

Introduction of Athletic Basketball Teaching to Improve the College Students' Physical Quality Influence

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Abstract. As is known to all, competitive basketball plays an active and irreplaceable role in enhancing college students' physical quality. The significance of this study is to find the theoretical and practical basis for improving the physical quality of college students in competitive basketball. The main purpose of this paper is to discuss the influence of competitive basketball on college students' physical health after the introduction of physical education. In terms of research methods, this paper selected the height, weight, lung capacity, grip strength, standing long jump, step pulse and other test instruments provided by the famous domestic sports equipment manufacturing company to test and compare students in this area before and after a year's training and students without competitive basketball courses. The results of this paper show that competitive basketball can improve college students' body shape and lower limb muscle explosive force; Competitive basketball training can enhance respiratory function. Competitive basketball training can improve students' strength and endurance. Strength quality, lung ventilation function and endurance quality increased with age, while lower limb explosive power decreased.

Keywords: Competitive Basketball, College Physical Education, Physical Quality of College Students, Explosive Muscle Power

1. Introduction

Several times in recent years, China's large-scale physical testing results show that the students' physique shows the tendency of decline gradually, around the university students' body form and physical quality, body function, such as the indicators gradually decline, and physical education in colleges and universities "strengthen students' physical health, cultivate lifelong sports consciousness" target different [1]. College students are the hope of the future of the country and the potential driving force for the sustainable development of the society. A strong body is the basis of their study and life. The physical strength in the youth period determines the health of the whole life, the future prosperity of the nation and the progress and development of mankind [2]. According to the literature review and the interview results of this paper, college students currently have different degrees of physical health problems [3]. Taking positive and effective measures to improve the physical quality of college students is not only of great significance, but also an urgent task faced by various universities [4].

Studies by many scholars at home and abroad show that in the age stage of college students, their body shape and physical quality are basically mature, but their physical quality and psychological development are relatively lagging behind [5]. College students are the hope of the future of the country and the potential driving force for the sustainable development of the society. A strong body is the basis of their study and life. Physical strength in the youth period determines the health of the whole life, the future prosperity of the nation and the progress and development of human beings [6]. However, from the literature review, it is not uncommon to see research reports on the decline of college students' physical quality and mental health in recent years. In 2015, China carried out the sixth national physical fitness monitoring work, among which the monitoring results of students in school showed that while the body of Chinese college students was becoming tall, some body functions were

declining [7]. The height of students aged 17-22 in China has increased to different degrees compared with 2009, and the nutritional status of students continues to improve. Low hemoglobin detection rate, ascaris infection rate and caries prevalence continued to decrease [8-9]. In contrast to the increase in body shape, some indicators reflecting the physical function of students are declining, with the average lung capacity decreased by 160-303 ml. Speed, explosive force, power endurance, endurance quality level further decline, some indicators decline, such as the index of endurance quality decline is very obvious; The detection rate of obesity continues to rise. The detection rate of overweight and obesity in urban boys has reached 13.25%. The detection rate of poor eyesight is still high [10]. The results of national physique monitoring in 2015 show that the physique level of college students in China is declining comprehensively.

Competitive basketball is a popular sport among college students. It is popular among college students. This study will assess the height, weight, lung capacity, grip strength and standing long jump index of college students through one-year test and training. Meanwhile, students without competitive basketball class will be taken as the control group to test. After the test, data were sorted out and analyzed to explore the influence of competitive basketball on college students' physique, and to provide experimental data with reference value for further promoting the improvement of college students' physique. This paper is expected to provide theoretical and practical reference for improving college students' physical quality.

2. Research Objects and Methods

2.1 Research Objects

This paper takes non-sports college students as the object of study and makes a preliminary understanding of the current situation of competitive basketball teaching and physical quality of college students. In this study, a total of 90 male students from a university in China were selected as experimental objects to carry out an experimental study on the effect of competitive basketball on the enhancement of college students' physical quality.

In this study, the experimental group and the control group were used as the criteria for distinguishing the effects of competitive basketball on college students' physical fitness. For students in the experimental group of competitive basketball training 3 times a week, including passing, shooting, dribbling, ball breakthrough, mobile, grab rebounds, rob the ball, hit the ball, the basic technology and physical quality training, such as basketball for 18 weeks per semester, during winter vacation request group continue to adhere to training, until he finished school year training period, it can be compared before and after; In this study, students without competitive basketball class were used as the control group. The average age of the experimental group and the control group was 21 ± 0.5 years.

In this study, 45 people were selected as experimental subjects in the experimental group. In particular, the experimental group did not include students who had participated in amateur sports schools or special sports recruitment. The study also selected 45 college students who had not participated in any sports club or basketball organization and would not engage in any competitive basketball training in the next year as the control group.

2.2 Research Methods

The research of this paper integrated the experimental comparison and mathematical statistics methods into one. Firstly, the grip strength tester, standing long jump tester, sitting body flexion tester,

lung capacity tester and step pulse tester produced by a domestic sporting goods company were used to test the subjects. And try to use these advanced measuring instruments before and after students participate in competitive basketball learning, their body shape, lower limb muscle explosive force, respiratory function, strength quality, endurance quality, lung ventilation function and other aspects of comprehensive analysis of college students' physical quality before and after the change.

This paper will also use mathematical statistics to record and analyze the test results of the control group and the experimental group. Specifically, T test was used for longitudinal comparison between the two groups. Single factor F test and multiple comparisons were used for horizontal comparison.

2.3 Control of Factors

In order to ensure the objectivity and impartiality of this study, the following factors will be strictly controlled. Firstly, questionnaires were issued to understand the basic physical conditions and physical exercise of college students, which laid a foundation for the determination of experimental samples and the avoidance of interference from the external environment during the operation of the experiment. Second, each participant was given a health record. In order to ensure the comparability of the experiment, the experimental subjects were required to exercise as much as possible according to the requirements during the experiment, especially for the control group two, they were required not to engage in other systematic sports activities except participating in competitive basketball teaching twice a week. In addition, during the experiment, I completed the teaching arrangement, time and activity intensity of basketball class and basketball club, and regularly checked and consulted the experimental subjects to ensure the authenticity of the experiment.

3. Experiment

The experiment in this study began in July 2018 and ended in June 2019, with the actual test period of one year. The specific task of the experiment is to record and analyze the physical changes of college students in the control group and the experimental group before and after one year in order to analyze the effect of competitive basketball training on their physical fitness.

The specific experimental content is divided into two steps. First, 90 experimental subjects were divided into groups in July 2018. All the students in the experimental group and control group were tested for physical fitness and recorded respectively. At the same time, students in the experimental group will be trained in competitive basketball. During the training process, students in the control group will be arranged in strict accordance with the design of the experimental course. Such experimental design and arrangement maximally guarantee the objectivity and impartiality of experimental results.

In the second step, after a year of training, the second test is started. All the participants are still required to participate in the test, but the test results are recorded according to the group. Then the collected data are analyzed and combed to find practical data support for the research of this paper.

4. Results and Analysis

4.1 Experimental Results

The physical fitness of these students was tested according to the national physical fitness test method, including 50 meters running, standing long jump, pull-up, sitting forward bend, 1000 meters running and grip strength. The results of physical fitness investigation on the students in the

experimental group and the control group before the competitive basketball training are shown in table 1 below. The results of the second test after one year of training are shown in table 2 below.

Table 1. Variance analysis table of average physical fitness of each group before the experiment

Index name	Experimental group	Control group	F value	P values
	N=45	N=45	Calculated value	
50m run (s)	7.64	7.65	0.0034	P>0.05
Standing long jump (cm)	235.96	235.66	0.0033	P>0.05
Pull-up (second)	9.18	9.14	0.0017	P>0.05
Lung capacity(ml)	3996.18	3954.23	0.0032	P>0.05
Grip strength (kg)	235.67	236.07	0.0034	P>0.05
Anterior flexion (cm)	39.95	39.83	0.0027	P>0.05

Table 2. Anova table of mean values of each group's physical fitness after the experiment

Index name	Experimental group	Control group	F value	P values
	N=45	N=45	Calculated value	
50m run (s)	6.86	7.35	9.271	P>0.05
Standing long jump (cm)	268.84	236.73	13.642	P>0.05
Pull-up (second)	10.34	9.81	0.274	P>0.05
Lung capacity(ml)	4633.21	3923.85	0.922	P>0.05
Grip strength (kg)	191.63	214.54	15.324	P>0.05
Anterior flexion (cm)	43.16	40.35	0.537	P>0.05

Among them, F test is a global test. When anova identifies significant differences among multiple means, it does not mean that there are significant differences among different groups, but only that there are significant differences among one pair or several pairs of means.

4.2 Discussion and Analysis

(1) Physical fitness

Standing long jump is a sport to develop the explosive power and jumping power of lower limbs. It asks lower limb and hip muscle to coordinate quickly exert oneself to do something hard, and with the swing photograph of upper limb cooperate, so it also needs certain dexterity sex, this test result basically reflects the explosive force of lower limb muscle and body to coordinate ability, because this stands the stand of long jump result can reflect student body quality most. In this study, the physical fitness comparison data of the two groups before and after the training were shown in figure 1. Before the training, the standing long jump performance of the experimental group and the control group were both at the passing level (> 2.35m). However, after one year of competitive basketball training, the average score of the standing long jump in the training group was 268.84, while the score of the control group was 236.73, which still remained near the passing line.

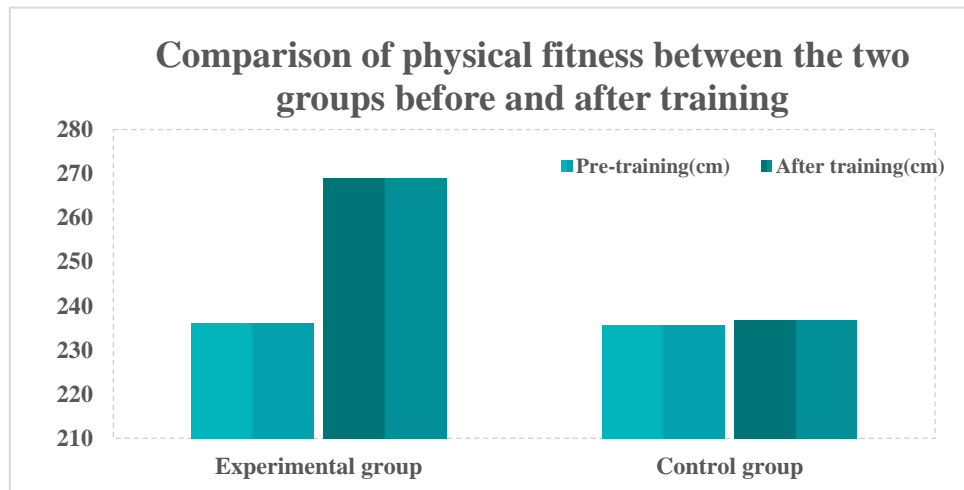


Figure 1. Comparison of physical fitness between the two groups before and after training

(2) Physical function

Lung capacity refers to the situation at any time, once again after maximal inspiratory gas exhaled by the full capacity, this represents lung once the biggest function activity, is to reflect the level of human growth and development one of the important function of index, thus the determination results of lung capacity most can response to the student body function, and widely used in the project athletes selecting oxygen metabolism and physical comprehensive evaluation of students. Two groups of students body function comparison before and after the training data are shown in figure 2 below, before on the development of competitive basketball training, the test results of the experimental group and comparison group did not have a large gap, were 3996.18, 3954.23, after a year of training, the experimental group compared with control group the larger gap, it shows that athletic basketball training makes the body function of college students got obvious improvement.

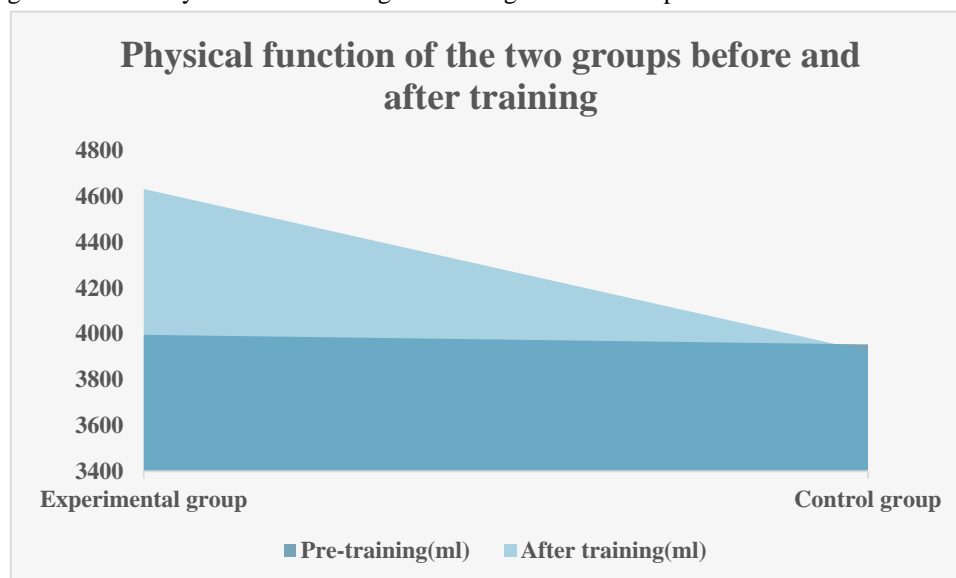


Figure 2. Comparison of physical functions between the two groups before and after training

It is not difficult to find that after one-year competitive basketball training, the physical quality and physical function of the experimental group have significantly improved, which further proves that the training of competitive basketball can improve students' physical condition.

5. Conclusion

Through the methods of literature review, mathematical statistics and group comparison, this paper has conducted experiments and demonstrated whether competitive basketball can help college students improve their physical quality. The research data sources in this paper are real and reliable, the research position is objective and fair, and the research results are real and effective. The research of this paper shows that college students can not only enhance their physique, but also improve their body function index by persisting in the training of competitive basketball. Therefore, it can be concluded that long-term and regular competitive basketball training plays an active role in improving college students' physical quality and physical function.

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