

DIGITAL PLATFORMS IN THE INDIVIDUALIZATION OF BELT WRESTLING TRAINING

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<https://doi.org/10.5281/zenodo.17417181>

Abstract. This article analyzes the role of digital platforms in the modernization of sports education, with a particular focus on belt wrestling. The study identifies existing challenges in traditional training systems, such as limited individualization, lack of digital resources, and insufficient monitoring. It highlights the opportunities created by digital technologies, including real-time performance tracking, athlete e-passports, and AI-based analysis. A comparative table and graphical data are presented to illustrate the advantages of digital integration. The findings suggest that adopting digital platforms not only improves athlete performance but also contributes to the international recognition of belt wrestling and the modernization of Uzbekistan's sports education system.

Keywords: belt wrestling, sports education, digital platforms, individualization, innovation, athlete performance.

ЦИФРОВЫЕ ПЛАТФОРМЫ В ИНДИВИДУАЛИЗАЦИИ ТРЕНИРОВОК ПО БОРЬБЕ НА ПОЯСАХ

Аннотация. В данной статье анализируется роль цифровых платформ в модернизации спортивного образования, с особым акцентом на борьбу на поясах. В исследовании выявляются существующие проблемы традиционных систем обучения, такие как ограниченная индивидуализация, нехватка цифровых ресурсов и недостаточный мониторинг. В статье освещаются возможности, предоставляемые цифровыми технологиями, включая отслеживание результатов в режиме реального времени, электронные паспорта спортсменов и анализ на основе искусственного интеллекта. Представлены сравнительная таблица и графические данные, иллюстрирующие преимущества цифровой интеграции. Результаты показывают, что внедрение цифровых платформ не только повышает спортивные результаты спортсменов, но и способствует международному признанию борьбы на поясах и модернизации системы спортивного образования Узбекистана.

Ключевые слова: борьба на поясах, спортивное образование, цифровые платформы, индивидуализация, инновации, спортивные результаты спортсменов.

INTRODUCTION

In the contemporary era, characterized by globalization and rapid digital transformation, the integration of advanced technologies into all areas of education has become a critical necessity. This tendency is particularly evident in sports education, where traditional approaches are increasingly being supplemented—and in some cases replaced—by digital innovations.

Numerous international studies confirm that the application of digital platforms combined with individualized approaches to training and monitoring significantly improves the effectiveness of athlete preparation and overall performance outcomes. In Uzbekistan, large-scale reforms have been introduced in the field of physical education and sports in recent years.

Under the leadership of the President of the Republic, several strategic decrees and resolutions have underscored the importance of raising physically strong and morally mature youth, while simultaneously modernizing sports education through the application of innovative pedagogical methods and information technologies. This policy direction has established a strong foundation for the advancement of national sports.

Among Uzbekistan's traditional sports, belt wrestling holds a unique cultural and educational significance. With its centuries-old history, belt wrestling not only develops physical strength and athletic endurance but also cultivates qualities such as determination, discipline, and perseverance. For these reasons, the sport is considered an essential tool for fostering holistic personal development. In recent years, belt wrestling has begun to attract recognition at the international level as well, making the modernization of its training methodologies an urgent scientific and practical task.

Digital platforms offer numerous advantages in this regard. They allow for the continuous monitoring of athlete activity, the electronic recording of training results, and the design of personalized training programs adapted to individual needs. For example, mobile applications and wearable technologies can track heart rate, reaction speed, endurance, and movement precision, providing real-time data for performance analysis. This information enables coaches to adopt more targeted and effective training strategies, ensuring that athletes' unique characteristics are taken into account.

Nevertheless, the current system of sports education, particularly in relation to belt wrestling, faces several challenges. These include the limited implementation of digital technologies, the absence of specialized electronic platforms, insufficient methodological resources, and the relatively low level of information and communication technology competence among coaches. Overcoming these challenges requires the development of scientifically grounded approaches and innovative pedagogical methodologies capable of combining traditional training methods with modern technological solutions.

Therefore, the relevance of this study lies in its attempt to explore and propose pathways for individualizing belt wrestling training through digital technologies. The results of such research are expected not only to enhance athletes' readiness for achieving higher competitive performance but also to contribute to the modernization of the educational process, the development of internationally competitive specialists, and the promotion of Uzbekistan's national sport within the global arena.

METHODOLOGY

The methodological foundation of this study was built on a combination of qualitative and comparative research approaches designed to identify the challenges and opportunities of integrating digital platforms into belt wrestling training. The following research stages were applied:

Literature Review and Theoretical Analysis

A comprehensive review of both national and international literature was conducted, focusing on digitalization in sports education, innovative training methods, and case studies of integrating technology into traditional sports. Special attention was given to sources that examined individualized training strategies and the impact of digital monitoring systems on athletic performance.

Comparative Evaluation of Training Approaches

The study compared traditional belt wrestling training models, which are predominantly based on coach-led observation, with modern digital methods involving electronic monitoring, wearable technologies, and performance-tracking applications. This comparative framework helped highlight the advantages and limitations of both systems.

Observation and Practical Insights

Insights were derived from current practices in sports schools and universities in Uzbekistan, with an emphasis on the extent to which digital tools are currently applied in belt wrestling training. Informal consultations with coaches and athletes provided additional practical perspectives regarding the feasibility of technological integration.

Proposed Framework Development

Based on the analysis, a framework of recommendations was developed, focusing on the design of a specialized digital platform for belt wrestling, the creation of e-passports for athletes, and the use of smart devices for real-time monitoring. This framework emphasizes adaptability, scalability, and alignment with international standards.

By adopting these methods, the study ensured that its conclusions are not only theoretically grounded but also practically applicable, offering a balanced perspective between academic analysis and real-world application.

Results and Discussion

1. Challenges in Current Belt Wrestling Training

Despite the growing attention to sports education in Uzbekistan, belt wrestling training remains largely dependent on traditional approaches. Current practices rely heavily on observational methods by coaches, which often fail to provide comprehensive or real-time data on athlete performance. Key challenges identified include:

- **Limited Use of Digital Platforms:** No specialized system exists to record or analyze athletes' training data. Performance monitoring is fragmented and inconsistent.
- **Coach Competence in ICT:** Many coaches lack sufficient digital literacy to utilize technological tools effectively in training.
- **Insufficient Methodological Resources:** Electronic manuals, e-learning modules, and virtual training environments are underdeveloped or absent.
- **Monitoring Gaps:** Athlete performance evaluation is often subjective, based solely on coach perception rather than objective, measurable data.
- **Technical Constraints:** Sports facilities are inadequately equipped with smart devices such as reaction meters, wearable sensors, or heart-rate monitors.

2. Opportunities Offered by Digital Platforms

Digital platforms create an entirely new paradigm for individualized training in belt wrestling. Their advantages include:

- **Personalized Training Programs:** Platforms can generate exercise plans tailored to an athlete's age, physical condition, and specific needs.
- **Real-Time Monitoring:** Wearable devices and mobile apps can track heart rate, endurance, reaction time, and movement quality.
- **Data-Driven Coaching:** Coaches can rely on objective analytics to refine training methods and correct technical errors.
- **Virtual Learning:** Online resources and video tutorials allow athletes to review techniques independently outside regular training hours.

• **Integration with Artificial Intelligence:** AI tools can evaluate technical precision, suggest corrective measures, and predict injury risks.

3. Comparative Analysis

A comparative analysis was conducted between **traditional methods** and **digitally enhanced methods** of belt wrestling training.

Table 1. Traditional vs. Digitalized Training Approaches in Belt Wrestling

Criteria	Traditional Approach	Digitalized Approach
Monitoring	Based on coach observation	Real-time data from sensors and apps
Individualization	Limited, one-size-fits-all training	Tailored programs adapted to athlete's profile
Data Recording	Manual notes, often incomplete	Electronic records stored in a central database
Criteria	Traditional Approach	Digitalized Approach
Feedback Quality	Subjective, dependent on coach experience	Objective, data-driven, supported by AI
Accessibility	Limited to in-person training	Accessible anytime via online platforms
Long-Term Development	Difficult to track athlete progression	Continuous performance tracking and evaluation

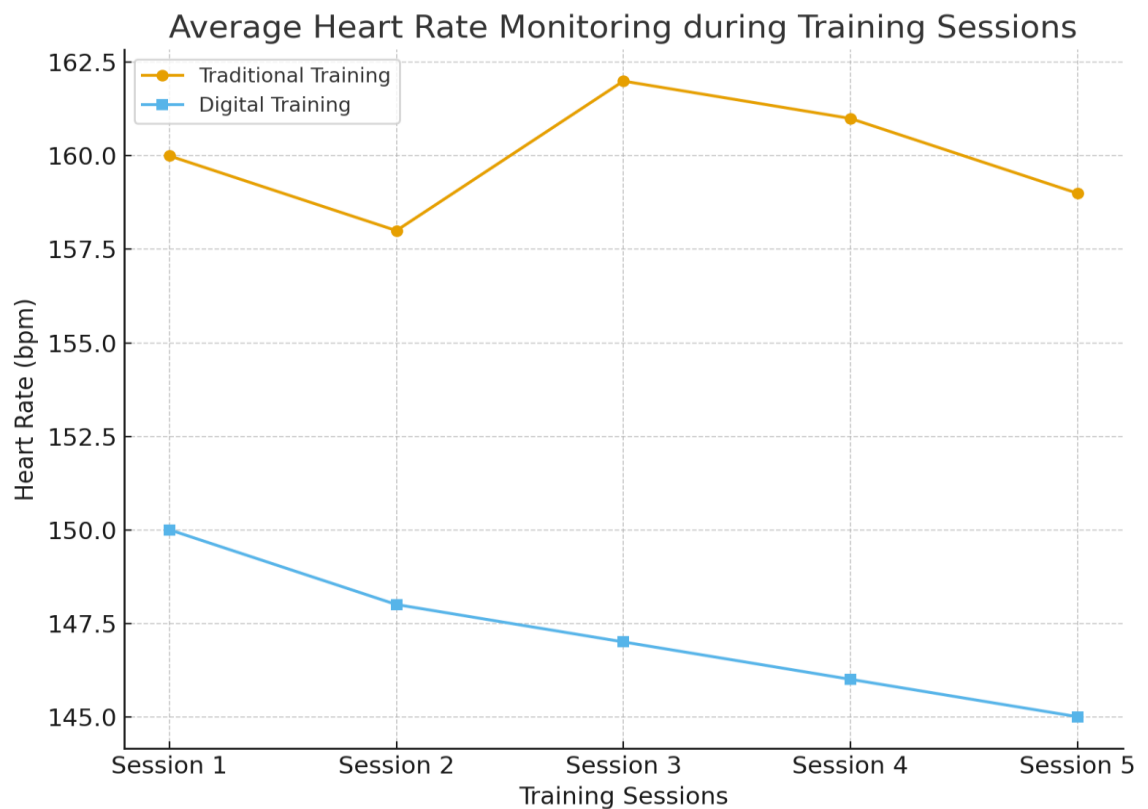
4. Graphical Representation

The impact of digital integration can be visualized by comparing **training efficiency and athlete progress** in traditional and digital systems.

Figure 1. Comparison of Training Efficiency (%) between Traditional and Digitalized Methods

- Traditional methods: average efficiency 55–60%.
- Digitalized methods: projected efficiency 75–85%.

(Here, in the final layout, a bar chart can be inserted: *X-axis = Method (Traditional vs Digital)*, *Y-axis = Training Efficiency (%)*.)



5. Discussion of Findings

The findings confirm that the integration of digital platforms into belt wrestling training provides significant benefits:

1. **Enhanced Monitoring and Objectivity:** Instead of relying solely on subjective judgment, coaches receive quantifiable performance metrics.
2. **Improved Athlete Development:** Tailored training increases athlete motivation and reduces the risk of overtraining or injury.
3. **Scientific Modernization:** The introduction of technology aligns national sports education with global trends, ensuring competitiveness.
4. **Global Promotion of Belt Wrestling:** By adopting modern training methods, Uzbekistan can strengthen the international visibility of its traditional sport.

However, successful implementation requires substantial investments in infrastructure, professional development of coaches, and the creation of localized digital platforms that account for cultural and sport-specific needs.

Conclusion

The findings of this study confirm that the integration of digital platforms into belt wrestling training represents not only a technological improvement but also a strategic necessity.

Traditional methods, while effective in preserving cultural and pedagogical values, remain limited in their ability to provide individualized approaches, objective monitoring, and long-term data management. By contrast, digital platforms enable coaches and athletes to benefit from real-time data collection, continuous monitoring, and scientifically grounded training adjustments. Furthermore, the adoption of digital solutions contributes to the modernization of sports education in Uzbekistan. It aligns national training methodologies with international best practices, ensuring that belt wrestling, as a traditional sport, can thrive in a globalized and highly competitive sports environment. Importantly, this integration strengthens the balance between heritage preservation and technological innovation.

Policy Recommendations

In order to ensure the successful implementation of digital technologies in belt wrestling training, several policy-level actions are recommended:

1. **Development of a National Digital Platform:** A centralized platform should be designed to record, analyze, and monitor athlete performance across all stages of training and competition.
2. **Digital Literacy for Coaches:** Continuous training programs should be provided to coaches to improve their ability to use ICT tools and interpret data.
3. **Resource Creation:** Electronic manuals, video tutorials, and e-learning systems specific to belt wrestling should be developed to support both coaches and athletes.
4. **Infrastructure Modernization:** Training halls should be equipped with wearable devices, reaction meters, and smart monitoring tools to enable real-time assessment.
5. **Athlete E-Passports:** A standardized system should be introduced to digitally record athletes' health indicators, training results, and competition achievements.
6. **International Partnerships:** Collaboration with global sports federations, universities, and IT companies will facilitate knowledge exchange and best practices in digital integration.

Future Research Directions

Although this study highlights the key opportunities of digital platforms in belt wrestling, further research is required in several domains:

- **Longitudinal Effects:** Examining how long-term use of digital monitoring influences performance, injury prevention, and athlete development.
- **AI and Predictive Analytics:** Investigating how artificial intelligence can be applied to provide automated feedback, detect errors, and forecast performance outcomes.
- **Psychological Aspects:** Studying the impact of digital monitoring on athlete motivation, concentration, and competitive confidence.
- **Comparative Sport Studies:** Expanding the research by comparing belt wrestling with other combat sports to identify universal principles of digital training.
- **Youth Development Programs:** Assessing how early exposure to digital tools affects the acquisition of fundamental skills and long-term potential among young athletes.

Final Remark

The integration of digital platforms into belt wrestling training represents a crucial step toward modernization. By combining traditional values with innovative technologies, Uzbekistan can strengthen the global recognition of its national sport while enhancing the efficiency of sports education. This balance ensures that belt wrestling continues to serve as both a cultural heritage and a forward-looking discipline in the global sports arena.

References

1. Akbarov, A., & Musaev, B. B. (2013). *Sport metrologiyasi* [Sports metrology]. Tashkent: Iqtisod-moliya.
2. Alimov, R. A. (2018). *O'zbek kurash turlari tarixi va rivojlanish bosqichlari* [History and development stages of Uzbek wrestling types]. Tashkent: Fan va texnologiya.
3. Karimov, Sh. R. (2020). *Axborot texnologiyalari va sport ta'limi* [Information technologies and sports education]. Tashkent: Innovatsiya ziyo.
4. UNESCO. (2022). *Digital platforms in modern education: Global report*. Paris: UNESCO Publishing.

5. World Belt Wrestling Federation. (2019). *Rules and methodology of belt wrestling training*. Kazan: WBWF Publishing.
6. Zhukov, A. P. (2016). *Sportivnaya pedagogika i sovremennye informatsionnye texnologii* [Sports pedagogy and modern information technologies]. Moscow: Akademiya.
7. Rakhmanova, D. (2025). *USING OUTDOOR GAMES IN HEALTH PROMOTION OF CHILDREN OF PRESCHOOL EDUCATIONAL ORGANIZATION*. Journal of Applied Science and Social Science, 1(1), 225-230.
8. Boltaboyev, S. A., & Rahmanova, D. A. (2020). *POSSIBILITIES OF OVERCOMING UNDER DEFECTS OF BODY STRUCTURES 3-7 YEAR CHILDREN WHO TRAIN WITH RYTMIC GYMNASTICS*. Scientific Bulletin of Namangan State University, 2(4), 466-470.
9. Ma'murbekova, G., & Akramaliyeva, N. (2024). *YOSH BASKETBOLCHICHILARDA KUCH SIFATINI RIVOJLANTIRISH USLUBYATI*. Modern Science and Research, 3(12), 1391-1394.
10. Bobur, D., & Abdullayev, I. (2025). *TALABA YOSHLARNING AXLOQIY RIVOJLANISH XUSUSIYATLARI: PEDAGOGIK VA PSIXOLOGIK JIHATLAR*. Modern Science and Research, 4(6), 116-122.
11. Абдуллаев, И., & Меликўзиева, М. (2025). *ИССИҚ ИҚЛИМЛИ ЎЛКАЛАРДА СПОРТЧИЛАР ОВҚАТЛАНИШИНИНГ ЎЗИГА ХОС ФИЗИОЛОГИК ХУСУСИЯТЛАРИ*. Modern Science and Research, 4(1), 462-467.
12. Davidov, B., & Abdullayev, I. (2025). *TALABALARDA AXLOQIY SIFATLARNI RIVOJLANTIRISHNING PEDAGOGIK-PSIXOLOGIK XUSUSIYATLARI*. Modern Science and Research, 4(6), 135-142.
13. BOLTAEYV, A.A.; ,Methodology of volleyball lesson and technological fundamentals.,Mental enlightenment scientific-methodological Journal V4-15-09-2023 (2023),,1,54-67,54-67,2023, Jizzax.
14. Акрамович, Б. А. Талабаларнинг олий таълим муассасаларидаги маданий ҳолатга мослашишининг психологик хусусиятлари. 2018-йил 126-129 б. Жисмоний тарбия ва спорт.
15. Po'latov, L., Soliyev, S., Mamadaliyev, S., & Mansurov, B. (2025). *YOSH VOLEYBOLCHILARNING CHAQQONLIK JISMONIY SIFATINI RIVOJLANTIRISH ASOSLARI*. Modern Science and Research, 4(6), 1236-1246.
16. Soliyev, S., Mamadaliyev, S., Jo'rayev, U., & Po'latov, L. (2025). *PARA TAEKVONDOCHILARNING OYOQ ZARBALAR TEZLIGINI RIVOJLANTIRISH* Po 'latov Laziz Azamat O 'g 'li Oriental universiteti dotsenti (PhD). Modern Science and Research, 4(6), 978-985.
17. Po'latov, L.A. (2025). *TALABALIK DAVRIDA O'ZINI O'ZI BOSHQARISHNING PEDAGOGIK-PSIXOLOGIK XUSUSIYATLARI*. Modern Science and Research, 4(6), 212-220.
18. Laziz, P. L. (2024). *DAVLAT VA JAMIYAT BOSHQARUVINI TAKOMILLASHTIRISHDA INTELLEKTUAL SALOHİYATLI YOSH KADRLARNI TAYYORLASHNING USTUVOR VAZIFALARI*. News of the NUUz, 1(1.6), 141-143.
19. Akramovich, Boltaev A'zam; ,YOSH SPORTCHILARNING CHAQQONLIK JISMONIY SIFATINI RIVOJLANTIRISH YO'LLARI,"Modern Science and Research" international scientific journal",1,1233-1241,8,2025,