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Eureka Journal of Education & Learning Technologies (EJELT)

ISSN 2760-4918 (Online) Volume 2, Issue 5, May 2026

https://eurekaoa.com/index.php/2

DEVELOPMENT OF PHYSICAL QUALITIES IN YOUNG VOLLEYBALL PLAYERS THROUGH ACTIVE GAMES

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Abstract

The article provides a scientific and pedagogical analysis of the role and effectiveness of active games in developing physical qualities in young volleyball players. The study was conducted as a pedagogical experiment involving students of a secondary specialised educational institution, who were divided into experimental and control groups. In the experimental group, training sessions were organised on the basis of specially selected active games, while the control group followed conventional exercises. The results of the four-week experiment showed that game-based training developed speed, strength, agility and endurance significantly more effectively than the conventional approach. The game-based approach was also found to increase athletes’ interest in training, their activity and their teamwork. The findings are of significant scientific and practical importance for improving the preparation of young volleyball players.

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Keywords: active games, volleyball, young athletes, physical qualities, speed, agility, endurance, strength, coordination, training process, sports pedagogy, pedagogical experiment.

Introduction

In the context of rapid globalization, the education of the younger generation as comprehensively developed, physically healthy, and resilient individuals is regarded as one of the priority directions of state policy. The special attention paid to physical education and sport is not accidental, since a healthy generation constitutes one of the fundamental factors of societal development. From this perspective, fostering young people's interest in sport and improving their level of physical fitness remain important pedagogical tasks.

Among various sports, volleyball is distinguished by its popularity, team-based nature, and potential for the comprehensive development of physical qualities. The game of volleyball requires athletes to demonstrate rapid decision-making, precise movement, quick reaction, a high level of coordination, and the ability to act harmoniously within a team. Therefore, this sport plays an important role not only in the physical development of young people but also in their psychological and social development.

In the process of developing the sports mastery of young volleyball players, physical qualities such as strength, speed, endurance, agility, and flexibility occupy a central place; these qualities form the foundation of an athlete's technical and tactical preparedness. However, practice shows that traditional training methods are often based on the repetition of uniform exercises, which may reduce athletes' interest in training and, consequently, decrease training effectiveness.

For this reason, modern sports pedagogy places particular emphasis on organizing the training process in an engaging, effective, and motivational manner. In this regard, movement-based games emerge as an important pedagogical tool: they

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make it possible to develop physical qualities in a natural, emotionally stimulating, and engaging environment, while also fostering teamwork, initiative, independent thinking, and volitional qualities in young athletes. The purpose of this article is to determine and substantiate, on the basis of a pedagogical experiment, the effectiveness of training sessions based on movement-based games in developing physical qualities among young volleyball players.

Literature Review

The problem of developing physical qualities in young athletes is one of the important scientific and practical areas of sports pedagogy, and a number of scholars have conducted research in this field. In A.R.Rasulov's work Fundamentals of Developing Physical Qualities, the essence of strength, speed, endurance, agility, and flexibility, as well as the scientific foundations for their development, are discussed. The author emphasizes the importance of systematically organizing training sessions and effectively using movement-based games when working with young athletes. R.T.To'raev's work The Theory of Training Young Athletes substantiates the need for the step-by-step organization of sports training, taking into account age-related and individual characteristics, and demonstrates the effectiveness of using game-based methods in training sessions.

In international scientific literature, movement-based and small-sided games, as well as game-based training, have been widely studied as effective means of developing physical qualities and technical skills in team sports. In his study conducted with volleyball players, T.Gabbett found that skill-based training games successfully reproduce the physiological demands of competition and improve indicators of speed, jumping power, agility, and aerobic capacity. The analysis conducted by T.Gabbett, D.Jenkins, and B.Abernethy shows that game-based training enables the simultaneous development of both skill performance and physical fitness in team-sport athletes. In the review by A.Chaouachi and co-

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authors, it is emphasized that the training load of small-sided games can be regulated through field dimensions, the number of participants, and game rules. The analysis of existing sources confirms that movement-based and game-based training activities serve as an important pedagogical tool for developing physical qualities in young volleyball players. At the same time, there remains a lack of specialized experimental studies on the application of this approach in Central Asian contexts, particularly in Uzbekistan, which determines the relevance of the present study.

Research Methodology

The study was conducted using the method of pedagogical experimentation with the participation of students from a secondary specialized educational institution. The experiment involved students belonging to the same age category, who were divided into two groups: an experimental group and a control group. The groups were formed in such a way that their initial physical fitness indicators were approximately comparable.

In the experimental group, training sessions were organized on the basis of specially selected movement-based games, with particular emphasis placed on developing physical qualities through game activities. In the control group, training was conducted using traditional methods, namely standard physical exercises. The duration of the experiment was four weeks, with training sessions held three times per week. Each session was planned in advance, with the level of load, sequence of exercises, and content of the games clearly defined.

The movement-based games used in the experimental group were aimed at developing the following physical qualities:

- games for developing speed;
- games for improving agility and coordination;
- games for developing jumping ability;
- games for strengthening endurance.

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At the beginning and at the end of the experiment, control tests were conducted to determine the athletes' level of physical fitness. These included a 30-meter sprint test to assess speed, a standing long jump test to determine strength indicators, a shuttle run test to evaluate agility, and a running test to assess general endurance. The initial and final results were evaluated through comparative analysis; absolute and relative changes were calculated for each test.

Results of the Analysis

The results of the experiment showed that the development of physical qualities in the experimental group, where training sessions were conducted on the basis of movement-based games, was significantly higher than in the control group. The athletes in the experimental group demonstrated improved speed indicators, enhanced agility and coordination, increased jumping ability, and higher levels of general endurance. Although certain positive changes were also observed in the control group, these improvements were considerably lower compared with the results achieved by the experimental group.

The results of the experiment are presented in Table 1.

Physical Quality and Test	Group	Initial Indicator	Final Indicator	Change
Speed (30 m sprint, s)	Experimental	5,1	4,6	−0,5 (−9,8%)
	Control	5,0	4,8	−0,2 (−4,0%)
Strength (standing long jump, cm)	Experimental	185	205	+20 (+10,8%)
	Control	183	192	+9 (+4,9%)
Agility (shuttle run, s)	Experimental	11,8	10,9	−0,9 (−7,6%)
	Control	11,7	11,3	−0,4 (−3,4%)
Endurance (running test, m)	Experimental	1200	1550	+350 (+29,2%)
	Control	1180	1320	+140 (+11,9%)

Note: In the speed and agility tests, a decrease in the indicator (negative change) indicates an improvement in performance, whereas in the strength and endurance

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tests, an increase in the indicator (positive change) indicates an improvement in performance.

As can be seen from the data presented in Table 1, the experimental group, whose training sessions were conducted on the basis of movement-based games, demonstrated improvements in all physical qualities that were more than twice as high as those observed in the control group. The greatest difference was recorded in endurance: in the experimental group, running distance increased by 29.2%, whereas in the control group this indicator amounted to 11.9%. Similar advantages were also observed in the indicators of speed, strength, and agility.

Along with improvements in physical indicators, positive changes were also identified from psychological and pedagogical perspectives. Participants in the experimental group showed a significantly increased interest in training sessions, took a more active part in the exercises, demonstrated improved cooperation, and contributed to the strengthening of the team environment. The athletes' self-confidence increased, and their initiative was further developed.

Discussion

The results of the study indicate that movement-based games are a highly effective pedagogical tool for developing physical qualities in young volleyball players. Movement-based games make the training process more dynamic and ensure the active participation of athletes. Traditional training methods are often based on the repetition of uniform exercises, which may reduce athletes' interest; in contrast, movement-based games make training more engaging through the inclusion of game elements and increase athletes' motivation.

The obtained results are consistent with findings reported in international studies. In T. Gabbett's research on volleyball players, skill-based training games were shown to improve speed, jumping power, agility, and aerobic capacity. The studies conducted by T. Gabbett, D. Jenkins, and B. Abernethy also emphasize that a game-based approach contributes not only to physical fitness but also to the

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development of tactical thinking. The findings of the present article confirm this scientific direction and enrich it with experimental data obtained in the context of Uzbekistan.

In addition, movement-based games have a positive effect on athletes' psychological state: they reduce emotional tension, promote a positive emotional atmosphere, and strengthen team cohesion. This, in turn, contributes to the overall effectiveness of the training process.

At the same time, it should be noted that there are several challenges in the practical use of movement-based games: coaches' methodological preparedness is not always sufficient; movement-based games are not always used in a purposeful and systematic manner; material and technical resources may be limited; and an individualized approach is not always applied adequately. The limitations of the present study include the relatively short duration of the experiment (four weeks) and the limited sample size. Future studies should aim to extend the experimental period, increase the sample size, and deepen the analysis of statistical significance.

Conclusion

The results of the conducted pedagogical experiment demonstrated that movement-based games are an important and effective means of developing physical qualities in young volleyball players. Training sessions organized on the basis of movement-based games contributed to the development of speed, strength, agility, and endurance with significantly higher effectiveness compared with traditional training methods. In addition, they increased athletes' interest in training, enhanced their activity, and strengthened team cooperation.

Based on the results of the study, the following practical recommendations were developed:

– to use movement-based games regularly and purposefully in the training process;

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– to develop methodological manuals for coaches on the effective use of movement-based games;

– to adapt training sessions to the individual characteristics of athletes;

– to select games in accordance with the specific physical quality being developed;

– to improve sports infrastructure and material and technical resources.

Thus, the effective use of movement-based games contributes to the comprehensive development of young volleyball players and serves as an important factor in ensuring their sporting success. Future research may focus on conducting comprehensive experimental analyses involving different age groups and longer training periods.

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