

Development and Improvement of The Motor Qualities of Volleyball Players Based on The Educational and Training Process

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Article History	Abstract
Received: 06 June 2023 Revised: 05 Sept 2023 Accepted: 06 Dec 2023	<i>Considering physical qualities as the basis of the motor capabilities of volleyball players, we will analyze them in detail. Jumping exercises for volleyball players are complicated by additional actions that develop the ability to calculate a jump by visual perception. The exercises will have a great effect if the students visually evaluate the result of their actions.</i> Keywords: Development, Physical Fitness, Jumping Ability, Physical Culture, Speed And Strength, Movements, Motor Activity
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1. Introduction

Speed and strength qualities (jumping ability). Jumping is a complex quality of motor activity, which is based on a combination of strength and speed of muscular contractions of the legs while maintaining an optimal range of movements. When performing a jump, the work of the leg muscles is performed in a high-speed power mode. And the greater the strength of the leg muscles and the speed of their contraction, the higher the jump.

It is noteworthy that volleyball players, performing an attacking strike and blocking, do not jump to their inherent and maximum height: with a block, the height of jumps is on average 9.35 cm lower, and with an attacking strike – 11.71 cm. This phenomenon is explained by the development of the so-called "grid barrier" in volleyball players, that is, the formation of a conditioned reflex in them as a result of the constant height of the grid.

It is no secret that the increase in the heights of volleyball players' jumps depends on the proper use of means and methods of physical training. At the same time, it is useful for coaches to know that a properly organized training process will have a positive effect on the development of jumping ability. However, the increase in jump rates will not be permanent.

According to scientific research, jumping develops stepwise. In the training process, at first there is a rapid increase in jumping ability (1-3 sessions), then there is a long period of slow increase in the indicator, in which cases of decreased jumping ability can sometimes be observed, followed by a new short-term sharp increase in jumping performance and a new long period of delayed development.

It is useful for volleyball coaches to know that the development of jumping ability has a stepwise character in terms of age. Most of all, the jump increases in 14-year-olds (by an average of 3.9 cm) and in 17-year-old athletes (by 4.57 cm). For 15-year-old volleyball players, the average jump height not only does not increase, but may even decrease. The highest jumping results are observed in male athletes by the age of 23, and in women by the age of 17-18.

The height of the jump is influenced, as indicated, not only by the strength of the muscles of the extensors of the legs, trunk and the speed of their contraction, but also the speed of the run before pushing off, placing the feet on the support, the angle of flexion of the legs in the ankle, knee and hip joints, active arm swing and the growth of volleyball players.

Muscle contraction during repulsion during jumps is "explosive" in nature, that is, when pushing, there is a pronounced concentration of effort in space and time. At the same time, in trained athletes, during the jump, there is a synergy between the thigh-shin antagonist muscles. This means that when the hip extensor muscles contract, its flexor muscles are not tense, while for beginners, the antagonist muscles remain not completely relaxed, which is exactly the brake for making a high jump. It follows

from the above that it is possible to achieve a high jump provided that the flexor and extensor muscles work in concert.

A volleyball player from a sitting position can stand up with a barbell weighing 100 kg on his shoulders. Let's assume that this is his maximum result. To use the method of unsaturated effort, the optimal weight of the burden for the athlete in this case will be in the range of 30-40 kg. In the range of this weight, the weight of the load varies depending on the well-being and fitness of the athlete, the period of the training process, attempts to approach the projectile and other circumstances.

First, the volleyball player puts a 25 kg barbell on his shoulders, squats and stands up with it at the fastest possible pace. Then this exercise is repeated, slightly increasing the weight. At the same time, jumping ability develops in the process of implementing technical techniques or their parts. For example, a volleyball player puts on a weighted belt weighing 4-5 kg and performs an attacking blow with weights.

The circular training method exercises are selected in such a way that the main muscle groups are consistently involved in the work. Tasks can be customized. Initially, the exercises are performed with efforts amounting to 40-50% of the maximum. The means intended for the development and improvement of jumping include the following:

- 1) jumping up on one and two legs;
- 2) jumping from a deep squat;
- 3) jumping on objects of different heights;
- 4) jumping rope;
- 5) jumping off the gym bench, followed by jumping on a pedestal 50-70 cm high;
- 6) jumping on a soft support (sand, sawdust, gym mats);
- 7) jumping up with a possible weight.

The recommendations of specialists for the development and improvement of jumping are of interest. For example, D.M. Ioseliani believed that the main means for the development of jumping ability are the jumps themselves, and additional ones are tempo movements with a barbell, speed running for 20-30 m, exercises with weights and other exercises of a speed-strength nature. Jumping ability is developed systematically with repeated performance of jumping exercises. Most of the exercises that contribute to the development of jumping ability in volleyball players, according to the coordination structure, approach the performance of techniques performed in the jump, ball delivery, forward kick, block.

Jumping exercises for volleyball players are complicated by additional actions that develop the ability to calculate a jump by visual perception. The exercises will have a great effect if the students visually evaluate the result of their actions. To do this, it is recommended to jump at the "oblique screen" device or attach a rail with divisions applied to it to the basketball board. Touching the reiki with your hand at the moment of the highest point of the jump will show the result of jumping. In addition, volleyball players are recommended to perform exercises related to running and jumping, jumping rope exercises, games and relay races.

When performing all the variety of jumping exercises, it is important not to forget that the jumping performance during unsystematic training deteriorates rapidly. Skipping even one or three classes already causes a noticeable decrease in the height of the jump. Therefore, systematic and year-round training is recommended for the development and maintenance of jumping at a high level.

Quickness. Speed as a physical quality is understood as a person's ability to perform motor actions in a minimum period of time for these conditions. It is assumed that the task takes a short time and does not cause fatigue.

The elementary forms of speed are relatively independent of each other. However, in practice it is usually necessary to meet with a complex manifestation of speed. The latent time of motor reaction is of great practical importance in the training of volleyball players. Motor reactions can be simple and complex.

A simple motor reaction is a response by a pre-known movement, taking the starting position to a pre-known signal to throw the ball or an attacking kick. A complex motor reaction is the response of a volleyball player to the sudden actions of an opponent or partner. For example, the player's exit to the ball, which changed the direction of flight after the opponent's serve or offensive strike. The time of a

complex motor reaction can be negligible. This is due to the fact that a volleyball player often anticipates the flight of the ball by the actions of an opponent making an attacking strike. After all, the ball after an offensive strike by highly qualified volleyball players flies at a speed of about 30 m / s, and the flight time to the ground is 0.10–0.12 s.

Nevertheless, volleyball players manage to take such punches. This is due to anticipating the flight of the ball. The ability to react quickly to a moving object, a flying ball can be trained. It is her development that is given special attention in the classroom. To do this, exercises are used with a reaction to a moving object; the requirements for the student are increased by increasing the speed of the movement performed, which is greater than the speed of a suddenly appearing object, as well as the speed of shortening the distance. Outdoor games with a small ball, performing accelerations from various starting positions based on a visual signal are very useful.

The speed of movement that a volleyball player can develop depends not only on the speed of reaction, but also on the level of dynamic strength, dexterity, and mastery of a technical technique. The latter is supported by the ability to perform the elements in a minimum period of time. The ability to make a series of attacking strikes, blocks, and throws behind the ball in a short period of time can be an indicator of a player's skill. And the ability to move quickly and occupy the starting position in a timely manner always contributes to the high-quality performance of a technical technique.

A volleyball player is characterized by moving around the court in small segments – 2-5 m, but they will have to be overcome as quickly as possible, otherwise you may be late to execute an attacking shot from a short pass, not have time to block an opponent or play defense. The speed of movement on the site is also trainable. If athletes of the II sports category have a reaction time to the ball and an initial speed on a 4-meter segment when picking up the ball behind the block is 4.2–4.8 seconds, then for highly qualified volleyball players this indicator is 3.1–3.5 seconds.

The means for developing speed are exercises in which rapid movements around the site are accompanied by imitation or performance of a technical technique, jerks with a sharp change in the direction of movement, running small segments with acceleration at the end of them. The frequency of movements is also important for volleyball players.

It is generally believed that speed, especially if it is expressed in the maximum frequency of movements, depends on the speed of transition of motor nerve centers from a state of excitation to a state of inhibition and vice versa, that is, on the mobility of nervous processes. Volleyball players show frequent and fast movements, as a rule, when playing at the net and in defense.

They are constantly being worked out. The most acceptable exercises will be receiving balls by one player, alternately sent to him by two or three partners, performing a series of attacking strikes, blocking, as well as serves in conditions as close as possible to the game. The methods of developing speed are: the repeated method. Performing exercises at about the maximum or maximum speed in response to a visual signal.

The conjugate method. Performing a technical technique with weights, for example, attacking strikes and moving around the site with a weighted belt.

The method of circular training. Performing exercises to improve speed in one lesson at various "stations".

The game method. It is most often used in the form of elementary outdoor and sports games. Students perform speed exercises in outdoor games and relay races.

The competitive method. Its essence is the comparison of forces in the process of rivalry, the struggle for supremacy or perhaps a higher achievement. Volleyball players perform exercises with extreme speed in a competitive environment. For example, the students send the ball into the wall with maximum speed. The winner is the one who made more passes in a minute without dropping the ball on the floor. With the development of speed, an important condition is the optimal state of excitability of the central nervous system, which can be achieved provided that the participants are not tired of previous activities. Therefore, speed exercises are located closer to the beginning of the lesson.

In a training microcycle, the development and improvement of speed is usually planned on the first or second day after a rest day, when there are no traces of incomplete recovery from past classes.

Since, with repeated high-speed work, rest intervals are still insufficient for full recovery, fatigue occurs relatively soon, which is externally expressed in a decrease in speed. This decrease serves as the first signal to stop working on the development of speed in this lesson; further repetitions of exercises only contribute to the development of endurance.

Dexterity. Of all the qualities, perhaps the least studied, which does not have a precise definition and a single criterion for evaluation, is dexterity. For example, you can be distinguished by good dexterity in volleyball and insufficient in gymnastics. There are people who master some movements faster than others, but when faced with performing other movements, they are among the last. Dexterity is, firstly, the ability to master new movements and, secondly, the ability to quickly rebuild motor activity in accordance with the requirements of a changing environment.

There are three degrees of dexterity. The first degree is the accuracy of movement, the second is the accuracy in speed and the third is the accuracy in speed under variable conditions. Naturally, it is important for volleyball players to master all three degrees of dexterity for successful gaming activities.

It is not recommended to confuse dexterity as a physical quality with coordination abilities. Physical qualities can manifest themselves in the form of abilities, but the mechanism of their development is different. To develop dexterity as the ability to master new movements, any exercises involving elements of novelty are used. And for the development of dexterity as the ability to rationally rebuild motor activity in a short time frame, exercises are used that require instant response to a suddenly changing situation.

From this point of view, the interaction with the ball of submission, passing, attacking, blocking, playing defense are dexterity exercises. The question arises: do volleyball players need to study any other movements? With the increase in sports skills, volleyball players have to face more experienced opponents. Their counteractions create conditions that require rapid responses and movements not previously studied by the athlete. To prepare for such situations, it is advisable to perform exercises and techniques in training sessions in conditions that are close to competitive with various changes and additions made both to the technique of performing techniques and the content of exercises, and to the conditions and environment for their implementation.

2. Conclusion

To confirm this, let's give the following example. Let's say a volleyball player has mastered an attacking shot from standard positions. Being in zone 4 in a high stance, he begins to strike in a timely manner with different ball passes in speed and direction and complete it, while showing a certain dexterity. But in one of the game episodes, while backing up a partner in zone 3, he knocked the ball up and fell. And the partner suddenly immediately addresses the ball to him in zone 4 to perform an attacking strike. The situation is unusual. You need to get up quickly, run up and hit the ball. This is where you need to show dexterity in the changed conditions. What exercises to develop it with. Naturally, playing similar situations in conditions close to the game. This will be a means to develop dexterity.

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