



THE INFLUENCE OF VOLLEYBALL TRAINING ON PHYSICAL FITNESS, MOTOR ACTIVITY, AND MOTIVATION OF HIGHER EDUCATION STUDENTS

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Abstract. *This article examines the influence of volleyball training on the indicators of physical fitness, motor activity, and educational-sports motivation among higher education students. A review of scientific literature devoted to the application of sports games within the system of students' physical education was conducted. The study determined that regular volleyball practice contributes to the development of speed-strength abilities, coordination skills, increased levels of motor activity, and the formation of sustained interest in physical education and sports participation. The obtained findings confirm the effectiveness of volleyball as a means of comprehensive physical and personal development of university students.*

Keywords: *volleyball, students, physical fitness, motor activity, motivation, higher education, physical education, sports games.*

Introduction. In the context of the transformation of the modern higher education system, issues related to strengthening the health of university students, increasing their level of motor activity, and developing sustainable motivation for participation in physical education have acquired particular scientific and socio-pedagogical significance [1, 3, 5]. The intensive implementation of digital technologies, increased

academic workload, predominance of sedentary forms of educational activity, and changes in students' lifestyles have led to a substantial decline in everyday motor activity. As a consequence, manifestations of hypodynamia, deterioration of functional health status, reduced physical performance, weakened adaptive capabilities, and decreased interest in regular physical education and sports participation are increasingly observed among higher education students [1, 2, 4].

Contemporary studies in pedagogy, sports science, physiology, and the theory of physical education confirm that insufficient motor activity among students is one of the factors negatively affecting health status, psycho-emotional well-being, and the quality of professional training of future specialists [3, 5]. According to a number of researchers, the student population demonstrates a tendency toward a decline in the development of fundamental physical qualities, including strength, speed, endurance, coordination abilities, and flexibility. Alongside this, a reduction in students' intrinsic motivation to participate in physical education classes has been reported, necessitating the search for new pedagogically effective approaches to organizing physical and sports-related activities within higher education institutions [6].

Among various types of sports games, volleyball occupies a special position as one of the most popular and accessible means of physical education within the higher education environment. The widespread use of volleyball is обусловлено its relative ease of organization, adaptability to different material and technical conditions, high dynamism of the game process, and pronounced team-oriented nature. The specific character of volleyball involves the performance of diverse motor actions, including jumping, sprinting, multidirectional movements, rapid

changes in direction, technically complex coordinated actions, and prompt tactical interaction among players.

An analysis of scientific publications indicates that systematic volleyball training has a positive effect on the development of students' physical qualities. In particular, volleyball practice contributes to the improvement of speed-strength abilities, movement coordination, agility, reaction speed, general and specific endurance, spatial orientation, and functional capacities of the body. At the same time, researchers emphasize the considerable potential of volleyball in developing psychopedagogical personality characteristics, including communication skills, emotional stability, discipline, responsibility, cooperative abilities, and readiness for collective activity.

Despite the substantial number of studies devoted to the issues of physical education among university students and the application of sports games in the educational process, the problem of a comprehensive investigation of the influence of volleyball training on physical fitness, motor activity, and the motivational sphere of higher education students remains insufficiently explored. A review of the literature demonstrates that most studies have focused primarily either on individual aspects of physical development or on the technical improvement of participants, whereas the interrelationship between physical fitness, the level of motor activity, and students' motivational characteristics requires further scientific examination.

Materials and Methods. To achieve the stated objective, a set of complementary research methods was employed to ensure an objective assessment of the influence of volleyball training on physical fitness, motor activity, and the motivational sphere of higher education students.

The study involved 64 first- and second-year university students aged 18–20 years who had no medical contraindications to participation in physical education and sports activities. The participants were divided into two groups: a control group (n=32) and an experimental group (n=32). Group allocation was carried out considering students' age, level of physical fitness, and health status.

The pedagogical experiment was conducted over one academic semester (16 weeks). Students in the control group followed the traditional "Physical Education" curriculum, which included general physical exercises, elements of athletics, gymnastics, and general physical conditioning. In contrast, the experimental group participated in specialized volleyball training sessions as the primary means of physical education, incorporating technical, tactical, игровую and physical preparation.

The structure of the training sessions in the experimental group involved the systematic use of specialized exercises aimed at developing speed, coordination, speed-strength abilities, general endurance, and motor reaction. Training sessions were held twice a week, each lasting 90 minutes. The program content included mastering volleyball techniques such as serving, passing, attacking hits, blocking, and movement patterns, as well as educational and competitive game-based exercises.

Results and Discussion. The analysis of the results obtained during the pedagogical experiment revealed the positive influence of volleyball training on the physical fitness of students in the experimental group.

Upon completion of the experimental program, students who systematically participated in volleyball training demonstrated statistically significant improvements in most of the investigated physical fitness indicators compared with their baseline values and the results of the control group. The most pronounced changes were observed in the development of speed-strength abilities, movement coordination, and reaction speed.

The testing results indicated that standing long jump performance among students in the experimental group increased by an average of 11.8%, whereas the improvement in the control group amounted to 4.6%. In the shuttle run test, improvements in coordination abilities were also identified: task completion time decreased by 7.4% in the experimental group compared to 2.3% in the control group. Such dynamics can be explained by the specific nature of volleyball activity, which requires continuous movement, rapid changes in direction, high reaction speed, and effective spatial orientation.

The analysis of motor activity indicators demonstrated an increase in the involvement of students from the experimental group in independent physical and sports-related activities. The proportion of students regularly engaging in physical exercise during their leisure time increased from 34.4% to 68.7%. Participants reported heightened interest in active and game-based forms of physical activity, a stronger willingness to participate in university sports competitions, and a desire to continue volleyball practice after the completion of the experimental program.

The obtained findings are consistent with previous scientific studies emphasizing the significant pedagogical and health-promoting potential

of sports games in higher education. The emotional attractiveness of volleyball, its competitive character, and the necessity for collective interaction create favorable conditions for increasing students' participation in physical activity and strengthening their motivation toward regular involvement in physical education and sports.

From a pedagogical perspective, the results suggest that volleyball training can serve not only as an effective means of improving students' physical fitness but also as an important educational tool for promoting an active lifestyle, developing teamwork skills, and enhancing long-term engagement in physical culture activities among university students.

The obtained findings support the conclusions of a number of previous studies, according to which team sports possess substantial potential for stimulating motor activity among young people. The emotional intensity of the game process, the high variability of motor actions, and the presence of a competitive component create favorable conditions for the sustained involvement of students in physical education and sports activities.

Discussing the research outcomes, it should be emphasized that the identified positive changes are consistent with contemporary scientific perspectives regarding the role of game-based technologies in the system of higher physical education. Volleyball provides a comprehensive influence on both the organism and the personality of the student by integrating physical, psychological, and socio-pedagogical components of training. Its educational potential extends beyond the development of motor abilities and contributes to the formation of communication skills, self-regulation, teamwork, and social adaptation.

At the same time, it should be taken into consideration that the effectiveness of volleyball training depends on several factors, including the methodological organization of classes, the quality of pedagogical guidance, students' individual characteristics, and the duration of the training intervention. Therefore, the successful implementation of volleyball-based educational programs requires a scientifically grounded instructional approach adapted to the needs and capabilities of university students.

A promising direction for further research may involve the investigation of the long-term effects of volleyball training on indicators of physical health, stress resistance, academic performance, and the professional-personal development of higher education students.

Conclusions. The conducted study made it possible to establish that systematic volleyball training exerts a comprehensive positive influence on the physical fitness, motor activity, and motivational sphere of higher education students.

It was determined that the regular integration of volleyball classes into the educational process positively affects students' levels of motor activity. The experimental group demonstrated an increase in the number of participants showing interest in independent physical exercise, participation in sports and recreational events, and maintaining an active lifestyle. These findings indicate the potential of team sports to counteract manifestations of hypodynamia that are characteristic of the contemporary student population.

The research results also confirmed the significant role of volleyball in shaping students' motivation toward physical education. Participation in volleyball training contributed to increased intrinsic motivation, the

development of a sustained interest in motor activity, a stronger orientation toward achieving personal and sports-related goals, and the formation of a positive emotional attitude toward physical and sports activities.

The obtained findings allow us to conclude that the broader implementation of volleyball within the system of physical education in higher education institutions is pedagogically justified. Through the combination of intensive motor involvement, emotional attractiveness, competitive elements, and team interaction, volleyball serves as an effective means of promoting students' comprehensive physical, psychological, and social development.

Future research perspectives may be associated with investigating the influence of volleyball training on indicators of functional health status, stress resilience, academic performance, and the development of professionally significant competencies among university students within the educational environment of higher education institutions.

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