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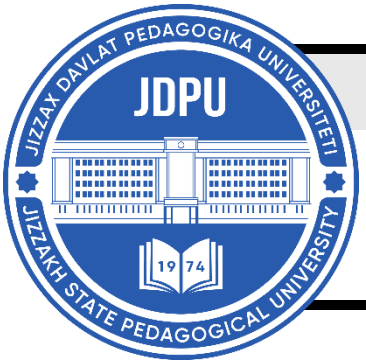
MENTAL ENLIGHTENMENT SCIENTIFIC – METHODOLOGICAL JOURNAL



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METHODS OF USING MODERN TECHNOLOGIES IN SELECTING ATHLETES FOR ARTISTIC GYMNASTICS

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ABOUT ARTICLE

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Abstract: It is aimed at revealing the theoretical possibilities of training and selection of young athletes for rhythmic gymnastics, the methods of using modern technologies in training athletes for rhythmic gymnastics, the organization and conduct of gymnastics classes, as well as the actual problems of planning loads at the initial training stage.

Introduction. In the context of the New Uzbekistan, a wide range of measures are being implemented to nurture a well-rounded and harmonious generation and to involve young people in physical education and sports. In recent years, the Government of Uzbekistan has paid great attention to the development of physical education and sports in the country. The importance of physical education and sports in a person's moral and physical development is immeasurable.

As our President has emphasized, regardless of what goals we set before ourselves or what great achievements we strive to accomplish, the foundation of all our noble endeavors and sincere aspirations lies in raising a morally healthy generation, ensuring their happiness and well-being, and nurturing children who are not inferior to anyone in the world.

This study serves to implement the tasks set forth in the Resolution of the President of the Republic of Uzbekistan No. PQ–449 dated December 23, 2022, "On measures to further develop gymnastics sports."

To increase the popularity of gymnastics (artistic gymnastics, rhythmic gymnastics, trampoline, and acrobatics) among the population, to improve the system for identifying and selecting talented athletes among youth, and to ensure that national teams achieve high results in prestigious international competitions through the training of professional athletes in accordance with international requirements and standards, the following main directions have been identified for the development of gymnastics sports:

- Increasing the popularity of gymnastics among the population, establishing a new system for identifying, selecting, and preparing talented athletes as professional sportsmen;
- Creating broad opportunities for preschool children to engage in gymnastics and forming basic skills in this sport from an early age;
- Gradually increasing the number of gymnastics lessons in physical education classes at general secondary schools and systematically organizing gymnastics clubs and training sessions;
- Training professional coaches, qualified judges, and specialists in gymnastics, as well as developing educational-methodical manuals and video materials;
- Strengthening the material and technical base of sports and educational institutions, and establishing the production of necessary equipment and inventory for gymnastics within the republic;
- Popularizing gymnastics among girls from an early age and developing long-term prospective plans in this area;
- Further improving training programs for the preparation of national gymnastics teams for the Olympic and Asian Games, as well as for World and Asian Championships;
- Promoting gymnastics as an important component of a healthy lifestyle through mass media and ensuring the use of high-quality information and multimedia resources in this process.

The Ministry of Sports Development, together with the Gymnastics Federation of Uzbekistan, annually allocates the necessary funds from the “Fund for Supporting Reforms in the Field of Public Education” to provide selected schools with video lessons, gymnastics mats, equipment, and other necessary items for promoting gymnastics among students. The existing physical education curriculum for primary school students is being revised to include more health-improving elements of gymnastics.

In cooperation with the Ministry of Preschool Education and the Uzbekistan Gymnastics Federation, by July 1, 2023, regular gymnastics-based physical activity clubs are being

systematically organized in state preschool institutions to encourage and engage children in gymnastics exercises.

At the first stage, it is planned to establish regional Gymnastics Training Centers with modern material-technical and educational-training bases in the cities of Nukus, Samarkand, and Fergana within the system of the Ministry of Sports Development. These centers will be organized on the basis of specialized sports schools in these regions.

The main content of rhythmic gymnastics is the art of expressive movement. Without good motor preparation, it is impossible to achieve expressive movement skills and a high level of mastery. It is advisable to start rhythmic gymnastics training for girls at the age of 5–6 or even earlier, as the child's body quickly develops necessary motor qualities such as flexibility, agility, endurance, and coordination. At this age, children learn to control and improve their posture, move gracefully, and build self-confidence — all of which are essential qualities in today's world of elite sports.

Until now, the main focus in rhythmic gymnastics has been on specialized technical preparation. However, the criteria for assessing young rhythmic gymnasts' potential during the basic training period, the structure of training content, as well as its micro- and macrocycles, have not been sufficiently studied.

Therefore, it is crucial to study the specific characteristics of managing the educational-training process at the initial stage of training, considering the functional abilities, individual, and innate talents of young rhythmic gymnasts. At this stage, the main attention should be directed toward optimizing the structure and content of educational activities throughout the year.

Developing the athletes' abilities involves not only mastering qualification-level exercises but also successfully learning prospective coordination elements from various structural groups.

Rhythmic gymnastics is a complex sport. The training process in rhythmic gymnastics begins at an early age and continues throughout the athlete's career as a continuous process of technical improvement. As an Olympic sport, rhythmic gymnastics requires athletes to perform complex body movements synchronized with music and apparatus manipulation, competing in both technical skill and artistic expression.

Rhythmic gymnastics is considered one of the most beautiful and aesthetic types of sports. Uzbekistan consistently ranks highly in rhythmic gymnastics, with Uzbek athletes regularly winning top awards and prizes in international competitions.

It is not surprising that many parents choose rhythmic gymnastics for their daughters, as today, in almost every district of major cities across our country, there are rhythmic gymnastics sections available.

Since the aesthetic component plays a major role in rhythmic gymnastics, during the selection of children for this sport, not only natural flexibility but also the girls' physical appearance is evaluated. A future gymnast should be slim, graceful, well-proportioned, and attractive.

Rhythmic gymnastics is a multifaceted sport. Today, sports disciplines have reached such heights that mere talent is no longer sufficient to achieve success. Only through talent, dedication, and hard work can one attain real results.

Literature review and methodology. The theoretical and methodological foundations of physical education and sports training have been developed by many scientists, both domestic and foreign. Numerous studies have been devoted to the improvement of physical education systems, the methodology of training young athletes, and the psychological and pedagogical aspects of sports training.

In particular, scholars such as L.P. Matveev, V.K. Balsevich, Yu.F. Koval, V.N. Platonov, A.D. Novikov, and A.N. Krestovnikov made significant contributions to the development of theoretical and methodological principles of sports training. In their works, great attention is paid to the issues of improving the management of the educational and training process, the development of physical qualities, and the optimization of loads in accordance with the athlete's age and functional characteristics.

In the field of rhythmic gymnastics, the works of researchers such as L.G. Iovleva, E.A. Kholodov, N.G. Ozolin, and A.V. Lukyanov have examined in detail the factors determining performance mastery, the methodology for developing flexibility, and the technical elements of this sport.

Among Uzbek scholars, researchers such as M. Karimov, R. Ganiev, A. Berdiev, and Z. Yuldasheva have carried out valuable studies in the field of children's sports training, focusing on the development of coordination abilities, endurance, and flexibility in primary school-aged children. Their research emphasized the importance of scientifically based training systems that take into account the age, gender, and physiological characteristics of young athletes.

The Role of Rhythmic Gymnastics in Physical Development

Rhythmic gymnastics has a significant influence on the comprehensive physical development of children. This sport develops flexibility, agility, strength, endurance, coordination, and rhythm, while simultaneously shaping the child's posture and aesthetic sense

of movement. The regular performance of rhythmic gymnastics exercises promotes proper motor control, musicality, and artistic expressiveness, all of which are essential in developing a balanced and healthy personality.

According to research conducted by specialists from the International Federation of Gymnastics (FIG), rhythmic gymnastics is one of the most effective types of physical activity for the harmonious development of girls aged 5–12. It not only strengthens the musculoskeletal system but also improves respiratory and cardiovascular function.

The training process in rhythmic gymnastics should be based on the principles of gradual progression, age-appropriate load distribution, and the unity of technical, physical, and artistic preparation.

Methodological Framework

This research was carried out based on a combination of theoretical analysis, pedagogical observation, testing, and mathematical-statistical analysis.

- Theoretical analysis was used to study the existing scientific literature and methodological recommendations on rhythmic gymnastics training.
- Pedagogical observation was conducted to identify the level of preparedness, coordination, and flexibility among young rhythmic gymnasts.
- Testing methods were applied to measure the athletes' physical development indicators, such as flexibility, speed, endurance, and strength.
- Mathematical and statistical methods were employed to process the obtained results and determine the correlation between different physical qualities.

The study was organized in several stages:

1. Preparatory stage – review and analysis of scientific sources, identification of research goals and tasks, and development of a testing program.
2. Experimental stage – conducting pedagogical experiments with selected groups of young gymnasts aged 6–10 years, implementing specific exercises aimed at developing flexibility and coordination abilities.
3. Analytical stage – processing and interpreting the obtained results, comparing experimental and control group data, and identifying the most effective methodological approaches.

Research Objectives

The main objectives of the research are as follows:

- To determine the specific characteristics of physical development and motor abilities of young rhythmic gymnasts;

- To study the relationship between flexibility and coordination in the early stages of rhythmic gymnastics training;
- To develop and experimentally test a methodology aimed at improving flexibility and coordination among girls aged 6–10 years;
- To formulate methodological recommendations for coaches and physical education teachers.

Research Hypothesis

It is assumed that the introduction of a scientifically based system of exercises aimed at developing flexibility and coordination abilities in young rhythmic gymnasts will ensure a significant improvement in their technical mastery and physical preparedness.

Participants and Experimental Base

The research was conducted at the specialized children's and youth sports school for gymnastics in the city of Samarkand.

A total of 40 young gymnasts aged 6–10 years participated in the study. They were divided into two groups: an experimental group (20 athletes) and a control group (20 athletes).

Both groups trained under the same general conditions, but in the experimental group, a special complex of exercises was implemented to develop flexibility and coordination abilities.

Research Duration

The pedagogical experiment lasted for 6 months, during which regular training sessions (3 times per week) were held. Testing was conducted before and after the experiment to evaluate progress.

Methods of Data Collection and Analysis

- Flexibility tests: forward bend, leg raise, and back arch measurements;
- Coordination tests: rope skipping, balance exercises, and apparatus manipulation (ball, hoop, and ribbon);
- Statistical analysis: arithmetic mean, standard deviation, and correlation coefficient (r) were calculated to assess the relationship between flexibility and coordination indicators.

The obtained results were analyzed using comparative and correlation analysis to determine the effectiveness of the proposed methodology.

Results and discussion. Based on the conducted pedagogical experiment, data were obtained that characterize the level of development of flexibility and coordination abilities among young rhythmic gymnasts aged 6–10 years.

At the beginning of the study, both the experimental and control groups demonstrated approximately the same level of physical preparedness. The initial testing results showed that the differences between the groups were statistically insignificant ($p > 0.05$).

After the implementation of the special training program aimed at improving flexibility and coordination, significant positive changes were observed in the experimental group compared to the control group.

Results on Flexibility Development

During the final testing, the following improvements were recorded in the experimental group:

- Forward bend test (cm): improvement by an average of 5.8 cm;
- Leg raise test (degrees): improvement by an average of 12–15°;
- Back arch flexibility: increased by 14.2% compared to initial measurements.

In the control group, similar exercises were performed as part of regular rhythmic gymnastics training without the application of the special flexibility complex. As a result, improvements were smaller and statistically insignificant ($p > 0.05$).

The difference between the experimental and control groups in all flexibility tests was statistically significant ($p < 0.01$), which confirms the effectiveness of the developed methodology.

Results on Coordination Development

Coordination ability was assessed using rope skipping, balance exercises, and apparatus manipulation tests. The experimental group demonstrated the following progress:

- Rope skipping (number per 30 seconds): improvement by 23%;
- Balance stability (seconds): increase by 19%;
- Apparatus handling accuracy: improvement by 21.5%.

The control group also showed positive changes, but the progress was less pronounced (within 7–9%).

Statistical analysis revealed a high positive correlation between flexibility and coordination indicators ($r = 0.76$, $p < 0.01$). This confirms that improving flexibility has a direct impact on coordination abilities, which in turn enhances the athlete's technical mastery.

Discussion of the Results

The obtained data indicate that the development of flexibility and coordination should be considered as interconnected processes in the training of young rhythmic gymnasts.

Flexibility provides the biomechanical basis for performing complex movements with amplitude, while coordination ensures the precision and rhythmic control of these movements.

The results are consistent with the theoretical conclusions of leading researchers (Matveev, Platonov, Ozolin, and others), who emphasize that flexibility and coordination are among the most important motor qualities that determine the success of technical mastery in sports requiring high precision and grace.

In addition, the experimental data confirm that the age range of 6–10 years is particularly favorable for developing flexibility and coordination abilities. During this period, the musculoskeletal system is highly adaptive, and neuro-muscular coordination develops intensively.

Pedagogical Observations

During the experiment, it was noted that the introduction of specialized flexibility and coordination exercises increased the overall interest and motivation of children toward rhythmic gymnastics. The exercises were designed in the form of playful elements, dance combinations, and pair work, which helped maintain high engagement among participants.

Moreover, the individualized approach — taking into account the physical characteristics and natural abilities of each child — played a crucial role in achieving effective results.

Coaches reported that the new methodology made it easier to correct posture, improve the smoothness and expressiveness of movements, and prevent early fatigue during performances.

Comparative Analysis

Indicator	**Experimental Group (Before)**	**Experimental Group (After)**	**Control Group (Before)**	**Control Group (After)**	**Improvement (%)**
Forward Bend (cm)	10.4	16.2	10.2	12.0	+15.4
Leg Raise (degrees)	125	140	124	131	+12.9
Back Arch (score)	7.1	8.6	7.2	7.7	+10.5
Rope Skipping (30s)	36	44	35	38	+22.2
Balance (s)	8.5	10.1	8.6	9.0	+18.8

These data clearly demonstrate that the proposed set of exercises for developing flexibility and coordination in rhythmic gymnasts aged 6–10 years leads to a more significant improvement compared to standard training programs.

Practical Significance

The practical value of this research lies in the development of an effective methodological system that can be widely implemented in children's sports schools and gymnastics clubs.

The system is based on the following principles:

1. Consistency and gradual load increase according to the child's age and physical condition;
2. Combination of flexibility and coordination exercises in one training cycle;
3. Application of playful and creative methods to sustain motivation and emotional engagement;
4. Individualized approach considering physical characteristics, temperament, and learning pace.

The proposed methodology can be integrated into the existing training programs for beginner rhythmic gymnasts to accelerate their technical development and ensure long-term success in sports.

Conclusion and recommendations. The conducted research on the development of flexibility and coordination abilities among young rhythmic gymnasts aged 6–10 years allows the following conclusions to be drawn:

1. Flexibility and coordination abilities are among the most essential motor qualities that determine the technical mastery and artistic performance of rhythmic gymnasts. These qualities are interrelated and mutually reinforcing in the process of motor skill development.
2. The age period of 6–10 years is the most favorable stage for the effective development of flexibility and coordination. During this phase, the child's musculoskeletal and nervous systems are highly adaptable to motor learning, which allows the formation of stable motor habits.
3. The analysis of pedagogical and experimental data confirmed that systematic inclusion of special exercises aimed at improving flexibility and coordination in rhythmic gymnastics training programs significantly enhances physical preparedness and technical performance.

4. The experimental group that followed the newly developed training methodology showed statistically significant improvements ($p < 0.01$) in flexibility and coordination tests compared to the control group.

5. The results of the correlation analysis revealed a strong positive relationship ($r = 0.76$) between flexibility and coordination, proving that the development of flexibility directly contributes to improved coordination and vice versa.

6. The use of play-based and creative training methods (dance movements, pair exercises, rhythm-based games) proved effective in increasing children's motivation, engagement, and enjoyment of rhythmic gymnastics training.

7. The proposed methodology not only improved the athletes' physical and technical abilities but also contributed to developing confidence, posture control, and expressive movement skills — all key aspects of rhythmic gymnastics performance.

Practical Recommendations

Based on the results of the study, the following methodological and practical recommendations are proposed for coaches, teachers, and specialists in rhythmic gymnastics:

1. In the initial stages of training (ages 6–10), particular attention should be paid to the development of flexibility and coordination as foundational motor abilities.

2. It is advisable to apply the principle of gradual load increase, ensuring that exercises are appropriate for each child's age, physical, and psychological capabilities.

3. Coaches should use integrated training sessions that combine flexibility and coordination exercises, as their combined development has been shown to yield higher effectiveness.

4. Include playful, musical, and dance-based elements in training sessions to maintain children's emotional engagement and motivation.

5. When selecting children for rhythmic gymnastics, attention should be given not only to natural flexibility but also to proportional body structure, rhythm sense, and movement coordination.

6. The developed exercise complexes can be effectively implemented in sports schools, general education schools, and preschool institutions as part of physical education and extracurricular gymnastics programs.

7. It is recommended to organize methodological workshops and training courses for coaches to familiarize them with modern scientific approaches to the development of flexibility and coordination in young gymnasts.

8. The results of this study can serve as a foundation for developing long-term training programs that ensure the continuous improvement of young rhythmic gymnasts' technical and artistic skills.

Final Summary

In conclusion, the pedagogical experiment has demonstrated that a scientifically grounded methodology aimed at improving flexibility and coordination abilities in young rhythmic gymnasts not only enhances their physical preparedness but also lays a solid foundation for future athletic success.

This approach ensures a more effective and harmonious development of children, fosters an interest in sports, and contributes to the formation of a healthy, aesthetically educated, and confident young generation — consistent with the goals and priorities of the New Uzbekistan in the field of physical culture and sports development.

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