

THE USE OF INNOVATIVE TECHNOLOGIES IN THE VOLLEYBALL
PLAYERS' TRAINING PROCESS

Karimjon Datkaevich Rakhimkulov

Professor at the Uzbek State University of World Languages

Annotation. The article discusses modern innovative technologies used in the training process of volleyball players. Digital, pedagogical and biomechanical technologies aimed at improving the effectiveness of athletes' training are analyzed. Special attention is paid to the use of video analysis, touch devices, software and interactive teaching methods. The influence of innovative technologies on the development of technical, tactical, physical and psychological qualities of volleyball players is revealed. The results of the study confirm the expediency of introducing innovative approaches into the sports training system.

Keywords: volleyball, innovative technologies, training process, digitalization of sports, sports training, video analysis.

Аннотация. В статье рассматриваются современные инновационные технологии, применяемые в тренировочном процессе волейболистов. Анализируются цифровые, педагогические и биомеханические технологии, направленные на повышение эффективности подготовки спортсменов. Особое внимание уделяется использованию видеонализа, сенсорных устройств, программного обеспечения и интерактивных методов обучения. Раскрывается влияние инновационных технологий на развитие технико-тактических, физических и психологических качеств волейболистов. Результаты исследования подтверждают целесообразность внедрения инновационных подходов в систему спортивной подготовки.

Ключевые слова: волейбол, инновационные технологии, тренировочный процесс, цифровизация спорта, спортивная подготовка, видеонализ.

The current stage of sports development is characterized by the active introduction of innovative technologies in all areas of sports activity. Volleyball, as one of the most dynamic and technically challenging sports, requires constant improvement of methods and means of training athletes. The growth of competition in the international arena, an increase in the intensity of competitive activities and an increase in the requirements for the level of physical, technical and psychological readiness of volleyball players necessitate the search for new, more effective approaches to the organization of the training process. In the context of the digitalization of society, innovative technologies are becoming an important tool for optimizing sports training.

The use of information and communication tools, biomechanical analyzers, functional status monitoring systems and interactive educational platforms allows the coach to objectively assess the level of athletes' fitness, individualize training loads and increase motivation for classes. The relevance of the study is due to the need for scientific substantiation of the use of innovative technologies in the training process of volleyball players and to determine their impact on the effectiveness of sports training.

The purpose of the article is to study and analyze the possibilities of using innovative technologies in the training process of volleyball players.

Research objectives:

- to consider the theoretical foundations of innovative technologies in sports;
- to analyze the main types of innovative technologies used in volleyball;
- to determine their impact on the quality of the training process;



to identify the pedagogical conditions for the effective implementation of innovative technologies.

1. Theoretical foundations of the use of innovative technologies in sports

The concept of "innovative technologies" in sports science is interpreted as a set of new or improved methods, tools and forms of organization of the training process aimed at increasing its effectiveness. According to a number of scientists, innovations in sports include not only technical means, but also pedagogical, psychological and organizational innovations.

Volleyball is one of the sports with high coordination complexity, requiring quick decision-making, precise movements and well-coordinated teamwork.

In this regard, the introduction of innovative technologies allows us to solve the following tasks:

- improving the objectivity of monitoring training and competitive activities;
- Individualization of athletes ' training;
- improvement of technical and tactical skills;
- reducing the risk of injury;

Optimization of recovery processes. Modern research shows that traditional training methods based solely on the empirical experience of a coach no longer provide the necessary level of competitiveness. Therefore, the integration of scientific achievements and digital technologies is becoming a prerequisite for effective training of volleyball players.

2. The main types of innovative technologies in the volleyball players' training process

2.1. Video analysis technologies

One of the most common innovative tools in volleyball is video analysis. Using video recordings of training sessions and competitions allows you to study in detail the technique of performing game actions, tactical schemes and team interaction. Modern software products (Dartfish, Kinovea, Hudl, etc.) enable: , slow down and stop video frames; to conduct a comparative analysis of the technique of different athletes;

- identify mistakes and weaknesses in the game;
- create individual recommendations.

Video analysis promotes the development of analytical thinking among volleyball players, increases awareness of the implementation of technical elements and accelerates the learning process.

2.2. Sensory and biomechanical technologies

The use of wearable sensor devices (fitness trackers, accelerometers, heart rate monitors) allows you to monitor the functional state of athletes in real time. Data on heart rate, physical activity level, number of jumps and movements help the coach to adjust the training process. Biomechanical technologies make it possible to analyze movement parameters: speed, amplitude, and force of repulsion during a jump, which is especially important for volleyball. This helps to reduce injuries and increase the effectiveness of motor actions.

2.3. Digital educational platforms

In recent years, online platforms and mobile applications for volleyball training have been actively developing. They include:

- videos on techniques and tactics;
- interactive tasks;
- tests to assess theoretical readiness;
- means of remote interaction between a coach and an athlete.

Such technologies are especially relevant in conditions of limited training time and make it possible to expand the educational space of an athlete.

2.4. Innovative pedagogical technologies



Innovative pedagogical technologies include game-based, problem-oriented and modular teaching methods. Their use contributes to the development of independence, creativity and communication skills of volleyball players. The use of simulation of game situations, analysis of tactical tasks and team discussions increases the efficiency of learning the material and improves team interaction.

3. The impact of innovative technologies on the effectiveness of the training process

The introduction of innovative technologies into the volleyball players' training process has a complex impact on various aspects of training:

Technical training: increases the accuracy of serving, passing, attacking and defensive actions.

Tactical training: the understanding of game schemes improves, the speed of decision-making increases.

Physical fitness: load is optimized, the risk of overwork is reduced.

Psychological preparation: increases motivation, self-confidence, and stress tolerance. Practice shows that the use of innovative technologies contributes to the individualization of the training process, which is especially important when working with volleyball players of different fitness levels.

4. Pedagogical conditions for effective implementation of innovative technologies

For the successful application of innovative technologies in volleyball, it is necessary to comply with a number of pedagogical conditions:

1. Professional training of trainers in the field of digital technologies.
2. Availability of the material and technical base.
3. Systematic and purposeful use of innovations.
4. Taking into account the age and individual characteristics of athletes.
5. Integration of innovative and traditional training methods.

Only an integrated approach ensures a sustainable positive effect from the introduction of innovative technologies. The use of innovative technologies in the training process of volleyball players is an important factor in improving the effectiveness of sports training.

Modern digital, biomechanical and pedagogical technologies make it possible to objectively assess the level of athletes' fitness, optimize training loads and improve technical and tactical skills.

The results of the study confirm the expediency and necessity of introducing innovative technologies into the volleyball players' training system.

Their rational use contributes to the formation of highly qualified athletes who are able to successfully compete at various levels.

List of literature

1. Рустамов, Л. Х. (2013). Источники и этапы развития теории и методики физического воспитания. *Педагогика и современность*, (3), 69-76.
2. Рустамов, Л. Х. (2013). Физическая культура и ее влияние на организм человека. In *Актуальные вопросы современной науки* (pp. 99-103).
3. Rustamov, L. (2022). IMPLEMENTATION OF A PERSON-ORIENTED APPROACH IN PROFESSIONAL ACTIVITIES OF STUDENTS. *Science and Innovation*, 1(8), 1259-1262.
4. Рустамов, Л., & Махмудов, Ш. (2023). ВОЛЕЙБОЛ КАК СРЕДСТВО ФИЗИЧЕСКОГО ВОСПИТАНИЯ СТАРШИХ ШКОЛЬНИКОВ. *Академические исследования в современной науке*, 2(27), 91-93.
5. Рустамов, Л., & Тошпулатов, Х. (2024). СПОСОБЫ ПОПУЛЯРИЗАЦИИ ФИЗИЧЕСКОЙ КУЛЬТУРЫ И СПОРТА СРЕДИ МОЛОДЕЖИ. *Development and innovations in science*, 3(3), 21-25.



6.Рахимкулов, К. Д., & Рустамов, Л. Х. (2021). ОБУЧЕНИЕ ТЕХНИКЕ ИГРЫ В ВОЛЕЙБОЛ В ШКОЛЕ. *POLISH SCIENCE JOURNAL*, 257.

7.Рустамов, Л. Х., & Набижанов, Ш. М. (2021). ФОРМИРОВАНИЕ ФИЗИЧЕСКОЙ КУЛЬТУРЫ СТУДЕНТОВ В ОБРАЗОВАТЕЛЬНОМ ПРОЦЕССЕ. *POLISH SCIENCE JOURNAL*, 441.

8.Рустамов, Л. Х. (2024). VOLLEYBALL PLAYERS'TRAINING IN MODERN CONDITIONS. *Ethiopian International Journal of Multidisciplinary Research*, 11(05), 807-810.

9. Рустамов, Л. Х., & Талабаев, У. Р. (2021). ТЕХНОЛОГИЯ ДИФФЕРЕНЦИРОВАННОГО ФИЗКУЛЬТУРНОГО ОБРАЗОВАНИЯ. *MODERN SCIENTIFIC CHALLENGES AND TRENDS*, 245.

10. Рустамов, Л., & Турсунов, Ш. (2024). ИСПОЛЬЗОВАНИЕ ИННОВАЦИОННЫХ ПЕДАГОГИЧЕСКИХ ТЕХНОЛОГИЙ НА УРОКАХ ФИЗИЧЕСКОГО ВОСПИТАНИЯ. *Академические исследования в современной науке*, 3(28), 35-41.

11. Rustamov, L. (2025). BO‘LAJAK JISMONIY TARBIYA O‘QITUVCHILARIDA KASBIY VA JISMONIY SIFATLARNI RIVOJLANTIRISH. *Наука и инновация*, 3(2), 110-112.

