



INFLUENCE OF HANDBALL TRAINING ON THE PHYSICAL FITNESS, MOTOR ACTIVITY, AND MOTIVATION OF UNIVERSITY STUDENTS

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Abstract. *The problem of improving the physical fitness, motor activity, and motivation of university students remains one of the key challenges of modern higher education. Reduced levels of physical activity, increasing academic workload, and declining interest in regular physical exercise necessitate the search for effective pedagogical approaches within university physical education systems. In this regard, sports games, particularly handball, possess significant potential due to their dynamic nature, high emotional engagement, and comprehensive influence on students' physical and psychological development.*

The purpose of the study was to examine the influence of handball training on the physical fitness, motor activity, and motivation of university students. The study involved 64 university students aged 18-20 years, divided into a control group (n=32) and an experimental group (n=32). The control group followed a traditional physical education curriculum, whereas the experimental group participated in a handball-based training program for 16 weeks. Research methods included scientific literature analysis, pedagogical observation, physical fitness testing, comparative analysis, and questionnaire assessment of motivational indicators.

Keywords: *handball, university students, physical fitness, motor activity, motivation, physical education, sports games, higher education, sports training.*

Introduction. In contemporary higher education, the issue of improving the physical condition and health status of university students has become increasingly important. Rapid technological development, sedentary lifestyles, high academic workloads, and reduced levels of habitual physical activity negatively affect students' physical fitness, motor performance, and motivation toward participation in physical education and sports activities [2, 4]. These trends highlight the necessity of identifying effective pedagogical approaches capable of increasing student engagement in regular physical exercise and promoting comprehensive physical development [1].

University physical education is regarded as an important component of the educational process aimed at improving students' health, developing physical abilities, and fostering positive attitudes toward lifelong physical activity. However, traditional forms of physical education do not always provide sufficient motivation or maintain stable interest among students. In this context, the use of sports games as an instructional and training tool has attracted considerable attention in sports pedagogy and physical education research [3].

Handball is one of the most dynamic and emotionally engaging team sports characterized by high-intensity motor activity, rapid changes of movement patterns, coordinated teamwork, and continuous decision-making under time constraints. The sport involves running, jumping, throwing, rapid directional changes, and complex tactical interactions,

thereby contributing to the integrated development of speed, strength, endurance, agility, coordination, and reaction abilities. Owing to these characteristics, handball possesses considerable pedagogical potential within university physical education programs [2].

Previous studies in sports pedagogy indicate that participation in team sports contributes not only to improvements in physical fitness but also to increased social interaction, emotional involvement, self-confidence, and learning motivation. Sports games create favorable educational conditions for the development of teamwork skills, discipline, initiative, and sustained interest in physical activity. In the university environment, these factors may significantly influence students' attitudes toward physical education and their willingness to participate in extracurricular sports activities.

The purpose of the present study was to investigate the influence of handball training on the physical fitness, motor activity, and motivation of university students within the framework of university physical education programs.

Materials and Methods. The study was conducted to investigate the influence of handball training on the physical fitness, motor activity, and motivation of university students within the context of higher education physical education programs.

The study involved 64 university students aged 18-20 years who were medically cleared to participate in physical education classes. The participants were divided into two groups: a control group (CG, n=32) and an experimental group (EG, n=32). Students in the control group followed a traditional university physical education curriculum that included general physical exercises, athletics elements, гимнастические

exercises, and standard conditioning activities. Students in the experimental group participated in a specially designed handball-based training program.

The experimental program was implemented over a period of 16 weeks during one academic semester. Training sessions were conducted according to the university physical education schedule. The handball program included technical drills, tactical exercises, game-based training activities, movement coordination tasks, competitive exercises, and structured game practice. Particular attention was devoted to the development of speed, agility, coordination, speed-strength abilities, and sustained motor engagement.

A комплекс of complementary research methods was employed in the study. These included analysis of scientific and methodological literature, pedagogical observation, physical fitness testing, comparative analysis, and questionnaire-based assessment of motivational indicators.

To evaluate changes in physical fitness, a battery of standardized physical tests was administered before and after the experimental intervention. The assessment included standing long jump (speed-strength abilities), shuttle run test (agility and coordination), short-distance sprint performance (speed), and endurance-related exercises.

Motor activity indicators were assessed through pedagogical monitoring of students' participation levels, engagement during classes, and involvement in independent physical activity outside scheduled educational sessions.

Motivational characteristics were evaluated using questionnaire methods designed to identify students' interest in physical education classes, attitudes toward sports participation, willingness to engage in

independent physical exercise, and overall motivational orientation toward health-related and sports activities.

The obtained data were analyzed through comparative interpretation of pre- and post-intervention results in both groups, allowing evaluation of the pedagogical effectiveness of handball training as a means of improving physical preparedness, motor activity, and motivational involvement among university students.

Results. The results of the study demonstrated that systematic participation in handball training had a positive influence on the physical fitness, motor activity, and motivation of university students.

Comparative analysis of pre- and post-experimental data revealed more pronounced improvements in physical fitness indicators among students of the experimental group compared with the control group. After the 16-week intervention period, students participating in the handball-based training program showed significant progress in speed-strength performance, agility, coordination, and general motor readiness.

In the standing long jump test, which was used to assess speed-strength abilities, the experimental group demonstrated a greater increase in performance compared with the control group. Improvements were also observed in agility-related indicators measured through the shuttle run test. Students engaged in handball training performed movement tasks more quickly and accurately, indicating enhanced coordination abilities and improved neuromuscular responsiveness.

The analysis of sprint performance revealed positive changes in speed indicators among students in the experimental group. The dynamic and high-intensity character of handball activities, involving repeated accelerations, rapid changes of direction, and explosive motor actions,

contributed to the development of movement speed and functional readiness.

Significant differences were also identified in motor activity indicators. Pedagogical observations demonstrated that students participating in handball training displayed higher levels of engagement during physical education classes, increased activity in practical sessions, and stronger involvement in independent forms of physical exercise outside scheduled university classes.

The questionnaire data revealed positive changes in motivational indicators among students of the experimental group. Compared with participants following the traditional physical education curriculum, students involved in handball training demonstrated stronger interest in physical education classes, greater enjoyment of sports participation, and increased willingness to engage in regular physical activity.

The emotional and competitive nature of handball was found to play an important role in strengthening students' motivational involvement. The игровой character of training sessions, teamwork interactions, and opportunities for competitive achievement created favorable conditions for maintaining students' interest and enhancing positive attitudes toward physical education.

The obtained findings suggest that the integration of handball training into university physical education programs contributes not only to the improvement of students' physical preparedness but also to increased motor activity and stronger motivational orientation toward systematic participation in physical exercise and sports activities.

Discussion. The findings of the present study confirm that handball training represents an effective pedagogical means of

improving the physical fitness, motor activity, and motivational involvement of university students. The positive changes observed in the experimental group indicate that the systematic inclusion of handball-based activities within university physical education programs contributes to the comprehensive development of students' physical and personal capacities.

The improvement in speed-strength abilities, agility, coordination, and movement speed identified among students participating in handball training may be explained by the specific characteristics of the sport itself. Handball requires continuous performance of dynamic motor actions involving sprinting, jumping, throwing, rapid directional changes, and coordinated tactical interactions. Such multidimensional physical demands create favorable conditions for the integrated development of essential motor abilities.

The obtained results are consistent with contemporary research in sports pedagogy emphasizing the educational value of sports games in higher education. Team sports are widely recognized as effective tools for enhancing physical preparedness, stimulating active participation, and strengthening students' engagement in physical education classes. In this regard, handball training may be considered an important pedagogical resource for increasing the effectiveness of university physical education systems.

An important finding of the study concerns the influence of handball training on motivational indicators. Students involved in the experimental program demonstrated stronger interest in physical education classes, greater emotional involvement, and increased willingness to participate in regular physical activity. These findings

support the view that emotionally rich, competitive, and interactive learning environments positively influence students' intrinsic motivation toward sports and health-related behaviors.

The development of motivation among university students is particularly relevant under modern educational conditions characterized by declining physical activity levels and increasing sedentary lifestyles. The use of handball as a component of university physical education may therefore contribute not only to improvements in physical preparedness but also to the formation of sustainable positive attitudes toward healthy lifestyles and lifelong participation in physical activity.

The practical significance of the study lies in the possibility of applying the obtained findings to the modernization of university physical education curricula, the development of sports-oriented educational programs, and the implementation of pedagogical technologies aimed at increasing students' physical activity and motivation for systematic engagement in sports and exercise.

Conclusion. The conducted study established that handball training exerts a positive influence on the physical fitness, motor activity, and motivation of university students. The implementation of a handball-based training program within university physical education classes contributed to improvements in speed-strength abilities, agility, coordination, movement speed, and general physical preparedness.

The findings demonstrated that students participating in handball training showed higher levels of motor engagement, greater participation in independent physical activity, and stronger motivational orientation toward physical education and sports compared with students following a traditional educational program.

The study confirms that handball possesses considerable pedagogical potential as a means of enhancing the effectiveness of university physical education. The integration of handball training into higher education physical education programs creates favorable conditions for improving students' physical preparedness, increasing motor activity, strengthening motivational involvement, and promoting sustainable interest in systematic participation in physical exercise and sports activities.

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