

# The Significance of Injury Prevention Consciousness in Popularizing Basketball Teaching

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**Abstract**—This paper takes the undergraduate students majoring in physical education at the School of Physical Education of Shanxi University as the research object, and adopts the methods of literature, questionnaire survey and mathematical statistics to investigate and study the sports injuries in teaching activities and evaluate the results after the improvement of teaching methods. It aims to provide theoretical analysis and guidance for avoiding sports injuries when carrying out this teaching activity. The research results show that the effective implementation of the "injury prevention consciousness" education can greatly avoid the injuries caused by insufficient preparation activities and weak muscle strength, thus reducing the incidence of sports injuries in basketball teaching, which is conducive to the development and popularization of this teaching practice.

**Keywords**—injury prevention consciousness; sports injury; basketball teaching

## I. INTRODUCTION

Among many sports, basketball is a sport with great intensity, strong antagonism and frequent physical confrontation. Different from the racket games and difficulty-artistic event-group, there are many kinds of physical contact in basketball, jumping and landing, sudden acceleration, sudden stop, turning and falling to the ground. Studies have shown that sports students with basketball age of 3 years or above all have sports history of different degrees, 68% of them have 2 or 3 injuries per capita, and the incidence increases with the training years.

It is often seen in teaching practice that due to the lack of theoretical basis and practical methods that can effectively avoid the occurrence of sports injuries, the injury will bring many inconveniences to students' life and study. The lack of "injury prevention consciousness" has gradually become the main disadvantageous factor for the extension of athletes' "sports life" and the popularization of this sport. To some extent, the special research and promotion of "injury prevention awareness" will reduce the injury and disease caused by cognitive deficiency, which has important guiding significance for the sustainable development and popularization of basketball education.<sup>1</sup>

## II. RESEARCH OBJECTS AND METHODS

### A. Research Object

This paper takes the students majoring in physical education of grade 2013 of School of Physical Education of Shanxi University as research objects (n=93), and conducts research and statistical analysis on the injury status of the students in basketball by issuing questionnaires. The questionnaire was filled out by the undergraduate students of the 2013 Physical Education Department of School of Physical Education of Shanxi University, including 61 male students, accounting for 66%, and 32 female students, accounting for 34%.

### B. Research Methods

1) *Document information law*: Through reviewing CNKI, Wanfang Data and other online databases, this paper searched 82 articles related to this research, sorted out relevant content. In addition, this paper consulted the authoritative journal materials about basketball injury, training and education at China and abroad in Shanxi University Library to provide theoretical basis for research and ideas to solve problems.

2) *Questionnaire survey*: According to the research content of this paper, the questionnaire was designed and compiled. In fact, 103 questionnaires were issued and 93 were recovered, with a recovery rate of 90%. Among the recovered questionnaires, 80 were valid, with an effective recovery rate of 86%.

3) *Mathematical statistics*: This paper summarizes the obtained data, uses Microsoft Office Excel and WPS Office software to conduct regular mathematical statistics and comparative analysis of the data, and makes the data into tables according to different requirements.

<sup>1</sup> Wang Lin. Investigation and Prevention of Knee Joint Injury in Basketball College Students in Sports Colleges [J]. Modern Preventive Medicine, 2015, 42(14):2527-2528+2542.

### III. RESULTS AND ANALYSIS

#### A. Survey Results of Injury Frequency

TABLE I. STATISTICAL TABLE OF INJURY TIMES

Number of injury (times)	2-3	4-6	> 6	Total
Number of people	20	43	30	93
Proportion	21.6%	46.2%	32.2%	100%

As can be seen from "Table I", students majoring in physical education have all suffered different degrees of injury in basketball activities. The number of injuries was

21.6% in 2 to 3 times, 46.2% in 4 to 6 times, and 32.2% in 6 times.

#### B. Investigation Results of Injured Parts

TABLE II. STATISTICAL TABLE OF INJURED PARTS

Part	Ankle joint	Knee joint	Waist	Finger and wrist	Head and neck	Total
Number of people	29	13	22	15	14	93
Proportion	31.2%	14.0%	23.7%	16.1%	15.0%	100%

According to the analysis in "Table II", the students of the 2013 Physical Education Department of Shanxi University in the basketball activities mainly include ankle joints (31.2%), knee joints (14.0%), waist (23.7%), fingers and wrists (16.1 %), and head and neck (15.0%).

TABLE III. STATISTICAL TABLE OF INJURY TYPES

Types	Contusion	Bruise	Torsional strain	Fracture	Joint dislocation	Others	Total
Number of people	24	16	12	8	22	11	93
Proportion	25.8%	17.2%	12.9%	9.0%	24.0%	18.0%	100%

#### C. Survey Results of Injury Types

According to the analysis in "Table III", the main sports injuries of students of the 2013 Physical Education Department of Physical Education of Shanxi University in daily basketball activities include contusion, bruise, torsion, etc. The proportions are 25.8%, 17.2% and 12.9% respectively. 9% of the students had a fracture, and 24 percent had a major injury such as a dislocation of the joint.

#### D. Findings of the Site Investigation that Caused Injuries

TABLE IV. STATISTICAL TABLE OF INJURED SITES

Site	Cement ground	Asphalt site	Plastic field	Others	Total
Number of people	360	20	28	9	93
Proportion	57.4%	21.5%	30.1%	10.0%	100%

"Table IV" shows that cement basketball court is the main training and competition venue in basketball activities. Students were mostly injured in cement (57.4%), followed by plastic (30.1%) and asphalt (21.5%).

#### E. Student Physical Condition Questionnaire

TABLE V. STATISTICAL TABLE OF STUDENTS' PHYSICAL CONDITION

The reasons of sports injury	Fatigue training matches	Training matches with injuries	Old wound	Others	Total
Number of people	18	16	38	21	93
Proportion	19.4%	17.4%	40.9%	33.3%	100%

It can be seen from "Table V" that 36.8 percent of students of the 2013 Physical Education Department of Shanxi University will have fatigue training or competition during training and competition, and 40.9 percent of students will play with injuries.

### IV. EVALUATION OF EDUCATIONAL RESULTS AFTER THE INTRODUCTION OF "INJURY PREVENTION AWARENESS"

Forty students were randomly selected from 93 students to conduct a two-day training on "injury prevention consciousness" from the aspects of doing special preparation activities, strengthening special strength exercises, enhancing self-protection consciousness, avoiding defective venues, and reducing fatigue competition. After 4 weeks, 40 students were interviewed and surveyed by questionnaire and the results were counted.

### A. Actively Preparing for Special Activities

Active special warm-up can effectively reduce the probability of injury. Muscle viscosity is closely related to warm-up.<sup>2</sup> Within a certain range, the higher the temperature, the lower the viscosity, and the higher the range of motion of the joints, the lower the probability of injury. The lower the outdoor temperature in winter, the more difficult it is for muscles and joints to move without adequate preparation, and the lower the flexibility of muscles and the more prone to sports injury.<sup>3</sup>

### B. Strengthening Special Strength Exercises

The strength training of basketball should be different from that of other sports. In the investigation and analysis, most students who have suffered injuries are often due to their weak special strength, lack of speed, sensitivity, endurance, strength, etc. But they also require too much technical movement, and easy to cause injury. Therefore, improving the special strength will be of great help to students in basketball.<sup>4</sup>

### C. Enhancing Self-protection Awareness

It is found that the psychological changes of students majoring in physical education during basketball games and training are also an important cause of sports injuries. For example, some students are pulled into the competition by their partners without adequate preparation. Players are likely to take their frustrations out on their opponents during matches because of referees. Physical injuries of violent nature are often caused by physical conflicts in high-intensity competition environment. In the social club competition, most of the defenders will not take into account the physical quality and strength of the other players, so the fierce collision, such a form of confrontation is easy to produce physical injury.<sup>5</sup> These factors are the causes of sports injuries. Therefore, it is necessary to establish a sense of self-protection before and during the competition, and prepare for possible situations in the competition, so as to prepare for emergencies.

### D. Avoiding Defective Sites

Extra attention should be paid to the conditions of the court when playing basketball. Players should try their best to avoid playing on uneven ground, with obvious potholes, otherwise prone to sprain feet, wrestling situation. If conditions permit, the indoor court with wooden floor should be selected, which have certain elasticity and can reduce the

injury to the knee and ankle joints when athletes jump to the ground compared with the cement court.<sup>6</sup>

### E. Reducing Fatigue Competition

In basketball activities or competitions, some students have insufficient understanding of their physical conditions and often carry out basketball training and competition under the state of fatigue. As a result, the movement deformation and rate decrease caused by the inability of the body function to be fully mobilized may occur. Some of the students still insist on playing the game even if they have injuries due to the collective honor. In this case, a little carelessness will cause a second injury, and once the old injury recurs, it is difficult to completely recover.<sup>7</sup> Of course, the results are very important, but the majority of basketball lovers, especially male athletes in colleges and universities should also act according to one's ability.

TABLE VI. FEEDBACK FORM OF "INJURY PREVENTION AWARENESS" TRAINING RESULTS

Avoid injury	Number of cases	Percentage
Doing a special preparation activity	25	26.9%
Strengthening special strength exercises	17	10.7%
Enhancing self-protection awareness	21	22.6%
Avoiding defective sites	22	23.7%
Reducing fatigue competition	15	16.1%

As can be seen from "Table VI", after the training of "injury prevention consciousness" for some 2013 Physical Education Department of Shanxi University, students effectively avoided the occurrence of injuries in the basketball activities in the following month from different aspects.

## V. CONCLUSION

Basketball is popular among college students because of its charm and large number of participants. In recent years, with the continuous improvement of commercialization, there are more and more competitions between colleges and universities and social clubs, making basketball an indispensable part of the spare time life of the majority of young people. With the increase of competition, sports risks are inevitable, especially the increase of injuries in the course of playing.

<sup>2</sup> Lu Haiyong. Analysis and Countermeasures of Common Sports Injuries in College Basketball [J]. Modern Preventive Medicine, 2013, 4006:1068-1070.

<sup>3</sup> Li Jingbin. How to Avoid Sports Injury in Basketball Training of Middle School Students [J]. Journal of Teaching and Management, 2008, 04:72-74.

<sup>4</sup> Wu Tao. Investigation on Common Sports Injuries in Basketball Courses of Physical Education Majors in Higher Vocational Colleges in Guangxi [J]. Modern Preventive Medicine, 2012, 3902:360-362.

<sup>5</sup> Wang Kefei, Wang Heping. Discussion on Basketball Injury Prevention and Self-protection [J]. Modern Preventive Medicine, 2011, 3806:1052-1054.

<sup>6</sup> Ma Mingfei, Huang Taiyuan, Mu Chunlei. Investigation and Research on Knee Joint Injury of College Basketball Players in Beijing [J]. Journal of Guangzhou Sport University, 2009, 2902:94-97.

<sup>7</sup> Xie Fuping, Yang Yanxia. Investigation and Analysis of Ankle Injury in Basketball Sports of College Students [J]. Sports Culture Guide, 2009, 12:98-99+106.

After investigation and analysis, it was found that the students who participated in the basketball training and competition had suffered various degrees of basketball sports injuries, mainly concentrated in hip joint, knee joint and waist. The main types of injuries are torsion, abrasion and contusion. The main causes of these injuries are: first: Insufficient special warm-up; second: Weak special strength; third: Insufficient self-protection awareness; fourth: Deficiency in basketball courts; fifth: Fatigue exercise or competition. In the 4 weeks after the training and education of some students, the students who participated in the training had a further understanding of basketball injury from different angles during the basketball activities, and could effectively avoid the occurrence of injury.

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