

# Research on Causes and Prevention of Arm Injury in Tennis Training for College Students in Tennis Specialized Classes

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**Keywords:** College tennis; Specialized class students; Tennis training; Arm injury; Causes and preventive measures

**Abstract.** Tennis is a leisurely and entertaining fitness program that is loved by students in today's colleges and universities. Tennis has gradually become popular in colleges and universities, and the number of people participating in tennis training has gradually increased. Many schools have set up specialized classes for tennis, and the number of teaching courses has gradually increased. In fact, the sport of tennis is prone to be injured, so we should actively prevent the work and reduce the damage in the training, and protect the safety of students to the greatest extent. On the other hand, due to the characteristics of the technical structure of tennis teaching and training, the probability of athletes suffering from arm injury is high, which deserves our attention. The author conducts research to analyze the main factors of arm injury during the tennis exercise and how to prevent the damage of the arm for analysis.

## Introduction

With the progress of the times, tennis has gradually entered the national vision and has gradually become a popular sport. However, the amount of tennis is relatively large, and the technical movements are relatively complicated. The requirements for athletes participating in training and competition are relatively high, and it is necessary to have good physical and psychological qualities. Therefore, it is common for tennis players to be damaged. The colleges and universities that the author works in set up a tennis specialized class to provide tennis lessons teaching for students. In order to better teach students to learn to protect themselves, they can study the damage easily caused by tennis, so scientific training can control the probability of injury to the greatest extent. This paper focuses on the study of arm injuries.

## 1. Investigation of Tennis Injury

Tennis technical movements are relatively complex, athletes need not only to have a certain amount of exercise, but also to have some strength. In the strategy of modern tennis, it is necessary for players to be "fast, hard, accurate and changeable", to fly all over the court to complete difficult actions such as jumping and hitting, fishing jump and rescuing, volleying at high altitude, and high-pressure smash. It is also necessary to keep on completing such actions as forward and backward, and fast turning. It is also necessary to complete the quick emergency stop braking. Therefore, tennis is "swing the racket on the battlefield" in many people's eyes, high-level tennis competition, its amount of exercise and exercise time can match the fierce football match. This paper studies the injury in tennis and finds that the damage condition of the injury of tennis players is upper limb, then lower limb, followed by trunk. Professional athletes usually compete on the grassland, but the training ground for our students is cement, which is relatively hard, so the probability of lower limb injury is slightly equal to that of upper limb injury. When the specialized class students begin tennis training, the most vulnerable part is elbow joint.

## 2. Main Factors of Arm Injury in Tennis Playing

Why are arms the most vulnerable? The analysis of this problem mainly focuses on psychological factors and sports characteristics. In fact, sports injuries will cause discomfort in the body, or even

damage generally due to unskilled skills and training errors.

In terms of psychological factors, students, especially those who need long-term tennis training, need to maintain good psychological quality in completing daily training. The quality of psychological quality plays a decisive role in sports injuries. In teaching and training, if the students' psychological state is relatively weak, there are negative emotions such as distraction and anger, slow reaction ability, relatively lack of concentration, technical dysfunction, and the probability of sports injury is high. Tennis has its own characteristics. Psychological quality has a direct impact on the trainees' judgment, walking and eyeballing consciousness. It also has a direct impact on the trainees' level. Only by training in a good mentality and strengthening and improving their own shortcomings can we improve the level of teaching and training.

Tennis has its own characteristics of sports. The first thing a coach considers when organizing a student's training is the safety of the student. Tennis is relatively technically strong. Students in specialized classes may not have in-depth attention to training before entering the training, or have insufficient understanding of the technology, so it is easy to appear technically improper operation, resulting in arm injury. The correct motor skills are not well understood, and repeated training in the wrong movements, the students feel tired in the body, the body has a serious burden, and the muscles of the arms are prone to strain and joint damage. On the other hand, if the technology is not properly used, it is easy to cause damage. When the counter is hit, the technical essentials are not properly mastered. The probability of an athlete's arm injury is high, and the technical performance is not shown. Therefore, for tennis players, it is important to actively master the essentials of sports and to complete various trainings in the correct posture to prevent physical damage.

In terms of preparation activities, students should prepare their preparations before carrying out any physical activity. If students do not reserve enough time for preparation activities and do not prepare for sports, they will significantly increase the incidence of sports injuries. Therefore, college students must be prepared before the tennis. During the development of tennis, many activities are involved, such as elbow joints or wrist joints. However, most students have less preparation time in tennis lessons, which makes students vulnerable to tennis injuries.

In terms of teacher requirements, college teachers will propose relevant rules and requirements for students in the special class of tennis, and teachers will also formulate different training programs according to the differences between male students and female students, and ask students to follow the training program. Carry out training. However, some students will ignore the training program proposed by the teacher and stand alone during tennis. This will result in the safety of students' sports, and students will easily suffer from arm injuries due to technical errors and lack of physical strength.

### **3. Strategies to Avoid the Arm Damage in Actual Training**

In fact, the arm injury during tennis is also called tennis elbow injury. From the analysis of pathogenesis, the elbow joint in exercise is stretched out due to force, the elbow valgus or pronation of the front arm is excessive, and the internal or external part of the arm is overloaded. The former causes muscle damage, while the latter increases the shear stress of elbow joint, which leads to elongation or tearing. In-depth analysis, the elbow joint is a kind of axle flexion joint, the proximal end has ankle joint which completes the movement in the axle, and the joint movement of the ulnar joint is performed. The ulna will limit the abduction and adduction of the ankle joint on the sagittal axis, and the external force will be forced to complete the adduction and abduction. At this time, the ligament is excessively pulled and the collateral ligament of the elbow joint is damaged. The tennis ball is finished with a serve, high-pressure smash, and the tendon of the elbow joint is prone to excessive stretching and damage. In actual exercise, the arm, wrist, and treatment need to coordinate the movement to control the speed, direction, and placement of the movement. At this time, the muscles of the elbow joint and the wrist are highly stressed. Under long-term action, the stress exceeds the physiological maximum load, resulting in an increase in the probability of local lesions. The frontal ball hits the straight arm, the backhand hits the elbow joint quickly, and even the wrist and elbow are turned over sharply when the ball is hit. The ball and the air ball when

hitting the ball directly cause the force on the forearm and increase the probability of arm damage.

Psychological quality should be attached importance to. In tennis training and teaching, the players need to cultivate their psychological quality. Good psychological quality can give players better space to play, eliminate tension, and better protect themselves. After having certain psychological qualities, the athletes' self-protection consciousness should be strengthened. Anterior muscles should not be exercised for a long time, repetitively or excessively, which should also be paid attention to in life to avoid non-sports injuries. In the previous research work, the author found that students did not know enough about tennis arm injury, their knowledge was relatively single, and they lacked effective ways to avoid injury. Schools should also actively do propaganda work here, and coaches should also explain students more comprehensively, so that students can fully understand the tennis arm injury to improve students' psychological quality and help them better cope with injury in the future.

In addition, rackets should be paid attention to. If the weight of racket does not match that of the gripper, elbow joint injury will easily occur. The weight, racket face, grip handle and material of racket should be considered comprehensively. Baseline players have thicker grip handle and bigger racket face. Strong batters choose softer racket material. Internet players have thinner grip handle, smaller racket face and better medium hardness of material.

We should pay attention to the mastery of technology. Correct training techniques can largely prevent arm injuries. In tennis training, attention should be paid to correct dynamic stereotyping, and the erroneous movements should be constantly improved to avoid injuries to the arm and elbow joints. Correct tennis skills can not only improve the physical and mental health of athletes, but also reduce sports injury. Teachers should attach great importance to the teaching of correct tennis skills, give students accurate and standardized guidance, and gradually teach students to master the technical essentials to do a good job in the prevention of possible sports injuries in the future.

Furthermore, we should also focus on preparation activities and special exercises. Before the tennis teaching task begins, the coach must organize the students to complete the preparatory activities, including general and special preparatory activities, the wrist, elbow and shoulder are prepared in a multi-directional way. The load and range of the exercise are gradually increased from small to large. The intensity and density of training should be planned more scientifically. The beginners have smaller intensity and higher density. The high-level ones have higher intensity and should not have too high density.

Medical supervision should be attached importance to. Colleges and universities should set up skilled medical teams and do a good job of medical supervision in tennis specialized class training. Students have longer relative exercise time, higher frequency of exercise, active physical injury measures, and urge students to complete training. Medical workers should also give trainers more knowledge about injury prevention. Medical workers do a good job in propaganda work, actively communicate with the coaches, and make contact with the arm injury prevention measures, so that athletes can understand the key points of attention in sports more professionally and scientifically, master accurate technology, and avoid injury to the greatest extent.

Pay attention to the reasonable arrangement of the activity load. The amount of activity load and the impact on the student's arm injury to a large extent, if the amount of tennis in the student significantly exceeds their own load, it will lead to the occurrence of arm injury. Therefore, colleges and universities for training in tennis special classes need to arrange students' sports load to the maximum extent. Physical education teachers need to arrange reasonable exercise load according to the physiological differences between male students and female students. At the same time, students also need to adjust the load according to their actual situation in tennis training, to avoid the burden of various functions of the body due to excessive tennis training, and effectively prevent arm injury.

#### **4. Conclusion**

This paper mainly conducts research on arm injury in college tennis specialized classes. From the overall investigation of tennis injury, this paper focuses on the analysis of the main factors and mechanisms of arm injury from psychological factors, racket, technical mastery and training. The

preparatory work and medical supervision before the training have been fully rolled out to ensure the safety of students to the greatest extent.

## References

- [1] Gui Tangbo, Yu Shaodong. *Investigation and Research on Sports Injury of Tennis Students in College of Arts and Sciences, Yunnan Normal University* [J]. Contemporary Sports Science and Technology, 2017 (7).
- [2] Li Fei, Jiang Qiuping, Wang Runping. *Research on Common Injuries and Preventive Measures in College Students' Tennis Sport: Take Northwest Normal University as an Example* [J]. Contemporary Sports Science and Technology, 2018, 8 (30): 26-27.
- [3] Sun Yuan, Gao Han. *Teaching Research on the Causes and Prevention of Common Sports Injuries in Tennis Major Courses in Universities* [J]. A Comparative Study of Cultural Innovation, 2017 (4).
- [4] He Yanyan. *Study on the Effect of Specialized Sports Training and Its Psychological Mechanism of Professional Athletes' Bio-motion Perception* [C]//11th National Academic Conference on Sports Psychology.
- [5] Feng Ran. *Research on Problems in Tennis Multi-Ball Training: Taking Elective Course in Henan Normal University Tennis as an Example* [J]. Sports, 2017 (11): 95-96.
- [6] Si Yali, Fu Lijuan, Li Zeng. *Research and Discussion on Shoulder Injury and Prevention and Rehabilitation in Tennis* [J]. Contemporary Sports Science and Technology, 2018, 8 (21): 7-8.
- [7] Yang Kun. *Brief Analysis of the Influence of Combination of Competition and Training on Tennis Technical and Tactical Level: Take the Students of Tennis Class of Wuhan Institute of Physical Education as an Example* [J]. Science and Education Educational Journal (Electronic Edition), 2017:163.