

SPORTS INJURIES CAUSED BY THE PRACTICE OF KUNG FU IN COLLEGE STUDENTS



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LESÕES ESPORTIVAS CAUSADAS PELA PRÁTICA DE KUNG FU NOS ESTUDANTES UNIVERSITÁRIOS

LESIONES DEPORTIVAS CAUSADAS POR LA PRÁCTICA DE KUNG FU EN ESTUDIANTES UNIVERSITARIOS

Feng Liu¹ 
(Physical Education Professional)

1. Inner Mongolia Electronic
Information Vocational Technical
College, Hohhot, Inner Mongolia,
China.

Correspondence:

Feng Liu
Hohhot, Inner Mongolia, China.
010070.
suhjy46@163.com

ABSTRACT

Introduction: Kungfu is a traditional Chinese sports activity, and many optional courses are offered in many universities. However, during kung fu practice, sports injuries can be caused. **Objective:** Investigate the most common types of sports injuries caused by kung fu practice and present intervention countermeasures. **Methods:** A total of 612 college students practicing kung fu at 5 universities were investigated, and a 12-week follow-up survey was conducted to collect data on the types, causes, and injury grades of their sports injuries. According to the survey results, reasonable prevention and intervention measures were formulated to ensure the safety of kung fu practice. **Results:** The sports injuries caused by kung fu practice mainly occurred at the waist, knees, and ankles, and the types of sports injuries were mainly by ligament strain, which was mainly caused by improper preparation, poor physical functioning, and mental state, incorrect technical movements, etc. **Conclusion:** Kung fu practice can improve the physical health of college students, but it can also lead to sports injuries, especially to the pelvic girdle, knees, and ankles. Strict preventive measures should be taken to prevent sports injuries from affecting the physical health of college students. **Level of evidence II; Therapeutic studies - investigation of treatment outcomes.**

Keywords: Kung Fu; Injuries; Sports; Student Health.

RESUMO

Introdução: O kung fu é uma atividade esportiva tradicional chinesa, sendo que muitos cursos opcionais são oferecidos em várias universidades. Porém, durante a prática de kung fu, lesões esportivas podem ser causadas. **Objetivo:** Investigar os tipos mais comuns de lesões esportivas causadas pela prática de kung fu e apresentar as contramedidas de intervenção. **Métodos:** Um total de 612 estudantes universitários praticantes de kung fu em 5 universidades foram investigados, uma pesquisa de acompanhamento de 12 semanas foi realizada para coletar dados sobre os tipos, causas e graus de lesão de suas lesões esportivas. De acordo com os resultados da pesquisa, foram formuladas medidas razoáveis de prevenção e intervenção para garantir a segurança da prática de kung fu. **Resultados:** As lesões esportivas causadas pela prática de kung fu ocorreram principalmente na cintura, joelhos e tornozelos, e os tipos de lesões esportivas foram principalmente por tensão ligamentar, que foi causada principalmente por preparação inadequada, mau funcionamento físico e estado mental, movimentos técnicos incorretos, etc. **Conclusão:** A prática de kung fu pode melhorar a saúde física dos estudantes universitários, mas também pode levar a lesões esportivas, principalmente na cintura pélvica, joelhos e tornozelos. Medidas preventivas rigorosas devem ser tomadas para evitar que lesões esportivas afetem a saúde física dos estudantes universitários. **Nível de evidência II; Estudos terapêuticos - investigação dos resultados do tratamento.**

Descritores: Kung Fu; Lesões Esportivas; Saúde do Estudante.

RESUMEN

Introducción: El kung fu es una actividad deportiva tradicional china, y en muchas universidades se ofrecen cursos opcionales. Sin embargo, durante la práctica del kung fu pueden producirse lesiones deportivas. **Objetivo:** Investigar los tipos más comunes de lesiones deportivas causadas por la práctica del kung fu y presentar las contramedidas de intervención. **Métodos:** Se investigó a un total de 612 estudiantes universitarios que practicaban kung fu en 5 universidades, y se realizó una encuesta de seguimiento de 12 semanas para recoger datos sobre los tipos, las causas y los grados de lesión de sus lesiones deportivas. Según los resultados de la investigación, se formularon medidas razonables de prevención e intervención para garantizar la seguridad de la práctica del kung fu. **Resultados:** Las lesiones deportivas causadas por la práctica del kung fu se produjeron principalmente en la cintura, las rodillas y los tobillos, y los tipos de lesiones deportivas fueron sobre todo por distensión de los ligamentos, lo que fue causado principalmente por una preparación inadecuada, un mal funcionamiento físico y un estado mental, movimientos técnicos incorrectos, etc. **Conclusión:** La práctica del kung fu puede mejorar la salud física de los estudiantes universitarios, pero también puede provocar lesiones deportivas, principalmente en la cintura pélvica, las rodillas y los tobillos. Deben adoptarse estrictas medidas preventivas para evitar que las lesiones deportivas afecten a la salud física de los estudiantes universitarios. **Nivel de evidencia II; Estudios terapéuticos - investigación de los resultados del tratamiento.**

Descriptores: Kung Fu; Lesiones en Deportes; Salud del Estudiante.



INTRODUCTION

Wushu Sanda is a new modern competitive event, and it is also a practical fighting skill.¹ Wushu has the characteristics of nationality, entertainment and antagonism, and can play the functions of strengthening the body, strengthening the mind, exercising the will and cultivating the sense of competition. The study and practice of Wushu routine is one of the main contents of the study and practice of Wushu students majoring in physical education in universities.² Wushu routine is a whole-body sport that requires high speed, explosive force and coordination. It is not only the main means of Wushu competition and communication, but also an important standard to measure the professional ability of Wushu graduates majoring in physical education.³ The movements of Wushu routines are fast and changeable, which requires students to skillfully complete the connection of somersault, tumbling, jumping and other movements, not only to jump high but also to settle down steadily, and also requires the movements in the air and after landing to stretch the atmosphere and have beautiful shapes.⁴ At present, in the actual process of college Wushu education, effective reforms should be carried out constantly, so as to better help students improve their skills in the process of college learning.⁵ Therefore, at this stage, college Wushu teachers should constantly carry out effective teaching reform to better promote students to improve their professional level.

In recent years, with the rapid development of Wushu routine and the increasingly fierce competitive competition, students are prone to physical injuries in the process of practicing difficult movements.⁶ Sports injuries will affect students' health, study and work, bring inconvenience to university students' study and life, affect their practice enthusiasm, and hinder the further development of Wushu routine. In the process of college Wushu special training, muscle strain, joint sprain, abrasion and fracture are relatively easy sports injuries.⁷ At present, when university students actually carry out Wushu special training, unscientific training methods and lack of reasonable and scientific warm-up often lead to a series of problems in the follow-up training process.⁸ Therefore, how to reduce the incidence of sports injuries in Wushu teaching activities has become an important topic in Wushu teaching and training.⁹ Understanding the injury mechanism of Wushu and scientifically preventing sports injuries have important scientific research and practical significance for the study of Wushu routines. This paper attempts to investigate the sports injuries of students majoring in Wushu, analyze the causes of injuries, and then provide theoretical basis for the prevention of injuries in university students' Wushu practice.

The causes of common sports injuries in current Wushu majors in universities

Research object and method

In this paper, 612 university students who choose Wushu elective courses are investigated in 5 universities, and a 12-week follow-up survey is conducted. During this period, the data of the types, causes and injury degrees of their sports injuries are collected, and reasonable prevention and intervention measures are formulated according to the investigation results to ensure the safety of practicing Wushu. Carefully inquire and check the sports injuries of the research subjects, and if necessary, make X-ray and CT examination and invite relevant experts for consultation. The diagnosis standard is based on Practical Sports Medicine and Chinese Orthopedic Science. For previous injuries, it is only required to be clear, such as fractures and dislocations. This paper mainly adopts the methods of literature review, questionnaire survey, expert interview and mathematical statistics. In this paper, a large number of related research results and literature materials are consulted, and the movement forms of Wushu routines, the positions of sports

injuries and the formation mechanism of injuries are summarized and analyzed. SPSS software and Excel were used to statistically analyze the results of the questionnaire survey. The correlation test was used for the two measurements, and the percentage of the questionnaire survey was used for data statistics.

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 Inner Mongolia Electronic Information Vocational Technical College, China (NO. 2022012)

Analysis on the types and causes of sports injuries in Wushu

Types of Wushu sports injuries

Wushu specialized course training requires strong movements, quick braking, bright rhythm, elegant appearance, skillful mastery of movement techniques, and different positions of sports injuries caused by movements with different difficulty. For example, Table 1 is a statistical table of sports injuries of Wushu students.

It can be seen that the sports injuries caused by Wushu practice mainly focus on the waist, knees and ankles, and the types of sports injuries are mainly ligament strain. Because of injury, Wushu's improper practice or competition. Among them, ankle injury accounted for 21.06%; Traumatic periostitis of tibia was 17.89%; The strain of medial collateral ligament of knee accounted for 17.27%; Acute lumbar muscle strain accounted for 15.21%. In Wushu training, the movements are required to rise high and fall steadily, without buffer time. If the technique is unstable, the center of gravity will shift when landing. In addition, the technical movements such as splits and lunges are connected with jumps, which all strengthen the squeezing force on the knees and easily cause meniscus injuries. However, the causes of wrist joint, waist joint and achilles tendon injuries are generally related to the lack of tight movement connection and movement deformation.

Table 2 is the analysis table of sports injuries of Wushu students.

Table 1. Statistics of sports injury parts of Wushu students.

Serial number	Damage name	Proportion
1	Ankle joint injury	21.06%
2	Traumatic periostitis of tibia	17.89%
3	Strain of medial collateral ligament of knee	17.27%
4	Acute lumbar muscle strain	15.21%
5	Shoulder strain	4.03%
6	Wrist joint injury	3.51%
7	Surface abrasion	6.01%
8	Strain of adductor femoris muscle	2.06%
9	Injury of elbow joint	3.13%
10	Head and neck injuries	0.81%
11	Other injuries	9.02%

Table 2. Analysis of sports injuries of Wushu students.

Serial number	Cause of injury	Proportion
1	Causes damage common sense and knowledge learning is not enough	25.36%
2	Insufficient understanding of one's own physiology and psychology	18.06%
3	Insufficient preparation activities	17.29%
4	Poor self-protection ability	10.01%
5	Poor resistance	9.54%
6	Poor special technical ability.	10.87%
7	Not enough relaxation and recovery.	3.18%
8	Equipment is not standardized.	4.08%
9	Insufficient ideological and moral cultivation	1.09%
10	Other reasons	0.52%

It can be seen that the main causes of sports injuries caused by Wushu practice are inadequate preparation activities, poor physical function and mental state, incorrect technical movements, etc.

Cause analysis

Further investigation shows that all the students surveyed said that they should master some knowledge of sports injury prevention, such as wearing protective gear and fully preparing for activities. Summarize the causes of damage, and draw the following conclusions:

1. At present, one of the reasons for university students' sports injuries during Wushu training is that students do not fully exercise before formal training due to insufficient preparation activities; Not fully mobilizing their own excitement and coordination, which leads to students being easily injured in the formal training process with higher difficulty and more intense degree. Wushu professional training courses in universities are generally divided into preparation part, basic part and end part, in which the preparation part accounts for 15%-20% of the total class time, the basic part accounts for 65%-70% and the end part accounts for 10%. During Wushu training period, preparatory activities are the preparatory part of the course, basic skills and special exercises are the basic part, and quality exercises are the end part. If the preparation is not in place and the injury treatment is not timely, it is easy to turn into fatigue or old injury. This shows that the preparatory activities are not specialized enough, and there is a lack of common sense and prevention knowledge of sports injuries.

2. In the process of Wushu special training in universities, athletes' sports injuries caused by physical factors are also an important factor. A considerable number of elite university students' sports injuries of Wushu athletes are induced by bad psychological state. In the actual process of carrying out Wushu special training in universities, it is easy for students to have nervousness, fear and other psychology, which has a negative impact on athletes' actual training. It is easy for students to make mistakes in their actions under the influence of bad psychological factors in the actual training process, thus causing sports injuries to students.

3. Excessive fatigue is the most likely cause of sports injuries among physiological factors. This suggests that Wushu coaches should pay full attention to athletes' physical quality. In Wushu training, physical discomfort, recurrence of old injuries, excessive local burden and fatigue will all cause sports injuries, among which sports injuries caused by excessive local burden account for a large proportion.

4. Some students often ignore or don't pay much attention to the practice of Wushu Sanda's basic techniques and skills, which leads to the lack of mastery of the essentials of movements, shortcomings and mistakes, which make the basic technical movements incorrect, irregular and rough. For example, shoulder joint injury caused by swinging fist and shrugging shoulders. In addition, I like to try some difficult moves, and it is easy to cause injuries due to the limitation of my own ability level and unreasonable additional actions.

Sports injury intervention countermeasures

In order to seek a better job position and be competent for the corresponding work in the future, students majoring in physical education in universities who specialize in Wushu should redouble their efforts to complete the study and training of Wushu routines during their studies at school.¹⁰ At the same time, attention should be paid to the prevention of sports injuries. According to the research in this paper, the sports injuries caused by Wushu practice mainly focus on the waist, knees and ankles, and the types of sports injuries are mainly

ligament strain. The main causes of sports injuries are inadequate preparation, poor physical function and mental state, incorrect technical movements, etc. From this analysis, it is necessary to protect the joint ligaments in Wushu training, which indicates the importance of preparatory activities and the importance of correct guidance of movement techniques. It is suggested that Wushu should strengthen the psychological training of athletes and improve their psychological quality. As an excellent Wushu athlete, besides excellent physical quality and excellent skills, good psychological quality is the key to good results. At the same time, it is suggested that athletes and coaches should pay more attention to sports injuries and arrange sports loads reasonably. Pay special attention to the local burden of motor organs and recovery after injury, and avoid single training method; Make a training plan carefully, follow scientific principles, and combine training with recovery.

In Wushu training, it is more important to strengthen the awareness of prevention and self-protection than treatment. Wushu's study is in the direction of difficulty and beauty. Students should not be timid because of fear of injury, which will adversely affect the development and promotion of Wushu. Schools should strengthen the study of sports injury prevention awareness and self-protection awareness to avoid injuries to the greatest extent. Teachers should pay attention to the process of organizing training, not only pursuing the high difficulty of a certain movement but neglecting the importance of injuries, and strengthen the organization of sports training and the management of the use of sports equipment to reduce athletes' sports injuries. University students should take special auxiliary exercises according to different sports events, overcome some difficult technical movements in the training process, and combine them with the training content. In addition, doing preparatory activities can enhance the strength and elasticity of muscles and ligaments, expand the range of joint activities, and avoid the injury of muscles and ligaments.

CONCLUSIONS

For the Wushu routine athletes of university students, how to promote their physical function development and improve their sports performance is a problem worthy of further study. In this paper, a total of 612 university students who chose Wushu elective course in 5 universities were tested and analyzed. It is found that the waist, knees and ankles are the main vulnerable parts of students during Wushu training. Most university students' joints are prone to injury, and most university students' ligaments are prone to injury. It shows that the protection of joint ligament is necessary in Wushu training. At the same time, the main causes of sports injuries are inadequate preparation, poor physical function and mental state, incorrect technical movements, etc. Therefore, this paper holds that teachers should arrange the contents of training courses reasonably according to students' physical conditions and various factors, so as to avoid the occurrence of injuries in university students' classes, especially to prevent the occurrence of injuries in basic teaching periods. In addition, it is necessary to further strengthen the self-protection consciousness of athletes; Strengthen the sense of responsibility of medical staff, study hard, and further improve their professional level; Improve the medical supervision system, establish and improve the case files; Pay attention to relaxation training and arrange training scientifically and reasonably.

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REFERENCES

1. Gu J. Research on the causes and prevention of sports injuries in Wushu Sanda in colleges and universities. *Contemporary Sports Science and Technology*. 2017;7(13):2.
2. Sun J. Research on the causes and countermeasures of sports injuries in the martial arts training of college students. *Contemporary Sports*. 2021;(12):1.
3. Gao S. Investigation and Research on Sports Injuries of Wushu Fans in Colleges and Universities. *Wushu Research*. 2018;3(8):3.
4. Liu L. Research on the causes and prevention of sports injuries in Wushu Sanda in colleges and universities. *Contemporary Sports Science and Technology*. 2017;7(35):2.
5. Liu H. Research on the rehabilitation of traditional martial arts and sports injuries. *Stationery and Technology*. 2018;2(11):2.
6. Wang J. Correlation between functional movement screening and sports injuries of Wushu athletes in Shanxi Province. *Liaoning Sports Science and Technology*. 2017;39(6):4.
7. Li H, Wang E. The value analysis of flexibility quality in martial arts. *Wushu Research*. 2018;3(6):3.
8. Guo J. Investigation and Research on Sports Injuries of Competitive Wushu Routines Before and After the New and Old Rules. *Wushu Research*. 2018;3(2):3.
9. Yuan C, Tao P. Investigation, Analysis and Preventive Measures of Sports Injuries of Wushu Athletes in Colleges and Universities. *Bulletin of Sports Science and Technology Literature*. 2019;27(4):3.
10. Liu Xin. Prevention of sports injuries in the teaching of martial arts routines in colleges and universities. *Stationery and Technology*. 2017;019(019):118-21.