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# Research on the Relationship Between College Physical Education and Students' Physical Fitness Development: Based on the Comparison of Different Sports Programs

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**Abstract:** This paper discusses the influence of college physical education on the development of students' physical quality, and focuses on comparing the different effects of different sports items on students' physical quality. By analyzing the training characteristics of track and field, basketball, swimming and yoga and their influence on students' physical fitness, this paper aims to provide reference for the setting of physical education courses in colleges and universities and promote the comprehensive development of students' comprehensive quality. The research shows that different sports programs have different effects in promoting students' strength, speed, endurance, sensitivity and flexibility, and provide powerful practical guidance for physical education in colleges and universities.

**Keywords:** Physical education in colleges and universities; Student physical fitness; Sports program; Comparative study

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## 1. Introduction

With the importance of health and physical fitness in modern society, college physical education is more and more important in the development of students' physical quality. Physical education is not only the key to improve students' physical quality, but also plays an important role in promoting students' mental health and cultivating good living habits. The overall development of physical fitness helps students to enhance their physical fitness and immunity, so as to better cope with academic pressure and future career challenges. At the same time, physical education can also cultivate students' team spirit, competitive consciousness and self-discipline ability, which has a far-reaching impact on their overall growth.

This paper aims to explore the specific influence of different sports on students' physical fitness, compare the training characteristics of track and field, basketball, swimming and yoga and their specific effects on students' physical fitness, and reveal the advantages and disadvantages of each sports in improving their physical fitness. Through the systematic analysis of these sports items, this paper hopes to provide scientific basis for the optimization of physical education courses in colleges and universities, help education administrators and PE teachers to develop more effective physical education programs, and promote the all-round development of students' body and mind.

## 2. Review of the literature

### 2.1 Current situation of physical education in colleges and universities

Physical education in colleges and universities aims to cultivate students' physical quality and healthy habits through systematic physical activities. Currently, college physical education courses include a variety of sports, such as track and field, basketball, swimming and yoga. These courses not only take into account the interests and needs of students, but also focus on the overall improvement of all aspects of different sports. Although there are some differences in physical education courses, the overall goal is to improve students' physical health level and sports ability. Research shows that physical education in colleges and universities can not only significantly improve students' physical quality, but also enhance their psychological quality, cultivate team spirit and social adaptability.

### 2.2 Concept and evaluation of physical fitness

Physical fitness refers to the various abilities of the human body in exercise, including strength, speed, endurance, sensitivity and flexibility. These qualities are not only an important indicator to measure a person's physical health level, but also are the basis of various sports activities. Each sport has a specific reinforcing effect on different aspects of physical fitness. For example, track and field training improves speed and endurance through sprint, middle-distance running and jumping, basketball enhances agility and coordination, swimming and through coordination of whole body strength and cardiopulmonary function, and yoga improves flexibility and balance through various asanas and breathing control.

It is of great significance to evaluate and compare the effects of these sports programs scientifically and reasonably for the optimization of college PE courses. The methods for assessing physical fitness mainly include laboratory tests and field tests, such as cardiopulmonary function tests, electromyography analysis, and the latter, such as 50-meter running, standing long jump, sit-ups, etc. In the actual teaching, the comprehensive use of a variety of test methods, can fully understand the students' physical quality status, and provide a scientific basis for personalized physical education teaching.

### **3. Training characteristics and effects of different sports events**

#### **3.1 Track and field**

##### **3.1.1 Training characteristics**

Track and field events include sprints, middle-distance running, jumping and throwing, and require athletes to have explosive power, speed and endurance. During the training process, students need to do a lot of speed training, endurance running and strength training. Track and field training emphasizes individual extreme challenges, often accompanied by high-intensity and frequent repetitive exercises, which helps students improve their physical fitness in a short period of time.

##### **3.1.2 Influence on physical quality**

Track and field training has a significant effect on improving students' speed and endurance, as well as enhancing lower limb strength and cardiopulmonary function. Through sprint training, students can effectively improve their explosive power and reaction speed; their endurance and cardiopulmonary function are enhanced through middle-distance running training. Track and field events can also cultivate students' perseverance and psychological endurance, because high-intensity training requires strong willpower and self-challenge spirit. However, the high intensity of track and field training puts forward high requirements on students' joint and muscle endurance, so we should pay attention to the scientific and reasonable arrangement in the training to avoid sports injuries.

#### **3.2 Basketball**

##### **3.2.1 Training characteristics**

Basketball is a group sport that emphasizes speed, strength, coordination and tactical coordination. In the training, students need to conduct short-distance sprints, confrontation training and tactical drills. The rapid and variable nature of basketball requires students to have good physical coordination and response speed, as well as teamwork and tactical execution.

##### **3.2.2 Influence on physical fitness**

Basketball training significantly improves students' sensitivity, speed and coordination, especially if it improves the strength and reaction speed of the upper and lower limbs. Through confrontation training, students' muscle strength and endurance are enhanced, and at the same time, frequent orientation and acceleration movements improve students' sensitivity and response ability. Long-term participation in basketball also helps students to develop team spirit and tactical awareness, which will have a positive impact on their future social interactions and career development. In addition, the high intensity of confrontation in basketball training helps to enhance students' psychological quality, making them more coping ability in the face of pressure and challenges.

#### **3.3 Swimming**

##### **3.3.1 Training characteristics**

Swimming is a whole-body sport, involving more muscle groups, which requires athletes to have good cardiopulmonary function and coordination. In the training, students need to conduct long-of aerobic training and technical movement exercises. The low impact of swimming makes it a safe and effective whole-body exercise, suitable for students of different ages and constitutions.

##### **3.3.2 Influence on physical quality**

Swimming has a significant effect on improving students' cardiopulmonary endurance and whole-body muscle strength, especially it can enhance the strength and endurance of core muscle groups. Swimming movement needs to coordinate all parts of the body, which is of great help to improve the overall coordination and flexibility of students. Swimming training can also improve students' respiratory function and improve the efficiency of oxygen utilization. In addition, swimming has less stress on the joints, is suitable for long-term participation, and can effectively prevent and reduce sports injuries. For those students with a history of sports injuries, swimming is an ideal way to recover and strengthen their physical fitness.

#### **3.4 Yoga**

##### **3.4.1 Training characteristics**

Yoga focuses on the balance of the body and mind, and improves the flexibility, balance and internal stability through various postures

(asanas) and breathing control (breath control). During the training process, students need to conduct static and dynamic asana exercises, as well as breathing and meditation exercises. Yoga practice emphasizes internal perception and self-regulation, which can help students relax and relieve stress.

### 3.4.2 Influence on physical quality

Yoga significantly improves students' flexibility and balance, while helping to improve posture and reduce sports injuries. Through various physical exercises, the students' muscles and joints are fully stretched and strengthened, and the flexibility of the body is significantly improved. Yoga breathing practice and meditation can promote peace of mind and concentration, and improve psychological quality. Long-term yoga practice can also enhance students' psychological quality, reduce pressure and anxiety, and improve the overall mental health level. Moreover, the slow pace and low intensity characteristics of yoga make it a suitable exercise for all students, both as a primary exercise or to provide unique health benefits for auxiliary training.

## 4. Conclusion

Physical education in colleges and universities plays an important role in improving students' physical quality. Different sports programs have their own advantages in different aspects of physical quality. Track and field and basketball are more suitable for improving speed, strength and sensitivity, and swimming increases the overall endurance and strength, while yoga has unique advantages in improving flexibility and balance. Therefore, when setting up physical education courses, colleges and universities should, according to the actual needs and physical quality characteristics of students, comprehensively consider the advantages and disadvantages of different projects, and formulate diversified and personalized physical education programs to meet the diverse needs of students and promote their comprehensive development.

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