

# Investigation and Research on Sports Injuries of Competitive Aerobics Athletes

Gaoli Liu

School of Physical Education, Chengdu Normal University, Chengdu611130, Sichuan,China

---

**Abstract:** This study investigates and analyzes the sports injuries of competitive aerobics athletes by means of literature, questionnaires, mathematical statistics and logical analysis. In-depth and detailed analysis aims to reveal the main causes of sports injuries of professional athletes in aerobics in colleges and universities, and put forward corresponding countermeasures and preventive countermeasures on this basis, so as to avoid or reduce injuries in aerobics sports or training, so as to provide competitive bodybuilding. Provide reference for technical teaching in gymnastics training Test basis. The conclusions of the study are as follows: (1) Competitive aerobics athletes have longer sports years, and more than 50% of the athletes have more than 3 years of sports training experience. (2) Competitive aerobics athletes' awareness of aerobics injuries is not high enough. The time and place where the injury occurs is mostly during the game. (3) Most of the injured parts of competitive aerobics athletes are unstable joints, and the majority of injuries are fingers, knee joints and ankle joints. The types of injuries include strains and sprains, which are acute injuries. However, some athletes often train with injuries, resulting in acute injuries becoming chronic. (4) The main reasons for the injury are insufficient preparatory activities, weak self-protection awareness, inadequate technical training, and training with injuries.

**Keywords:** Competitive aerobics; Sports injuries

---

## 1. The concept of competitive aerobics and the significance of studying sports injuries

Competitive aerobics is a sport that continuously completes complex and high-intensity complete sets of movements under the accompaniment of music<sup>[1]</sup>. It requires athletes to have high physical and psychological qualities. The requirements for the movement, tactics and physical condition of the gymnasts are also getting higher and higher, which is a great challenge to the physical condition and psychological state of the aerobics athletes. Aerobics is a compulsory course for every physical education student during college. Aerobics techniques have high physical quality requirements. Athletes are easily injured during their studies and the degree of injury is relatively serious. Many athletes are suspended for several days due to sports injuries. Zhou can't even train anymore. Therefore, for professional aerobics athletes, sports injuries are inevitable, and how to reduce sports injuries has become an important issue. Aerobics athletes generally have good physical fitness and special skills. However, due to the occurrence of sports injuries, not only the scientific and systematic training plan has been broken, but also a group of promising aerobics athletes have left the stadium prematurely. This is a serious problem. hindered the development of aerobics sports level. Therefore, it is urgent to strengthen the scientific understanding of the injuries of aerobics athletes, reduce the occurrence of sports injuries, and seek effective methods and means to prevent their sports injuries. Therefore, it is of significant practical significance to deeply investigate the sports injuries that occur when professional aerobics athletes participate in aerobics, analyze the reasons for their occurrence, and find out the path of their prevention.

## 2. Research objects and methods

### 2.1 Research objects

Object of investigation: Current status of sports injuries among competitive aerobics athletes.

Research object: This article takes sports injuries of competitive aerobics athletes as the research object.

Professional aerobics athletes in a university in Chengdu: 20 (all girls)

## 2.2 Research methods

Documentation method, questionnaire survey method, mathematical statistics method, logical analysis method

## 3. Research results and analysis

### 3.1 Injuries of Competitive Aerobics Athletes

Table 1 Statistics of sports injuries of competitive aerobics athletes

	Number of injured	uninjured
within 1 year	6	4
2 to 3 years	5	0
over 3 year	3	0
total	14	6

As can be seen from Table 1, professional aerobics athletes have experience of sports injuries within 1 to 2 years. The number of uninjured people is 0, indicating that the injury rate of competitive aerobics athletes is very high.

### 3.2 Awareness of injuries among competitive aerobics athletes

#### 3.2.1 Competitive aerobics athletes' understanding of sports injury knowledge

Table 2 Statistical table of sports injury knowledge survey of competitive aerobics athletes

choose	number of people	percentage%
don't understand	0	0%
basic understanding	14	70%
learn	4	20%
know very well	2	10%

The investigation of athlete's injury situation can know the athlete's awareness and understanding of injury knowledge. From the statistics in Table 2, it can be concluded that professional athletes' understanding of injuries is not ideal. On the whole, professional athletes in competitive aerobics lack the necessary awareness, and athletes have poor self-protection during training or competition. According to the survey and research Athletes were found not to be treated promptly when an injury occurred<sup>[2]</sup>.

#### 3.2.2 Analysis of competitive aerobics athletes' understanding of the causes of sports injuries

Table 3 Statistical table of investigation on the understanding of the causes of injury among competitive aerobics athletes

choose	number of people	percentage%
don't understand	0	0%
basic understanding	6	30%
learn	10	50%
know very well	4	20%

It can be seen from Table 3 that after years of training, most of the athletes in competitive aerobics have a basic understanding of the causes of sports injuries. Therefore, on this basis, guide competitive aerobics athletes to improve their awareness of sports injury prevention and understand all aspects of sports medicine, so as to reduce their occurrence of sports injuries in training and competitive aerobics competitions<sup>[3]</sup>.

### 3.3 Occasions of sports injuries in competitive aerobics athletes

Table 4 Statistical table of surveys on the occasions of sports injuries of competitive aerobics athletes

Occasion	number of people	percentage%
Training Course	15	75%
Competition occasion	4	20%
Extracurricular activities	1	5%

It can be seen from Table 4 that 20% of the total injuries of competitive aerobics athletes in competitions are caused by the high intensity of competitions and the decline in self-protection ability; the percentage of injuries in training situations is 75%, due to limited training venues, The venue of the aerobics gym is not related to the professional wooden venue; the injuries of aerobics athletes during extracurricular activities account for 5% of the total, and the venues for students to perform extracurricular activities are mainly on the cement floor, the ground is uneven, and the technical movements are not standard etc. caused by<sup>[4]</sup>. Therefore, in the process of training, it is very important to prepare a professional training ground.

### 3.4 Investigation and analysis of the vulnerable parts of sports injuries of competitive aerobics athletes

Table 5 The survey statistics of the vulnerable parts of sports injuries of competitive aerobics athletes

Part	finger	arm	elbow	shoulder	head	low	back	knee	ankle	other	total
frequency	7	12	7	5	0	15	5	5	0		56
percentage	12%	21%	12%	9%	0%	27%	9%	9%	0%		100%

As can be seen from Table 5, among the injured parts of aerobics, the injuries of fingers, knee joints and ankle joints

The proportion is larger, which also reflects the technical characteristics of aerobics and the structural characteristics of each joint muscle of the human body. The knee joint is the most unstable joint, with a relatively shallow position in the human body, relatively few protective structures, the largest articular surface, and the most weight-bearing. Therefore, knee injuries are also common during aerobics. The injury rate of the ankle joint is also very high. The joints before and after the ankle joint are relatively loose, and the ligaments on both sides are very tight<sup>[4]</sup>. Therefore, when the foot is overturned under the action of external force, the ligament of the ankle joint will be sprained.

## 4. Conclusions and recommendations

### 4.1 Conclusion

Competitive aerobics athletes do not have a high degree of awareness of aerobics injuries, and most of them have a basic understanding of sports injuries, just because they have had injuries or have a basic understanding of injuries. Because after years of training experience, not much is known about the causes of sports injuries, but relatively more is known about the causes of sports injuries. More than half of the athletes know the main reasons for their own injuries.

Among the injured parts of competitive aerobics athletes, the fingers, knee joints, and ankle joints are mostly injured, and the injured parts are mostly unstable joints, and there is no strong muscle support around the joints.

Types of Injuries in Competitive Aerobics Athletes Strain and sprain occur more frequently, all of which are acute injuries, but some athletes often train with injuries, resulting in acute injuries turning chronic. The main reasons for injuries in aerobics specialization are insufficient preparation activities, weak self-protection awareness, inadequate technical training, and athletes often train with injuries.

### 4.2 Recommendations

#### 4.2.1 Scientifically arrange exercise load to avoid fatigue and overtraining

When arranging the exercise load, we should pay attention to avoid the local overload of the athletes. During the training, we should always pay attention to the physical reaction and training state of the athletes, and adjust the training plan according to the training state of the athletes in time. During the training, the exercise load should be gradually increased with the improvement of the athlete's physical ability. At the same time, the information feedback of the athlete in the recovery should be grasped in time, and the exercise volume and exercise intensity of the athlete should be scientifically and reasonably arranged to avoid excessive fatigue.

#### 4.2.2 Make full preparations for activities to improve the excitability of bodily functions

Before training sessions and competitions, coaches must arrange for athletes to perform adequate preparation activities for about 15-20 minutes. Preparatory activities include practicing basic steps, pulling flexibility, special exercises, etc. Through these activities, the physical function of the athlete can reach the training level or the competition level, and the various joints of the athlete's body can be fully moved to avoid unnecessary injuries. During the three or nine days of winter or the dog days of summer, and when athletes are emotionally excited or inhibited, insufficient preparations are most likely to be injured, thereby affecting training and competition, leaving irreparable regrets. This requires coaches to urge athletes to prepare for activities carefully, improve the excitability of body functions, and fully stretch ligaments, muscles and joints, so as to prevent athletes from causing sports injuries during strenuous exercise.

#### 4.2.3 Strictly require training to improve the standardization of movement techniques

Sports technology refers to a reasonable method that conforms to the scientific principles of human movement, can give full play to the potential of the body and can effectively complete the action. Athletes who master correct movement techniques in competition training can achieve the best results in competition and avoid injuries during training and competition. However, learning techniques is a step-by-step process, and only by mastering familiar movement techniques can fewer injuries occur in training competitions.

#### 4.2.4 Strengthen the training of vulnerable parts and increase body exercises

The muscles and joints of competitive aerobics athletes can be strengthened or recovered through scientific physical exercise. However, in the process of training, the exercise for the vulnerable parts is mainly to make all aspects of the body develop in an all-round way, so as to make the body more explosive.

## **References:**

- [1] Yao Hongen, Zheng Longyu, Huang Quanhui. Sports Health Science [M]. Beijing: Higher Education Press, 2001.160-161.
- [2] Liu Jian. Investigation and Research on Sports Injuries of Aerobics Majors in Colleges and Universities in Jilin Province [D]. Master Thesis of Jilin University. 2012.
- [3] Qu Mianyu, Yu Changlong. Practical Sports Medicine [M]. Beijing: Peking University Medical Press, 2003.
- [4] Jia Jinlun, Su Qingfang. Prevention and treatment of sports injuries on cement courts [J]. Journal of Yan'an University (Medical Science Edition), 2004, 2(3):72-73.

## **About the author:**

Gaoli Liu, 1994-6, female, Han, Changzhi, Shanxi, master student, teacher of School of Physical Education, Chengdu Normal University, main research direction: physical education, gymnastics and aerobics.