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Modern Challenges in Developing Special Endurance Qualities in Female Volleyball Players

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Abstract. *This article analyzes modern problems of developing the quality of special endurance in female volleyball players and offers scientifically based solutions. The article examines the main obstacles to the development of special endurance in women's volleyball in Uzbekistan, including the lack of scientific methods, physiological and psychological factors, infrastructure and financial problems. Solutions such as the use of modern technologies, strengthening psychological training, and improving the qualifications of coaches are also proposed. The article emphasizes the importance of cooperation between the state, sports organizations, and the scientific community in the development of women's sports.*

Key words: *special endurance, female volleyball players, women's sports, aerobic and anaerobic endurance, physiological factors, psychological preparedness, modern technologies, sports infrastructure, Uzbekistan volleyball.*

Introduction.

Volleyball is a dynamic sport that requires physical, psychological and tactical training, in which special endurance is important. Special endurance allows volleyball players to effectively perform special moves, such as long-term maintenance of the game's high intensity, jumping, striking, and quick movement. In women's volleyball, this quality is even more important, since the physiological characteristics of girls and the dynamics of the game are more affected by fatigue and stress factors. Although the development of women's volleyball in Uzbekistan is one of the most important directions of state policy, there are a number of problems in the development of special endurance. This article analyzes the problems and offers scientifically based solutions. The article is expected to serve as a useful resource for professionals, coaches and athletes in the field of volleyball.

The importance of special durability

Volleyball involves short bursts of high-intensity activity. During the game, volleyball players perform jumps, punt returns, defense, and offensive moves for an average of 40-60 minutes. International Studies show that volleyball players' success in the game is dependent on their aerobic and anaerobic endurance levels. While aerobic endurance provides energy for long-term movements, anaerobic endurance is essential for short but intense movements. The role of special endurance in women's volleyball is even more important, because due to physiological characteristics (for example, relatively low muscle mass and hormonal changes), girls are more prone to stress and fatigue in the game. Therefore, the development of special endurance requires not only physical training, but also psychological stability and tactical knowledge.

Modern problems

In the development of special endurance in girls of volleyball, the following modern problems cause significant obstacles:

Lack of scientifically based methodologies.

In Uzbekistan, scientific research and methodologies for developing special endurance for female volleyball players are not sufficiently developed. Many coaches rely on traditional general fitness exercises that do not fully meet the requirements of modern sports. For example, improperly balancing aerobic and anaerobic exercise reduces athletes' fatigue resistance. While interval training (e.g. 30 seconds of high intensity, 15 seconds of rest) has been shown to be effective in increasing anaerobic endurance in an international experiment, the use of such methodologies in Uzbekistan is limited.

Physiological and psychological factors.

The physiological characteristics of girls, including hormonal changes, low muscle mass compared to men, and energy expenditure, require additional attention in the development of special endurance. Studies show that lactate accumulation and fatigue occur more quickly in women athletes, which necessitates the need to structure training programs in an individual way. Psychologically, however, low levels of motivation, stress in play, and competition pressure negatively affect girls' endurance performance. In Uzbekistan, psychological training is not given enough attention, which prevents athletes from fully realizing their potential.

Lack of training infrastructure.

Many regions of Uzbekistan lack modern gyms, specialized equipment (such as pulse meters, lactate analyzers), and recovery centers. This leads to volleyball players not having the necessary conditions to develop special endurance. For example, the lack of modern equipment for testing anaerobic endurance does not allow coaches to accurately assess the condition of athletes. Additionally, insufficient attention to recovery processes increases the risk of injury.

Lack of qualified coaches and specialists.

There are a limited number of coaches with specialized knowledge in developing special endurance. Many coaches lack the experience and modern knowledge to develop specific exercises tailored to the unique requirements of volleyball. With limited access to international experience, local coaches often rely on outdated methodologies.

Balance between education and sports.

Many young female volleyball players in Uzbekistan study at higher education institutions. Maintaining a balance between education and sports is a challenge, as girls often face conflicts in the schedule of classes and activities. Studies show that a decrease in the quality of education of student girls also negatively affects sports training. This problem is even more acute for girls who are married or have social obligations.

Financial supply problems.

Problems with funding for physical education and sports institutions lead to insufficient funding for women's volleyball. Modern equipment, rehabilitation programs, and financial resources for participation in international competitions are lacking. This limits the ability of female volleyball players to develop special endurance.

Solutions and suggestions

The following scientifically based solutions are proposed to address the above problems:

Scientifically based training programs.

Programs that balance aerobic and anaerobic exercise are needed to develop specific endurance. For example, interval training (30 seconds of high intensity, 15 seconds of rest) has been shown to be

effective in increasing anaerobic endurance. Such programs should be structured in an individual way, taking into account the physiological characteristics of girls (hormonal changes, muscle mass). Research centers and sports institutes should actively participate in the development of these programs.

Use of modern technologies.

Pulse meters, lactate tests, and heart rate monitoring devices should be used to accurately assess athlete endurance levels. These technologies allow coaches to optimize training loads and monitor athletes' fatigue levels. For example, lactate testing can help determine an athlete's anaerobic threshold, which is important in correctly determining training intensity.

Psychological preparation.

Psychological training, including visualization, meditation, and stress management techniques, can help increase girls' motivation and reduce psychological fatigue in the game. It is recommended that psychologists work regularly with teams and implement psychological support programs before and after competitions. This not only increases endurance, but also builds athletes' self-confidence.

Infrastructure development.

Governments and sports organizations should invest in providing modern gyms, recovery centers, and specialized equipment. For example, hydrotherapy baths, ice baths, and massage equipment speed up the recovery process of athletes. In addition, biomechanical analysis devices should be introduced to prevent injuries. Providing subsidies and grants to local sports clubs would be an important step in addressing infrastructure problems.

Improving the skills of coaches.

Seminars and trainings based on international experience should be organized, and coaches should be taught modern methods for developing special endurance. In cooperation with organizations such as FIVB (International Volleyball Federation), qualification courses can be organized for local coaches. Programs to attract foreign experts and exchange experiences also enrich the knowledge of coaches.

Integrate education and sports.

By developing partnerships between higher education institutions and sports clubs, flexible class schedules and special scholarships can be introduced for female students. For example, online learning platforms or shortened class schedules for athletes can help balance education and sports. Social support programs for married girls, such as daycare or financial assistance, can help them focus on their sports activities.

Conclusion

Developing special endurance qualities in female volleyball players is strategically important for the development of women's volleyball in Uzbekistan. However, the lack of scientifically based methodologies, physiological and psychological factors, and problems with infrastructure and financial support create significant obstacles to this process. The proposed solutions – the use of modern technologies, strengthening psychological training, infrastructure development and training of coaches-serve to eliminate these problems. Cooperation between the state, sports organizations, and the scientific community is important for the development of women's volleyball in Uzbekistan. This approach not only increases special endurance, but also makes women's Volleyball of Uzbekistan competitive in the international arena.

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