Application Value of Multi-direction Moving Training Method in University Tennis Training

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Abstract: With the introduction and development of the physical movement training methods abroad, the multi-direction moving training methods have been widely accepted abroad, especially in improving physical quality and competition ability. But the domestic scholars involved in less. By using the methods of literature review, expert interview, questionnaire and mathematical statistics, this paper studies the application value and specific training content of the multi-direction mobile training method in tennis training in colleges and universities. Select the specific training content suitable for developing the multi-direction movement ability of university tennis players, in order to improve the tennis players' physical quality, basic skills and competition ability .The results show that the multi-direction moving training method can improve the physical quality, basic skills and competition ability of tennis players. In improving the physical quality of athletes, the main performance in the sensitivity and mobility has significantly enhanced. In improving the basic skills of athletes, the main performance is in the accuracy of hitting the ball has improved significantly. In the aspect of improving the athletes' competition ability, the main performance is the increase of the total score and the winning score, and the decrease of the unforced errors. The multi-direction moving training method and the method are simple and easy to carry out, is suitable for the university tennis training team's daily training.

1.Introduction

Tennis training in colleges and universities is the basis of the development of tennis for all in China, which is directly related to the popularization and popularization of tennis in China. The ability of multi-direction movement is the soul of tennis. It plays a key role in the study and application of techniques and tactics of tennis players. Only by paying attention to the importance of multi-direction moving ability and the cultivation of multi-direction moving ability can the athletes effectively complete the basic, hit the high-quality return ball and win the game. Therefore, the multi-direction movement ability is the university tennis project development foundation. This research takes the multi-direction movement training content as the starting point, takes the university tennis athlete multi-direction movement ability raise and the competition result enhancement has the remarkable correlation argument as this research final goal, by sorting out the contents and testing methods of the multi-direction mobile training, integrating the expert opinions, this paper selects and implements the contents of the multi-direction mobile training; analyzes and discusses whether the multi-direction mobile training can effectively improve the tennis player's competition ability, it provides the scientific reference and reference for the tennis athlete's multi-direction movement training scheme. This study does not involve red soil and grass, mainly for hard-court tennis training. There is no clear distinction between forward, lateral, and backward movements, just the initial position relative to the body.

2. Research Object and Research Method

2.1 Subjects

Sixteen male students of the tennis training team of Jilin Institute of Physical Education were selected as the experimental subjects, the oldest was 23 years old, the youngest was 21 years old,

the average age was 22.5 years old, the tallest was 185 cm, the shortest was 173 cm, the average was 179 cm, and the heaviest was 78 kg, the lightest was 64.4 kg, with an average weight of 69.63 kg.

2.2 Methodology

2.2.1 Documentation method

According to the actual needs of this study, using the CNKI query and functional training, tennis players physical fitness training and other related literature, through reading and classified analysis of the relevant literature, to have a comprehensive understanding of the current situation of the development of this field and the latest trends and levels of research, with an emphasis on understanding the current situation of the application of multi-direction mobile training methods and the relevant theoretical basis, and to make a systematic analysis of the relevant training methods, it provides a certain basis for the writing of this paper and the application of the training method.

2.2 Expert Interviews

Face-to-face or telephone interviews were used according to the purposes and tasks of the study In this paper, some experts from some colleges and universities with tennis training teams in China were interviewed on the feasibility of the multi-direction mobile training scheme for university tennis projects, the specific experimental design, the selection and implementation of the experimental contents, and the selection of evaluation indexes. For this paper research direction, the basic structure, the evaluation index and so on has obtained the precious opinion and the suggestion.

2.3 Questionnaire Method

According to the aim and content of this study, after the training, the students were given a questionnaire about the students' interest and attitude towards the training. A total of 16 questionnaires were issued and 16 were recovered, with a recovery rate of 100%.

2.4 Mathematical Statistics

According to the research purpose and needs, SPSS21.0 and Tennis Analytic Statistics software were used to test the test data, analysis of variance, and summarize the results of its analysis, to provide empirical data support for this paper.

3 Research Results and Analysis

3.1 Application Value of Multi-direction Movement Training Method in Tennis Training

Tennis is a kind of skill-dominated net-separating antagonism sport, therefore, the athlete is required to have good reaction speed, movement speed, explosive power, agility and psychological quality. Only with the above qualities will have a quick start, stop, change direction and speed up the ability to better adapt to the field running around, stop and change direction requirements. The multi-direction movement training is mainly to improve the tennis player's nervous system's sensitivity, the movement speed and the frequency, the emergency response and the change direction ability, the start and the acceleration and the cushion and the brake ability, adapts the tennis competition the need. The details are as follows :

3.1.1 Increase the sensitivity of the nervous system

The sensitivity of the nervous system mainly refers to the rapid switching speed between excitation and inhibition of the motor nerve center and the coordination ability between the nerve and the muscle. The rapid completion of various body parts of the form of movement and the ability to quickly change the direction of movement, are highly central nervous system and coordinated performance. The agility of tennis events requires the players to have good judgment in a very short time, and to deal with the distance between body parts and the ball accurately and coordinately, that is, the reasonable relationship between man and ball. In tennis, the time between the ball leaving the

opponent's racket and hitting the ball is usually less than 1 second. Therefore, the players are required to judge the speed, the falling point and the rotation of the ball in this instant and make quick decisions based on what's on the field. And the high or low sensitivity of the athletes, directly determines the conversion between the speed and accuracy of judgment.. The training of multi-direction movement can make the exerciser's nervous system in high concentration and quick reaction all the time. He must be ready to move back and forth rapidly in all directions at all times . Shortening the motor response latency and increasing the ability of the central nervous system to regulate the motor apparatus to ensure that tennis players in a very short time and in a variety of different situations to complete the acceleration, deceleration, change of direction and other actions quickly and smoothly to reach the position of hitting the ball, well in advance of the preparation of hitting the ball, a high-quality finish to the shot.

3.1.2 Increase speed and frequency of movement

The action rate is refers to the human body in the stipulated condition the shortest time completes the action the ability. Also refers to the number of repetitions of the same action per unit time. The frequency is refers to the unit time completes the movement cycle and each movement cycle in the specific direction displacement speed. The speed and frequency of the movements are mainly related to the flexibility of the central nervous system and the coordination between the muscles. Improving the flexibility, excitement and inhibition of the nervous process can increase the speed of the alternation of the movements of the athletes' limbs; improve the coordination between the various groups, reduce the resistance caused by the tension against muscle groups, in order to better play the speed, through multi-direction movement training to make tennis players excited and inhibit the speed of neuron conversion, and the precise selection and regulation of motor neurons, coupled with optimized muscle fiber recruitment and coordinated muscle dynamics, thus achieving high-speed and high-frequency multi-directional mobility. This is the key to a tennis player's high-quality shot on the court.

3.1.3 Improved emergency response and steering capability

Watching elite players such as Novak Djokovic, Roger Federer, Andy Murrary, Serena Williams, Li Na and others, they always seem to be in the best position to hit the ball. Each stroke always looks so easy, smooth and beautiful. In fact, you don't really get the hang of tennis until you can get a high-quality volley from the player on the other side of the net(for ball games). Only when we master the ability of efficient movement, can we reach the state of excellent athletes.

Emergency response is an adaptive response of the Adrenal Medulla System in the sympathetic sense when the body is in an emergency. Through the training, the potential strength of the organism is mobilized to deal with the drastic change of the environment, so that the response and adaptability of the organism are improved. The ability to change direction is the ability to change direction quickly. Some sports require mobility in a straight line, but the most important part of tennis is the ability to change direction. In tennis, the average point will change direction seven or eight times, so the winner is not the fastest 100 meter runner, but after hitting the ball a player who can change direction as quickly as possible to hit the next ball, and tennis is a sport of constant emergency. Therefore, the emergency response and the ability to change direction are the tennis players must have the basic ability, the players need to be in a variety of different environments or unprepared conditions, to react quickly, find the best solution to the task. Multi-direction movement training can effectively improve the running efficiency of athletes on the field, mainly the ability of emergency response and change direction. It doesn't have to be on a tennis court, it can be in a playground, yard, park, or parking lot. When the players' emergency response and ability to change direction are improved, their ability to move their feet on the field will be significantly improved. It can also help players return to the court more quickly after hitting the ball to prepare for the next attack or defense. So the ability of the athletes to compete has also been improved.

3.1.4 Improved start and acceleration capability

Starting is the first step in an athlete's movement. By pushing off the ground with maximum

force, the athlete gains ground reaction, which enables the center of gravity of the body to move rapidly in order to accelerate the start. The speed of starting directly affects the acceleration ability after starting. According to Destsch's analysis of the game, the average tennis player needs to do 300 to 500 explosive moves per game, so a good starting speed is an important attribute of a tennis player. Acceleration refers to the start to the position of the shot after the rapid movement, through the stride, cross-step, change-direction running, side slide steps and other steps to complete. At present, baseline and net play are the most commonly used methods, therefore, players rely on a wide angle shot, the opponent will be pulled out of the net or when the opponent is not paying attention to volley, put a small ball, the field to gain the initiative to win. The ability of quick start and acceleration is one of the most important abilities in the tennis game when the ball is hit at large angle or long distance. At the same time, if the passive player also has a better starting and accelerating ability, under the passive situation, he can also return every winning ball, which has a great influence on the opponent's psychology, looking for an opportunity to turn passivity into initiative to win the game. Therefore, a better starting and accelerating ability is one of the important abilities of athletes to win the competition.

3.1.5 Improved starting and accelerating capabilities

Cushioning is the process of slowing down and controlling the center of gravity after acceleration to the position of the shot. Braking refers to hitting the ball in place, is to ensure the connection with the next technical action. According to different movement patterns, the player quickly reaches the position most suitable for hitting the ball. During the movement, the last step is relatively large when cushioning and braking .The trunk and lower limbs need to bear more pressure to resist the inertia of the body moving, so the exerciser should lower the center of gravity when buffering and braking, landing on the sole of the foot so that the center of gravity is between the two feet and controlling the balance of the body. The movement of any direction and any footwork is in order to complete the technical movement service, cushioning and braking are the hubs for the transition between moving and between moving and hitting. The buffering and braking ability helps the player maintain good body posture, maintain body dynamic equilibrium, and prepare for a high-quality shot.

4. Conclusions and Suggestions

4.1 Conclusions

(1) The method of multi-direction moving training can improve the physical quality, basic skills and competition ability of tennis players in colleges and universities.

(2) Improve the physical quality of athletes, mainly in the sensitive quality and the ability to move significantly enhanced.

(3) Improve the basic skills of athletes, mainly in the accuracy of hitting the ball has improved significantly.

(4) To improve the competitive ability of athletes, the main performance is the increase of total score and winning points, the reduction of unforced errors.

(5) The multi-direction movement training method and the means are simple and easy to carry out, is suitable for the university tennis training team's daily training.

4.2 Suggestions

(1) It is suggested that coaches and athletes should attach importance to the role of multi-direction mobile training and combine multi-direction mobile training with special quality training to improve the learning and application of basic skills.

(2) The multi-direction movement training intensity should not be too much, guarantees the training timeliness. At the same time, it should be arranged before the study of basic technology, which is beneficial to the mastery of basic technology.

(3) Limited to my ability and time and other factors, the experimental time is shorter, I hope that

the follow-up research can work out a more reasonable training time, improve the experimental rigor. On the other hand, only 16 male students of a university tennis training team were tested in the multi-direction movement training. The experimental subjects were relatively single, and there might be some error in the experimental data .The results of the experiment can not be effectively extended to a wider range of athletes, and it is hoped that the follow-up study can carry out more in-depth experimental research on different gender and level of athletes.

(4) It is suggested that in the future training, more training methods and means can be used to innovate the content of multi-direction mobile training, and more multi-direction mobile training methods combined with tennis can be developed.

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