

# Research on the Strategy of Physical Training in Competitive Tennis

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**Abstract:** With the continuous improvement of competitive level, the strategy of physical training in competitive tennis has become the key to improve the performance of athletes. First of all, this paper emphasizes the role of basic physical training in enhancing the overall athletic ability of athletes. Secondly, it discusses the physical training of special skills, including the enhancement of core strength and the improvement of speed and agility. The Endurance Training chapter focuses on the effects of aerobic and anaerobic exercises on performance in long-game play. Flexibility and coordination training section discusses the importance of sports injury prevention. Finally, the application methods of recovery strategies and physical maintenance in maintaining the best state of athletes are analyzed, which aims to provide comprehensive physical training guidance for tennis players and coaches to promote excellent performance in competitive tennis.

**Keywords:** Competitive; Tennis; Physical fitness

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## Introduction:

Competitive tennis, as a sport with high intensity and strict technical requirements, puts forward high requirements for athletes' physical fitness. In the current competitive sports environment, with the intensification of competition and the increase of competition intensity, physical training has become a key factor to improve the competitive level of athletes. In recent years, the methods and concepts of physical training have been continuously improved, and more attention has been paid to individualization and scientization. However, in view of the unique needs of competitive tennis, how to design and implement effective physical training strategies is still an important challenge for athletes and coaches.

## 1. The Importance of Basic Physical Training

In competitive tennis, the basic physical training is the key. The core purpose of the training is to build the physical foundation of athletes and lay a solid foundation for higher-level special training. Tennis is a sport that requires great endurance, strength, speed, flexibility and coordination. Therefore, a comprehensive basic physical training program can effectively improve the overall ability of athletes.

In addition to the physical level, basic physical training also helps to improve the mental toughness of athletes. By challenging themselves and pushing the limits, athletes can maintain better calmness and concentration in the face of pressure in the competition.

## 2. Physical training strategies in competitive tennis

### 2.1 Strengthen core strength and improve strike efficiency

In competitive tennis, in order to improve the efficiency of tennis players, it is necessary to enhance their core strength. First of all, the core muscle group is the center of body strength. It connects the upper body and the lower body, providing the necessary stability and strength for the playing action. Strengthening core strength can not only improve the speed and accuracy of the ball, but also reduce the risk of injury, especially in long-term games. This training needs to be targeted, including but not limited to Pilates, yoga and stability ball training, which can strengthen the muscles of the abdomen, back and hips. For example, exercises such as tablet supports, push-ups, and sit-ups can effectively exercise the entire core area and improve its stability and strength.

Secondly, it is necessary to combine targeted and functional training to further strengthen the core muscle group. These exercises should simulate actual movements in tennis, such as lateral movement, rotation and bending. For example, the use of a medical ball for spinning and throwing exercises can exercise the player's core muscles, and also simulate the spinning action of a tennis swing, thereby directly improving the efficiency of the attack.

Finally, athletes need to maintain the continuity and concentration of training, which requires athletes to carry out regular core training, and gradually increase the intensity and complexity of training. At the same time, coaches should monitor the athletes' progress and adapt their training programs to their specific needs.

## **2.2 Speed and agility training to improve on-court reaction**

First of all, speed training should focus on improving explosive power and short-distance sprint ability. This can be achieved through training such as interval running, trapezoidal running and resistance running. For example, interval running can improve an athlete's ability to accelerate, which is particularly important for fast starts and changes of direction in tennis.

Secondly, agility training focuses on improving the athlete's ability to change direction and sense of balance. By setting up obstacles, using agile ladders and performing multi-directional mobility exercises, athletes can improve their flexibility and coordination on the field. For example, using an agile ladder for fast footwork exercises can significantly improve the speed and accuracy of an athlete's footwork.

For example, the famous tennis player Novak Djokovic (Novak Djokovic) is an excellent representative of speed and agility training. His training program includes a lot of multi-directional movement and balance training. These exercises help him have excellent mobility and reaction speed on the tennis court, can quickly adapt to the opponent's style of play, and make rapid adjustments. Djokovic's success is largely due to his superior performance in speed and agility.

## **2.3 Endurance Training, Optimize Competition Stamina**

In competitive tennis, endurance is the key, and endurance is also the key to determine the outcome of the game. Athletes with good endurance can still maintain a high level of physical fitness and concentration in the later stage of the game to achieve final victory.

First, endurance training should be combined with aerobic and anaerobic exercises. Aerobic exercises, such as long-distance running, swimming or cycling, can improve cardiopulmonary function and enhance the body's ability to adapt to long-term exercise. Anaerobic exercises, such as sprinting or strength training, help improve muscle endurance and explosive power.

Secondly, in order to effectively improve endurance, the training should gradually increase the intensity and duration. The initial phase can start with short aerobic exercise, gradually extend the exercise time, and combine with interval high-intensity training (HIIT) to improve anaerobic endurance. In addition, the segmented training method is also an effective method, that is, the training is divided into several small segments, and the rest between each segment gradually increases the intensity and time of each part.

Finally, in order to maximize the effects of endurance training, the importance of nutrition and recovery should also be considered. A proper diet plan and adequate rest are essential for recovery and physical reserves. In addition, avoiding overtraining is also key to maintaining good endurance, because overtraining can lead to fatigue accumulation and affect competition performance <sup>[1]</sup>.

## **2.4 Flexibility and coordination training to reduce the risk of injury**

In competitive tennis, flexibility and coordination can improve sports efficiency and technical level, and the key factors to prevent sports injury. Good flexibility can increase the range of motion of joints and muscles, reducing the risk of strain and tear. The coordination training is helpful to improve the athletes' body control ability and optimize the movement efficiency.

First of all, flexibility training mainly includes stretching and flexibility exercises. These exercises should include stretching of the whole body, especially for tennis players, focusing on stretching the shoulders, back, hips and legs. Static stretching, such as yoga or pilates movements, can be done before and after training to improve muscle and joint flexibility. Dynamic stretching can be used as a warm-up activity to help the body prepare for the upcoming high-intensity training or competition.

Secondly, coordination training focuses on improving athletes' physical coordination and balance. This type of training includes a variety of sports, such as balance training, flexible movement and targeted exercises. For example, standing on one foot, walking on a balance beam, or practicing with a balance ball are all effective ways to improve coordination. These exercises help improve the athlete's overall motion control, especially when moving quickly and changing direction <sup>[2]</sup>.

Finally, combining flexibility and coordination training is very important to improve the overall performance of athletes.

For example, athletes can schedule stretching and balance exercises for a certain period of time while performing strength and endurance training. This comprehensive training method not only improves physical fitness, but also reduces the risk of sports injuries.

## **2.5 Recovery strategies and physical maintenance to maintain the best condition**

**Aggressive recovery strategies:** Aggressive recovery strategies include gentle activities such as light-hearted jogging, swimming, or cycling to boost circulation and speed up the process of removing lactic acid and other waste products. In addition, gentle stretching and yoga can also help relax muscles and reduce muscle tension and stiffness.

**Passive recovery methods:** Passive recovery methods such as massage, hot and cold therapy or buoyancy therapy can significantly reduce muscle pain and fatigue. Massage can relax tight muscles and promote blood circulation, while hot and cold therapy reduces muscle pain and inflammation by alternating hot and cold baths <sup>[3]</sup>.

**Proper nutrition and water supplementation:** An athlete's recovery is also closely related to their diet and water intake. High-quality protein intake helps muscle repair and reconstruction, while adequate carbohydrate intake restores energy reserves. At the same time, add enough moisture to prevent dehydration.

## **Conclusion:**

In summary, from basic physical training to the improvement of special skills, to the implementation of recovery strategies, each link is an important part of improving the overall performance of athletes. Through an in-depth analysis of these training methods, this study aims to provide a set of systematic training guidelines for athletes and coaches. With the continuous development of scientific training methods, the physical training of competitive tennis players will pay more attention to efficiency and individuality, so as to achieve better results in future competitions.

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