

## Developing Jumping in Volleyball Players of Different Ages and Preparations

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**Annotation:** The article identifies the means of rapid and effective formation of this ability based on the study of movement games, types of jumps typical of modern volleyball through various exercises, the kinematic factors that provide jumping and jump endurance.

**Keywords:** volleyball, volleyball players, physical qualities, jumping, jumping.

In modern volleyball practice, most game modes (attack, blocking, passing, passing) are performed by jumping. It is important to note that such jumping games are performed in different zones and on different tactical purposes. These techniques are useful in training, a race game, or a race style - that is, effective execution requires high jump (jumping height) and jump endurance.

As a result of visual observation of numerous volleyball lessons, analysis of volleyball training and volleyball training processes, it became clear that the kinematic and coordination of the type of jump in accordance with these methods in the application of exercises for the formation of jumping games elements and phases are not given serious attention. It seems that the concepts of jumping, jumping and jump endurance do not specialize in the technique of jumping game modes, but rather are treated with the same meaning and coordination features. Jumping is taught and trained on the same principle. However, in the training of jumping techniques, in the development of jumping and jumping endurance, preparation for jumping from the ground or running, active movement of the arms in a circular direction (from bottom to top) and the creation of inertial force, squatting, in the air ( in the unsteady position) it is of great practical importance to pay special attention to the kinematic phase-elements, such as maintaining the necessary coordination-technique, performing the appropriate mode of play, landing and maintaining balance. It is expected that the use of a number of block templates developed by us to effectively organize this process will yield positive results.

The technique of full (maximum altitude) jumps, coordination and kinematic elements used in the transfer of the ball, including kicking, blocking, passing the ball from different zones or moving quickly to the required zone, are completely different from each other. is different. Therefore, the exercises used to train and improve the game techniques of jumping from different zones should be modeled according to the resistance tactics of a particular opposing team or opposing player. In this regard, it is important to emphasize the kinematic elements, phases, biomechanical laws and techniques of jumping. In other words, when it comes to jumping, you have to pay close attention to the technique and even the tactics of jumping. In the educational, methodological and scientific literature (published on volleyball) the concepts of position and movement techniques or types of game techniques are accepted and given in detail. However, the terms "jumping technique", "jumping technique" or "jumping tactics training methodology" are not used in these sources. In this article, based on the above-mentioned scientific and methodological information, we propose to introduce into the theory and practice of volleyball such terms as "jumping techniques and tactics", "jumping technique and tactics teaching methods".

Another important aspect of the problem under discussion is that, in addition to "video analysis", "biomechanical analysis" and "expert" methods, "jump technique analysis" can be used to teach and evaluate the effectiveness of

mastering this technique. it will be necessary to create a technology for evaluating the kinematic elements (symmetrical movement of the arms, time spent on the jump, the angle of the legs, the number of jumps, etc.). Taking this need into account, we developed a special tool (see Chapter 2) and tested its effectiveness during current research and pedagogical practice.

During the selection of candidates for volleyball clubs, volleyball clubs and national teams, as well as during the training sessions, the trainers pay special attention to physical qualities such as jumping ability, jumping and jumping endurance. However, not all trainers use effective exercises to develop these skills and qualities, and it is not considered a serious issue to assess the dynamics of their formation (growth) using appropriate tests. However, training in jumping skills, selection of targeted exercises in the development of jumping and jumping endurance, regular monitoring (assessment) of the dynamics of the development of these qualities allow you to effectively organize this process.

Given these pressing issues, we have conducted a number of studies on volleyball players of different ages and sports backgrounds.

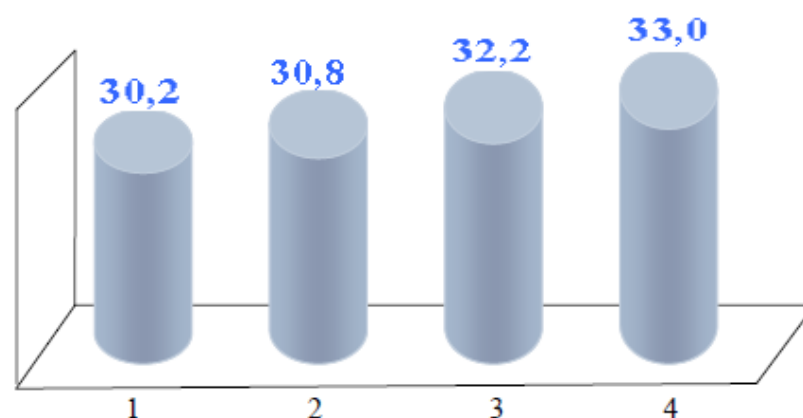
The study involved 24 boys and girls aged 19-21 who had been involved in volleyball for 2 years.

The results of the study showed that the traditional traditional exercises with all volleyball players and the jumping exercises used in them are related to the age and athletic training of those who practice jumping and endurance. indicates that it is not enough.

The height of the vertical jump was  $32.6 \pm 2.44$  cm,  $33.2 \pm 2.34$  cm,  $34.5 \pm 3.02$  cm, and  $36.4 \pm 3.14$  cm, respectively. formed. Unfortunately, when comparing these figures, the difference between the height of the jump from the ground and the jump from the run is about 2-3 cm. The difference can be 8-2 cm, and in older qualified volleyball players - up to 20-30 cm.

**Table 1. Dynamics of jumping in 19-21 year old volleyball players who have been playing volleyball for 2 years (n=24), ( $\bar{x} \pm \sigma$ ).**

Tests	September 2021	October 2021	November 2021	December 2021
Vertical jump from the ground (see)	30,2±2,24	30,8 ±2,26	32,2 ±2,38	33,0±2,41
Running and vertical jump (see)	32,6±2,44	33,2±2,34	34,5±3,02	36,4±3,14
25 cm from the raised arm. Maximum number of jumps (times) on a t / ball hanging high	6,34±0,44	6,88±0,48	7,38±0,74	9,66±0,82



As you know, today's volleyball lessons last 2-3 hours, and competitions last 1-2 hours. If you take into account the training and competition games held in the competition sticks, it becomes clear that not only high jumping, but also jump endurance is very important for volleyball players.

In 19-21-year-old volleyball players who participated in our study, the indicator of jump endurance was 25 cm from the upper arm. maximum number of jumps on a high-hanging filler ball  $6.34 \pm 0.44$  (September 2021),  $6.88 \pm 0.48$  (October 2021),  $7.38 \pm 0.74$  (2021), November),  $9.66 \pm 0.82$  (December 2021). Are these averages enough for volleyball players of this age? The question arises. If we consider that in modern volleyball almost all modes of play are performed by jumping, of course, such a jump is not enough endurance. Unfortunately, the results of the jump endurance test used by us are not available in official sources.

The results of the study showed that the vertical jump height from the classical variant is a symmetrical execution of a number of kinematic elements that provide jumping, the right and left leg forces (explosive force) are equally developed, the right and left during the jump. since it is inextricably linked to the synchronous active movement of the hand (their inertial movement). In particular, standing on a platform and jumping from the ground was found to be based on bending the legs forward, swinging the left arms back and forth at the same speed, bending the legs at the optimal angle, and finally the explosive force of the legs. These kinematic factors had different "strengths" in the study participants, which led to the recording of the jump height over a large range (22 cm). Kinematic factors (functional movement of the jump elements) "Was 53 cm. represented by. The average statistic ( $\bar{ch}$ ) is 43.6 cm. formed. Because the difference between the minimum and maximum values is large, the standard deviation ( $\sigma$ ) of the mean also differs significantly.

Based on the active movement (inertial movement) of the right hand only, the height of the vertical jump from the ground is 28 min., Min - 47 cm. formed. The range of these indicators is 19 cm. was equal to The mean statistical value was  $38.2 \pm 3.28$  cm. It can be seen that the height of the vertical jump from the place determined in the traditional order is  $43.6 \pm 4.32$  cm. is equal to  $38.2 \pm 3.28$  cm in vertical jump height, which is recorded only on the basis of active movement of the right hand, with the left hand tied to the body. formed. This means that the jump height is 5.2 cm with the elimination of a single kinematic factor. decreased.

Based on the active movement of the left arm only, the vertical jump height from the ground (right arm attached to the body) is  $35.4 \pm 4.02$  cm. was equal to 12.2 cm from the traditional jump height. was expressed in small quantities.

The jump height recorded on the basis of the active movement of the right hand only is 3 cm higher than the height of the jump performed with the active movement of the left hand. was more than Hence, it is safe to say that the asymmetric difference in the active movement of the arms performed during the jump for the jump was also confirmed by the interval ranges between the minimum and maximum results of the individual indicators.

**Table 2. Indicators of the height of the vertical jump from the ground in volleyball players aged 19-21 and the role of some kinematic factors that provide it (n=16)**

Vertical jump conditions	The results obtained	
	min – max	$\bar{x} \pm \sigma$
Vertical jump from the platform (cm)	31 – 53	43,6±4,32
Jumping based on active movement of the right hand only (cm)	28 – 47	38,2±3,28
Jumping based on active movement of the left hand only (cm)	25 – 46	38,2±3,28
Jumping without active movement of both hands (cm)	25 – 46	18,2±3,16
Jumping on the right foot only (cm)	27 – 39	32,8±3,74
Jumping on the left foot only (cm)	29 – 43	37,2±3,22

For example, the range between the min and max readings of the jump height observed on the basis of the active movement of the right hand is 19 cm. e, the range of jump indicators with left hand movement is 21 cm. formed.

According to a number of experts, vertical and longitudinal jumps are based only on specific technical, coordination and kinematic features. For example, an athlete jumps higher or longer by leaning his head forward before jumping and leaving his arms behind, quickly stretching his legs bent during the jump, and swinging his arms upwards in an arc. An athlete cannot be lifted into the air unless his head is bent, his legs are bent, and his arms are actively moving in an arched direction.

Conclusion: The results of the study and their comparative analysis allow us to recognize the following conclusions:

1. A visual analysis of the training of volleyball players of different ages and backgrounds reveals that in today's volleyball, no serious attention is paid to the coordination of jumping techniques, coordination and jump height, which is a priority in the development of jumping and endurance. ekan.
2. Research on the dynamics of the development of jumping and jump endurance in 2021 shows this. The growth dynamics of the indicators representing these qualities was characterized by a very slow growth in volleyball players aged 19-21 years (jumping by 2 cm, jumping endurance by 3.32 times), the norm set by the program did not reach the required level.
3. Proved that the unity of the basic kinematic elements that ensure jumping and jump endurance, as well as the composition of the jumping technique in accordance with the method of jumping, and its integration function are not observed. It is this situation that leads to the conclusion that jumping and jumping endurance are performed at a level below the ability of volleyball players.
4. In order for volleyball players to purposefully and effectively develop jumping and jumping endurance, it is first necessary to train them in jumping techniques in accordance with the method of jumping, using local and integrated special exercises. In addition, we think it is appropriate to include the concepts of "jumping techniques and tactics", "kinematic elements that provide jumping techniques and tactics" in the process of training volleyball, jumping and jump endurance.

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