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## STUDY ON SPORTS INJURIES AMONG STUDENTS - VOLEYBALL ATHLETES

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### ABSTRACT

Sports injuries are common, although apart from high-level sportsmanship, sport is practiced mostly as a means of health prevention. Injuries in volleyball have been relatively widely studied, but it is of interest to us to establish the status of the problem in students who are not professional players, but are engaged in volleyball, primarily at the university level. The aim of the study is to determine the type of the most frequently received injuries and their causes in student-competitors in volleyball, by deriving relevant recommendations for their prevention in practice. A survey method was used to achieve the purpose of the study. 84 volleyball players from representative student teams from universities in the Republic of Bulgaria were included in the study. The results of the study show that the most common injuries are of the lower limb, namely of the ankle joint, followed by injuries of the knee joint. Upper extremity injuries are less represented than lower extremity injuries, with more than 80% involving the shoulder joint. The conducted survey outlines trends for the prevention of sports injuries at the university level, allowing recommendations to be made, especially for athletes and their coaches.

**Key words:** sports, prevention, musculoskeletal injuries, risk factors

### INTRODUCTION

The problem of injuries in volleyball arouses interest and is the subject of many studies, which in most cases are retrospective and focused on elite sport (1-5). A small number of studies on injuries in college students playing volleyball are found (6-10). Unlike other team sports, volleyball lacks physical contact between players due to the fact that the teams are separated by a net. The etiology of injuries shows that most often injuries are the result of landing after a block or attack, or due to an inadvertent penetration of a player into the opponent's field (11). The most commonly reported injury in volleyball players is the ankle sprain (12). Repetitive jumps and unbalanced landings take a toll on the knee joints and can lead to overuse injuries (11). Working to develop coordination abilities from an early age in

volleyball players is of key importance for mastering good technique, which in turn is a factor in preventing injuries (12, 13). The purpose of the study is to determine the type of the most frequently received injuries and their causes in student-competitors in volleyball, by deriving relevant recommendations for their prevention in practice.

### METHODS

A survey method was used to achieve the purpose of the study. 84 volleyball players from representative student teams from universities in the Republic of Bulgaria were included in the study. The average age of the study participants was 21.7 years, with the oldest volleyball playing student being 31 years old. The survey includes questions that refer to the passport data of the participants, their university affiliation, sports experience, training process they carry out, habits, injuries received over the years, etc. The results of the study were processed by a software program and subjected to frequency and graphical analysis.

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volleyball teams from universities in the country is an average of 9.3 years, and the students spend an average of 8 hours and 19 minutes per week in training.

**RESULTS AND ANALYSIS**

The conducted survey shows that the sports experience of the students of the representative

*Table 1. Results of answers to questions related to trauma*

QUESTION	YES	NO
Have you received an injury related to the practice of your sport?	91,67%	8,33%
Have you visited a sports doctor regarding your injury(s)?	73,8%	26,2%
Do you warm up before training and racing?	95,33%	4,76%
Do you stretch after practicing sports?	77,4%	22,6%
Are you familiar with the different methods of sports injury prevention?	75%	25%

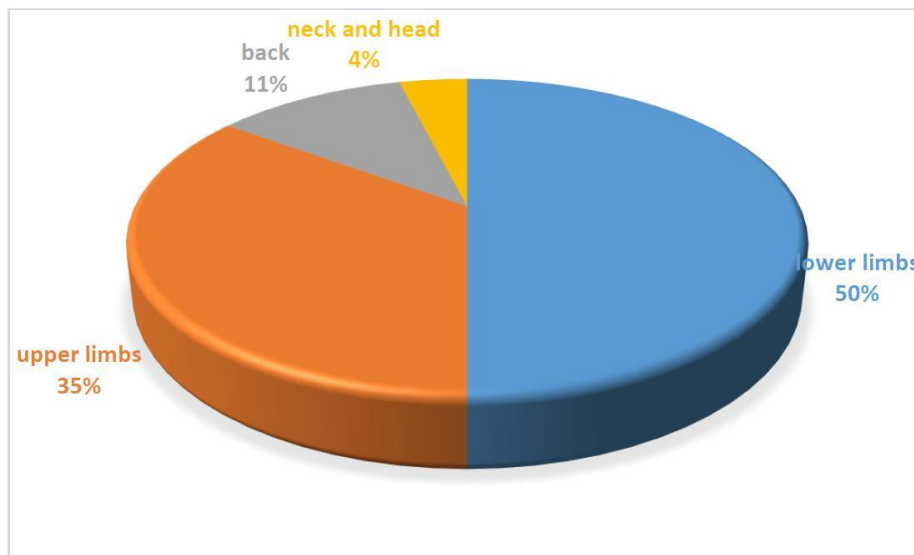


Figure 1. Distribution of injuries

From **Table 1**, it can be seen that only 8.33% of the examined persons did not receive an injury in connection with the practiced sport, and 53.6% of the examined persons reported the presence of chronic injuries. This could be due to the fact that 4.76% of respondents do not warm up before training and competition, and 22.6% of respondents do not conduct a cooldown after training and competition. The percentage of those who gave the answer "I don't warm up before training/competition" is insignificant against the background of the others who do it, but the fact that in practice there are athletes who underestimate this important part of the

preparation for practicing motor activity is worrying. Warm-up athletes spend an average of 27.3 minutes preparing for the upcoming exercise, which we believe is insufficient time to prepare all systems for intense exercise, especially the musculoskeletal system. The insufficiently good information of the competitors is also confirmed by the answers to the question "Are you familiar with the various methods for the prevention of sports injuries?", from which it can be seen that 25% of the respondents are not familiar (**Table 1**). The results of the survey show that the students, volleyball players, received the most injuries of the lower limbs - 50%, followed

by injuries of the upper limbs - 35.1%, back injured 11% of the respondents, and neck and head were injured 3.9% (**Figure 1**).

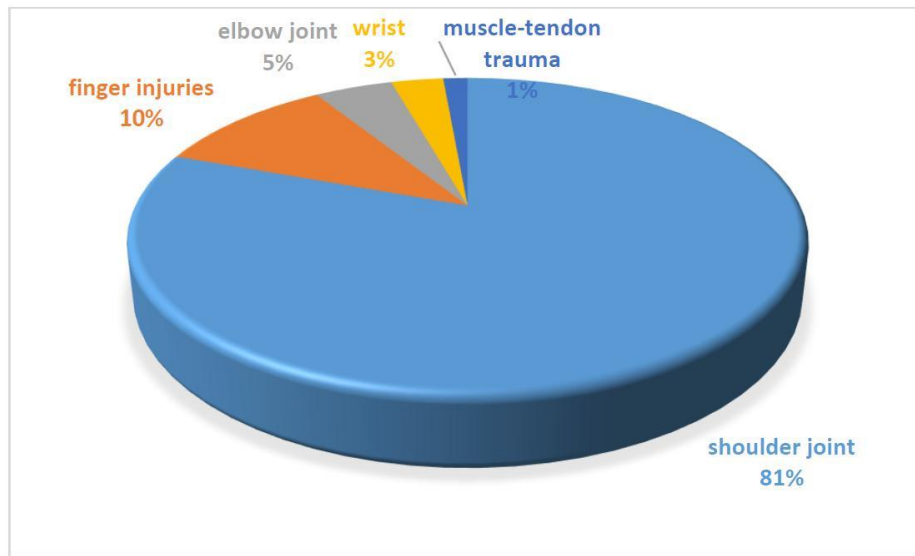


Figure 2. Distribution of upper extremity injuries

Upper extremity injuries are distributed as follows: shoulder joint – 80.6%, followed by finger injuries – 10.5%, elbow joint 4.5%, wrist –

3% and musculotendinous injury – 1.4% (**Figure 2**).

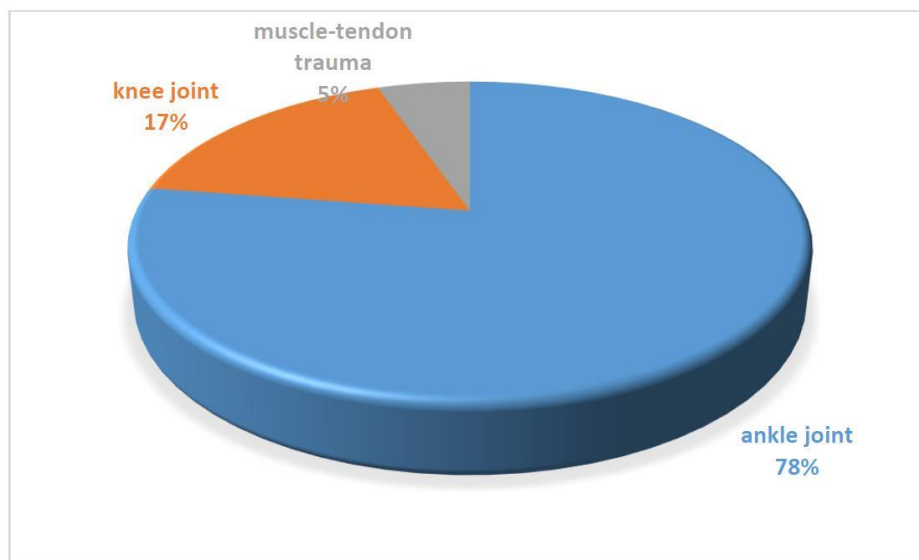


Figure 3. Lower limb injuries

In the case of injuries to the lower limbs, ankle joint injuries are the leading ones - 77.4%, followed by knee joint injuries - 17.3% and muscle-tendon injuries - 5.3% (**Figure 3**).

According to research, female players are more prone to knee ligament injuries than men due to a more pronounced valgus of the lower limbs (11).

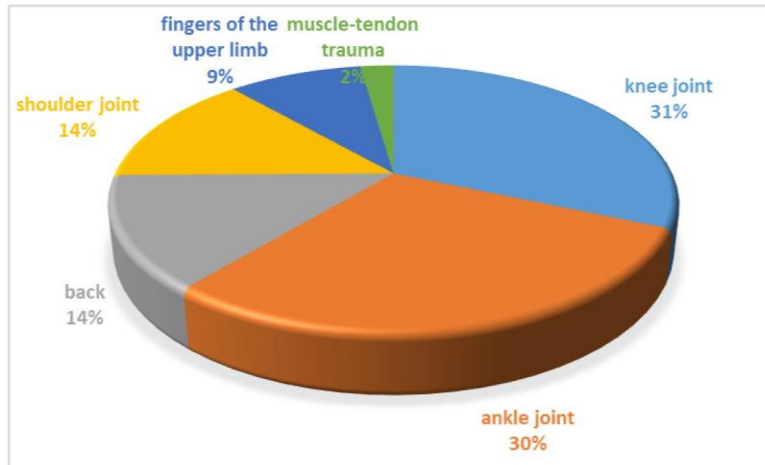


Figure 4. Distribution of chronic trauma

Chronic injuries in volleyball players from student teams are presented in **Figure 4**. It shows that 31.5% of the students report that they have a chronic knee injury, the pathology of which follows from a chronic ankle joint injury - 29.6%, 13.7% fall to a chronic back/cross injury and shoulder, fingers of the upper extremity were reported by 9.2% and 2.3% were chronic musculoskeletal injuries (students indicated Achilles tendon and calf muscle). 73.8% of the respondents visited a sports doctor in connection with receiving an injury, and it is not clear how the rest of the athletes who received an injury were treated, which represent 17.87% of the respondents, because of all respondents, 8.33% did not receive any injuries (**Table 1**). Of interest to us are the answers to the question "Was treatment carried out for your injuries?", 55.9% of

the volleyball players answered "Yes", "Only in some cases" answered 21.4%, "I treated myself" answered 20.2% and 2.5% answered "No". We believe that self-medication and treatment only in some cases is an alarming fact, which can largely be attributed to distrust in the specialists responsible for the treatment of injuries in athletes, as well as in the lack of sufficient information regarding trauma in athletes themselves. This approach can be harmful in many ways, but mostly in terms of untimely treatment and poor quality recovery, which leads to repeated injuries and chronification of the processes. For the next two questions, respondents were allowed to give more than one answer, which is why the frequency of response distribution exceeds 100%.

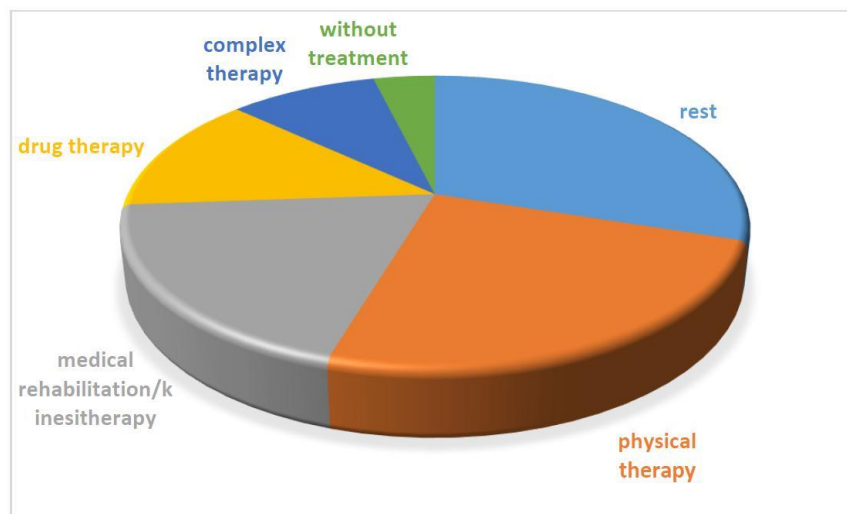


Figure 5. "What type of treatment was most often used for your injury(s)?"

In order to ascertain the treatment methods used by athletes for their injury recovery, we asked the question: "What type of treatment was most often used for your injury(s)?" (Figure 5). It is clear from the answers that "rest" has the greatest advantage - 54.2%, followed by "physical therapy" - 44.4% and "medical rehabilitation/kinesitherapy" - 34.7%, "drug therapy" was carried out 23.6%, and "complex therapy" (combination of the above) - only 16.7%. The fact that 6.9% of the surveyed athletes remained without treatment after receiving an injury is alarming. In terms of establishing the applied methods for the prevention of injuries and the awareness of the athletes, we asked the question: "Which methods of prevention of sports

injuries do you know?" (Figure 6). The answers are arranged as follows: "warming up" - 93.9%, "massage" - 87.9%, "stretching" - 86.4%, "physical procedures" - 62.6%, "kinesiotaping" - 59%, "water procedures" - 48.2%, "use of professional equipment" - 46.9%. It is interesting for us that 26.5% of the respondents give the answer "all mentioned", which is a quarter of the sample. We believe that the complex approach in the treatment and prevention of injuries is the most correct and successful and that work should be done in the direction of improving the awareness of coaches, respectively university sports teachers and students, not only volleyball players, but also by all university teams, as well as from compulsory sports groups.

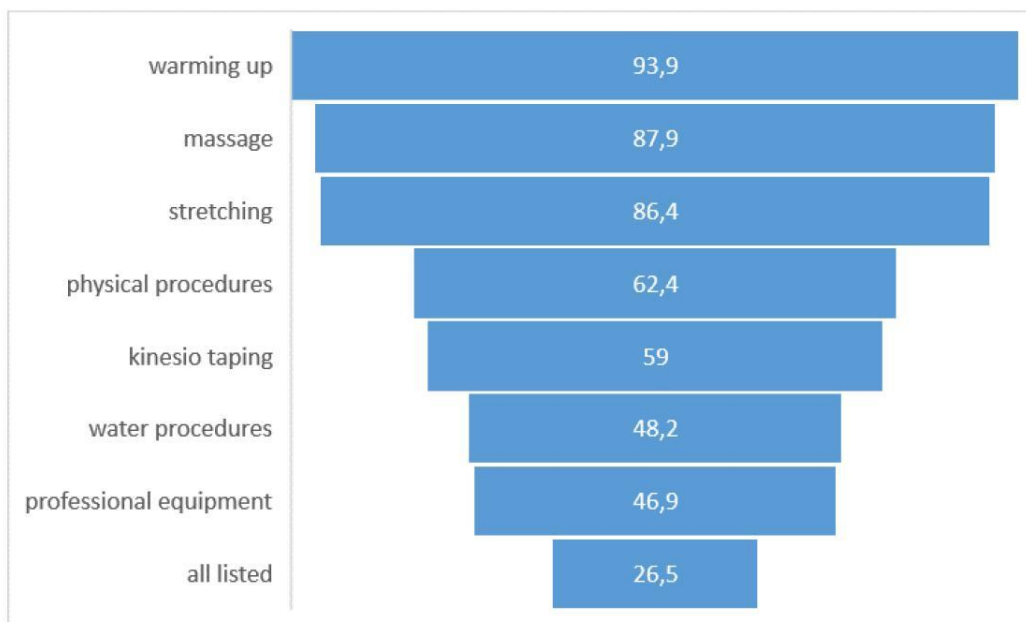


Figure 6. "Which sports injury prevention methods do you know?"

### CONCLUSION

The results of the study show that the most common injuries are of the lower limb, namely of the ankle joint, followed by injuries of the knee joint. Injuries of the upper limb are less represented than those of the lower limb, and in over 80% of cases it is due to injuries of the shoulder joint. More than half of the studied students suffer from chronic trauma, and the reasons for this can be sought primarily in the lack

of awareness, neglect of the trauma and its treatment, and poor recovery.

The conducted survey outlines trends for the prevention of sports injuries at the university level, allowing recommendations to be made, especially for athletes and their coaches. Athletes and coaches need to be thoroughly informed about the important role of warm-up and cool-down in the prevention of sports injuries. There is also a need to become familiar with recovery

methods and a complex approach to the treatment of sports injuries.

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