

## METHODOLOGICAL FEATURES OF CHOREOGRAPHIC TRAINING AT THE STAGE OF IMPROVING THE SPORTS MASTERY OF ACROBATS

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### AKROBATIKACHILARNING SPORT MAHORATINI TAKOMILLASHTIRISH BOSQICHIDA XOREOGRAFIK TAYYORGARLIGINING USLUBIY XUSUSIYATLARI

### МЕТОДИЧЕСКИЕ ОСОБЕННОСТИ ХОРЕОГРАФИЧЕСКОЙ ПОДГОТОВКИ АКРОБАТОВ НА ЭТАПЕ СОВЕРШЕНСТВОВАНИЯ СПОРТИВНОГО МАСТЕРСТВА

#### **Abstract**

This article is devoted to improving the physical fitness of athletes engaged in sports acrobatics at the stage of sports mastery development. The study analyzes the importance of general and special physical fitness, the development of motor abilities, and their role in achieving high sports performance. Particular attention is paid to the methods of developing essential components of motor preparedness, including plasticity, rhythmicity, coordination, balance, flexibility, and special endurance. Furthermore, the article substantiates the role of choreographic training and its significance in the high-quality performance of competitive routines during the sports mastery development stage. The research findings confirm that the harmonious development of technical, physical, and artistic preparedness is a key factor in achieving high competitive results in sports acrobatics. The conclusions obtained have significant scientific and practical value for developing methodological recommendations for coaches, choreographers, and sports educators working in the field of sports acrobatics.

#### **Key words**

skill, ability, acrobatics, individual, development, program, activity, choreography, dance movements, physical fitness.

#### **Annotatsiya**

Mazkur maqola sport mahoratini takomillashtirish bosqichida sport akrobatikasi bilan shug'ullanuvchilarning jismoniy tayyorgarligini oshirish masalalariga bag'ishlangan. Tadqiqotda sportchilarning umumiy va maxsus jismoniy tayyorgarligi, harakat sifatlarini rivojlantirish hamda yuqori sport

natijalariga erishishda ularning ahamiyati tahlil qilingan. Ayniqsa, harakat tayyorgarligining plastiklik, ritmiklik, koordinatsiya, muvozanat, egiluvchanlik va maxsus chidamlilik kabi muhim tarkibiy qismlarini rivojlantirish usullari yoritilgan. Shuningdek, sport mahoratini takomillashtirish bosqichida xoreografik tayyorgarlikning o'рни va uning musobaqa dasturlarini sifatli ijro etishdagi roli asoslab berilgan. Tadqiqot natijalari sport akrobatikachilarining musobaqa faoliyatida texnik, jismoniy va badiiy tayyorgarlikni uyg'un rivojlantirish yuqori natijalarga erishishning muhim omili ekanligini tasdiqlaydi. Olingan xulosalar sport akrobatikasi bo'yicha murabbiylar, xoreograflar va sport pedagoglari uchun amaliy tavsiyalar ishlab chiqishda muhim ilmiy-amaliy ahamiyat kasb etadi.

### **Kalit so'zlar**

ko'nikma, malaka, akrobatika, individual, rivojlantirish, dastur, faoliyat, xoreografiya, raqs harakatlari, jismoniy tayyorgarlik.

### **Аннотация**

Настоящая статья посвящена вопросам совершенствования физической подготовленности спортсменов, занимающихся спортивной акробатикой, на этапе совершенствования спортивного мастерства. В исследовании проанализировано значение общей и специальной физической подготовленности, развития двигательных качеств, а также их роль в достижении высоких спортивных результатов. Особое внимание уделено методам развития важнейших компонентов двигательной подготовленности, таких как пластичность, ритмичность, координация, равновесие, гибкость и специальная выносливость. Кроме того, обоснована роль хореографической подготовки и её значение для качественного исполнения соревновательных композиций на этапе совершенствования спортивного мастерства. Результаты исследования подтверждают, что гармоничное развитие технической, физической и артистической подготовленности является важным фактором достижения высоких спортивных результатов в спортивной акробатике. Полученные выводы имеют существенное научно-практическое значение для разработки методических рекомендаций, предназначенных для тренеров, хореографов и преподавателей физической культуры, работающих в области спортивной акробатики.

### **Ключевые слова**

навык, умение, акробатика, индивидуальный, развитие, программа, деятельность, хореография, танцевальные движения, физическая подготовленность.

**INTRODUCTION.** One of the key prerequisites for successful performance in sports acrobatics competitions is the originality of the routines and the level of artistry demonstrated during the performance of musical-acrobatic exercises. This, in turn, requires athletes to possess a wide range of motor skills specific to this sport and to have a highly developed level of motor abilities.

The analysis of the training system for acrobats highlighted a notable imbalance in the development of physical preparedness. While the training process primarily emphasizes strength, explosive strength, flexibility, coordination, and endurance, relatively limited focus is given to the cultivation of movement plasticity, rhythmic expression, and specialized endurance. These motor qualities are fundamental for ensuring the technical precision, artistic quality, and overall effectiveness of competitive performances.

During the stage of advanced sports mastery, athletes have already developed the necessary technical foundation and achieved an appropriate level of choreographic competence. Therefore, choreographic preparation should primarily focus on enhancing the quality, precision, and expressiveness of movement execution. At this level, athletes are capable of integrating more complex, refined, and artistically expressive dance elements into their competitive routines, thereby improving both their technical execution and aesthetic presentation. The principal aim of choreographic training at this stage is to enrich athletes' movement vocabulary, refine artistic performance, and increase the expressiveness and accuracy of competitive exercises.

Numerous scholars, including I.S. Khaytmetov, K.K. Yuldashev, A.K. Eshtayev, M.N. Umarov, T.K. Vasilyeva, and others, have emphasized that choreographic training plays a significant role in developing motor memory, coordination abilities, especially movement coordination, jumping capacity, flexibility, joint mobility, muscular elasticity, strength, and artistic expressiveness [1, 3, 4, 5]. These physical and artistic qualities provide the essential foundation for achieving high-level performance in sports acrobatics.

Consequently, choreographic preparation represents an indispensable element of the long-term training system for sports acrobats. It facilitates the acquisition and refinement of complex technical and choreographic skills while promoting the development of fundamental motor abilities required for successful competitive performance [1]. When systematically incorporated into the training process, choreographic preparation enhances movement efficiency, technical accuracy, artistic interpretation, and the overall quality of athletes' performances, ultimately contributing to higher competitive achievements.

**Research aim:** To construct a scientifically grounded methodology of choreographic preparation for acrobats at the stage of sports mastery development and to evaluate its applied effectiveness in enhancing athletes' competitive performance.

**Research tasks:** To assess the special motor preparedness of acrobats during the stage of sports mastery improvement and to identify effective strategies for its subsequent enhancement and optimization [1].

**MATERIALS AND METHODS.** To accomplish the objectives of the study and verify the proposed scientific hypothesis, a comprehensive combination of research methods was employed. The research process began with a thorough analysis of scientific and methodological sources, including monographs, doctoral and master's dissertations, as well as recent scholarly publications relevant to the

subject under investigation [4]. This analysis provided a foundation for exploring the theoretical underpinnings of physical and choreographic training in sports acrobatics, along with current issues and best practices in this area.

During the research process, the pedagogical observation method was applied, and the training process of sports acrobats, their motor activity, as well as their technical and artistic preparedness levels were systematically observed. The results of the observation made it possible to determine the level of development of key motor qualities such as plasticity, rhythmicity, coordination, balance, and special endurance.

In addition, the pedagogical experiment method was used to test the developed training system in practice. During the experiment, a set of special exercises aimed at improving the physical and choreographic preparedness of athletes was implemented, and its effectiveness was evaluated.

To ensure reliable analysis of the obtained results, mathematical and statistical methods were applied. The obtained data were systematically processed and analyzed by calculating mean values and evaluating the dynamics of the observed changes. The findings were subsequently interpreted and supported through scientific analysis to ensure their validity.

The integrated application of these research methods provided a solid methodological foundation for the study, ensuring the credibility of the results and confirming their scientific rigor as well as their practical relevance.

**RESULT AND DISCUSSIONA.** In order to determine the equivalence (homogeneity) of the control and experimental groups, the results of motor preparedness tests of acrobats at the stage of sports mastery development were statistically compared. The results are presented in Tables 1 and 2.

**Table 1**

**Test results of female acrobats' general motor (physical) fitness at the ascertaining stage of the experiment**

| No | Test exercises                                                  | Group | $X \pm m_x$ | t    | P     |
|----|-----------------------------------------------------------------|-------|-------------|------|-------|
| 1  | 20 m sprint (seconds)                                           | TG    | 4,4±0,7     | -1,0 | >0,05 |
|    |                                                                 | NG    | 4,1±0,5     | -1,5 |       |
| 2  | Standing long jump (cm)                                         | TG    | 4,5±0,3     | -1,0 | >0,05 |
|    |                                                                 | NG    | 4,2±0,4     | -1,5 |       |
| 3  | Curl-up from supine position (number of repetitions in seconds) | TG    | 4,6±0,4     | -1,5 | >0 05 |
|    |                                                                 | NG    | 4,1±0,5     | -2,5 |       |

|   |                                                                          |    |         |       |       |
|---|--------------------------------------------------------------------------|----|---------|-------|-------|
| 4 | Pull-ups on the horizontal number of repetitions)                        | TG | 3,3±0,5 | -2,04 | >0,05 |
|   |                                                                          | NG | 3,0±0,5 | -1,5  |       |
| 5 | Handstand on a gymnastics mat (seconds)                                  | TG | 4,5±0,3 | -1,0  | >0,05 |
|   |                                                                          | NG | 4,2±0,7 | -2,04 |       |
| 6 | Push-ups in a supported position (bending and straightening of the arms) | TG | 4,5±0,5 | -2,6  | >0,05 |
|   |                                                                          | NG | 4,0±0,8 | -1,5  |       |

As presented in Table 1, the results of the pre-experimental assessment demonstrated that there were no statistically significant differences between the female acrobats in the control and experimental groups. These findings indicate that both groups were comparable at the beginning of the pedagogical experiment, thereby confirming the homogeneity of the baseline sample. In particular, the control group did not differ from the experimental group in any of the measured indicators of general motor preparedness, as the differences between the groups were statistically insignificant ( $p > 0.05$ ).

**Table 2**

**Test results of female acrobats' special motor preparedness at the ascertaining stage of the experiment**

| No | Test exercises                              |          | Group | $\bar{X} \pm m_x$ | t     | P     |
|----|---------------------------------------------|----------|-------|-------------------|-------|-------|
| 1  | Balance, standing on the right leg (points) | Forward  | TG    | 3,2±0,4           | -4,9  | >0,05 |
|    |                                             |          | NG    | 3,2±0,4           | -1,0  |       |
|    |                                             | Sideways | TG    | 3,3±0,5           | -4,9  |       |
|    |                                             |          | NG    | 3,2±0,4           | -2,04 |       |
|    |                                             | Backward | TG    | 4,0±0,5           | -5,2  |       |
|    |                                             |          | NG    | 4,0±0,7           | -0,4  |       |
| 2  | Balance, standing on the left leg (points)  | Forward  | TG    | 3,5±0,5           | -3,4  | >0,05 |
|    |                                             |          | NG    | 3,2±0,4           | -2,04 |       |
|    |                                             | Sideways | TG    | 3,7±0,4           | -1,9  |       |
|    |                                             |          | NG    | 3,6±0,5           | -2,6  |       |
|    |                                             | Backward | TG    | 4,2±0,4           | -2,04 |       |
|    |                                             |          | NG    | 4,0±0,7           | -0,4  |       |
| 3  | Jump into forward (points)                  |          | TG    | 4,6±0,5           | -2,04 | >0,05 |
|    |                                             |          | NG    | 4,5±0,5           | -2,6  |       |

|   |                        |  |    |             |       |       |
|---|------------------------|--|----|-------------|-------|-------|
|   |                        |  |    |             |       |       |
| 4 | 360° turn jump<br>(ts) |  | TG | 4,6±0,5     | -2,04 | >0,05 |
|   |                        |  | NG | 4,6±<br>0,5 | 2,04  |       |

The results presented in Table 2 demonstrate that, at the baseline assessment conducted before the pedagogical experiment, no statistically significant differences were identified between the control and experimental groups of female acrobats across all evaluated indicators of special motor preparedness ( $p > 0.05$ ). These findings confirmed the initial comparability of the two groups and provided a reliable basis for evaluating the effectiveness of the proposed intervention.

The proposed methodology for choreographic training of acrobats at the stage of advanced sports mastery was designed on the basis of the findings obtained in the present research, together with practical experience accumulated in the coaching process. The results of the analysis demonstrated that choreographic preparation continues to receive inadequate attention during different stages of long-term athlete development, despite its essential role in improving both technical execution and artistic performance [2].

Taking into account the outcomes of the preliminary assessment of the athletes' motor preparedness together with contemporary methodological approaches, a comprehensive choreographic training program was designed specifically for acrobats at the stage of improving sports mastery. The proposed methodology was based on a systematically organized sequence of choreographic exercises designed to develop the key motor abilities required for effective competitive performance.

The experimental choreographic training program was implemented throughout one academic year and consisted of approximately 74 scheduled training sessions. Such a duration provided sufficient time for the progressive development of the athletes' choreographic proficiency and essential motor abilities. Choreography classes were held twice weekly and were consistently incorporated into the warm-up phase and the initial segment of the main training session. The proposed methodology employed several training program modifications together with a broad range of instructional methods and exercise complexes. This systematic arrangement of the training process allowed coaches to make more rational use of training time during the main part of each session while improving the efficiency of the overall training workload and facilitating the comprehensive development of the athletes' physical and technical capabilities.

The experimental program consisted of 60-minute training sessions conducted throughout the intervention period. Its content integrated classical ballet exercises, rhythmic gymnastics elements, acrobatic drills, choreographic combinations, movement-plasticity exercises, multiple forms of locomotor activities (walking and running), and resistance exercises using elastic bands.

The selection of choreographic training exercises presented in Table 3 was guided by a comprehensive set of methodological criteria. These included the athletes' age characteristics, their current level of physical and functional preparedness, and the specific biomechanical and performance demands inherent in sports acrobatics. In addition, particular attention was given to the need for the balanced and systematic development of the entire spectrum of motor abilities essential for achieving high-quality and successful competitive performance. This integrated approach ensured that the chosen exercises were both age-appropriate and aligned with the long-term objectives of athletic development.

**Table 2**

**Program of choreographic training means**

|                               |                                                                                                                                                                                                                                                                                                              |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Types of walking and running  | Walking: on heels, on toes, spring step, sharp step, soft step, "parskat" step, "parsmn" step, gliding walk, gallop step, polka step, etc.<br>Running: ordinary running, toe running, sharp running, high-knee running                                                                                       |
| Classical dance movements     | Positions of legs and arms. Classical dance exercises. Demi plié, grand plié, battement tendu, battement tendu jeté, développé, grand battement jeté..                                                                                                                                                       |
| Rhythmic gymnastics exercises | Jumps: two-foot jumps, high-knee jumps, small jumps, straight jumps, back-bent jumps, touch jumps, open and closed jumps.<br>Turns: step turns, turns on toes, cross-position turns, attitude turns, low-balance turns, etc.<br>Balances: knee balance, middle balance "seagull", low balance, side balance. |
| Acrobatic exercises           | Splits, bends, bridges, stands, and support exercises                                                                                                                                                                                                                                                        |
| Dance combinations            | Movement and music games, independent composition of dance routines and programs, auxiliary movements, etc.                                                                                                                                                                                                  |

The choreographic training program incorporated music-based dance exercises as a principal instructional method, because the acquisition of classical ballet techniques and national dance elements serves as the foundation for developing choreographic competence.

Evaluation of the effectiveness of the experimental methodology of choreographic training for acrobats at the stage of improving sports mastery. In order to assess the effectiveness of the applied choreographic training means in female acrobats, the results of repeated testing of general and special motor preparedness indicators were compared. The results are presented in Tables 4 and 5.

**Table 4**

**Test results of female acrobats' general motor preparedness after the pedagogical experiment**

| No | Test exercises | Group | $\bar{X} \pm m_x$ | t | P |
|----|----------------|-------|-------------------|---|---|
|----|----------------|-------|-------------------|---|---|

|   |                                                                          |    |         |       |       |
|---|--------------------------------------------------------------------------|----|---------|-------|-------|
| 1 | 20 m sprint (seconds)                                                    | TG | 4,8±0,7 | -1,0  | >0,05 |
|   |                                                                          | NG | 4,3±0,4 | -1,0  |       |
| 2 | Standing long jump (cm)                                                  | TG | 5,0±0,0 | -1,0  | >0,05 |
|   |                                                                          | NG | 4,4±0,3 | -1,5  |       |
| 3 | Curl-up from supine position (number of repetitions in 30 seconds)       | TG | 5,0±0,0 | -1,5  | >0 05 |
|   |                                                                          | NG | 3,8±0,7 | -2,5  |       |
| 4 | Pull-ups on the horizontal bar (number of repetitions)                   | TG | 3,9±0,4 | -2,04 | >0,05 |
|   |                                                                          | NG | 3,4±0,8 | -1,5  |       |
| 5 | Handstand on a gymnastics mat (seconds)                                  | TG | 5,0±0,0 | -1,0  | >0,05 |
|   |                                                                          | NG | 3,7±0,4 | -2,04 |       |
| 6 | Push-ups in a supported position (bending and straightening of the arms) | TG | 4,9±0,3 | -2,6  | >0,05 |
|   |                                                                          | NG | 4,1±0,9 | -1,5  |       |

Examination of the data summarized in Table 4 confirmed that the female acrobats assigned to the experimental group showed statistically significant gains in three major indicators reflecting the development of strength, coordination, and speed-strength abilities following the implementation of the experimental training program. These observed improvements resulted in statistically significant intergroup differences between the experimental and control groups ( $p < 0.05$ ), thereby confirming the positive influence of the proposed choreographic training intervention on selected components of special motor preparedness.

By contrast, analysis of the 20-meter sprint, standing long jump, and pull-up test results indicated the absence of statistically significant differences between the experimental and control groups ( $p > 0.05$ ). Moreover, throughout the duration of the study, neither the experimental nor the control group demonstrated notable improvements in these specific performance indicators, indicating a relatively stable level of development in these motor abilities.

**Table 5**

**Test results of female acrobats' special motor preparedness after the pedagogical experiment.**

| No | Test exercises    |  | Group | $\bar{X} \pm m_x$ | t    | P |
|----|-------------------|--|-------|-------------------|------|---|
| 1  | Balance, standing |  | TG    | 4,3±0,5           | -4,9 |   |

|   |                                          |          |    |         |       |       |
|---|------------------------------------------|----------|----|---------|-------|-------|
|   | e right leg (points)                     | Forward  | NG | 3,3±0,5 | -1,0  | >0,05 |
|   |                                          | Sideways | TG | 4,5±0,5 | -4,9  |       |
|   |                                          |          | NG | 3,6±0,7 | -2,04 |       |
|   |                                          | Backward | TG | 5,0±0,0 | -5,2  |       |
|   |                                          |          | NG | 4,1±0,6 | -0,4  |       |
|   |                                          |          |    |         |       |       |
| 2 | Balance, standing<br>e left leg (points) | Forward  | TG | 4,1±0,3 | -3,4  | >0,05 |
|   |                                          |          | NG | 3,6±0,5 | -2,04 |       |
|   |                                          | Sideways | TG | 4,3±0,5 | -1,9  |       |
|   |                                          |          | NG | 3,7±0,4 | -2,6  |       |
|   |                                          | Backward | TG | 4,6±0,5 | -2,04 |       |
|   |                                          |          | NG | 4,1±0,6 | -0,4  |       |
| 3 | Jump into forward<br>(points)            |          | TG | 5,0±0,0 | -2,04 | >0,05 |
|   |                                          |          | NG | 4,8±0,5 | -2,6  |       |
| 4 | 360° turn jump<br>(points)               |          | TG | 5,0±0,0 | -2,04 | >0,05 |
|   |                                          |          | NG | 4,7±0,5 | 2,04  |       |

According to the data presented in Table 5, significant improvements were recorded in two tests evaluating balance performance ( $p < 0.05$ ). The obtained results confirm the effectiveness of the proposed choreographic training methodology in improving balance, thereby supporting its application during the stage of advanced sports mastery in female acrobats.

To summarize the overall findings, Table 6 and Figure 1 present the mean values of the participants' physical and choreographic preparedness, allowing for a comprehensive assessment of the effectiveness of the experimental training methodology.

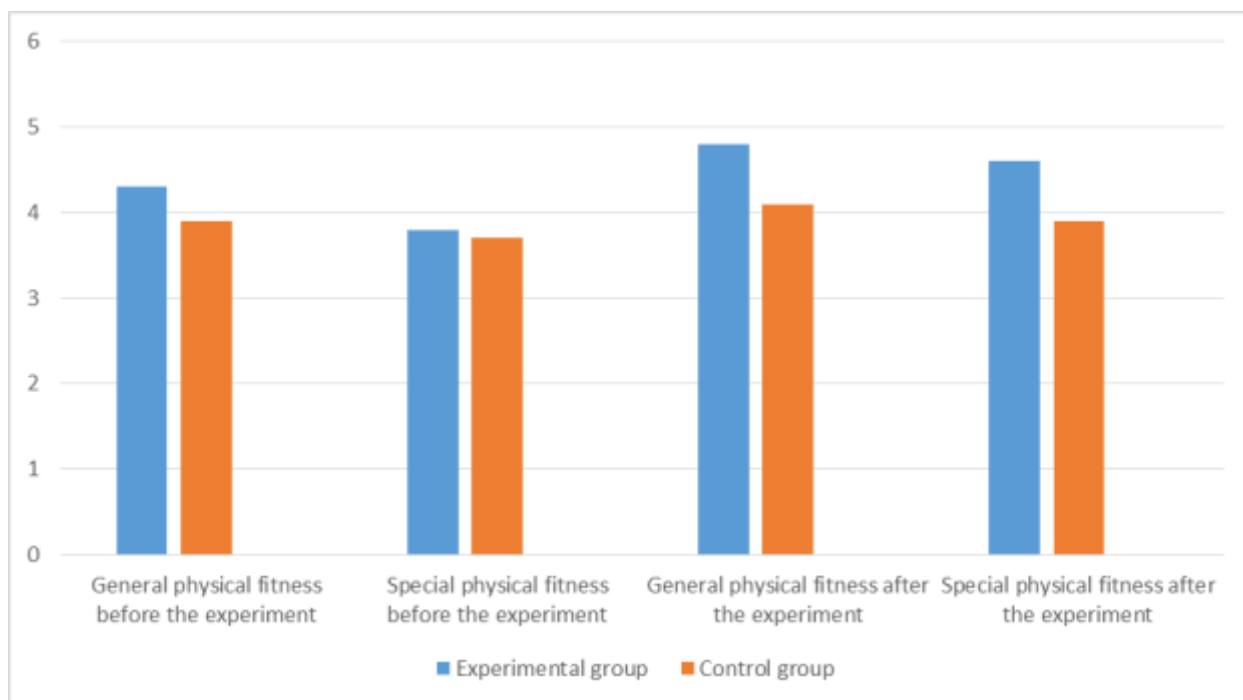
**Table 5**

**Comparative data on the assessment of training level of female acrobats at the stage of improving sports mastery (in points)**

| Before the pedagogical experiment |               |                    | After the pedagogical experiment |               |                    |
|-----------------------------------|---------------|--------------------|----------------------------------|---------------|--------------------|
|                                   | Mean value    |                    |                                  | Mean value    |                    |
|                                   | Control group | Experimental group |                                  | Control group | Experimental group |
| Physical fitness level            | 3,9           | 4,3                | Physical fitness level           | 4,1           | 4,8                |
| Choreographic training level      | 3,7           | 3,8                | Choreographic training level     | 3,9           | 4,6                |

**Figure 1**

**Average indicators of physical and choreographic training levels (in points)**



**Conclusion.** The review of scientific, educational, and methodological literature demonstrated that choreographic training represents a fundamental component of the preparation system for female acrobats at the stage of advanced sports mastery. Built upon the principles of classical ballet, it should be systematically integrated with technical, physical, and specialized training, reflecting the specific demands of sports acrobatics.

Regular choreographic practice enhances athletes' motor culture by improving postural control, body alignment, and kinesthetic awareness, enabling them to accurately perceive and regulate body positions during movement. Furthermore, it contributes to the development of balance, coordination, flexibility, lower-limb strength, and movement expressiveness while expanding athletes' proficiency in performing basic elements and combinations derived from different dance styles.

Beyond its role in enhancing physical and technical preparedness, choreographic training is also essential for the development of aesthetic perception and creative abilities. As choreographic exercises are typically performed in a group format, they enable the simultaneous involvement of all athletes, thereby increasing the efficiency and density of training sessions. This organizational characteristic promotes favorable adaptations in the cardiovascular and respiratory systems and facilitates the development of sport-specific endurance. In addition, choreographic preparation enhances athletes' ability to learn, refine, and effectively perform complex movement patterns and choreographic combinations required for successful competitive routines.

The results of the present study provided a scientific basis for the development of a comprehensive choreographic training methodology for female acrobats at the stage of advanced sports mastery. The proposed program incorporated elastic resistance bands as supplementary training equipment to enhance the effectiveness of the exercises and optimize the development of essential motor abilities.

The organization of the training process was guided by several methodological principles. Notably, choreographic training was organized at the initial stage of each training session, allowing athletes to complete the exercises in a minimally fatigued state and facilitating a more productive use of the main training phase. This approach created favorable conditions for improving movement quality and maximizing the overall effectiveness of the training process.

Each training session lasted 60 minutes and followed a structured program specifically designed to improve choreographic preparedness. The training program included a wide range of content, such as classical ballet techniques, rhythmic gymnastics exercises, acrobatic drills, dance combinations, free movement activities, basic locomotor actions (including walking and running), as well as resistance exercises using elastic bands.

Special emphasis was placed on reducing motor asymmetry by performing all exercises equally on both sides of the body. This approach contributed to the development of balanced neuromuscular adaptation and improved bilateral coordination abilities.

The results of the pedagogical experiment confirmed the effectiveness of the proposed choreographic training methodology in improving the specific motor preparedness of female acrobats at the stage of advanced sports mastery. Statistically significant positive changes were identified in two indicators of special motor fitness, demonstrating the beneficial impact of the intervention.

Moreover, a comparative analysis of general and specific physical fitness indicators between the experimental and control groups revealed statistically significant differences in favor of the experimental group ( $p < 0.05$ ), further substantiating the efficiency of the implemented training approach.

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