

# AN INVESTIGATIVE ANALYSIS OF BASKETBALL INJURIES BY COLLEGE STUDENTS



ORIGINAL ARTICLE  
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ANÁLISE INVESTIGATIVA SOBRE LESÕES NO BASQUETEBOL POR ESTUDANTES UNIVERSITÁRIOS

ANÁLISIS DE INVESTIGACIÓN SOBRE LAS LESIONES EN BALONCESTO POR ESTUDIANTES UNIVERSITARIOS

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## ABSTRACT

**Introduction:** Basketball is a sport with strong rivalry, being, therefore, a modality with great facility to cause sports injuries along its practice. **Objective:** Investigate the status of sports injuries in college basketball for amateur students. **Methods:** 480 college students who were not basketball experts were selected as research volunteers. The current status of sports injuries in the 12-week optional basketball course was investigated, and the main risk factors were analyzed. **Results:** Among amateur male college students, the average playing age of third-grade male college students is higher than that of second-grade male college students, and the weekly playing frequency is lower than that of second-grade male college students. The incidence of basketball sports injuries among male college students who do not specialize in basketball from childhood to adulthood is up to 90.7%, and 85.5% during their college years. **Conclusion:** In basketball sports, the most vulnerable parts of amateur male college students are the wrist joint, ankle joint, knee joint, leg, head and face, shoulder, waist, and back, respectively. **Level of evidence II; Therapeutic studies - investigation of treatment outcomes.**

**Keywords:** Basketball; Students; Sports Injuries.

## RESUMO

**Introdução:** O basquetebol é um esporte com forte rivalidade, sendo por isso uma modalidade com muita facilidade de causar lesões esportivas ao longo de sua prática. **Objetivo:** Investigar a situação das lesões esportivas no basquetebol universitário para estudantes amadores. **Métodos:** 480 estudantes universitários que não eram especializados em basquetebol foram selecionados como voluntários de pesquisa, e a situação atual das lesões esportivas no curso opcional de basquetebol de 12 semanas foi investigada, onde os principais fatores de risco foram analisados. **Resultados:** Entre os estudantes universitários masculinos amadores, a idade média de jogo dos estudantes universitários masculinos da terceira série é maior do que a da segunda série, e a frequência semanal de jogo é menor do que a dos estudantes universitários masculinos da segunda série. A incidência de lesões esportivas de basquetebol entre os estudantes universitários masculinos que não são especializados em basquetebol desde a infância até a idade adulta é de até 90,7%, e 85,5% durante seus anos universitários. **Conclusão:** No processo dos esportes de basquetebol, as partes mais vulneráveis dos estudantes universitários masculinos amadores são a articulação do pulso, articulação do tornozelo, articulação do joelho, perna, cabeça e rosto, ombro, cintura e costas, respectivamente. **Nível de evidência II; Estudos terapêuticos - investigação dos resultados do tratamento.**

**Descritores:** Basquetebol; Estudantes; Lesões do Esporte.

## RESUMEN

**Introducción:** El baloncesto es un deporte de fuerte rivalidad, siendo por tanto una modalidad con gran facilidad para provocar lesiones deportivas a lo largo de su práctica. **Objetivo:** Investigar la situación de las lesiones deportivas en el baloncesto universitario para estudiantes aficionados. **Métodos:** Se seleccionaron 480 estudiantes universitarios no especializados en baloncesto como voluntarios para la investigación, y se investigó la situación actual de las lesiones deportivas en el curso optativo de baloncesto de 12 semanas, donde se analizaron los principales factores de riesgo. **Resultados:** Entre los estudiantes universitarios aficionados de sexo masculino, la edad media de juego de los estudiantes universitarios de tercer grado es superior a la de los estudiantes universitarios de segundo grado, y la frecuencia semanal de juego es inferior a la de los estudiantes universitarios de segundo grado. La incidencia de las lesiones deportivas de baloncesto entre los estudiantes universitarios de sexo masculino no especializados en baloncesto desde la infancia hasta la edad adulta es de hasta el 90,7%, y del 85,5% durante sus años universitarios. **Conclusión:** En el proceso de los deportes de baloncesto, las partes más vulnerables de los estudiantes universitarios aficionados varones son la articulación de la muñeca, la articulación del tobillo, la articulación de la rodilla, la pierna, la cabeza y la cara, el hombro, la cintura y la espalda, respectivamente. **Nivel de evidencia II; Estudios terapéuticos - investigación de los resultados del tratamiento.**

**Descriptorios:** Baloncesto; Estudiantes; Lesiones en Deportes.



## INTRODUCTION

Basketball, as a world-wide popular sport, has a strong competitiveness and the nature of high-altitude competition, which requires athletes to have a strong physique. In the process of basketball, players need to keep in touch with each other, so it is very common to get injured in the game. Basketball is not only a collective activity, but also a comprehensive activity.<sup>1</sup> The development of modern China's economic level, the improvement of people's health concept, basketball because of its field everywhere, can exchange feelings, improve physical health and other advantages are deeply loved by all walks of life in the country, especially vigorous college students.<sup>2</sup> Due to the frequent physical contact and confrontation between the members of the two basketball teams, coupled with various factors such as venue, weather, and competition, basketball sports injuries of college students occur frequently, and the occurrence of these sports injuries is mild pain and physical pain, and severe disability or even death, which also restricts the development of basketball in colleges and universities to varying degrees.<sup>3</sup>

Basketball is in full swing around the world, but sports injuries threaten and hurt those who love it like an invisible killer.<sup>4</sup> The problem of sports injuries of high-level basketball teams, basketball players, sports students and young basketball enthusiasts has always been a hot spot in China.<sup>5</sup> Among the students majoring in physical education, they not only have excellent physical fitness, but also have a certain understanding of the theoretical knowledge of sports. Physical education students can be divided into two parts, but the love for basketball is no less than basketball special students, but also a group that participates in basketball with a high frequency.<sup>6</sup> At present, there is no research on non-basketball special students majoring in sports in China, and non-basketball special students are a neglected part of the research on basketball sports injuries, which is the starting point of this article.

Many male college students like to play basketball, whether it is games or training, they will actively participate, and high participation means high frequency of injuries.<sup>7</sup> Basketball sports injuries are mainly related to training content, safety guarantee, training intensity and movement skills. Sports injuries cause athletes to be unable to participate in competitions and training normally, affecting team competition. Therefore, it is very necessary to take effective preventive measures, master certain rules of sports injuries, minimize sports injuries, and ensure the normal progress of basketball training and competition.<sup>8</sup> Basketball is very popular among college students because of its strong physical confrontation and intense excitement. College students, as teenagers in the development stage, are easy to cause sports injuries if they do not pay attention when engaging in this highly antagonistic basketball game. Therefore, it is imperative to investigate and analyze basketball sports injuries and effectively prevent them, so that students can minimize the probability of sports injuries in future basketball games.<sup>9</sup> This paper investigates the basketball sports injuries of non-basketball special male college students majoring in physical education, in order to explore the influencing factors of basketball sports injuries in non-basketball special students majoring in sports on different occasions, and can put forward relevant suggestions according to these influencing factors to prevent and reduce the occurrence of injury incidents to the greatest extent, so as to provide reference for ensuring the health of non-basketball special students majoring in sports to participate in basketball.<sup>10</sup>

## Research object and research method

### Subjects of study

Sports injuries of non-basketball special male college students majoring in physical education in ordinary undergraduate colleges in a city. 6 general undergraduate colleges majoring in sports in a city are

non-basketball special 2016 and 2017 male college students. The reason for choosing male university students is that in the field research before the thesis was written, it was found that the number of female students majoring in sports majoring in basketball was low, so female university students were not surveyed.

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 Luzhou Vocational and Technical College, China (NO. 2022015)

### Research method

By reviewing the literature on basketball and sports injuries, the knowledge of basketball sports injuries is sorted out, which provides a theoretical basis for the writing of this paper. According to the needs of the research content, through university libraries and other relevant channels to refer to books such as "Basketball", "Sports Anatomy", "Sports Injury and Prevention", "Sports Health Science" and other books, so as to provide reference for the later analysis and suggestions of this paper.

Some teachers and students majoring in physical education in the six colleges and universities surveyed were interviewed to obtain relevant materials for this study, which further improved the scientificity and authenticity of this paper.

In order to further understand the current situation of sports injuries of non-basketball special male college students majoring in sports in a city ordinary undergraduate college and the problems arising therein, I conducted field visits to 6 colleges and universities to obtain materials and information that were beneficial to this research.

After the questionnaire is collected, the data is collected and aggregated and analyzed by software such as SPSS and Excel.

## Experimental result and analysis

### Basic information of the respondent

The survey was mainly conducted for sophomores and juniors in 2016 and 2017, and the reasons for not investigating the 2018 freshmen were short enrollment years, shorter participation in basketball, and low risk of injury; The reason why the 2015 seniors were not surveyed was that it was difficult to sample them when they went out for internships, so the survey was conducted on sophomores and juniors. Among the respondents, 14 were aged 18 and under, accounting for 3.3%; 144 people aged 19, accounting for 32.5%; 159 people aged 20, accounting for 36.0%; 96 people aged 21, accounting for 21.7%; 29 people aged 22 and over, accounting for 6.5%. The average age of the Class of 2017 is about 19.5 years old, and the average age of the Class of 2016 is 20.4 years (See Table 1) It can be seen that the main age of the survey subjects is concentrated in 19 and 20 years old, and the average age of second-grade students is about one year less than the average age of third-grade students, which is in line with the normal school age characteristics in China, so the age characteristics of this survey subject are scientific.

### Analysis of basketball injuries of non-basketball special male college students majoring in physical education

Basketball is a fully engaged and physically intense sport in the same court, and most injuries are associated with a fall, knee injury, and arm

**Table 1.** Age table for non-basketball male college students.

	18 years old and below	19 years old	20 years old	21 years old	22 years old and above	Total
Class of 2017	14	118	54	25	5	216
Class of 2016	0	26	105	71	24	226
Total	14	144	159	96	29	442
Percentage	3.3%	32.5%	36.0%	21.7%	6.5%	100%

injury. Therefore, in basketball, there may be more than one part of the injury, there will be multiple parts, so there will be a number of choices, according to the results of the investigation the specific injury parts are as follows. (Table 2)

It can be seen from Table 2 that the injuries of non-basketball male college students majoring in sports are almost not only one part, but mostly have two or more injuries. According to the order of injuries of all non-basketball male college students majoring in sports majors, from high to low, wrist joint 77.8%, ankle joint 61.5%, knee joint 59.4%, leg joint 43.0%, head and face 22.7%, shoulder 19.0%, other 17.4%, low back 14.3%. Finger wrist joint in the first place, the pain of finger poke is probably the pain that every basketball lover has experienced, first of all, the palm is the most frequent contact with basketball, and then basketball requires frequent passing and catching, if the passing speed is too fast, attention will be slightly inattentive will be suddenly passed to touch the fingers, resulting in finger or palm soft tissue, ligament contusion.

Shooting is the most important and most used scoring means of basketball, the number of shots is also to a certain extent to determine the direction of the game, and the wrist joint is the necessary power point for shooting, shaking the wrist, wrist pulling, wrist pressing and other basic basketball techniques are completed by wrist force, so the wrist joint is also the most easily injured. Next is the ankle and knee joint, the difference between the two is not much, the ankle joint is easy to be injured is also related to its structure, the ankle joint is a trochlear joint, the joint head into a trochlear shape opposite the joint socket, can only do flexion and extension action, if the landing is unstable in the movement is prone to ankle varus, lateral collateral ligament sprain or even tear. For example, jumping up and grabbing a rebound and landing on someone else's feet or the field is in disrepair, the ground is uneven and uneven, such an experience, most basketball enthusiasts have, are extremely prone to injury; The knee joint is also a trochlear joint, is the largest and most complex joint of people, so the probability of injury is also very large, the cause of injury is mainly related to the length of time to play basketball, the longer the time, the easier it is to be injured, the high-intensity confrontation of basketball is completed in the movement, change direction, emergency stop, rapid rise, jump, landing and other actions need knee support and force, and the knee joint has been in a semi-flexion position, if the lower limbs suddenly abduction and other actions, the meniscus will be damaged, and the ligaments will also be damaged.

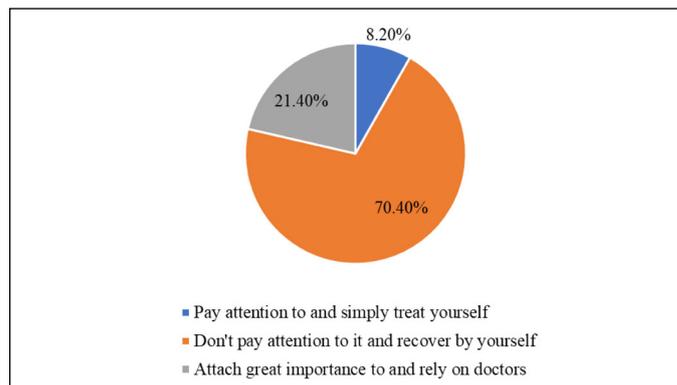
### Cognitive analysis of basketball sports injuries

In basketball, there are severe injuries, such as fractures and other injuries that cannot be treated, can not heal naturally and are abnormally painful, everyone will choose to go to the hospital, there is no doubt, but when there are mild and moderate injuries, the pain can be tolerated, and they feel that they can recover, then everyone's attitude to injuries will be different, so the attitude of this article to sports injuries is mainly to investigate and analyze the attitude of mild and moderate injuries, and the attitude of non-basketball special students majoring in sports to sports injuries is shown in Figure 1.

It can be clearly seen from Figure 1 that except for serious injuries and non-basketball students who have to go to the hospital, about 70.4% of the students feel that they do not pay attention to the injuries they have suffered, and let them recover themselves. About 21.4% of

**Table 2.** Table of non-basketball special male college students' basketball injury parts (multiple selection).

	Select number of people	Percentage	Sort by
Head and face	86	22.7%	6
Shoulder	72	19.0%	7
Hand	141	37.2%	5
Finger and wrist joint	295	77.8%	1
Low Back	54	14.3%	9
Legs	163	43.0%	4
Knee joint	225	59.4%	3
Ankle joint	233	61.5%	2
Other	66	17.4%	8



**Figure 1.** Attitudes towards basketball injuries.

students attach importance to the simple treatment of injuries and illnesses, and simple treatment will be carried out according to the type of injury, such as cold water rinsing after sprains, and hot compresses for 24 hours; Abrasions are generally only disinfected and wiped with purple potions. Only 8.2% of the remaining students took their injuries seriously and went to the hospital for treatment.

### CONCLUSIONS

According to the analysis of the influencing factors of basketball sports injuries in different occasions, this paper combines the influencing factors of basketball sports injuries in various occasions and the problems in the injury, and makes relevant suggestions for some occasions. The incidence of non-basketball sports injuries among male college students from childhood to adulthood is as high as 90.7%, and 85.5% during college, and the number of extracurricular activities, competitions, training, and basketball games is selected according to the number of injuries. In basketball, the number of injuries selected by non-basketball special male college students is contusion, strain, sprain, abrasion, other, psoas patellar strain, meniscal injury, joint dislocation, fracture. The degree of injury is mostly mild, and acute injury predominates. Non-basketball students mostly do not pay attention to sports injuries, and their knowledge of sports injuries is low, and the main acquisition methods are teachers and classrooms. The curriculum offered in each school has its own characteristics, but exercise physiology, sports anatomy and sports health science are compulsory in almost every school, and courses related to sports injuries can help students.

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**AUTHORS' CONTRIBUTIONS:** The author made significant contributions to this manuscript. Kai Xu: writing and performing surgeries; data analysis and performing surgeries; Chang Liu: article review and intellectual concept of the article.

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