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, biomechanical indicators, long-term athletic development, pedagogical monitoring, talent identification and selection, youth athlete development, sports infrastructure, coaching methodology, functional fitness.

O‘ZBEKISTON CHEMPIONATLARIDA ISHTIROK ETGAN AYOL SPORTCHILAR O‘RTASIDA 100 METRGA G‘OVLAR OSHA YUGURISH NATIJALARINING ILMIY TAHLILI

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Annotatsiya: Mazkur tadqiqotning maqsadi O‘zbekistonning turli hududlarida U-16 va U-17 yosh toifalaridagi ayol sportchilar o‘rtasida 100 metrga g‘ovlar osha yugurish bo‘yicha musobaqa natijalarini tahlil qilish hamda sport tayyorgarligi darajasidagi hududiy farqlarni aniqlashdan iborat. 2025-yilda o‘tkazilgan respublika musobaqalarining rasmiy bayonnomalari asosida sportchilarning tezkorlik qobiliyati, texnik-taktik tayyorgarligi va biomexanik ko‘rsatkichlari qiyosiy tahlil qilindi. Natijalar Toshkent va Farg‘ona viloyatlari sportchilari Sirdaryo va Surxondaryo viloyatlari sportchilariga nisbatan 7,80–14,90 foiz yuqori ko‘rsatkichlarga erishganini ko‘rsatdi. Bu holat respublika miqyosida g‘ovlar osha sprint tayyorgarligini rivojlantirishda hududiy tafovutlar mavjudligini tasdiqlaydi hamda ayrim hududlarda sportchilarni tayyorlash tizimini takomillashtirish zarurligini ilmiy jihatdan asoslaydi. Tadqiqot natijalari yosh sportchilar tayyorgarligini baholash, pedagogik monitoring tizimini

kuchaytirish va uzoq muddatli sportchi rivojlanishi modelini optimallashtirishda muhim ilmiy-amaliy ahamiyatga ega.

Kalit so‘zlar: Yengil atletika, 100 metrga g‘ovlar osha yugurish, o‘smir sportchilar (U-16, U-17), sport natijalari tahlili, hududiy taqqoslash, tezkorlikni rivojlantirish, texnik-taktik tayyorgarlik, biomexanik ko‘rsatkichlar, uzoq muddatli sportchi rivojlanishi, pedagogik monitoring, iqtidorlarni aniqlash va saralash, yosh sportchilarni rivojlantirish, sport infratuzilmasi, murabbiylik metodikasi, funksional tayyorgarlik.

НАУЧНЫЙ АНАЛИЗ РЕЗУЛЬТАТОВ ВЫСТУПЛЕНИЯ В БЕГЕ НА 100 МЕТРОВ С БАРЬЕРАМИ СРЕДИ СПОРТСМЕНОК, УЧАСТВОВАВШИХ В ЧЕМПИОНАТАХ УЗБЕКИСТАНА

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Аннотация: Целью данного исследования являлся анализ результатов соревнований в беге на 100 метров с барьерами среди спортсменок возрастных категорий U-16 и U-17 из различных регионов Узбекистана, а также выявление региональных различий в уровне спортивной подготовленности. На основе официальных протоколов национальных соревнований, проведенных в 2025 году, был осуществлен сравнительный анализ скоростных способностей, технико-тактической подготовленности и биомеханических показателей спортсменок. Результаты показали, что спортсменки из Ташкентской и Ферганской областей продемонстрировали результаты на 7,80–14,90% выше, чем представительницы Сырдарьинской и Сурхандарьинской областей. Полученные данные подтверждают наличие региональных различий в развитии подготовки в спринтерском беге с барьерами по стране и научно обосновывают необходимость совершенствования системы подготовки спортсменов в отдельных регионах. Результаты исследования имеют важное научно-практическое значение для оценки подготовленности юных спортсменов, совершенствования системы педагогического мониторинга и оптимизации моделей долгосрочного спортивного развития.

Ключевые слова: Легкая атлетика, бег на 100 метров с барьерами, юные спортсменки (U-16, U-17), анализ спортивных результатов, региональное сравнение, развитие скоростных качеств, технико-тактическая подготовка, биомеханические показатели, долгосрочное спортивное развитие, педагогический мониторинг, выявление и отбор талантов, развитие юных спортсменов, спортивная инфраструктура, методика тренировки, функциональная подготовленность.

INTRODUCTION

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 preparation. The purpose of the study was to monitor and evaluate the competitive performance results of hurdle runners and assess the effectiveness of their athletic performance. The research objectives were to analyze the performance results of female athletes participating in national competitions based on their physical and functional preparedness, evaluate the effectiveness of the training process, identify factors influencing competitive performance in hurdling events, and determine regional differences in the preparedness and performance levels of young female athletes competing in the 100-meter hurdles event.

MATERIALS AND METHODS

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, provided a valuable scientific and analytical basis for a comprehensive assessment of athletes' preparedness and competitive performance.

The study was based on comparative and statistical analysis of official competition protocols. The athletes' physical, functional, and technical readiness was evaluated through race time, regional affiliation, age-related factors, speed abilities, rhythm maintenance, hurdle-clearance efficiency, and the relative percentage differences between regional performances. No wind influence was observed during the competition (Wind: NWI – No Wind Information).

RESULTS

The following results were recorded in the final race:

Table 1. Key Results (100-Meter Hurdles)

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

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 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 fourth-place finisher, Dadaboyeva Jasmina, recorded a time of 16.77 seconds, representing the lowest performance among the finalists and indicating the need for further development of speed-strength qualities, running technique, and overall competitive preparedness.

An analysis of the athletes' dates of birth indicates that the winner, Rajabova Niginabonu, and the runner-up, Rakhmonova Shodiyona, 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 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.

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.

Regional Performance Advantage (%): Tashkent → Syrdarya; Tashkent → Surkhandarya; Fergana → Syrdarya; Fergana → Surkhandarya

The regional disparity in sprint-hurdles performance across the Republic is approximately 15%.

Table 2. Overall Regional Difference (Highest and Lowest Performance Results)

Comparison	Percentage Increase (%)
Tashkent vs Syrdarya	8.76%
Tashkent vs Surkhandarya	14.90%
Fergana vs Syrdarya	7.80%

Fergana vs Surkhandarya	13.98%

Note: Differences are expressed as percentages.

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.

DISCUSSION

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.

CONCLUSION

Based on 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.

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