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Pedagogical approaches to enhancing motor qualities for DanceSport athletes at the stage of specialized basic training

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Abstract: This article examines the problem of improving the physical preparation of DanceSport athletes at the stage of specialized basic training. An analysis of contemporary scientific sources, specialized literature, and practical experience has shown that the traditional methodology of teaching competitive programs, which relies mainly on repeated execution of technical-tactical actions, does not always ensure the targeted development of leading motor qualities. It was established that the activity of competitive pairs requires a high level of speed-strength abilities, static endurance, coordination skills, as well as attention, memory, and emotional stability. The purpose of the study was to develop and test a comprehensive program of physical preparation for young DanceSport athletes aged 10–11. The methodology included the analysis of scientific and methodological sources, documentary materials, pedagogical observation, and testing. A pedagogical experiment was conducted with 40 children divided into control and experimental groups. The control group trained according to traditional methods, while the experimental group followed the comprehensive physical training program. The results of the experiment demonstrated statistically significant improvements ($p<0.05$) in strength, endurance, flexibility, speed-strength abilities, and coordination skills in the athletes of the experimental group compared to the control group. Additionally, positive changes were recorded in functional indicators of the respiratory system (vital lung capacity, vital index) and in the Ruffier test results. The proposed program contributes to raising the level of physical readiness of young athletes, optimizing the training process, and reducing the risk of injury. The practical significance of the study lies in the possibility of applying the developed organizational and methodological recommendations in training activities, coach education, and the teaching of specialized disciplines. Prospects for further research are associated with the integration of physical and psychological preparation, the use of digital technologies and artificial intelligence, and the development of differentiated programs tailored to athletes' individual predispositions.

Keywords: DanceSport; physical preparation; specialized basic training; motor qualities; coordination abilities; training optimization; injury prevention.

1. Introduction

The contemporary development of sport, its growing popularity and globalization, as well as the rapid emergence of new disciplines, necessitate the search for innovative approaches to improving athletes' training and competitive performance. As an integral aspect of modern sports science, the training process requires systematic renewal through the construction and programming of preparation that takes into account the specific features of each sport [1; 7; 16].

An analysis of current theory and methodology of training reveals a clear trend toward differentiation and individualization of training and competitive activity. V. M. Platonov [15; 16] emphasizes the formation of training systems for qualified athletes that correspond to the specific requirements of the chosen discipline. This approach presupposes an increase in the proportion of auxiliary and, particularly, specialized preparation, optimization of competitive activity through the improvement of its components at the stages of preparation for high achievements, and the maximum realization of individual potential. It also requires the creation of a proper functional foundation at the early stages of long-term training [2; 7; 17].

The specificity of DanceSport lies in the fact that basic competitive and training loads directly affect athletes' physical condition and demand the mobilization of significant physical resources. The activity of competitive pairs requires a high level of speed-strength qualities, static endurance, coordination abilities, as well as attention, memory, and emotional stability – factors that determine the reliability of performance in both European and Latin American programs. An additional challenge is the limited availability of competitive information in real time, which increases the dependence of success on the skillful distribution of physical resources to reach the finals and maintain performance quality in decisive rounds.

At the stage of specialized basic training, DanceSport encompasses age categories "Juveniles 2," "Juniors 1," and "Juniors 2" (10-15 years) – a critical phase in the completion of functional system development, which ensures high special working capacity during intensive dance programs. As an integral link in long-term preparation, this stage is decisive for determining sports orientation, based on innate predispositions and genetic factors [16; 23], followed by the choice of specialization (Latin or Standard) and gradual immersion into the specifics of the chosen program.

A review of the literature confirms the urgent need to develop scientific foundations for organizing the training process in DanceSport, with a critical rethinking of the means, forms, and methods of physical preparation [23]. Despite the contributions of O. V. Putytseva, O. M. Kaluzhna, M. O. Terenova, H. A. Chykalova, T. P. Osadtsiv, and O. M. Demidova, the task of rational development of motor qualities in athletes aged 10-11 at the stage of specialized basic training remains insufficiently studied [5; 12; 13; 23].

Traditional methods of teaching competitive programs, which rely on repeated execution of technical-tactical actions, do not always ensure the targeted development of leading motor qualities. The content of special physical preparation and the optimization of training loads, taking into account age-related, physical, and functional characteristics, remain debatable. Therefore, there arises a need for pedagogical reconsideration: redistribution of general and specialized preparation, regulation of training intensity, and monitoring of functional state – issues that require further study and methodological reflection.

2. Object and subject of research

The object of the study is the physical training program for DanceSport athletes at the stage of specialized basic preparation, while the subject of the study is the process of its implementation and the effectiveness of its integration into the training system.

The study of specialized literature allowed:

- substantiation of the relevance of the research topic;
- formulation of specific research objectives;
- generalization of modern approaches to the control and organization of physical training in DanceSport.

The generalization of practical experience of foreign DanceSport coaches (Valerio Colantoni, Yuliya Lorenz, and others) made it possible to identify control exercises used in practice to assess dynamic mobility.

Thus, the combination of analysis of scientific-methodological sources, experimental research, pedagogical observation, and statistical analysis creates a scientifically grounded basis for improving the physical training program of DanceSport athletes at the stage of specialized basic preparation.

3. Target of research

The **target** of this study is to develop and test a comprehensive program for improving the physical training of DanceSport athletes at the stage of specialized basic preparation. This aim is driven by the need for pedagogical reconsideration of traditional approaches to the training process, as well as the necessity of integrating modern methods and technologies into the system of long-term athlete development.

To achieve this purpose, several research objectives were formulated:

1) Based on the analysis of scientific and specialized literature, online resources, and practical experience in performance, coaching, and teaching, to identify current problems of physical training in DanceSport at the present stage of discipline development.

2) To determine the specific features of physical training of DanceSport athletes aged 10-11 at the stage of specialized basic preparation, taking into account age-related and functional characteristics.

3) To test the effectiveness of a comprehensive program for improving physical training in DanceSport athletes by integrating pedagogical, methodological, and experimental approaches.

4. Literature analysis

DanceSport represents a unique synthesis of art and sport, combining aesthetic expressiveness with high physical demands. Due to its multidimensional nature, it positively influences the musculoskeletal system of children and adolescents, contributes to the formation of correct posture, develops coordination and flexibility, and stimulates emotional sensitivity and creative abilities. At the same time, DanceSport fulfills an important pedagogical function: it ensures a harmonious combination of physical, moral, aesthetic, and labor education, fostering unity of consciousness and behavior [11].

In recent years, the issue of improving training methods in complex coordination sports has gained increasing relevance. These disciplines – including gymnastics, figure skating, acrobatics, and DanceSport – are characterized by high demands on physical, technical, tactical, and psychological qualities, requiring specific pedagogical approaches to the organization of the training process [20; 21].

Long-term sports training, as a process of learning and competitive activity, presupposes the consistent implementation of tasks, means, and methods at each stage of improvement. Pedagogical methods must ensure synergy between training and competitive loads, since young athletes need to

acquire motor skills and abilities in sufficient volume to overcome significant competitive challenges in the future [1].

A significant contribution to the development of training methodology in complex coordination sports was made by D. Smyrnov and O. Kolesnyk, who emphasized the importance of individualizing programs based on the specifics of the discipline and the physiological characteristics of athletes [18]. Preparation in DanceSport requires a comprehensive approach that integrates the development of technical skills, physical endurance, psychological resilience, and tactical mastery. In disciplines with high coordination demands, priority is given to technical development and the expansion of exercise complexes aimed at improving flexibility, balance, strength, and endurance [1].

Many researchers conclude that modern approaches to training athletes in complex coordination sports are impossible without the integrated application of diverse methods and techniques that combine physical, technical, tactical, and psychological components [24]. A scientific review of publications demonstrates that current training strategies are directed toward the development of technical skills, physical conditioning, team interaction, and creative psychological resilience [5].

Specialized literature [7; 16] presents various models of planning physical training within the system of long-term athlete development. For example, British experts recommend focusing on the development of motor qualities according to "sensitive periods" of growth, while other authors emphasize strength development in the post-pubertal stage and endurance training during puberty [2; 15; 20].

V. M. Platonov [16] considers long-term training as a system of seven stages, each with its own goals, tasks, and age boundaries. For DanceSport, the stage of specialized basic training (10-11 years) is of particular importance, as it determines future specialization (European program, Latin American program, or "10 dances") [23]. At this stage, the annual training volume reaches 600-800 hours, with general physical preparation accounting for approximately 20%, auxiliary preparation 30%, and specialized preparation 50%.

Leading experts devote considerable attention to the search for new training methodologies in DanceSport. The works of O. Demidova, O. Kaluzhna, T. Osadtsiv, and T. Trakaliuk address issues of improving physical preparation; studies by T. Hrytsyshyn, T. Dzhala, and foreign authors (Alex Moore, Guy Howard, Walter Laird, Mark Sietas, Natalie Ambrose, Serge Koshel) focus on technical preparation. Textbooks by O. Horbenko, A. Lysenko, and T. Osadtsiv describe the technical execution of basic figures and elements of the Latin American program [11].

A review of the literature shows that most studies concentrate on initial training [4; 12; 14; 21; 23], while the training process of athletes aged 10-11 at the stage of specialized basic preparation remains insufficiently covered. The main focus is placed on the development of special endurance, but adherence to the principle of full recovery after intensive training is equally important [23].

The modern fitness industry offers innovative technologies, such as Pilates, which promotes the development of strength, flexibility, and coordination, while reducing stress and improving body control [3; 23; 25]. Research by M. O. Terenova, H. A. Chykalova, and S. B. Kolesnikov [22] confirms the positive impact of Pilates on the physical readiness of DanceSport athletes.

Another important direction of improvement is the integration of classical exercise (according to A. Ya. Vaganova's methodology) into the training process, which contributes to the development of flexibility, coordination, and strength capabilities [23].

A highly relevant area of improvement in physical preparation is the development of leading motor qualities through differentiated programs specifically designed for DanceSport athletes [23]. Historically, methods of developing motor qualities in DanceSport were oriented toward maximizing training effect, often ignoring the risks of injury. Traditional approaches contain hidden threats of overloading the musculoskeletal system, particularly in the development of flexibility and speed-strength qualities [23].

5. Research methods

The methodology of the study was constructed in accordance with modern requirements of sports-pedagogical science and included a set of complementary methods:

• *Analysis of scientific and methodological sources.* Monographs, dissertations, scientific articles, and collections of research papers were used to generalize current methodological and practical approaches to organizing the training process in DanceSport.

• *Analysis of documentary materials.* A review of methodological recommendations, video recordings of training sessions, and competitive performances made it possible to establish the specifics of implementing physical training programs. In particular, lists of permissible figures for classes "E," "D," and "C," as defined by the rules of the All-Ukrainian DanceSport Federation, were analyzed. Video materials from the World and Ukrainian Championships (2022-2025) in the Latin American program for the age categories "Juveniles 2," "Juniors 1," and "Juniors 2" were examined to identify trends in changes in choreography and workload.

• *Pedagogical observation.* Systematic monitoring of the training process in natural conditions ensured the reliability of data regarding the use of training means and methods. Observations were conducted in dance clubs in Zaporizhzhia, Kharkiv, Dnipro, and Kyiv, allowing consideration of regional specifics in organizing the training process.

• *Pedagogical testing.* Applied to determine the level of physical fitness of DanceSport athletes using well-known motor tests and specialized control exercises [23]. Testing was conducted twice – before the experiment and after its completion – under standardized conditions following dance warm-ups.

Table 1. Tests for assessing motor qualities of DanceSport athletes

№	Test name	Description
1	Squats	Performed at maximum pace. Number of squats in 20 seconds recorded.
2	Jumps	Performed from squat upward with arching. Number of jumps in 20 seconds recorded.
3	Push-ups	Number of repetitions in 10 seconds recorded.
4	Sit-ups	Performed at maximum pace. Number of sit-ups in 10 seconds recorded.
5	Leg raises	Number of repetitions in 10 seconds recorded.
6	Romberg test	Balance maintained standing on one leg with eyes closed. Time until loss of balance recorded.
7	Yarotsky test	Rotational head movements with eyes closed. Time until loss of balance recorded.

6. Research results

An analysis of subjective evaluations provided by DanceSport coaches confirms that physical preparation is an integral component of the overall process of athlete development. Most specialists rank it second in importance after technical preparation and actively apply it in their coaching practice [4; 11]. It is important to emphasize that physical preparation in DanceSport is directly linked to the volume of figures and steps that athletes must master in each class, which in turn determines their level of performance mastery.

To identify the dynamics of increasing training loads in DanceSport from the initial preparation stage to the specialized basic stage, a comparative analysis was conducted of athletes' workload in the Latin American program across classification categories "E," "D," and "C." For this purpose, lists of permitted figures corresponding to each class, as established by the rules of the All-Ukrainian DanceSport Federation, were analyzed [10; 25]. The analysis was carried out according to two indicators:

• The number of figures to be mastered in each class;

• The number of steps within these figures.

Statistical processing and comparative analysis of the data revealed that in class "E," athletes on average learn 13.3 figures in each Latin American dance and 112 steps. In class "D," these indicators increase to 22.8 figures and 186 steps, while in class "C" they reach 33.8 figures and 304.2 steps, respectively. It is important to note that the observed increase in workload from class to class is predominantly statistically significant ($p<0.05$), confirming the objectivity of the results (Table 2).

Table 2. Comparative analysis of the number of figures and steps in program dances of classes "E," "D," and "C"

Dance	Class "E" (figures/steps)	Class "D" (figures/steps)	Class "C" (figures/steps)
Samba	14 / 104	24 / 185	34 / 275
Cha-Cha-Cha	14 / 144	24 / 277	35 / 422
Jive	12 / 88	22 / 170	33 / 295
Rumba	– / –	21 / 112	35 / 215
Paso Doble	– / –	– / –	32 / 314
Total	40 / 336	91 / 744	169 / 1521

Average indicators:

- Class "E" – 13.3 figures / 112 steps;
- Class "D" – 22.8 figures / 186 steps;
- Class "C" – 33.8 figures / 304.2 steps

Calculations using Student's t-test confirmed the statistical significance of differences between classes:

• Number of figures: "E"–"D" = 2.96 ($p<0.05$); "D"–"C" = 2.74 ($p<0.05$)

• Number of steps: "E"–"D" = 1.87 ($p>0.05$); "D"–"C" = 2.14 ($p<0.05$)

Thus, the results of the study indicate that DanceSport athletes must master the full volume of steps and figures in program dances during their progression from class "E" to class "C." At subsequent stages, according to the rules of the All-Ukrainian DanceSport Federation, only refinement of already acquired elements takes place. Therefore, the most distinct dynamics of workload increase, expressed in quantitative units of mastered elements, is observed precisely in DanceSport during the transition from class "E" to class "C."

To further determine the directions for organizing and selecting the means and methods of physical preparation for young athletes at the stage of specialized basic training, preliminary testing of physical fitness was conducted with 40 children aged eight to eleven. This provided baseline data for subsequent analysis and outlined prospects for improving the training process.

The next task of the study was to perform a correlation analysis of the relationships between indicators of technical and physical preparedness in young athletes who already possess sufficient experience in DanceSport. Within this analysis, strength, speed-strength, coordination abilities, as well as the functional capacities of the cardiovascular and respiratory systems were evaluated.

The results of the study indicate that among 11-year-old boys, there is a strengthening of the relationship between technical preparedness and the outcomes of speed-strength tests, as well as indicators of cardiovascular and respiratory system functionality (Table 3).

Table 3. Correlation coefficients of technical and physical preparedness indicators in boys and girls aged 10–11, *n* = 40

№	Test	Boys 10 y.o.	Boys 11 y.o.	Girls 10 y.o.	Girls 11 y.o.
1	Squats (20 sec)	0.697 (moderate, α = 0.05)	0.725 (strong, α = 0.01)	–	0.678 (moderate, α = 0.05)
2	Jumps (20 sec)	0.677 (moderate, α = 0.05)	0.698 (moderate, α = 0.05)	0.643 (moderate, α = 0.05)	0.678 (moderate, α = 0.05)
3	Push-ups (10 sec)	0.738 (strong, α = 0.05)	0.715 (strong, α = 0.05)	–	0.655 (moderate, α = 0.05)
4	Sit-ups (10 sec)	–	0.740 (strong, α = 0.01)	0.658 (moderate, α = 0.05)	–
5	Leg raises (10 sec)	–	0.753 (strong, α = 0.05)	–	0.710 (strong, α = 0.05)
6	Romberg test	–	–	0.798 (strong, α = 0.01)	0.745 (strong, α = 0.05)
7	Yarotsky test	–	–	–	0.715 (strong, α = 0.05)
8	Dynamic mobility	–	–	–	0.738 (strong, α = 0.05)
9	Ruffier index	–	-0.765 (strong, α = 0.01)	–	-0.783 (strong, α = 0.01)
10	Stange test	0.709 (strong, α = 0.05)	0.718 (strong, α = 0.05)	–	0.718 (strong, α = 0.05)
11	Genchi test	0.739 (strong, α = 0.05)	0.809 (strong, α = 0.01)	0.645 (moderate, α = 0.05)	0.725 (strong, α = 0.05)
12	Spirometry	0.648 (moderate, α = 0.05)	0.638 (moderate, α = 0.05)	–	0.702 (strong, α = 0.05)

Note: CC – correlation coefficient; CS – correlation strength; α – significance level.

This confirms that physical preparation is a crucial factor in the formation of technical mastery. Among girls of the same age, significant correlations were observed between technical preparedness and speed-strength abilities (in 4 out of 5 cases), as well as functional capacities of the respiratory and cardiovascular systems. At the same time, new significant correlations were recorded between indicators of technical execution in DanceSport and coordination preparedness (in all cases).

The conducted analysis demonstrates a clear tendency toward strengthening the interrelationship and interdependence of technical and physical preparedness in athletes already at the stage of specialized basic training. This allowed us to outline the main directions for organizing special physical preparation of young DanceSport athletes.

The content of the proposed program was presented in the form of exercise complexes aimed at general preparation and the development of key physical qualities and functional capacities. Exercises were distributed within individual training sessions, with defined volumes and methods of load regulation. The program was implemented during the preparatory stage (4 weeks) of the first mesocycle of the annual macrocycle.

The program included exercise complexes adapted to the children's level of preparedness and the requirements of general and special physical training, as well as the technical demands of the Latin American program, taking into account age-specific characteristics. Exercises were applied

regularly at designated points within training sessions, ensuring systematic implementation and pedagogical relevance.

The effectiveness of the program was tested in a pedagogical experiment involving 40 children, divided into control and experimental groups (10 boys and 10 girls in each). The control group trained according to traditional methodology, while the experimental group followed the comprehensive physical training program.

To evaluate the effectiveness of the program, groups of tests were used to reflect the level of development of major physical qualities and functional capacities: speed-strength abilities, strength, coordination, general work capacity, and functions of the respiratory system.

Analysis of baseline data showed that the control and experimental groups were homogeneous in terms of the studied qualities (differences between mean values were statistically insignificant, $p>0.05$). This confirmed equal conditions for conducting the experiment.

As a result, after the experiment, the most significant positive changes were observed in the experimental group. Among athletes aged 10-11, a substantial increase in speed-strength indicators was recorded across all tests. In particular, group averages in the "squats in 20 seconds" and "jumps in 20 seconds" tests improved in boys by 13.3% and 11.7% and in girls by 6.8% and 10.9% ($p<0.05$). In the control group, results also improved, but the increase was less pronounced and statistically insignificant ($p>0.05$).

Significant and reliable increases were also observed in the experimental group for arm strength and abdominal/back muscle strength. In the "push-ups in 10 seconds" test, results improved in boys by 17.3% and in girls by 17.6% ($p<0.05$). In the "sit-ups" and "leg raises" tests, boys improved by 21.4% and 12.7%, respectively, while girls improved by 14.1% and 11.1% ($p<0.05$). In the control group, increases were less pronounced and statistically insignificant.

A particularly important positive outcome was the significant improvement in coordination abilities. In the dynamic mobility test, average results in boys of the experimental group improved by 15.9% and in girls by 18.8% ($p<0.05$). No significant changes were observed in the control group.

Marked improvements in vestibular stability were recorded in the Yarotsky test: boys increased their average result by 7.1 seconds (17.7%), and girls by 4.2 seconds (18.9%). In the Romberg test, average results increased in boys by 41.5% (right leg) and 49.6% (left leg), and in girls by 52.7% and 50.8%, respectively.

Positive changes were also observed in tests assessing general work capacity and functional capacities of the respiratory system. Significant increases were recorded in breath-holding times in the Stange and Genchi tests, as well as in vital lung capacity (VLC).

Thus, the positive dynamics of indicators in tests of general work capacity and respiratory function demonstrate an improvement in the functional preparedness of young DanceSport athletes.

In summary, the analysis of the main indicators of physical preparedness in athletes aged 10-11 revealed statistically significant advantages in the experimental group compared to the control group at the end of the pedagogical experiment. Improvements were observed in several physical and functional qualities: speed-strength abilities, coordination, and general work capacity. This provides grounds to conclude that the proposed comprehensive program had a noticeable positive impact on the level of general and special physical preparedness of children and can be recommended for use in the training process of young DanceSport athletes.

According to most specialists in the field of sports training theory and methodology [6; 9; 16], physical preparation serves as an effective foundation for mastering technique in any sport. Therefore, the purpose of our study was not only to verify the effectiveness of the proposed comprehensive physical training program but also to examine its impact on the technical mastery of young athletes.

Prior to the pedagogical experiment, an analysis of the children's technical preparedness was conducted. The participants were asked to perform their competitive routines consisting of four dances from the Latin American program included in the competition schedule for the "Juveniles 2" category (ages 10-11).

Evaluation of the routines was carried out by experts using a specially developed scale that accounted for key components of technical mastery: musicality, choreography, execution of variations, body lines, balance, and expressiveness (Table 4) [10; 12; 19; 21; 23].

Table 4. Evaluation scale for competitive routines

Error type	Musicality	Choreography	Execution of variations	Body lines	Balance	Expressiveness
Minor – 0.5 points	Slight mismatch with music	Inaccurate position of arms, legs, or head	Errors in routine execution	Inaccurate body positioning	Loss of balance in one element	Insufficient expressiveness
Significant – 1 point	Partial mismatch with music	Incorrect positioning of arms and head, legs and head, or arms and legs	Incomplete routine execution	Torso bends backward/forward; raised shoulders	Partial loss of balance in elements	Noticeable lack of expressiveness
Major – 2 points	Complete mismatch with music	Incorrect positioning of legs, arms, head, etc.	Routine not performed	Severe posture violations	Execution outside balance	Complete absence of expressiveness

At the initial stage of the experiment, statistical analysis of scores obtained by young athletes for the performance of four dances revealed no significant differences between the control and experimental groups ($p>0.05$) (Table 5). This indicates homogeneity of the groups in terms of technical preparedness at the start of the experiment.

Table 5. Comparative results of technical preparedness assessment of young athletes in control and experimental groups before the experiment, $n=20$ (Van der Waerden's H-test)

Statistical indicators	Boys	Girls
Control group	40.95	40.81
Experimental group	40.4	39.93
H-test	0.13	0.18
p	>0.05	>0.05

Note: $H_{crit} = 3.86$ at $\alpha = 0.05$.

A similar assessment of technical preparedness was conducted at the end of the pedagogical experiment, following evaluation of physical fitness. Analysis of the data revealed divergent changes in the control and experimental groups.

The results show that in boys of the experimental group, the average score for routine performance reached 45.76 points, which is 5.36 points higher than before the experiment. In girls of the experimental group, technical scores increased by 5.01 points, reaching 44.94 points. In the control group, improvements were smaller: 2.7 points in boys and 2.94 points in girls, with average results of 43.6 and 43.75 points, respectively.

The increase in technical mastery among young athletes in the experimental group was statistically significant ($p<0.05$) and considerably exceeded the indicators of the control group. In the control group, despite some improvement in technical level, the changes were not statistically significant ($p>0.05$) (Table 6).

Table 6. Comparative results of technical preparedness assessment of young athletes in control and experimental groups before and after the experiment, *n*=20 (Van der Waerden's *H*-test)

Statistical indicators	Control group (boys)	Control group (girls)	Experimental group (boys)	Experimental group (girls)
Before experiment	40.95	40.81	40.4	39.93
After experiment	43.6	43.75	45.76	44.94
H-test	1.9	2.27	3.89	3.9
p	>0.05	>0.05	<0.05	<0.05

Note: $H_{crit} = 3.86$ at $\alpha = 0.05$.

Thus, the results of the experiment confirm that the comprehensive physical training program positively influenced not only the development of physical qualities but also the improvement of technical mastery in young DanceSport athletes. This provides grounds to assert that the integration of specially selected exercise complexes into the training process contributes to the harmonious development of physical and technical components of preparation, ensuring a higher level of competitive performance.

7. Prospects for further research development

1. *Integration of physical and psychological preparation*. Future studies should focus on developing programs that combine the development of physical qualities with the formation of psychological resilience, attention, and emotional regulation.
2. *Use of digital technologies and artificial intelligence*. Promising directions include the application of monitoring systems for athletes' physical condition, load analysis, and competition result forecasting.
3. *Comparative analysis of international programs*. An important area is the study of the experience of foreign DanceSport schools and the adaptation of their methodologies to Ukrainian realities.
4. *Development of differentiated programs*. It is necessary to create exercise complexes oriented toward athletes' individual predispositions and abilities, which will increase training effectiveness.
5. *Pedagogical aspect of education*. Research should address the impact of physical preparation on the formation of values, discipline, and professional culture in young athletes.
6. *Injury prevention*. Future work should focus on finding optimal means of developing flexibility and speed-strength qualities without overloading the musculoskeletal system.
7. *Methodological recommendations for coaches*. The creation of practical manuals and teaching materials that systematize modern approaches to physical preparation in DanceSport is a promising direction.

8. Conclusions

The analysis of scientific sources, specialized literature, and practical experience confirmed that the physical preparation of DanceSport athletes at the stage of specialized basic training remains insufficiently developed in current methodology. It was found that the traditional system of teaching competitive programs relies predominantly on repeated execution of technical-tactical actions, which does not always ensure the targeted development of leading motor qualities.

It was established that the activity of competitive pairs requires a high level of speed-strength qualities, static endurance, and coordination abilities, as well as attention, memory, and emotional stability. It was confirmed that at the age of 10-11, the foundation for subsequent specialization (European or Latin American program) is laid, which necessitates a differentiated approach to the development of motor qualities.

Based on the results of the pedagogical experiment, it was determined that athletes in the experimental group demonstrated significant improvements ($p<0.05$) in strength, endurance, flexibility, speed-strength qualities, and coordination abilities compared to the control group. Additionally, positive changes were recorded in functional indicators of the respiratory system (vital lung capacity, vital index), as well as in the Ruffier test results.

The proposed comprehensive program for improving the physical preparation of DanceSport athletes at the stage of specialized basic training contributes to raising their level of physical readiness, optimizing the training process, and reducing the risk of injury.

The practical significance of the study lies in the possibility of applying the developed organizational and methodological recommendations in training activities, coach education, and the teaching of specialized disciplines.

Conflict of Interest

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