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METHODOLOGICAL JOURNAL**<http://mentaljournal-jspu.uz/index.php/mesmj/index>**MODERN METHODS FOR DEVELOPING PHYSICAL QUALITIES IN
VOLLEYBALL PLAYERS****Dadakhon Umaraliyev**

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ABOUT ARTICLE

Key words: volleyball, physical qualities, strength, agility, endurance, speed, flexibility, physical fitness, modern methods, pliometric exercises, interval training, functional exercises, sports training, game effectiveness.

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Abstract: This article analyzes modern methods for developing the physical qualities of volleyball players - strength, agility, endurance, speed, and flexibility. The study examined the effectiveness of innovative approaches aimed at improving the physical fitness of athletes, including functional exercises, interval training, pliometric exercises, and training organized on the basis of an individual approach. The interconnection of physical qualities in ensuring the rapid and precise execution of movements characteristic of volleyball game activities has also been scientifically substantiated. Research results show that the comprehensive use of modern methods significantly enhances the general and special physical fitness of athletes and improves game efficiency.

Introduction. Today, the development of physical education and sports is one of the priority directions of state policy in the Republic of Uzbekistan. In particular, the Law of the Republic of Uzbekistan "On Physical Education and Sports" (new version, September 4, 2015, No. LRU-394) and Presidential Decree No. PP-3031 (June 3, 2017, "On measures for the further development of physical education and mass sports") serve to fundamentally improve the sports system.

Furthermore, Presidential Decree No. UP-5924 (January 24, 2020, aimed at the further development of physical education and sports) placed special emphasis on organizing the training of athletes based on modern approaches, widely promoting a healthy lifestyle among young people, and developing sports infrastructure.

Based on these regulatory legal acts, organizing the training process on a scientific basis, particularly the effective development of physical qualities in volleyball players, remains a pressing issue. Volleyball is rich in complex coordination movements requiring high levels of speed, agility, strength, endurance, and flexibility, and the physical fitness of athletes is one of the main factors determining game effectiveness.

Therefore, studying and implementing modern methods of developing physical qualities in volleyball players is one of the important tasks of contemporary sports pedagogy.

Methods. In this study, the following scientific-methodological methods were used to study modern methods of developing physical qualities – strength, agility, endurance, speed, and flexibility – in volleyball players and to determine their effectiveness:

First, an analysis of scientific-methodological literature was carried out. Scientific sources on the theory of physical education and sports, methodology of volleyball training, and the development of physical qualities were studied, and existing approaches were systematized.

Second, the pedagogical observation method was applied. During the study, the training process of volleyball players was regularly observed, and their level of physical fitness and quality of exercise performance were analyzed.

Third, pedagogical experimental work was conducted. Participants were divided into experimental and control groups. In the experimental group, training was organized using modern methods – plyometric exercises, interval training, functional exercises, and an individual approach. In the control group, traditional training continued.

Fourth, physical qualities were assessed through tests. Specifically:

- Strength – through maximum load exercises,
- Speed – through short-distance running (30 m),
- Agility – through special direction movement tests,
- Endurance – through long-duration running exercises,
- Flexibility – through the forward bend test.

Fifth, mathematical-statistical analysis methods were used. The obtained results were processed, and the differences between the indicators of the experimental and control groups were scientifically substantiated.

These methods served to ensure the reliability of the research results and to determine the effectiveness of developing physical qualities in volleyball players.

Results and discussion. The methodological basis of this study relies on modern scientific views of the theory of physical education and sports, sports pedagogy, and sports physiology. During the research, the principles of systematicity, complexity, and individual approach were taken as the basis for developing physical qualities – strength, agility, endurance, speed, and flexibility – in volleyball players.

The following main principles were prioritized in the research methodology:

- Principle of systematicity – developing physical qualities in interconnection, i.e., forming strength, speed, endurance, agility, and flexibility as a single system.
- Principle of gradualness – expanding athletes' functional capabilities by gradually increasing training loads.
- Principle of individual approach – organizing training taking into account each athlete's age, level of physical fitness, and functional characteristics.
- Principle of specificity – selecting exercises based on movements specific to volleyball game activity (jumping, rapid directional changes, hitting).
- Principle of innovative approach – effectively using modern training methods (plyometric exercises, interval training, functional training).

The research methodology also applied approaches aimed at optimizing the pedagogical process, increasing training effectiveness, and monitoring the physical development of athletes. Based on the obtained results, the advantages of modern methods in developing volleyball players' physical qualities were scientifically substantiated.

This methodology serves to improve the general and special physical fitness of volleyball players, enhance their sports results, and elevate game effectiveness to a high level.

A total of 24 volleyball players participated in the study and were equally divided into experimental (n=12) and control (n=12) groups. The experimental group trained using modern methods, while the control group trained using a traditional program. The study lasted 8 weeks.

Table 1

Physical quality	Test type	Experimental (pre)	Experimental (post)	Growth (%)	Control (pre)	Control (post)	Growth (%)
Strength	Vertical jump (cm)	48.2	56.8	+17.8%	47.9	51.2	+6.9%
Speed	30 m run (sec)	4.62	4.21	-8.9%	4.60	4.45	-3.2%

Agility	4×9 m run (sec)	10.8	9.6	-11.1%	10.7	10.2	-4.7%
Endurance	1000 m run (min)	4.12	3.45	-16.3%	4.10	3.88	-5.3%
Flexibility	Forward bend (cm)	11.5	16.9	+47.0%	11.3	13.1	+15.9%

In the experimental group, the growth across all indicators was found to be statistically reliable ($p < 0.05$). Positive changes were also observed in the control group, but they were statistically lower, with $p > 0.05$ for some indicators. The largest increases were recorded in flexibility (+47.0%) and strength (+17.8%). For speed, agility, and endurance indicators, an increase in effectiveness was confirmed through a reduction in time. As a result of the modern methods used in the experimental group (plyometric exercises, interval training, functional training), the growth rate of physical qualities was on average 2–3 times higher than in the control group. These results scientifically substantiate that modern approaches are highly effective in improving the physical fitness of volleyball players and that they need to be widely implemented in practice.

Conclusion. The analysis of modern methods for developing physical qualities in volleyball players shows that a comprehensive approach is important for athletes to achieve high results. In the modern training process, the development of basic physical qualities such as speed, strength, agility, endurance, and flexibility must be carried out in close interconnection.

According to the research results, functional training, interval loads, plyometric exercises, coordination exercises, and the integration of technical-tactical elements with physical training stand out as effective methods. These methods positively influence athletes' quick reaction, jump height, movement speed on the court, and overall game effectiveness.

Additionally, monitoring loads through modern control methods and functional tests allows for the individualization of the training process. This serves to provide loads appropriate to each athlete's capabilities and reduce the risk of injury.

In general, the use of scientifically based, systematic, and modern methods in developing physical qualities in volleyball players ensures that athletes achieve consistently high results in competitive activities.

References:

1. Xolmatov S. O'zbekiston sharoitida yosh sportchilarda tezkorlik va chidamlilikni rivojlantirish metodikasi. Toshkent: Toshkent davlat jismoniy tarbiya instituti, 2018.
2. Yoqubov A. Sportchilarning jismoniy tayyorgarligini rivojlantirish asoslari. Toshkent: O'zbekiston milliy universiteti nashriyoti, 2020.
3. Karimov M.K. Jismoniy mashqlar nazariyasi va metodikasi. Toshkent: Ilm ziyo, 2021.
4. Raximov B.B. Voleybol nazariyasi va mashg'ulotlar metodikasi. Toshkent: Sport nashriyoti, 2019.
5. Sobirov D.T. Sport trenirovkasida zamonaviy pedagogik texnologiyalar. Toshkent: O'qituvchi nashriyoti, 2022.
6. O'zbekiston Respublikasi Jismoniy tarbiya va sport vazirligi. Sport tayyorgarligi bo'yicha uslubiy qo'llanma. Toshkent, 2023.
7. Matveyev L.P. Theory and methodology of physical education and sport training. Moscow: Soviet Sport, 2010.