

## Injuries in Volleyball

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<b>Received</b> 07-07-2022	<b>Abstract:</b> Annotation. In the conditions of modern civilization, the general progress of biological, medical, pedagogical sciences has led to an unprecedented increase in sports achievements. Moreover, the volume and intensity of training loads in most sports have reached their limit values. In recent years, more and more importance is attached to programming, the development of rational modes of training and competitive loads and rest. To understand the nature of the impact of muscular activity on the body is impossible without taking into account the processes that take place after it, therefore, the recovery of the body after intense physical exertion is considered as an integral part of the training process	<b>Keywords:</b> Traumatism, Volleyball, Causes Of Traumatism, Mechanism Of Injuries
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### INTRODUCTION

In the conditions of modern civilization, the general progress of biological, medical, pedagogical sciences has led to an unprecedented increase in sports achievements. Moreover, the volume and intensity of training loads in most sports have reached their limit values. In recent years, more and more importance is attached to programming, the development of rational modes of training and competitive loads and rest. Understanding the nature of the impact of muscle activity on the body is impossible without taking into account the processes that take place after it, so the recovery of the body after intense physical exertion is considered as an integral part of the training process [7].

Individualization of the training process when using large volume and intensity loads requires careful dosing. Correction of training loads turns out to be impossible without systematic monitoring of the degree of recovery of the body of athletes after physical exertion. It is known that excessive loads that do not correspond to the capabilities of the body and the preparedness of the athlete lead to the phenomena of overwork and overtraining. On the other hand, the use of "sparing" loads in training does not lead to an increase in the functional state of the body and fitness. Finally, excessive loads can lead to serious illnesses and injuries in athletes [7]. The recovery of an athlete's body after training loads depends on a large number of factors, among which the training period, qualifications, gender, health status and physical development of the subject play an important role. According to a number of scientists, the most effective means of recovery after large competitive and training loads is sleep. There are a number of other means that contribute to the

acceleration of recovery processes in the body of athletes. However, before applying various means and methods that increase the effectiveness of rest, it must be remembered that any means, contributing to the acceleration of recovery, is in some cases an additional burden on the body. Injuries in volleyball are relatively rare when compared to other team games such as football, basketball or hockey. Among the team sports at the Beijing 2008 Olympics, volleyball had the lowest injury rate [6]. At the same time, unlike other team sports, volleyball is a non-contact sport, i. the opponents of the two teams are separated from each other by a net and have no right to contact each other. If this important condition is taken into account, then volleyball becomes a rather traumatic sport among non-contact sports, such as skiing, gymnastics, tennis and others [1].

There are 4 main injuries that are typical for volleyball - ankle injuries occur most often, followed by injuries of the fingers, knee and shoulder injuries. Consider the main types of injuries in volleyball. In volleyball, both acute and fatigue injuries caused by constant tissue microtraumatization are equally common [1]. Aagaard and Jorgensen showed that 97% of finger injuries and 86% of ankle injuries were acute injuries, while 90% of shoulder injuries and 88% of knee injuries were fatigue injuries. Moreover, fatigue injuries in 55% of cases occurred in training, and 74% of acute injuries occurred in competitions [4]. In most cases, acute ankle injuries are ankle sprains [2]. Also in volleyball, bursitis and a small number of fractures (most often fingers) occur quite often [5].

What is the mechanism of injury in volleyball? In volleyball, the most intense and

active is the game under the net. Therefore, it is not surprising that most injuries occur precisely at such moments as attacking and blocking. And it is natural that the greatest number of injuries, especially ankle injuries, occurs in three players under the net - forwards of the first and second pace (end players and central blocker) [1,2]. When performing a block, the fingers and ankle were most often injured on landing after the block. During the attack, the shoulder and knee were most often injured [4]. These trends are supported by other studies - 54% of injuries on the block, 30% of injuries during the attack [1]; 89% of injuries occurred when playing under the net (block and attack), while 58% of ankle injuries occurred on the block, and 64% of all other injuries during attack [3].

It was also found that 68% of all ankle injuries occurred when landing on the opponent's foot (the rules provide for situations when you can cross the center line under the net), 19% of ankle injuries occurred due to landing on the foot of a teammate during a double or triple block [3].

Consider the main injuries in volleyball and the causes of their occurrence.

[1] Shoulder injuries. In volleyball, the goal is to drive the ball into the opponent's court with maximum force. The speed of the ball after impact depends on the amount of force applied and the duration of contact between the ball and the hand. To apply maximum force, the hand must move at maximum speed. With good punching technique, the speed of the hand is provided mainly by the hip flexors and trunk flexors. The use of hip and trunk flexors minimizes stress on the shoulder and arm muscles and allows for control of movement hands before contact with the ball. Lack of involvement of the hip and trunk muscles is usually compensated for by excessive shoulder movement involving intense shoulder muscle activity. This likely results in excessive stress on the shoulder muscles and other structures, which can lead to damage to the rotator cuff.

The movements of the arm above the head, for example, when performing a "extinguishing" blow in volleyball, are carried out due to movement in three joints: the shoulder, acromial-clavicular and sternoclavicular. With limitation of movement in the last two joints, hyperabduction of the shoulder joint must occur in order to achieve the desired position of the arm above the head. In this case, the structures supporting the shoulder joint are most likely pressed against the acromion

process and ligaments, which leads to damage rotator cuff and the occurrence of "strangling syndrome".

The performance of the serve and the "extinguishing" blow in volleyball includes all phases of throwing - lifting, accelerating and accompaniment. Oka *et al.* (1976) found that there are two types of lifting movements. In one case, the shoulder rises first in a forward flexion motion; in the second, it is held below the acromion and pulled back into horizontal flexion until raised. Since the first option is much more reminiscent of the "pinching" symptom, it is advisable to use the second option for performing a serve in volleyball. Hitting the ball with the hand during the serve and attack, throughout visibility, causes a sharp eccentric overload of the rotator cuff.

Finger injuries in volleyball are very common. Perhaps, there will not be a single volleyball player who has not encountered this problem. In professionals, finger injuries usually occur on the block, when the blow falls on the outstretched finger [4].

In less professional athletes, finger injuries can also occur in more trivial situations - when receiving or passing. By type of injury, these are most often microtraumas of the ligaments, which are often called "sprains". Also in volleyball there are dislocations and fractures of the fingers [5].

In some studies, the percentage of finger injuries in relation to the total number of injuries is absent or has a low value. This may be due to the fact that in these studies, the injury was characterized by the time of non-participation in training, and most athletes continue to play, fixing the injured finger with tape or plaster [1, 4]. The injury can occur in any of the joints of the finger. The most unpleasant is the injury of the metacarpophalangeal joint, since this joint is not so easy to fix, and a break in training is usually necessary. Injury can occur as a result of a blow to a straightened finger, as a result of which the bones in the metacarpophalangeal joint are displaced, and the collateral ligaments are damaged. In extreme cases, a dislocation in this joint can occur. Also, such a blow can lead to another serious injury - damage to the tendon of the flexor muscle of the fingers, sometimes called the "hammer finger".

Knee injuries are among the four most common injuries among volleyball players. Volleyball knee injuries include both acute and

fatigue injuries. Fatigue injuries are much more common than acute ones [4]. The most common knee injury in volleyball is patella tendonitis, better known as jumper's knee. Among acute injuries, the most common rupture of the anterior cruciate ligament.

Ankle injuries are the most common in volleyball. According to some reports, up to half of all injuries in volleyball are caused by ankle injuries. The most common mechanism for ankle injury is landing on another player's foot, most commonly the opponent's foot. At the same time, in beach volleyball, ankle injuries are less common. This is probably due to the smaller number of players on the court and the peculiarity of the biomechanical properties of the sand. Most ankle injuries are acute injuries, namely sprains.

## CONCLUSION

A major risk factor for ankle injuries is previous ankle sprains. According to Bahr, in 79% of cases, the ankle injury was repeated, and only in 5% of cases the injury occurred for the first time. It has been determined that during the first 6-12 months after injury, the risk of re-injury increases by 6-10 times [3]. Another factor in ankle injury is fatigue, which negatively affects the function of muscle spindles through the activation of pain receptors and the release of inflammatory by-products that reduce the bioelectrical activity of muscle spindles.

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