

Article

Comparative Characteristics of The Physical Fitness Indicators of 11-12-Year-Old Acrobats with The Normative Requirements of The “Salomatlik” Test

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Abstract: The researcher examines physical fitness levels of 11-12-year-old pair-group sports acrobatics athletes through assessment of their performance against Uzbekistan's “Salomatlik” test standards. Current research about the physical and technical preparation of young acrobats has received limited attention in spite of increasing recognition for training quality improvements. This research uses pedagogical observation practice alongside tests and experiments with statistical approaches to assess speed-strength along with endurance agility flexibility and complete motor readiness of athletes. The study demonstrates that the majority of young acrobats achieve minimum scores equivalent to Levels I and II in their physical attributes but show inconsistent results when measuring their endurance level and their power output in their lower body. The data shows that out of the 12-year-olds who took the 1500-meter run test 34.2% passed Level I standards and a similar percentage of 11-year-olds (33.3%) did so. The highest standards of upper-body strength and flexibility tests were achieved by most young gymnasts but pull-ups and flexibility tests demonstrated universal adoption. The collected data showed that both physical and technical readiness among these age ranges stands at a “good” level but exhibits differences based on fitness aspects as well as chronological age. Sports educators together with coaches should follow these findings to develop training methods that target different age groups while recognizing the natural development sequence of athletes. The completed studies prove that modified specialized sport training should target better performance outcomes alongside protective measures for child athletes' physical health and developmental stages.

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1. Introduction

In the world today, all possible opportunities are being utilized to prepare young acrobats for various prestigious competitions and to achieve high sports results. Many experts believe that the most effective way to optimize sports training is to improve the quality of the training process while simultaneously enhancing the physical preparedness of young acrobats[1]. Extensive scientific and practical research is being conducted to introduce the results of experimental studies into the training process, aiming to scientifically substantiate and ensure the effective forms and methods of motor preparation[2]. At the same time, monitoring studies have revealed that alongside the growth of sports achievements in this type of sport, certain factors have been identified that reduce the effectiveness of sports mastery. This indicates that insufficient research has

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been conducted specifically on improving the special physical and technical preparedness of young acrobats[3].

In this type of sport, the main component of the training process is technical preparation, which receives significant attention from field specialists. The effectiveness of the training process depends on the rational use of sports training tools and methods[4]. The primary tasks of the specialized stage of preparing young acrobats are to determine their prospects for achieving high sports mastery and to establish a solid foundation of general and specialized physical preparation during the training process in children's sports, aimed at reaching peak sports mastery. Local scholars such as Sh.X.Khankeldiyev, M.N.Umarov, A.K.Eshtayev, D.X.Umarov, B.B.Musayev and D.K. Karimov have conducted research in this area. This component is defined by the interrelationship between the levels of specialized physical preparation (SPP) and technical preparation (TP) of young acrobats. The main focus should not be on outdated (conservative) movements that change little under the influence of training, but rather on the various components of specialized preparation that they have mastered over several years[5]. The number of existing scientific studies is limited, and they reflect specific aspects of this issue in a fragmented manner. Most scientific works are dedicated to studying various facets of preparing high-level sports acrobats[6]. The theoretical foundation of these studies is formed by the fundamental works of leading foreign scholars, including N.P.Gusev, V.N.Boloban, L.P.Matveyev, Y.K.Gaverdovskiy, V.P.Korkin, A.A.Reshetin and others.

To determine the level of physical fitness of young acrobats training in sports schools and to conduct a comparative analysis with the normative requirements of the "Salomatlik" test.

Pedagogical observation, pedagogical testing, pedagogical experiment, and mathematical-statistical research methods were utilized.

To expand opportunities for maintaining a fundamental level of activity for young athletes with varying levels of physical fitness, enabling them to perform acrobatic exercises and master them effectively[7];

To improve a set of specialized physical training programs for young acrobats, taking into account their individual characteristics;

To optimize training loads by assessing the specialized physical fitness of young acrobats[8].

2. Materials and Methods

Management specialists and quantitative approaches analyzed the physical condition of acrobats aged 11 to 12 through combined research methods. Pair-group acrobatics sports schools formed the research setting to analyze athletes during their first specialization period. The monitoring process through pedagogical observation allowed researchers to check athletes' training sessions while observing their reactions to tests in order to better understand their physical performance context. Standardized pedagogical assessment methods evaluated the fitness components of speed, endurance, agility, flexibility and strength through a national "Salomatlik" testing procedure which serves as the standard measure for Uzbek youth physical fitness assessment. The physical examination contained tests for a 60-meter sprint, 1500-meter run, 3x10-meter shuttle run, pull-ups, push-ups, standing and running long jumps and forward bend flexibility exercises. Evaluation of these tests was based on their value for acrobatic sports which demand coordinated complexity. A pedagogical experiment evaluated athletic performance levels through established norms where the collected data underwent mathematical-statistical analysis. The research method allowed testers to examine the performance results of young acrobatic athletes versus the normative standard classes (I, II, III) outlined in the "Salomatlik" test. The percentage indicators for participant success according to fitness test requirements were calculated in statistical manner. The

methodology established a dependable evaluation system for young acrobat physical preparation status and exposed important developmental shortcomings to optimize their training methodology. This method provided coaches and physical educators with significant research results that were both empirically correct and directly applicable to their work.

3. Results and Discussion

When comparing the sprint performance results characterizing the speed qualities of young acrobats in short-distance running with the normative requirements of the "Salomatlik" test, the following findings were observed: In the "60-meter run" trials, among the 12-year-old group representatives, 42,8% met the level I requirements, 34,2% achieved the level II requirements, and 20% fulfilled the level III requirements, while 2,8% failed to meet the normative standards under investigation[9]. In the same trial, among the 11-year-old acrobats from paired and group representatives, 46,6% satisfied the level I requirements, 30% met the level II requirements, and 20% achieved the level III requirements, with only 3,3% unable to fulfill the normative standards of the "Salomatlik" test.

In assessing the endurance physical quality of acrobats and comparing the obtained data with the normative requirements of the "Salomatlik" test, the following results were determined for the 1500-meter run: Among 12-year-old athletes, 34,2% met the level I requirements, 37,1% achieved the level II requirements, and 22,8% fulfilled the level III requirements, while 5,7% of the children failed to meet the normative standards of the "Salomatlik" test. When evaluating this criterion for the 11-year-old group representatives and comparing the results with the normative requirements of the "Salomatlik" test, it was found that 33,3% of the children met the level I requirements, 43,3% achieved the level II requirements, and 16,6% fulfilled the level III requirements, whereas 6,6% of the participants were unable to meet these normative standards[10].

In evaluating agility qualities through the "3x10 m shuttle run" test, young acrobats recorded the following results: Among 12-year-old athletes, 40% met the level I requirements, 45,7% achieved the level II requirements, and 14,3% fulfilled the Level III requirements[11]. For 11-year-old acrobats, the results of this test were as follows: 36,6% met the level I requirements, 40% achieved the level II requirements, and 20% fulfilled the level III requirements, while only 3,3% of the participants were unable to meet the normative standards of this test[12].

The strength preparedness of young acrobats holds a distinct place in their training system, and therefore, attention was given to the comparative results of 11- and 12-year-old participants in the group and their alignment with the normative requirements of the "Salomatlik" tests[13]. In the evaluation of the "pull-up on the horizontal bar" test, 94,3% of 12-year-old acrobats were able to meet this criterion at the Level I requirements, while only 5,7% fulfilled the level II requirements. Among the 11-year-old acrobats in the group, it was determined that 90% met the level I requirements and 10% achieved the level II normative requirements during the "pull-up on the horizontal bar" test.

The "push-up from a prone position" strength test, which plays a significant role in this type of sport, allowed for the determination of the shoulder girdle strength capabilities of group representatives. In this test, 74,3% of 12-year-old athletes successfully met the level I requirements, while the remaining 25,7% fulfilled the level II requirements. Among the 11-year-old acrobats, 60% achieved the level I requirements for this test, 33,3% met the level II requirements, and 6,7% satisfied the level III requirements[14].

In the "standing long jump" test, a similar level of motor preparedness was observed. Among the 12-year-old athletes from the pair-group acrobats, 28,5% met the level I requirements, 40% achieved the level II requirements, and 28,5% fulfilled the level III requirements, while only 2,9% of the children were unable to meet the normative standards. For the 11-year-old representatives of the group, 26,6% satisfied the level I

requirements, 40% met the level II requirements, and 26.6% achieved the level III requirements, whereas the remaining 6,6% were unable to perform this test successfully (see table 1).

The detailed performance data comparing physical fitness indicators of 11- and 12-year-old acrobats with the normative requirements of the “Salomatlik” test are presented in Table 1.

Table 1. Comparative analysis of young acrobats physical preparedness with the normative requirement indicators of the “Salomatlik” tests.

| No | Normative requirements | Level | | | | 12-year-old acrobats (n=35) | | | | 11-year-old acrobats (n=30) | | | |
|----|--|-------|------|------|-----|--------------------------------|----|---|-----|--------------------------------|----|---|--|
| | | III | II | I | III | II | I | - | III | II | I | - | |
| 1 | 60 m run, (sec) | 11 | 10,5 | 10,0 | 7 | 12 | 15 | 1 | 6 | 9 | 14 | 1 | |
| 2 | 1500 m run (min, sec) | 8,20 | 8,05 | 6,85 | 8 | 13 | 12 | 2 | 5 | 13 | 10 | 2 | |
| 3 | Shuttle run 3x10 meters (sec) | 9,0 | 8,7 | 7,9 | 5 | 16 | 14 | 0 | 6 | 12 | 11 | 1 | |
| 4 | Pull-ups on the horizontal bar (repetitions) | 3 | 4 | 7 | 0 | 2 | 33 | 0 | 0 | 3 | 27 | 0 | |
| 5 | Push-ups from a prone position (repetitions) | 13 | 18 | 28 | 0 | 9 | 26 | 0 | 2 | 10 | 18 | 0 | |
| 6 | Standing long jump (cm) | 150 | 160 | 180 | 10 | 14 | 10 | 1 | 8 | 12 | 8 | 2 | |
| 7 | Running long jump (cm) | 270 | 280 | 335 | 8 | 14 | 11 | 2 | 10 | 11 | 6 | 3 | |
| 8 | Forward bend on a gymnastic bench (cm) | +3 | +5 | +9 | 0 | 0 | 35 | 0 | 0 | 0 | 30 | 0 | |

The “running long jump” test was used to assess the speed-strength qualities of young acrobats. Among the 12-year-old representatives of the group, 31,4% met the level I requirements, 40% achieved the level II requirements, and 22,8% fulfilled the level III requirements of the “Salomatlik” test, while only 5,7% failed to meet these performance standards. For the 11-year-old acrobats in this test, 20% satisfied the level I requirements, 36,6% met the Level II requirements, and 33,3% achieved the level III requirements, whereas only 10,0% were unable to fulfill the test requirements.

Flexibility, as a quality of movement, is considered one of the most important factors influencing sports achievements. Regardless of the specialization in the chosen sport, it provides athletes with sufficient joint mobility in their bodies, granting them significantly greater opportunities to select unique and highly valued acrobatic elements by demonstrating this movement ability. When assessing this normative requirement, all acrobats—100%—successfully met the flexibility quality standard at the level I requirement[15].

A general analysis of young athletes engaged in pair-group acrobatics based on the normative requirements of the “Health” test revealed the following: among 12-year-old athletes, 36,8% met the level I requirements, 33,4% met level II, and 24,7% met Level III, while only 5,1% failed to meet these standards. Among 11-year-old acrobats, 33,6% achieved level I, 30,9% achieved level II, and 28,3% achieved level III, with only 7,2% of the participants unable to meet the normative requirements (see figure 1).

A general distribution of athletes meeting Level I, II, and III requirements is illustrated in Figure 1, based on the aggregated outcomes from the “Salomatlik” test.

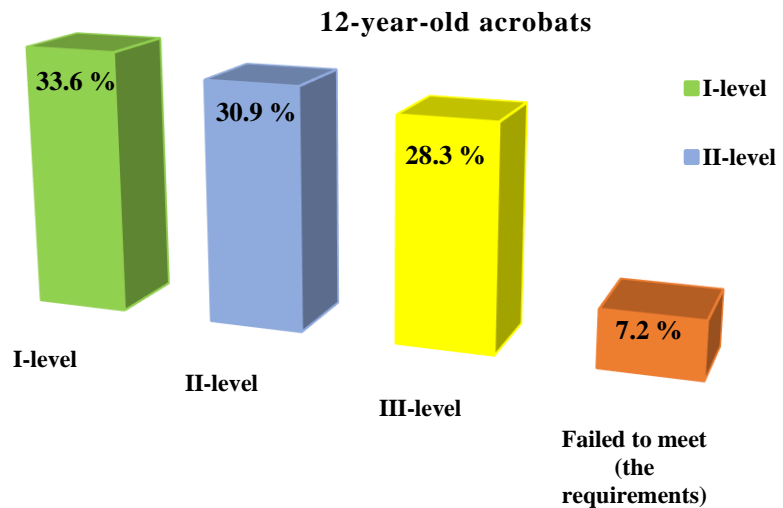


Figure 1. Indicators of young acrobats according to the normative requirements of the “Salomatlik” test.

A visual comparison of the physical preparedness levels between 11- and 12-year-old acrobats across key fitness indicators is provided in Figure 2.

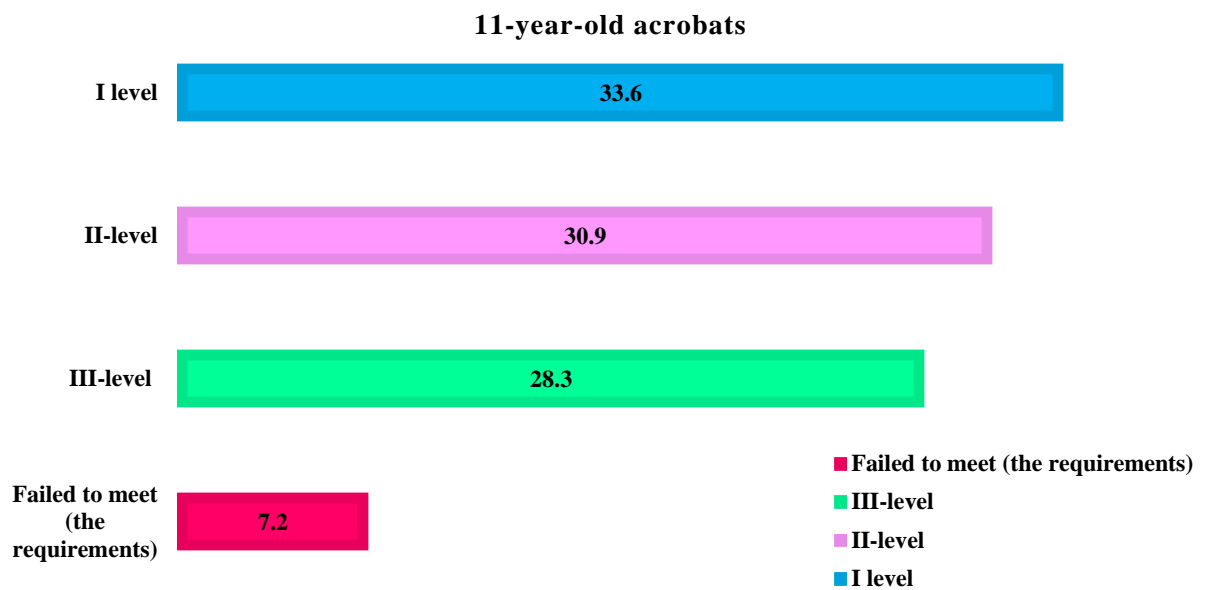


Figure 2. Comparative Physical Preparedness Levels of 11- and 12-Year-Old Acrobats Across Key “Salomatlik” Test Components.

In the pre-pubertal stage of athletes' physical development, it is necessary to take into account the age-related heterochrony of the development of their physical abilities. This factor should be considered by coaches of sports schools and physical education teachers when determining the intensity of training loads during engagement in specific sports.

When conducting a comparative analysis of the pedagogical test results of the physical abilities of 11-12-year-old young acrobats specialized in a complex-coordination type of sport, and comparing the results shown by representatives of acrobatic pairs and groups of four at the initial specialization stage, it can be concluded that their levels of physical preparedness can be assessed as good.

4. Conclusion

Young athletes belonging to the acrobatic group performed well when assessed with the "Salomatlik" test because they reached Level I and II metrics during most physical measurements particularly in upper-body strength requirements and flexibility where nearly all participants gained the highest levels. The specified tests for running 1500 meters and performing a long jump revealed moderate shortfalls regarding endurance and lower-body power since the results displayed reduced numbers of athletes who met Level I benchmarks. The assessment of general physical readiness for young acrobats demonstrates satisfactory results but additional focus needs to be placed on endurance and speed-strength development[16]. Practice demands teaching institutions along with their coaching staff to develop training volumes which follow age-appropriate growth patterns during the heterochronous pre-pubertal period. Physical training programs built on diagnostic evaluation data can lead to improved athletic development toward mastering higher sport abilities according to athletes. Future research needs to examine long-term assessments of training interventions together with biomechanical and psychological physical performance influences in young acrobatics for developing holistic sustainable development plans.

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