

# Discussion on Physical Training for Badminton in Colleges and Universities Based on Fitness Purpose

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**Abstract**—With the continuous improvement of people's living standards in China, problems such as fast pace of life and great pressure on study have an increasing impact on the health of college students, and the physical fitness of students has declined dramatically. However, with the continuous development and popularity of badminton, it becomes popular among students in various universities. College students can improve their physical quality through badminton exercise, making badminton an important part of their daily life. Although more and more college students take an active part in fitness activities, such as badminton, they are generally blind in practice, such as unreasonable exercise intensity, unscientific exercise time and so on. Therefore, based on the current fitness effect and status quo of college students participating in badminton, this paper draws on the rich research results of China and foreign countries, and conducts a scientific and comprehensive analysis and research on it, so as to provide scientific guidance for college students participating in the physical training of badminton.

**Keywords:** *fitness, college students, badminton, physical training*

## I. INTRODUCTION

As the living standard of the Chinese people picks up, problems such as fast pace of life and great study pressure have an increasing impact on people's health. People's awareness of fitness is increasing, and fitness has gradually become an important part of people's daily life. Physical training, as a beneficial way to keep fit, has become one of the most important forms of physical exercise. Regular physical training is of great benefit to people's health. In addition, in order to better implement the *National Student Physical Health Standard*, all college students must be encouraged to participate in physical training, actively carry out reasonable fitness exercise, so as to improve their own health. Among various fitness exercise project, athletics, gymnastics, various ball games, swimming, martial arts, yoga and other fitness activities are important means to enhance people's physical fitness. Regular participation in these physical activities can not only promote their own health, but also develop their strong will and positive attitude to form a good fitness habit.

## II. AN OVERVIEW OF PHYSICAL TRAINING

Physical fitness is the basic physical ability of the human body expressed through strength, speed, endurance, coordination, flexibility, and agility. The physical fitness mentioned here mainly refers to health-related physical fitness, whose goal is to improve human health and people's basic ability.

Physical training includes the improvement of physical structure, physiological function and physical fitness training. A variety of physical exercises beneficial to the overall development of sports quality and physical function, such as ball games, gymnastics, games, etc., can improve the body shape, comprehensive development of sports quality, improve the function of the organ system, and enhance the health of the body.

## III. OVERVIEW OF FITNESS

Fitness activities have a very close relationship with the emergence and development of sports. People hope to get a healthy physique and strong body through fitness activities. With the continuous development of society and the change of life style, fitness has gradually become an important part of people's pursuit of lifestyle and fitness.

With the continuous enrichment of material life in today's society, health has become people's first need. It is generally accepted that physical exercise is fitness, which involves mental, physical and social behavior that results in a significant improvement in physical health, not just a state of escape from disease. People can get healthy by taking regular exercise. Therefore, it can be concluded that the word "fitness" covers several meanings, such as strengthening, developing and improving the body, which is the comprehensive connotation of strong body and sound mind.

## IV. THE EFFECT OF PHYSICAL TRAINING ON BODY FITNESS

Physical training with good fitness function is very important for human body fitness. The fitness function of physical fitness training refers to helping people to strengthen physical fitness, improve health and delay senility through physical exercise. As physical fitness training is a purposeful and conscious practice, it has become the most

effective exercise means and method for people to enhance health.

*A. Improving the function of various organ systems of the body*

Physical training involves many factors such as body shape, body function, athletic quality, physical health and mental health. These factors are the corresponding activities and changes caused by the stimulation in and out of the organism. Scientific exercise can promote the improvement of the function of the organ system of an organism. For example, if you play badminton a lot, your arm circumference will increase. Regular physical exercise can make the bones, muscles and joints of each part of the human body develop in a balanced and coordinated way, enhancing the movement and vitality of the human body. It can also enhance the function of the internal organ system, such as developed heart muscle, strengthen the contractility of the heart muscle, improve heart reserve, enhance heart function and enhance the strength of respiratory muscle and improve respiratory efficiency. In addition, it can also improve the flexibility of the nervous system, such as sharpening the mind, relieving mental fatigue and strengthening the thermoregulation center.

*B. Comprehensive development of physical quality to improve the ability to exercise*

The quality of the body depends on the anatomical and physiological characteristics of the muscle, the function of the muscle, the internal organs and the regulation of the nervous system. Purposeful physical fitness training can improve and develop the physical fitness of the human body to a certain extent, improve the physical fitness of people, so as to improve the fitness effect of physical training.

*C. Preventing diseases and promoting human health*

Science has shown that physical training can not only strengthen the body and promote health, but also repair and maintain physical and mental health. For example, now the material living conditions are better, many college students are too fat. And energy-consuming exercise can eliminate the obesity of college students. In addition, for a long time, college students lower their heads to read books, write homework, look at the computer, mobile phone and so on, resulting in back functional pain and cervical spondylosis and other diseases. In addition, the huge learning pressure makes their spirit in a state of high tension. Over time, their physical discomfort can lead to negative emotions and affect their mental health. However, physical training can prevent the occurrence of these chronic diseases and keep people in a good emotional state, so as to truly maintain physical and mental health.

*D. Improving the overall fitness of the body*

Long-term physical exercise in different climates and environments can effectively improve the body's ability to regulate body temperature, so as to improve the body's ability to adapt to the external environment. When the human

body is stimulated by the cold, there will be varying degrees of changes in the body, the nervous system will also timely command the whole body organ system to strengthen the activity, produce a series of defensive reflex: such as the sharp contraction of subcutaneous blood vessels to reduce the release of heat, in order to maintain the normal body temperature. When the body encounters a hot environment, the nervous system directs subcutaneous vasodilation, which promotes excessive sweating on the surface of the body to speed the heat dissipation process. This reflects the process of people taking part in physical training to improve their fitness.

*E. Creating a scientific, healthy, and civilized lifestyle*

Studies show that the main cause of health problems is poor lifestyle. A rational, scientific lifestyle has far more impact on health than any medication. Physical training, as a form of fitness, has a positive impact on the healthy development of the human body. Regular physical training can make people have a scientific, healthy and civilized lifestyle, which is of great significance to enhance people's fitness ability.

V. PHYSICAL FITNESS FOR COLLEGE STUDENTS

College students are usually aged between 18 and 25. In China, the age of 18 is the mark of adulthood.

*A. Characteristics of college students' physical fitness*

The normal growth and development of college students' bodies have been basically completed, and their height has generally reached the highest level in their life, and they are fully mature. This period is the most vigorous period in their physical life and their physical quality has also reached a higher level, and they can participate in various sports and exercises. Their physical strength and endurance showed a tendency to improve, speed, agility and other qualities in this period also maintained a relatively high level. In addition, during this period, college students' various physical functions basically developed to a higher level, and the control ability of the distal part of the body and the competitive ability of sensorimotor all developed significantly, which creates good conditions for systematically engaging in high-intensity fitness exercises.

*B. Notes on physical fitness for college students*

College students have various hobbies, therefore it is necessary to consider this feature when arranging the content and training methods of fitness exercise: that is, the activity mode of college students is organized collective activity, which needs to focus on the actual effect of exercise. There are great differences in their education and sports accomplishment, and in sports skill level and physical quality. Therefore, college students should pay attention to individual differences and choose appropriate exercise content, means and methods. College students at this stage are more suitable for larger intensity and a greater amount of exercise, training and competition to improve their functional

potential, but not the pursuit of intensity, so as to avoid physical injury.

## VI. BADMINTON SPORTS FITNESS TRAINING

### A. *Badminton fitness strength training*

According to the investigation, the badminton players with good strength quality can move quickly in footwork, swing quickly in arm and swing, hit the ball powerfully, have good elasticity and sensitivity, thus it can be seen that strength training can improve the athletes' movement ability and reaction speed. Badminton sports fitness strength training methods are as follows: The first is through upper limb strength exercises, such as: holding dumbbells horizontally with both arms or do "8"-shaped exercise, lift the bar continuously up and forward, forearm flexion and extension with forearm, parallel bars support flexion and extension, exercise in composition, push-up, finger push-ups, do badminton quick swing action to imitate a variety of strokes, etc. The second is abdominal strength exercises, such as: freehand, weight-bearing, bench-free, weight-bearing sit-ups, freehand or weight-turned exercise, supine body flexion exercise on a bench, shoulder barbell standing with legs apart for flexion and extension, two people standing back to back with legs apart, one of them holding a solid ball in hand, and two people facing one direction at the same time, and pass the ball to another person to practice, etc.; The third is lower limb strength exercises, such as: sidekicks, hanging leg raise, unarmed half-squats, squats, weight-bearing half-squats, squats, squats forward, back, left, and right, forward steps, left and right steps, speed up with one or both feet, frog jumping exercises, vertical jumping in situ, hop, and step forward, backward, left, and right in the direction of the cross with feet together.

### B. *Badminton fitness speed training*

The badminton speed exercises include reaction speed exercises, action speed exercises, and moving speed exercises. Common reaction speed exercises are: various starting exercises for listening to commands and reading signals, such as standing, squatting, and jump up and down on your back and start immediately; variable speed running exercises for listening to commands and reading signals, such as rushing for 10 to 15 meters; direction-change running for listening to commands and reading signals, such as see the signal in rapid movement and suddenly change direction and run for 10 meters; and practice of listening for commands and suddenly acting accordingly after reading the signal, such as when the coach reads a number 1, 2, 3 or 4, the athlete should make the corresponding action prescribed in advance. Action speed exercises include: running in place, such as run in place at the pace of slow, fast, fastest, fast and slow; pick up legs to run high; marching exercise, such as Straight legs forward, bend legs and kick back, and high knee run; rope skipping practice, such as Single and double swing skip rope, alternate jumping rope with feet; quick burpees; run the stairs at a high rate; and jump over obstacles at a high rate. Moving speed exercises include: fast running practice, such as 30-meter run, 50-meter run, 60-meter run,

100-meter run, 200-meter run; run back and forth, such as 10-15 meter round trip; practice speed over obstacles, such as pick up a number of balls within a range of 20 meters with maximum speed; direction-change running, and relay race.

### C. *Badminton fitness endurance training*

Badminton endurance training mainly includes general endurance training and special endurance training. General endurance exercises include sprint, such as 200-meter sprint, 400-meter sprint, 800-meter sprint, 1500-meter sprint, 3000-meter sprint, etc., varied pace running exercises, such as 800-meter fartlek training; 200-meter fast and 200-meter slow running, fast in straight and slow in curve running practice, 1500-meter fartlek training, 3000-meter fartlek training, etc., and regular running practice, such as 6-minute running, 12-minute running, cross-country race, etc. Special endurance exercises can be divided into long time fast footwork exercises, long time fast multi-ball exercises and so on.

### D. *Badminton fitness flexibility training*

The training methods for badminton sports are as follows: press leg, split leg, forward leg, side leg, body bending forward, vertical split leg, kick, forward kick, back and forth swing leg, left and right swing leg, etc. in gymnastics; shoulder pulling and shoulder pressing; front and back rolls; fancy rope skipping and practice with swimming activities.

### E. *Badminton fitness bounce training*

The exercise of badminton bounce can enhance the strength of the player's footwork, such as forward, backward, left and right push-off and jump-kick. The specific training methods are as follows. The first is general jumping exercises: jump on the spot, jump continuously upward when doing half squats or deep squats, jump straight up on one foot, jump up on the spot, after the jump, lift your knees up and tuck in so they touch your chest, touch high jump in place, step jumping exercise, jump on the run, and rope skipping. The second is a special jumping exercise: jumping exercises, kick and jump alternately, jump with your feet crossed, a jump on either side that mimics the takeoff assault step, jump back to both sides and the double wave rope skipping.

## VII. CONCLUSION

With the development of human society, the importance of school sports will become more and more significant. In order to relieve the physiological and psychological fatigue and depression brought by the high intensity of study pressure, college students urgently need to have a variety of activities to adjust after the intense study, so as to improve the fatigue state of physical and mental strength and restore energy. Badminton can fully meet the needs of college students. Long-term badminton fitness training can develop students' muscles, increase strength, improve the body posture, strengthen physical health, promote people's intellectual development, improve people's sense of self, ability to cultivate strong will, eliminating psychological

barriers, to strengthen college students' ability to adapt to society.

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