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SCIENTIFIC ANALYSIS OF THE PERFORMANCE RESULTS IN THE 100 METER HURDLES EVENT AMONG FEMALE ATHLETES PARTICIPATING IN THE CHAMPIONSHIPS OF UZBEKISTAN

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Abstract. The purpose of this study was to analyze the competition results in the 100-meter hurdles event among female athletes in the U-16 and U-17 age categories across different regions of Uzbekistan and to identify regional differences in the level of sports preparedness. Based on the official protocols of national competitions held in 2025, a comparative analysis was conducted of the athletes' speed abilities, technical-tactical preparedness, and biomechanical performance indicators. The results demonstrated that athletes from the Tashkent and Fergana regions achieved performance outcomes that were 7.80-14.90% higher than those of athletes from the Syrdarya and Surkhandarya regions. These findings confirm the existence of regional disparities in the development of sprint-hurdles training throughout the country and scientifically substantiate the need to improve athlete training systems in certain regions. The results of the study have significant scientific and practical value for assessing the preparedness of young athletes, enhancing pedagogical monitoring systems, and optimizing long-term athlete development models.

Keywords. Athletics, 100-meter hurdles, adolescent athletes (U-16, U-17), sports performance analysis, regional comparison, speed development, technical and tactical preparation

Topic In athletics, as in all other sports worldwide, the continuous improvement of performance results has led to an increasingly competitive environment. This trend necessitates the implementation of modern training methods and tools aimed at effectively developing young athletes, particularly in hurdle running. One of the key challenges is the precise planning of the process of teaching movement rhythm and its systematic improvement through specialized training programs. The preparation of hurdle runners is closely associated with the development of technically accurate rhythmic movement patterns, especially the establishment of an optimal rhythmic structure of sports actions. Moreover, mastering rhythmic movement techniques at the initial stages of training plays a crucial role in enabling athletes to achieve peak sporting performance during the most favorable periods of their athletic development.

The relevance of this study is further supported by the ongoing reforms in the field of physical education and sport in the Republic of Uzbekistan. The research contributes to the implementation of the objectives outlined in several national policy documents, including the Decree of the President of the Republic of Uzbekistan No. PF-6099 dated October 30, 2020, "On Measures for the Wide Introduction of a Healthy Lifestyle and Further Development of Mass Sports"; Resolution No. PQ-5282 dated November 5, 2021, "On Measures for the Further Development of Walking, Running, Mini-Football, Badminton, Streetball, and Workout Sports"; Decree No. PF-5924 dated January 24, 2020; and Resolution No. PQ-5148 dated June 16, 2021, "On Organizational Measures for the Introduction of a System for Assessing the Physical Fitness Level of the Population," as well as other regulatory and legal documents related to the development of physical culture and sport. Therefore, the findings of this study are expected to make a meaningful contribution to the achievement of national priorities in sports development and athlete prepara-

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tion.

Purpose of the Study. To monitor and evaluate the competitive performance results of hurdle runners and assess the effectiveness of their athletic performance. R e - search Objectives. To analyze the performance results of female athletes participating in national competitions based on their physical and functional preparedness. To evaluate the effectiveness of the training process and identify factors influencing competitive performance in hurdling events.

To determine regional differences in the preparedness and performance levels of young female athletes competing in the 100-meter hurdles event. In athletics, the 100-meter hurdles is one of the most important sprint events used to assess athletes' speed, coordination, rhythmic movement patterns, and specific speed-strength abilities. Particularly in youth and junior sports, hurdle race performance is widely recognized as a key diagnostic indicator for evaluating the effectiveness of long-term athlete development programs. The results of the final stage of the Republic Tournament in the 100-meter hurdles for U-17 female athletes, held in Tashkent on August 18, 2025, provide a valuable scientific and analytical basis for a comprehensive assessment of athletes' preparedness and competitive performance. These results allow for an objective evaluation of the athletes' physical, functional, and technical readiness, as well as the identification of factors contributing to successful performance in hurdle running.

Analysis of Competition Results and Statistical Indicators

The following results were recorded in the final race. No wind influence was observed during the competition (Wind: NWI – No Wind Information):

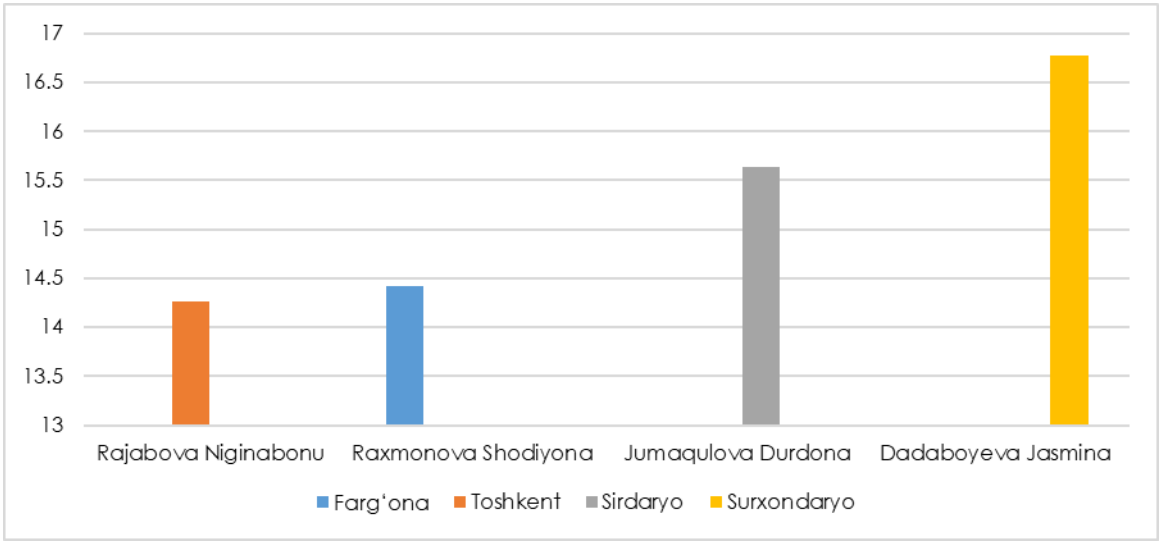

Figure 1. 1st Place (Tashkent Region), 2nd Place (Fergana Region), 3rd Place (Syrdarya Region), and 4th Place (Surkhandarya Region)

The analysis of these results indicates that the winning athlete, Rajabova Niginabonu, recorded a time of 14.27 seconds, which can be considered a highly competitive performance for the U-17 age category. This result reflects a high level of speed development, technical proficiency, and effective coordination during the start phase and hurdle-clearance actions.

The second-place finisher, Rakhmonova Shodiyona, achieved a result of 14.42 seconds, trailing the winner by only 0.15 seconds. Such a small difference highlights the high level of competitiveness in the final race and suggests that there was no substantial disparity in the overall preparedness of the leading athletes. The close performance outcomes indicate a relatively bal-

anced level of technical, physical, and functional readiness among the top competitors.

The athlete who finished in third place, Jumaqulova Durdona, recorded a time of 15.64 seconds, which was 1.37 seconds slower than the winning performance. This difference suggests that the athlete is still behind the leading competitors in terms of movement rhythm, stride frequency during hurdle clearance, and overall speed capabilities. The result indicates the need for further improvement in technical execution and speed-related performance components.

The fourth-place finisher, Dadaboyeva Jasmina, recorded a time of 16.77 seconds, representing the lowest performance among the finalists. From a scientific and methodological perspective, this result highlights the necessity of further developing the athlete's speed-strength qualities, running technique, and overall competitive preparedness. Improving these aspects may contribute to enhanced performance outcomes in future competitions.

Comparative Analysis of Results in Relation to Age and Training Factors

An analysis of the athletes' dates of birth indicates that the winner, Rajabova Niginabonu (born in 2009), and the runner-up, Rakhmonova Shodiyona (born in 2009), belong to the same age group. Their performances suggest a higher level of biological maturity compared with Jumaqulova Durdona, who was born in 2012 and finished in third place. These findings further confirm that the development of speed and coordination abilities in young athletes is closely associated with biological age and maturation processes.

At the same time, the performance achieved by Jumaqulova Durdona (born in 2012) can be considered highly promising for an athlete of her age. Her result demonstrates substantial potential for future athletic development and indicates that, within the framework of a long-term athlete development program, she possesses strong prospects for achieving higher competitive performances in the future.

Analysis of Athletes' Preparedness Across Regions

A regional comparison of the results indicates that athletes from the Tashkent and Fergana regions achieved superior performances, reflecting the relatively advanced development of sports infrastructure, coaching systems, athlete development programs, and scientific-methodological support in these regions. The high level of competitive performance demonstrated by athletes from these areas suggests the effective implementation of modern training approaches and long-term athlete development strategies.

In contrast, the results achieved by athletes from the Syrdarya and Surkhandarya regions reflect the existence of regional disparities in sports preparedness across the country. These findings provide scientific evidence that the athlete training system in certain regions requires further improvement, particularly in terms of coaching quality, training facilities, talent identification, and access to contemporary sports science resources. Addressing these issues is essential for ensuring balanced regional development and enhancing the overall standard of athletics performance at the national level.

The regional disparity in sprint-hurdles

Key Results (100-Meter Hurdles)

Region	Result (seconds)
Tashkent	14.27
Fergana	14.42
Sirdarya	15.64
Surkhandarya	16.77

Comparison	Percentage Increase (%)
Toshkent vs Sirdaryo	8.76 %
Toshkent vs Surxondaryo	14.90 %
Farg'ona vs Sirdaryo	7.80 %
Farg'ona vs Surxondaryo	13.98 %

performance across the Republic is approximately 15%.

The results of the regional comparison revealed that athletes from the Tashkent and Fergana regions achieved performance outcomes that were 7.80-8.76% higher than those of athletes from the Syrdarya region and 13.98-14.90% higher than those of athletes from the Surkhandarya region. These findings scientifically confirm the existence of regional disparities in the development of hurdle-running performance across the Republic and indicate differences in the effectiveness of athlete preparation systems among the regions.

Technical and Tactical Analysis of Performance Results

The performance achieved in the 100-meter hurdles is directly associated with an athlete's start speed, stride frequency between hurdles, efficiency of the support phase, and ability to maintain a stable running rhythm throughout the race. The superior results recorded by Rajabova Niginabonu and Rakhmonova Shodiyona indicate a high level of technical and tactical preparedness, as well as effective execution of hurdle-running mechanics.

In contrast, the lower performances observed among the third- and fourth-place athletes can be attributed to insufficient coordination during hurdle clearance, a suboptimal balance between stride length and stride frequency, and a limited ability to maintain maximum running speed consistently throughout the distance. These factors negatively affect overall race efficiency and ultimately lead to reduced competitive performance.

Results of the scientific and analytical assessment, it can be concluded that the final stage of the Republic Tournament in the 100-meter hurdles among U-17 female athletes effectively reflected the participants' levels of speed, coordination, and specialized technical preparedness. The outstanding performances recorded by Rajabova Niginabonu and Rakhmonova Shodiyona demonstrate the ongoing development of a promising talent pool in the sprint-hurdles discipline at the national level. At the same time, the promising performance shown by younger athletes, such as Jumaqulova Durdona, scientifically substantiates the importance of ensuring continuity within the long-term athlete development process and providing systematic support for young talents.

Furthermore, the regional comparison of competition results revealed the need to promote a more balanced development of athlete preparation systems across the Republic. The findings emphasize the importance of strengthening scientific and methodological support, improving sports infrastructure, and expanding the integration of modern sports science achievements into coaching practice. Such measures will contribute to enhancing the quality of athlete development and improving competitive performance in hurdling events nationwide.

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