

THE MOST COMMON INJURIES IN VOLLEYBALL AND THE STRATEGIES TO PREVENT THEM.

Literature review:

Nurja. A¹

¹Sports University of Tirana, Albania, Institute of Scientific Research and Sports

Correspondence: Anisa Nurja, e-mail: anurja@ust.edu.al

(Accepted 10 March 2020)

<https://doi.org/10.33598/V7I120203>

Abstract

Volleyball is known for its benefit in health but on the other hand it is associated with a risk for injuries both acute and overused. Strategies to reduce or prevent the occurrence of acute and overuse injuries are very important in this field because it decrease the loss-time in competitions. The purpose of this study is to identified which are the most common volleyball injuries and the strategies that support the prevention of damages in this sport. Researches are selected through Scopus, PubMed, Google scholar and Web of Science. There are included articles from different countries focused on injuries in volleyball. There are many injuries occur in volleyball but most of the researches considering in this study evaluates ankles sprain as the most common injuries in volleyball. Even though the other injuries are not so much left behind. An important approach to prevent all injuries in amount of 40% in doing an appropriate warm-up and considering it as an important part of the training session. The information in this research contributes to trainers, researchers and coaches who want to make a prevention program addressing to the most common injuries in volleyball in order to reduce the number of incidents in this sport.

Keywords: volleyball, injuries, strategies, prevention, acute injuries, overused injuries.

Introduction

Volleyball is a “noncontact” sport where players of each team are separated by a net, but this does not avoid injuries because the high level of competitions seems to be risky for traumatic and overuse injuries but mostly the rate of injuries are very low (Bere T et al., 2015; Kerr ZY et al., 2015). Compare to contact sport like handball, football, ice hockey etc., volleyball is considered the safest sport and little risky one (Reeser J C et al., 2006). Despite being the safest sport comparing to the other volleyball is

exposures to injuries. Those who want to participate in volleyball must considerate the risk of injuries in the moment they step on to the court. The study of (Nurja A & Caushi A, 2019) revealed anthropometric parameters effects the vertical jump which is very important element in volleyball performance. Vertical jump for many studies is considerate as a risky factor in acute and overused injuries.

Injuries are considered to be those damages that happen during the participation in an organized competition and needs medical help (Christine M. Baugh, 2017). They cause difficulties to participate normally in volleyball activities, influence the performance in this sport and athletes experience pain in that part of injured body so eventually they reduce training volume. It possible to prevent injuries through prevention program by knowing the injuries pattern characteristic of this sport (Bahr R & Krosshaug T, 2005). The injuries based on gender are examined in this study. Volleyball's researches related to injuries are very limited in Albania. The lack of data on male's and female 's volleyball leaves gaps in knowledge on this field. According to (Jarani J et al., 2015) in democratic period physical education and sports system has gone through many changes in structure and concepts and this transition period it is not over yet. This is one of the reasons why many data in sport field are not available. Aims of the study is an overview of the injuries in volleyball discipline in different countries and the strategies that help to avoid them.

Methods

In this study it is used a review methodology. Online database such as Scopus, PubMed and Web of science were conducted for researches that reported injuries in volleyball and ways to avoid them.

Objectives and hypothesis

The objective of this research is to organize and evaluate studies and literatures related to

injuries in volleyball and methods to avoid them. Identification of the most common injuries of volleyball athletes is part of the objectives in this study. Hypothesis of this is research is that the injuries are very common in volleyball and some of them are most likely to occur often even though there are some measures that help a lot in preventing those injuries.

Common injuries in volleyball

Lower extremities considered to be the most damage part of the body especially ankles and knees including various diagnoses (Agel J et al., 2007), (Bere T et al., 2015) and (Verhagen EA et al., 2004). Damages in ankles are time-loss injuries that prevent participation in training session more than 24 hours whereas damages in knees are non-time-loss injuries and last less than 24 hours (Christine M et al., 2017). The (Verhagen EA et al., 2004) study has reported the same statement about the injuries in ankle as a time-loss injuries and it excludes from competitions and training 4.5 weeks (on average) . The (Bere T et al., 2015) study shows that in elite volleyball players the knees injuries are non-time-loss injuries because of the use of bracing and others equipment to prevent and protect the lower extremities.

Ankle sprain injuries

Some other researches have revealed that half of the volleyball injuries are acute ankle sprains for both gender and for all skills level (Bahr R & Bahr IA, 1997), (Bahr R et al., 1994). Bere T et al., 2015 in her study reported that the ankle was the most injuries part of the body (25.9 %) across all age and

sex group and the most frequent specific diagnosis is ankle sprain. Joint sprains are the most common injury type affected mainly the ankle. However, injuries are different related to the role of athletes, for example, libero is prone to finger and thumb injuries than ankle sprain. The study of (Beneka A et al., 2009) the most common acute injuries are located in ankle and finger while overused injuries are located in knees and shoulder. Although, Bere T et al., 2015 study accounted a result around 25.9% for ankle injuries, the Verhagen EA et al., 2009 revealed a result around 50%. Many other studies have reported that ankle sprain is the most common injury in volleyball the cause time lost in court.

Patellofemoral injuries

Another injury that is worthy to mention as overused injury and as a common diagnosis is patellofemoral. According to (Jeffrey D et al., 2019) 49.2 % of all patellofemoral injuries are patellar tendinitis that seems to be common injuries in this sport. This diagnosis occurs mostly in sports that require quick changes direction and continuously jumping. 40% of male who played in indoor volleyball has reported problems with patellar tendinopathy while there is less percentage in females (Ferretti A., 1986). But Jeffrey reported in his study that woman's volleyball had the highest incident rate of patellofemoral injuries of all sports. The mechanism of patellofemoral injury is classified as gradual overused and not traumatic injury and it is reported by many studies as time lost damage.

Musculoskeletal injuries and shoulder pain

Musculoskeletal injuries are incidences that happen in volleyball around 1.7-10.7 injuries per 1000 playing hours mostly in those part of body such as shoulders, fingers/wrists, knees and ankles (Kilic O et al., 2017). A potential strategy to prevent this kind of injury is minimizing the volume of jumps especially in an inadequate surface. Controlling the load, volume, intensity and frequency of the training, not only in aspect of improving the skills but also in aspect of athlete's health, is always a good solution to avoid volleyball injuries. There is always the question why some athletes suffer from volleyball injuries while the other not. It is unclear the reasons and there are no studies to explain that but a potential answer will be genetic factor. Although, lower extremities are mention as the most damaged part of the body in volleyball, injuries in upper extremities do not remain behind. The third most common injuries of upper extremities are shoulder pain symptoms that occur both in female and male (Wang HK & Cochrane T, 2001). Another important think that we have to prevent, are chronic injuries that are caused by recurrent injury. Injuries effect athletes daily and sport life and cause healthcare costs (Verhagen E et al., 2005)

Woman faced injuries more than man in volleyball.

Recently the gender is considered to be as a risk factor for injuries in volleyball especially for acute ankle injuries according to some volleyball literatures. Women had a higher rate of overuse injuries while men

had a higher rate of ball contact–related injuries (Christine M. Baugh, 2017). Woman consists to have higher NTL injuries compare to man. Also (Christine M. Baugh, 2017) has found that woman have high rate of injuries compare to mans in e period of time between 2013-2014 and 2014-2015. Even (Mjaanes JM &Briner WW, 2005) in their study reported that elite volleyball woman are more prone to shoulder pain than elite volleyball man. However, there are no definitive analysis of the data about the role of gender as a risky factor of injuries in volleyball. So it is necessary to make advance analysis in order to know the impact of gender on volleyball injuries. Apart of the limited analysis related the effect of gender on injuries in volleyball, we also need further research about the severity and injuries incident in this field.

Strategies to prevent injuries in volleyball

It is important to identify some ways and strategies in order to decrease injuries in volleyball. Athlete safety matters a lot not only for sport purposes but also for the athlete’s lives. There are proposed several ways to prevent injuries in volleyball starting by improving the rehabilitation, using supporting equipment like brace and practicing appropriate techniques. Bahr et al., 1997 has used balance training technical training and awareness informant about injuries in volleyball to increase the number of injuries incidents (ankle sprain). According to Stasinopoulos D, 2004 only technical training intervention has reduced injuries in volleyball (ankle sprain).

For patellar tendinopathy injuries is recommended as a preventive strategie, the landing technique including more ankle, knees and hips range of motion and not limited motion in those joins. Sometimes preventing injuries lead to change the rules of game but this fact is impossible. A relative solution for overused injuries will be to monitor training load, use appropriate strength and technique and practice lot of stretching or flexibility (Hreljac A et al., 2000). Generally supporting equipment like brace and tape are using to prevent injuries in volleyball (but not only) even though there are no studies that prove this fact (Verhagen EA et al., 2000). Evidences have showed that the injury rate is higher in competition than in practice (Marar M et al., 2012) while the higher percentages injuries occurred in practice more than 70%. Severe injuries happen mostly in competition because the intensity is in highest level where as injuries in practice are more likely to be overused damages. Injuries like ankle sprains happen more in indoor volleyball than outdoor (Aagaard H et al., 1997). The reason of this statement is because the indoor volleyball is played in a court where as outdoor volleyball is played on soft sand.

Results

Woman’s volleyball has a higher likelihood to suffer from patellofemoral injuries compare females in other sport that require lots of jumps. The information is collected by many countries including National Collegiate Athletic Association (NCAA) USA, Netherland and the other countries since some information are taken by

International Volleyball Competitions. The analyses include common injuries in volleyball such as sprain ankles, knees injuries, shoulder pain, patellofemoral injuries, musculoskeletal injuries and strategies to prevent them.

Discussion

The most common volleyball injury for many studies is ankle sprain injury but according to Jeffrey patellar tendinitis is the most common injury type of all 25 sports included in the study. Athletes do not take seriously their health problems especially when they faced overused injuries and it is most likely to participate despite their complaints (Gouttebarga V et al., 2017). The study provides information about the common injuries in volleyball and how to prevent them based on different studies of Europe and America. This research gives a clear idea what the athletes faced in volleyball and which are some strategies to prevent injuries. A considerate number of studies are analysis through this research.

Limitations

This study is focus on a review literature and is based on data of the Europe and USA countries but do not have a database of Albania. Finding are based only in student-athletes and not in the other ages. The research is limited in variety of diagnoses

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and many other damages or injuries that have lower percentages of occurring are excluded or not taking into consideration. Regrettably, another limitation of this study is not using direct comparison because the methodologies and design are different and sometimes it is impossible to compare. The measuring unit of injuries during the competitions are different in different studies. As we know volleyball is played indoor and outdoor but this epidemiological research has considered only the indoor volleyball played with six players. Large number of studies taking into consideration while doing a review articles will bring more occurrence in results and conclusion. Future researches should determine which are the factor that caused injuries in volleyball and if there are new methods to prevent and heal those damages.

Conclusion

Ankle sprain seems to be as the common injury in many researches and can result as time lost from volleyball. Injuries in competition are more likelihood to happen compare to those in training session or practices. The information providing by this study may be quite useful in contributing to prevention efforts. Woman's volleyball is more prone to experience injuries compare to man's volleyball.

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