



TECHNOLOGY FOR DEVELOPING JUMPING ABILITIES OF VOLLEYBALL PLAYERS AT THE STAGE OF SPORTS IMPROVEMENT

Shaimardanov Sherbek Abdurashid ugli

teacher of the National University of Uzbekistan

shaimardanovsherbek55555@gmail.com

Telephone (91) 209-91-94.

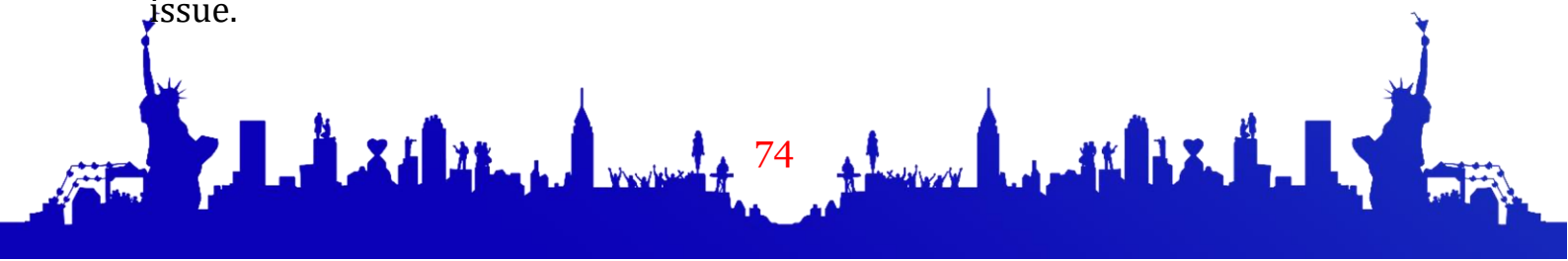
<https://doi.org/10.5281/zenodo.20390897>

Abstract. The article examines the issue of increasing the effectiveness of jumping ability development in highly skilled volleyball players as a pressing problem. Jumping ability is currently recognized as the leading physical quality that ensures successful execution of offensive and defensive actions. The main goal of the research was to develop and practically validate a technology aimed at improving the jumping ability of volleyball players at the stage of sports improvement. The study used methods of theoretical analysis and synthesis of scientific and methodological sources, pedagogical testing, experimental training sessions, and mathematical-statistical analysis. As a result, a technology was developed that incorporates a complex of integrated exercises for strength, speed-strength, and exercises. The conducted pedagogical experiments confirmed a significant ($p < 0.05$) increase in vertical jump performance from both standing and running positions, as well as improved effectiveness of attacking and blocking actions. Thus, the application of the developed technology in the training process of highly skilled volleyball players is considered expedient.

Keywords: volleyball, jumping ability, plometry, speed-strength qualities, stage of sports improvement, training technology.

Introduction: In modern sports practice, volleyball is distinguished by its high intensity and dynamic characteristics. The effective implementation of technical and tactical actions in this sport is directly related to the level of development of the athletes' physical training, especially the ability to jump. Jumping ability is an important physical quality in the activity of a volleyball player, ensuring the success of offensive and blocking movements.

At the stage of sports improvement, the rational organization of the training process, the targeted development of physical fitness, and the use of modern methodological approaches expand the possibilities of achieving high results in the competitive activity of volleyball players. From this point of view, the development of a scientifically based technology for the development of jumping ability and its implementation into practice is an urgent scientific and pedagogical issue.





Literature review. Scientific sources contain various methodological recommendations for improving the jumping ability of volleyball players. However, at the stage of sports improvement, there is still a need to develop a technology for working with highly qualified athletes, aimed at careful planning of load parameters, optimal combination of plometric, strength, and speed-strength exercises, as well as their integrated integration into the training process.

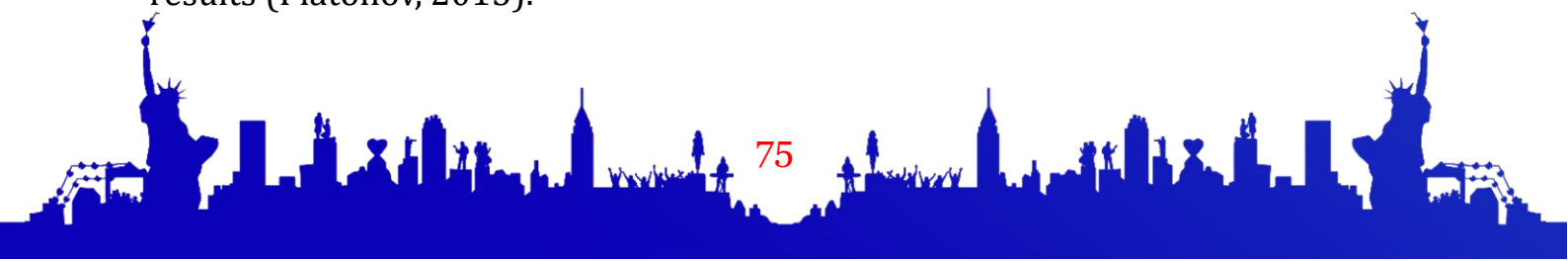
Therefore, the main goal of this study is to develop a technology for developing the jumping ability of volleyball players at the stage of sports improvement and to experimentally substantiate its effectiveness.

In the scientific literature, it is emphasized that the effectiveness of the technical and tactical activity of volleyball players in many cases is directly related to their level of jumping ability. According to the research results, the successful execution of attack and block elements relies on the athlete's ability to quickly demonstrate the height of the vertical jump and explosive strength (Miller et al., 2018; Verkhoshansky, 2012). Therefore, the development of jumping ability is considered a priority in the training system of volleyball players.

In the formation and development of jumping ability, plummometric exercises are one of the most effective methods. These exercises activate the muscle tension-contraction mechanism and significantly develop the athlete's speed-strength capabilities. In particular, it has been established that jumping from different heights, jumping from an inclined platform, or jumping on one leg sequentially effectively increases the indicators of jumping ability in volleyball players (Markovic & Mikulic, 2010).

Studies show that there is an inextricable link between muscle strength and the level of jumping ability. Weight exercises, as well as general and special strength training, strengthen muscle mass and increase the effectiveness of exercises (Newton & Kraemer, 1994). Thus, the combined use of strength training and plometric exercises serves as an important methodological basis for the development of jumping ability.

In the literature, special attention is also paid to the careful planning of training loads in the process of developing the physical qualities of athletes. Adaptation of the volume and intensity of training to the individual level of the athlete's preparedness prevents excessive exertion and ensures effective development. In particular, the gradual and consistent formation of physical qualities at the stage of sports improvement contributes to achieving high sports results (Platonov, 2015).





Research conducted in recent years shows the effectiveness of combining plummometric exercises with strength and speed-strength exercises. This integrated approach not only increases the height of the jump, but also significantly improves the quality of attacking and defensive actions in the competitive activity of volleyball players (Sheppard et al., 2012).

Research Methodology. This study is aimed at developing the jumping ability of volleyball players at the stage of sports improvement, and a comprehensive experimental approach was used as a methodological basis. The study was conducted in the following areas:

During the experiment, 30 volleyball players aged 18-22 years, regularly engaged in sports schools and higher educational institutions, were involved. They were distributed equally among the experimental and control groups. The composition of the groups was coordinated according to age, level of physical fitness, and sports qualifications.

The experiment was conducted for 6 months. For the experimental group, a special complex program aimed at developing jumping ability was used, combining strength and plometric exercises. The control group trained according to the traditional training program.

Measurements and tests.

1. Jumping ability was assessed according to the following criteria:
2. Vertical jump test (using a sergiometer).
3. Long jump from a standing position.
4. Number of consecutive jumps in 30 seconds.
5. Blocking and height of attacking shots in special volleyball exercises.

Research methods.

1. Theoretical analysis - the study of scientific and methodological sources and comparison of existing methods.
2. Pedagogical observation - monitoring the training process and recording quality indicators.
3. Experimental method - application of the developed technology and verification of its practical effectiveness.
4. Statistical analysis - processing of the obtained data using mathematical and statistical methods (averages, reliability of differences).

Reliability and relevance of the research: The reliability of the results was ensured by a sufficient duration of the experiment, a comparative analysis of indicators in the context of groups, and the processing of statistical data. The





relevance of the research is determined by the need to identify effective means of developing jumping ability in the process of volleyball players' training.

The developed technology was applied in the main preparatory mesocycle. And consisted of a structured set of exercises, including three main blocks:

Strength block (2 times a week) - aimed at developing maximum and explosive strength of the leg muscles. The main exercises included squats with a barbell (80-90% of the PP), jumping from a squat with a weight, squeezing the legs in an explosive mode, and climbing on tiptoes with a barbell.

Plumetric block (2 times a week) - served to develop the reactive properties of muscles. In this block, jumps on platforms of various heights, deep jumps, multiple jumps, jumps over obstacles, and "impact" jump exercises were used.

The special game block provided for the consolidation of the level of jumping ability achieved in conditions approximating competition. During the training process, the athletes were oriented towards attacking strikes and blocking movements at maximum height.

The uniqueness of the technology was manifested in the possibility of preventing injuries through precise dosing of loads, sequential alternation of shock and recovery microcycles, as well as strict adherence to technical requirements when performing exercises.

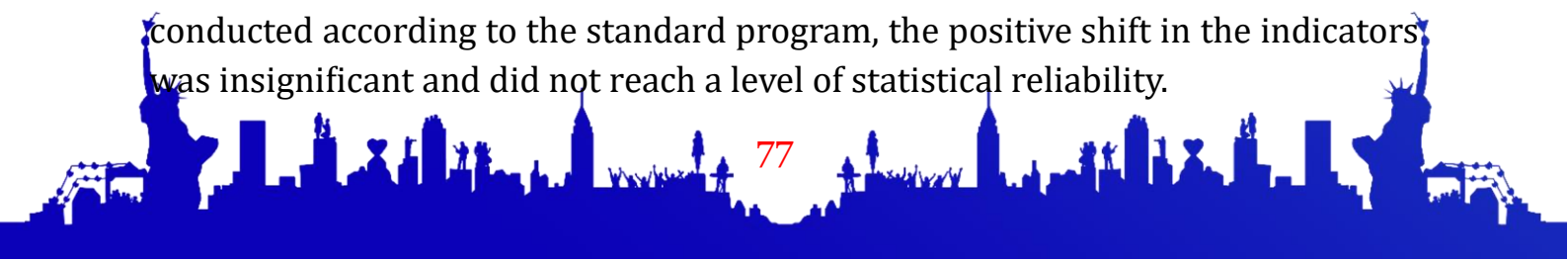
Results and discussion: At the end of the 12-week pedagogical experiment, significant positive changes were noted in the development of jumping ability in athletes.

Table 1.

Dynamics of jumping ability indicators of volleyball players ($M \pm m$)

Indicator	Group	Before the experiment	After the experiment	Growth %	Reliability (p)
Ground jump, cm	EG	58.2±2.1	64.8 ± 1.9	11.3%	< 0.05
	CG	57.9 ± 2.3	59.5 ± 2.0	2.8%	> 0.05
Running jump, cm	EG	78.5 ± 3.2.	85.1 ± 2.8;	8.4%	< 0.05
	CG	77.8±3.5	79.4±3.1.	2.1%	> 0.05

Analysis and results (Analysis and results). As can be seen from the analysis of Table 1, a statistically significant increase was noted in all measured indicators in the experimental group. In the control group, despite the training conducted according to the standard program, the positive shift in the indicators was insignificant and did not reach a level of statistical reliability.





Also, the effectiveness of game activity in the experimental group significantly improved: in particular, the effectiveness of attacking shots increased from 48% to 54%, and the effectiveness of blocking - from 21% to 26%. The obtained results are consistent with the scientific works of leading specialists, who emphasize that the combined use of plometry and strength exercises is the most optimal method for developing explosive strength and jumping ability [3].

In particular, the combination of exercises performed with large weights with striking technique activates various adaptive mechanisms of the neuromuscular system, resulting in a synergistic effect.

Conclusion/Recommendations. Analysis of scientific and methodological literature shows that the elimination of the "plateau" position in the process of developing jumping ability in highly qualified volleyball players is not limited to simple training programs, but requires a comprehensive approach. In the course of the study, the developed technology, based on the combination of strength, plimetric exercises, and special game equipment, proved to be an effective method for improving jumping abilities. The results of the conducted pedagogical experiment confirmed the research hypothesis and showed a significant increase not only in the quantitative indicators of jumping ability, but also in the competitive performance of the volleyball players of the experimental group. The practical implementation of this technology in the training process of professional volleyball teams is considered promising.

References:

1. Markovic, G., & Mikulic, P. (2010). Neuro-musculoskeletal and performance adaptations to lower limb plometric training. *Sports Medicine*, 40 (10), 859-895. doi:10.2165/11318370-000000000-00000
2. Miller, M. G., Herniman, J. J., Ricard, M. D., Cheatham, C. C., & Michael, T. J. (2008). The effects of a 6-week plyometric training program on agility. *Journal of Sports Science & Medicine*.
3. Newton, R. W., & Kraemer, W. J. (1994). Developing explosive muscle power: Implications for a mixed method training strategy. **Strength & Conditioning Journal**, 16 (5), 20-31.
4. Platonov, V. N. (2015). System of training athletes in Olympic sports. General theory and its practical applications. Kyiv: Olympic Literature.

