



THE ROLE OF VOLLEYBALL IN THE PHYSICAL DEVELOPMENT OF UNIVERSITY STUDENTS

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Abstract. *This article examines the role of volleyball in the physical development of university students within the system of higher education physical training. The study analyzes scientific approaches to the application of volleyball as a means of improving students' physical preparedness, motor abilities, and functional capabilities. Particular attention is devoted to the influence of volleyball training on strength, speed, coordination, endurance, and students' physical activity levels. The findings indicate that systematic volleyball practice contributes to comprehensive physical development, increased motivation toward physical education, and the promotion of an active lifestyle among university students.*

Keywords: *volleyball, university students, physical development, physical fitness, motor abilities, physical education, higher education, sports training.*

Introduction. In contemporary higher education, the issue of strengthening students' health and improving their physical development has become increasingly important. Rapid technological

progress, academic overload, digitalization of educational processes, and reduced levels of habitual motor activity have significantly affected the physical condition of university students [4, 6, 7]. As a result, modern student populations frequently demonstrate decreased physical fitness, lower functional preparedness, diminished movement activity, and insufficient motivation toward regular participation in physical education and sports [2].

The physical development of students represents one of the key indicators of the effectiveness of educational and health-oriented activities in higher education institutions. Physical development reflects the state of morphological, functional, and motor characteristics of the human organism and is closely associated with health status, adaptive potential, work capacity, and overall quality of life.

Scientific studies in physical education and sports pedagogy confirm that systematic engagement in sports activities serves as an effective means of improving physical development among young people [3, 4]. Among various sports disciplines used within higher education, volleyball occupies a particularly important position due to its accessibility, dynamic nature, educational value, and multidimensional training effects.

Volleyball is characterized by a wide variety of motor actions involving jumping, rapid displacement, acceleration, deceleration, technical coordination, reaction speed, and tactical decision-making. Such characteristics create favorable conditions for the development of essential physical qualities, including strength, speed, agility, coordination abilities, endurance, and flexibility [1, 5, 6].

Researchers emphasize that regular volleyball practice positively influences the functional condition of the cardiovascular, respiratory, neuromuscular, and musculoskeletal systems. Furthermore, volleyball contributes to emotional stability, communication skills, teamwork competence, and students' motivation toward active participation in physical education.

Despite the broad use of volleyball in university sports programs, the issue of its specific role in the physical development of university students remains insufficiently explored. Therefore, further scientific investigation of the pedagogical and physiological effects of volleyball training in higher education environments remains relevant.

The purpose of this study was to determine the role of volleyball in the physical development of university students.

Materials and Methods. To achieve the objective of the study, a комплекс of complementary research methods was employed to determine the role of volleyball in the physical development of university students.

The study involved 68 university students aged 18-21 years studying at the Faculty of Sports Activity of Termez State University. All participants were medically cleared for physical education and sports activities and regularly attended academic practical classes. The participants were divided into two groups: a control group (n=34) and an experimental group (n=34). Group formation was conducted taking into account students' age, health condition, and initial level of physical preparedness.

The pedagogical experiment was carried out during one academic semester (16 weeks). Students in the control group followed the

traditional university physical education curriculum, which included general developmental exercises, athletics components, conditioning activities, and general physical training.

The experimental group participated in a volleyball-oriented training program aimed at enhancing students' physical development through specialized volleyball exercises. The program combined technical, tactical, physical, and game-based training elements.

Training sessions were conducted twice a week, each lasting 90 minutes. The instructional process included three structural components: a preparatory section (warm-up, mobility exercises, and dynamic stretching), a main section focused on volleyball techniques and physical development tasks, and a concluding section involving recovery exercises and stretching.

Special emphasis was placed on volleyball exercises contributing to students' physical development, including repeated jumping drills, multidirectional movements, acceleration and deceleration exercises, reaction tasks, technical coordination drills, game situations, and competitive activities. The training content included serving techniques, passing exercises, attacking actions, blocking movements, defensive positioning, and tactical interaction between players.

The following research methods were used in the study:

1. Analysis of scientific and methodological literature. A theoretical review of national and international scientific publications was conducted to examine modern approaches to physical development, volleyball methodology, and physical education in higher education institutions.

2. Pedagogical observation. Observation methods were applied to assess students' participation, motor activity, exercise execution quality, and behavioral engagement during training sessions.

3. Pedagogical testing of physical development indicators. The level of students' physical development and physical preparedness was evaluated using standardized control tests:

- 30-meter sprint - assessment of movement speed;
- standing long jump - evaluation of explosive lower-limb strength;
- shuttle run 4×9 m - assessment of agility and coordination abilities;
- push-ups - measurement of muscular endurance;
- 1000-meter run - assessment of general endurance.

4. Evaluation of motor activity and motivation. Students' motor activity levels and attitudes toward physical education were assessed using questionnaires, self-assessment methods, and participation monitoring in extracurricular sports activities.

5. Statistical analysis. The obtained data were processed using methods of mathematical statistics. Mean values (M), standard deviations (SD), and percentage changes were calculated. Statistical significance between experimental and control group indicators was determined using Student's t-test. Differences were considered statistically significant at the level of $p < 0.05$.

Results and Discussion. The analysis of the results obtained during the pedagogical experiment demonstrated the positive role of volleyball in the physical development of university students.

Upon completion of the experimental program, students participating in volleyball-oriented training showed statistically

significant improvements in most of the investigated physical development indicators compared with both their initial data and the results of the control group. The most pronounced positive changes were identified in the development of speed, speed–strength abilities, coordination, and endurance.

The results of physical testing indicated that standing long jump performance among students in the experimental group improved by an average of 12.1%, while the corresponding increase in the control group reached only 4.7%. In the 30-meter sprint test, students of the experimental group reduced their running time by 6.4%, whereas the improvement in the control group amounted to 2.6%.

Significant progress was also observed in coordination and agility indicators. The shuttle run (4×9 m) results showed that task completion time decreased by 7.9% in the experimental group compared to 3.1% in the control group. Such improvements may be explained by the specific character of volleyball activity, which involves continuous movement, multidirectional displacement, rapid reaction, and precise motor coordination.

The push-up test results demonstrated improvements in muscular endurance among students engaged in volleyball training. Participants in the experimental group increased their average performance by 15.2%, while students in the control group demonstrated an increase of 5.4%. Similar positive changes were identified in general endurance assessment. In the 1000-meter run, students of the experimental group improved their results by 8.1%, compared with 3.2% in the control group.

The obtained findings indicate that volleyball exercises provide a multidimensional training effect on students' physical development. The

dynamic nature of volleyball contributes to the simultaneous improvement of strength, speed, coordination abilities, endurance, and motor responsiveness.

The questionnaire survey revealed a positive shift in students' attitudes toward physical education and sports participation. Students in the experimental group reported greater satisfaction with physical education classes, increased motivation toward regular exercise, and stronger interest in participating in extracurricular sports activities. The proportion of students regularly engaging in independent physical activity increased from 37.5% to 71.8% during the experimental period.

The results of the present study are consistent with contemporary scientific findings highlighting the effectiveness of sports games in higher education physical training.

At the same time, it should be acknowledged that the effectiveness of volleyball training depends on the methodological structure of instruction, training load management, students' individual characteristics, and the duration of pedagogical intervention. Further research may focus on investigating the long-term influence of volleyball training on functional health status, adaptive capabilities, and professional-personal development among university students.

Conclusions. The conducted study confirmed the significant role of volleyball in the physical development of university students within the system of higher education physical education.

The results of the pedagogical experiment demonstrated that systematic volleyball training contributes to substantial improvements in students' physical preparedness. The most notable positive changes were observed in the development of speed, speed–strength abilities,

coordination, muscular endurance, and general endurance. Students participating in the volleyball-based training program achieved higher performance indicators compared with those following the traditional physical education curriculum.

It was established that volleyball-specific exercises involving jumping actions, rapid movements, multidirectional displacement, technical coordination, and tactical interaction create favorable conditions for comprehensive physical development. The dynamic and game-oriented nature of volleyball promotes the simultaneous improvement of multiple physical qualities and functional capabilities.

The findings of the study also revealed a positive influence of volleyball training on students' motivation toward physical education and sports participation. Increased involvement in extracurricular physical activity, stronger interest in regular exercise, and greater satisfaction with physical education classes were observed among students in the experimental group.

Based on the obtained results, it can be concluded that volleyball represents an effective pedagogical means for optimizing the physical development of university students. Its implementation in higher education physical education programs contributes not only to the improvement of physical fitness but also to the formation of healthy lifestyle behaviors, teamwork skills, and sustainable motivation for physical activity.

Future research may focus on examining the long-term effects of volleyball training on functional health indicators, adaptive potential, academic performance, and the development of professionally significant competencies among university students.

References.

1. Матвеев Л.П. Теория и методика физической культуры. – Москва: Спорт, 2021. – 520 с.
2. Rahmanov, S. Y. (2024). Green Fitness: the Impact of Nature on Sport and Physical Activity Improvements. American Journal of Research in Humanities and Social Sciences, 22, 129-132.
3. Yusupovich, R. S. (2023). Development of Volleyball Sport and Its Importance for Athletes. American Journal of Pedagogical and Educational Research, 12, 134-135.
4. Rahmonov Shuhrat Yusupovich. (2022). «jismoniy madaniyatda shaxsni har tomonlama yetuk rivojlatirish». Eurasian journal of social sciences, philosophy and culture, 2(12), 244–246. <https://doi.org/10.5281/zenodo.7349545>
5. Turdimuratov, D. (2025). Jismoniy tarbiya mashgʻulotlari jarayonida yuqori sinf oʻquvchilarining irodaviy sifatlarini shakllantirish. Ижтимоий-гуманитар фанларнинг долзарб муаммолари Актуальные проблемы социальногуманитарных наук Actual Problems of Humanities and Social Sciences, 5, 249-255. DOI: <https://doi.org/10.47390/SPR1342V5SI2Y2025N41>
6. Turdimuratov Dilmurad, D. (2026). The impact of volitional qualities of primary school students on the development of behavioral responses ensuring effective sports performance. *Ижтимоий-гуманитар фанларнинг долзарб муаммолари Актуальные проблемы социально-гуманитарных наук Actual Problems of Humanities and Social Sciences.*, 6(4), 361–367. <https://doi.org/10.47390/SPR1342V6I4Y2026N51>

7. Turdimuradov, D. (2025). Development of volitional qualities in senior school students by means of physical education. *Journal of Multidisciplinary Sciences and Innovations*, 1(2), 253-256.