the elements of basketball use in the structure of educational-training lessons helped to improve the results of technical characteristics, stability of centring use on the ground, the dynamics of an individual mastery, the distance between the partners. We didn't reveal statistically significant differences in the indices. They reflect musical talent, figures fulfillment and dancing interaction of the pair. During the lessons in n1 – 20 group we used the following preparatory exercises:

1. Running according to the set reference points on the ground with music.
2. Dribbling according to difficult lines with the direction of movement change.
3. Dribbling along the ground without eye control.
4. Two balls dribbling simultaneously.
5. Walking and running with ball throwing upward and catching the ball in the air.
6. Dribbling backwards, with a turn, changing hands.
7. Dribbling with ball pass to a partner.
8. Dribbling with ball pass to a partner according to the set reference points, difficult lines.
9. Dribbling with ball pass to a partner with the distance disruption.
10. Playing streetball.

Dosage of the repetitions amount was defined individually taking into account the skill of ball handling, the level of physical fitness and functional indices.

Conclusion

The methodology of coordination abilities development during sports ballroom dancing lessons is mainly realized by means of mastering a wide spectrum of motor actions. They are characterized by coordinating difficulty, fulfilled by both partners. Forming multiple double-sided connections they lead to a complex of changes development. They have a positive influence on all key parameters of movements development. Key parameters have a difficult dynamic and coordinating character, corresponding with music. Total influence of basketball elements helps to develop dynamic ability to fulfill difficult for coordination motor tasks with the partner control and the control over the ground, the ability to control the set points of the sports ground. In spite of great amount of the research works, which are connected with coordination abilities formation in sports specializations, where the authors try to consider the most ultrastructural formation mechanisms of difficult for coordination elements fulfillment, till nowadays their results are ambiguous, especially in sport for children. However, understanding the mechanism of any difficult element, especially dancing composition, is not a statistical enumeration of the possible methodologies and their mastering, but a logical and proved sequence of exercises. They help to control the level of movements coordination development of a complex process.

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