

SOCCER SPORTS INJURIES AMONG CAMPUS TEENAGERS

LESÕES ESPORTIVAS NO FUTEBOL ENTRE ADOLESCENTES DO CAMPUS

LESIONES DEPORTIVAS EN EL FÚTBOL ENTRE ADOLESCENTES DEL CAMPUS



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ABSTRACT

Introduction: College soccer is a major priority for the Chinese sports department. Among the most relevant issues is the search for solutions to prevent sports injuries among young college soccer players in the development process. **Objective:** Investigate the causes and characteristics of sports injuries among young college soccer players, aiming to develop scientific measures for prevention and control. **Methods:** A total of 304 young people from primary and secondary schools in one city were selected as volunteers for the research, and the causes and characteristics of sports injuries among these players were analyzed using questionnaires, interviews with experts, and statistical-mathematical analysis. **Results:** According to the characteristics of injury factors of soccer players at different learning stages, a good job should be done on preventing sports injuries of physiological, psychological, technological, training, and other aspects, to reduce the risk of sports injuries in young soccer players. **Conclusion:** Fully understanding sports injury risk prevention, timely summarizing the experience and learnings, and doing a good job in sports injury prevention from the aspects of physiology, psychology, technology, training, and other aspects according to the characteristics of injury factors of soccer players at different school stages are desirable practices to reduce the risk of sports injury and improve the quality of school soccer training and competition for young college soccer players. **Level of evidence II; Therapeutic studies - investigation of treatment outcomes.**

Keywords: Soccer; Sports Injuries; Students; Universities.

RESUMO

Introdução: O futebol universitário é uma grande prioridade do departamento de esportes chinês. Entre os temas mais relevantes está a busca de soluções visando evitar lesões esportivas entre os jovens jogadores de futebol universitário no processo de desenvolvimento. **Objetivo:** Investigar as causas e características das lesões esportivas entre jovens jogadores de futebol universitário, visando o desenvolvimento de medidas científicas de prevenção e controle. **Métodos:** Um total de 304 jovens de escolas primárias e secundárias de uma cidade foram selecionados como voluntários para a pesquisa, sendo as causas e características das lesões esportivas desses jogadores analisadas por meio de questionários, entrevistas com especialistas e análises estatístico-matemáticas. **Resultados:** De acordo com as características dos fatores de lesão dos jogadores de futebol em diferentes estágios de aprendizagem, deve-se fazer um bom trabalho na prevenção de lesões esportivas dos aspectos fisiológicos, psicológicos, tecnológicos, de treinamento e outros aspectos, a fim de reduzir o risco de lesões esportivas dos jovens jogadores de futebol. **Conclusão:** Compreender plenamente a prevenção de riscos de lesões esportivas, sumarizar em tempo hábil a experiência e as aprendizagens e fazer um bom trabalho na prevenção de lesões esportivas a partir dos aspectos de fisiologia, psicologia, tecnologia, treinamento e outros aspectos de acordo com as características dos fatores de lesão dos jogadores de futebol em diferentes estágios escolares, são práticas desejáveis para reduzir o risco de lesões esportivas e melhorar a qualidade do treinamento e da competição do futebol escolar para os jovens universitários. **Nível de evidência II; Estudos terapêuticos - investigação dos resultados do tratamento.**

Descritores: Futebol; Lesões Esportivas; Estudantes; Universidades.

RESUMEN

Introducción: El fútbol universitario es una de las principales prioridades del departamento de deportes chino. Entre las cuestiones más relevantes se encuentra la búsqueda de soluciones destinadas a prevenir las lesiones deportivas entre los jóvenes futbolistas universitarios en proceso de desarrollo. **Objetivo:** Investigar las causas y características de las lesiones deportivas entre los jóvenes futbolistas universitarios, con el fin de desarrollar medidas científicas de prevención y control. **Métodos:** Se seleccionaron 304 jóvenes de primaria y secundaria de una ciudad como voluntarios para la investigación, y se analizaron las causas y características de las lesiones deportivas entre estos jugadores mediante cuestionarios, entrevistas con expertos y análisis estadístico-matemáticos. **Resultados:** De acuerdo con las características de los factores de lesión de los futbolistas en las diferentes etapas de aprendizaje, debe realizarse un buen trabajo sobre la prevención de las lesiones deportivas de los aspectos fisiológicos, psicológicos, tecnológicos, de entrenamiento y otros, con el fin de reducir el riesgo de lesiones deportivas de los jóvenes futbolistas. **Conclusión:** Comprender plenamente la prevención del riesgo de lesiones deportivas, resumir oportunamente la experiencia y los aprendizajes, y hacer un buen trabajo en la prevención de lesiones deportivas desde los aspectos de la fisiología, la psicología, la tecnología, el entrenamiento y otros aspectos según las



Descriptor: Fútbol; Lesiones en Deportes; Estudiantes; Universidades.

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INTRODUCTION

Football, as the most influential sport in the world, has been developing rapidly for several years, and the competition is becoming increasingly fierce.¹ All countries are trying to improve the level and quality of their football players, including neighboring South Korea and Japan. The overall development plan of China's football development and reform indicates that the revitalization of football is an inevitable requirement for China to build a sports power, and relevant practitioners should attach great importance to campus football education.² As an educational project to comprehensively promote the comprehensive reform of school sports, campus football is a major strategy to comprehensively cultivate football reserve talents with schools and football as the fulcrum. As one of the basic courses of school physical education, football has had a tremendous impact on all aspects of cultural education since its birth.³ Our country's campus football has made great progress, and the level of campus football competition is constantly improving, which puts forward higher requirements for the technical and tactical level of campus football players. Campus football activities are developing towards high-intensity training, high competitive level, fast rhythm attack and defense conversion, and many kinds of requirements directly or indirectly lead to the increase in the incidence of sports injuries of campus football players.⁴ In the process of participating in football, because of its inherent physical antagonism, athletes will face higher injury rate and serious injury rate. Sports injuries will have a huge impact on athletes' training, competition and even learning life, which violates the national goal of developing students' physical quality and cultivating healthy physique in the course of curriculum reform, and is not conducive to the development of school sports.⁵

In order to maximize the health benefits of football, we should first effectively prevent and control potential injury risks.⁶ Insufficient attention to injury prevention and health care may have socio-economic and public health consequences. As the best choice to change the current situation of China's football foundation, campus football has been raised to a national strategic height in the early 21st century. Due to the high antagonism of football, some sports injuries will inevitably occur.⁷ Once the athletes have sports injuries and other safety problems in the process of campus football activities, they will not only cause physical and mental damage to students, but also discourage students and parents from participating actively. Therefore, we should pay enough attention to the risk factors of campus football activities. With the comprehensive deepening of the reform of school sports in China, campus football has attracted extensive attention from all walks of life. Campus football players are the representatives of campus football.⁸ To carry out research on the causes, characteristics and prevention and control of sports injuries of young campus football players has more theoretical significance and practical value in the new era of campus football.

Research objects and research methods

The study is Purely observational studies which no need to registry ID of ICMJE, and all the participants were reviewed and approved by Ethics Committee of Chang'an University, China (NO. 2022003)

Characteristics of injuries in juvenile football

Every year, more than 400 million people engage in football, most of whom are teenagers under the age of 18. The high antagonism of football determines that its injury rate and lower limb injury are much higher than other contact collision sports. Athletes in primary school often have limb or joint injuries when participating in football, such as sprain of elbow joint, abrasion of leg, hand or arm, etc. The injury of junior high school male football players mostly happens occasionally, and most of them occur in the game.⁹ The degree of injury is mainly mild, and the parts are concentrated in the lower limbs. The injury type is mainly abrasion. The main injured parts of high school football players are ankle joint, knee joint, thigh muscle group and waist.

There are some differences between men and women in the characteristics and incidence of football injuries. In terms of injury characteristics, adult male athletes are more likely to suffer ankle injuries, while female athletes are more likely to suffer knee injuries. However, the incidence of ankle injury in young women is 42% higher than that in men. A large number of researches on juvenile football sports injuries show that about 60% of sports injuries occur in the lower limbs, and knee and ankle joints are the most common injury sites. Although the frequency of upper limb injuries in football sports is far lower than that of lower limbs, goalkeepers have more upper limb injuries than other players.

Factors of injury in youth football

The risk factors of youth sports injury mainly include endogenous factors and exogenous factors. The endogenous risk factors refer to the physical and mental characteristics of players, while the exogenous risk factors refer to a series of factors such as similar field conditions. Endogenous and exogenous risk factors are related to a certain extent and it is critical to include multiple risk factors in any sports injury assessment Taking a comprehensive view of many research results, including cognitive impairment, foul action, intentional injury, inattention, unreasonable technical action, physical fatigue, poor site conditions, weather and other factors, or single or multiple factors led to the occurrence of football sports injuries. There are many research achievements in this field in China. Sun Ronghui mentioned in his research that internal factors and external factors interact to a certain extent, and the increase of age is also one of the important factors for the occurrence of football sports injuries. Shan Zongbin found in the survey that the proportion of sports injuries caused by incorrect technical sports was the largest, and the second was sports injuries caused by field equipment. From the perspective of sports training, in the physical training and special technical and tactical training of young people, the technical and tactical training lacks systematicness, and the training volume is too large and too concentrated, which is also easy to cause injuries. Some studies believe that some sports injuries are also caused by some psychological factors, such as low concentration, low mood, depression, hyperactivity, excessive excitement, high psychological pressure, and excessive tension Adolescent athletes are prone to physical or psychological fatigue due to unscientific training or long-term overload training, and increase the possibility of sports injury. Therefore, it is very necessary and important

to learn more about the mechanism characteristics of sports injuries, which can effectively reduce the possibility of sports injuries among teenagers from the source.

Teaching experiment design

According to the current situation of sports injuries of young school football players in China and the related problems, the hot issue of sports injuries of young school football players was initially selected for research. At the same time, combined with the relevant research and development experience abroad, the characteristics and causes of sports injuries of young school football players in China were studied and discussed, and the prevention and control strategies were summarized. It will contribute to the scientific development of youth campus football learning, training and competition and the healthy growth of athletes, enrich basic research, and provide detailed scientific basis and feasible suggestions and countermeasures for the prevention and control of sports injuries of youth campus football players.

We searched and collated the books and literatures, periodical achievements and master's and doctoral theses related to "sports injury", "football injury" and "youth football injury", collected and annotated the research data, learned relevant theoretical knowledge, formed literature review and judged the research trend.

Experimental results and analysis

Selection of experimental objects

This research takes the characteristics, causes and influencing factors of sports injuries of young campus football players as the research object. In five representative cities, namely, the city representatives with good development of youth campus football, the provinces and regions with pilot football reform, and the city representatives with rapid growth of youth campus football, this research conducts a sampling survey on the men's team and women's team in the primary, middle and high school stages respectively, Quantitative analysis of the current situation of youth football injuries in China, and summarized the prevention and control measures. A total of 544 athletes were investigated in this study. The distribution of the team members in school, age and injury rate is shown in the following chart. Among the respondents, there are 181 primary school football players, accounting for 32.32% of the total number, 189 junior high school football players, accounting for 33.75% of the total number, and 174 senior high school football players, accounting for 33.93% of the total number. The distribution of men and women in the survey subjects is relatively balanced. (Figure 1)

Analysis of experimental results

According to the survey, 384 players were injured in the past year, accounting for 70.58% of the total; 160 players were uninjured, accounting for 29.41%; 275 people were injured at one time, accounting for 50.55%; 98 people were injured twice, accounting for 18.01%; 11 people were injured three times, accounting for 2.02%. The injury rate

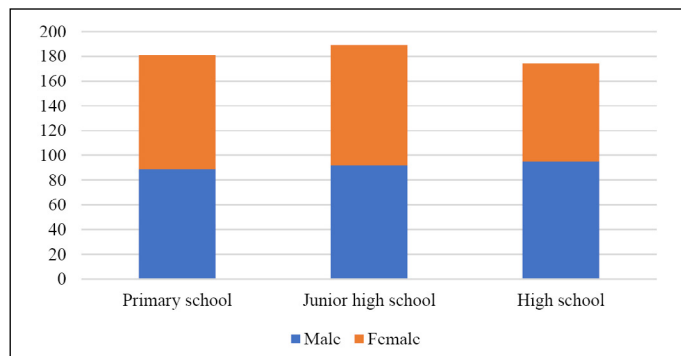


Figure 1. Phase distribution of research subjects.

of junior, junior and senior athletes was calculated and found that the injury rate of senior high school was the highest, 86.78%, and that of primary school was the lowest, 53.04%. It is about 20%~30% lower than the junior high school and senior high school groups. The sports level of primary school football players is low, and the intensity of training and competition is low. The technical and tactical level of junior high school and senior high school football players is relatively high, and the degree of confrontation between training and competition is higher, so the injury rate is higher than that of primary school football players.

Through the statistical questionnaire, it can be found that the injuries of young campus football players are mainly concentrated in the ankle, knee, hand, thigh and so on. The injuries occurred 504 times in total, of which the ankle joint and knee were the main parts of the injuries, and the injury rates were 172 times and 168 times respectively. It can be seen from Figure 2 that the most vulnerable parts are ankle joint, knee and hand. Among them, most of the hand injuries are primary school football players, often because of the support of their hands when they fall in sports, resulting in hand abrasion; Knee injuries account for the main part in each stage, Scratch is the main cause of knee injuries (due to the physical development and skill level limitations of primary school football players, the degree of competition and training confrontation is small, the characteristics of football specific injuries are small, and the types of injuries are mostly scratches, mainly because primary school students have poor balance and sensitivity, are prone to fall down in sports, causing more scratches on hands and knees); Secondly, ligament injury and meniscus injury; The main component of ankle injury is sprain, which is commonly seen in campus football players in junior and senior high school as shown in Figure 3.

However, due to physiological stress, they will use their hands to support or buffer when falling. Therefore, primary school football players' knee There are many injuries to hands and elbows. The top four injury

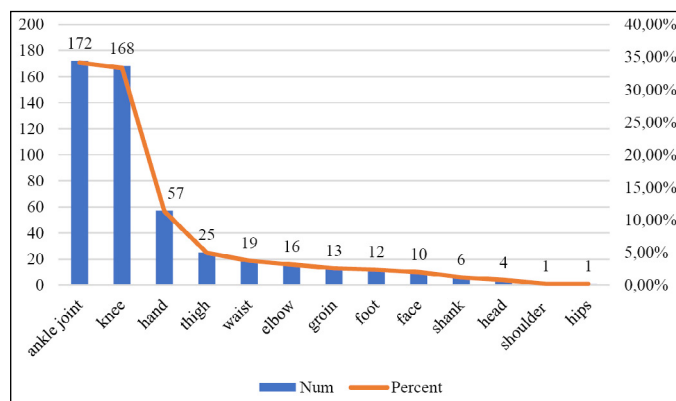


Figure 2. Injured Parts of Teenagers in Campus Football.

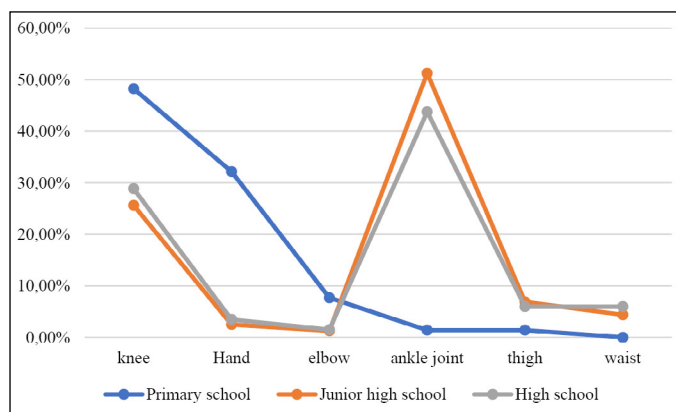


Figure 3. Comparison of injury sites of young athletes at different ages.

parts of junior high school and high school football players in terms of injury rate are the same, which are ankle joint, knee, thigh and waist respectively. High school football players have the highest injury rate. The injury rate of knee joint in junior high school is higher than that in senior high school and primary school. But the injury types are different. The knee injuries of primary school football players are mainly abrasion, while the knee injuries of junior high school and high school football players are mainly sprain, contusion and ligament tear. Ankle joint, thigh and waist are all characterized by high injury rate of athletes in high school, which is positively related to sports level.

CONCLUSION

In the past year, among the 544 young campus football players surveyed, 70.58% were injured. Among them, more than 20% of the athletes have been injured more than twice, and the sports injuries of young school football players in China are relatively common. From the time distribution of sports injuries, most sports injuries of young campus football players occur in summer, and the injury rate during training is significantly higher than that during competition; From the perspective of sports injury recovery, more than 58% of football sports injuries can be recovered within one week, and only 16.27% of sports injuries require more than three weeks to recover. The medical security conditions for youth campus football need to be improved.

The cause of injury in football is an important prerequisite for the formulation of targeted prevention and control measures. The research on injury prevention programs that are systematic, scientific and suitable

for large-scale promotion is still lacking in China.¹⁰ Fully understand the risk prevention of sports injury, timely summarize the experience and lessons, and do a good job in the prevention of sports injury from the aspects of physiology, psychology, technology, training and other aspects according to the characteristics of the injury factors of football players in different school stages, so as to reduce the risk of sports injury and improve the quality of school football training and competition for young people.

Recommendations

Sports injuries will cause great harm to the physical and mental health of campus football players. The instructor should regularly communicate with the players and their parents, timely grasp the psychological dynamics of the players, and if necessary, conduct psychological counseling to help the players get through the injury recovery period. The instructor should also have a full understanding of the risk prevention of sports injury, scientifically and reasonably arrange recovery training for athletes, and minimize the risk of secondary injury of athletes.

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