Study on the Impact of Special Physical Intensive Training on the Physical Health of College Students -- Taking China University of Mining and Technology (Beijing) as an Example

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Abstract. The physical health of college students has always been the focus of national concern, in order to improve the physical quality of college students. In this study, the physical quality of college students, and the China University of Mining and Technology (Beijing) 2020 physical test. excel2019 and spss26 data processing software were used to make mathematical statistics and analyze the measured data indicators to discuss the impact of physical fitness class on the physical health of college students, mainly including: 1. Comparing the physical fitness test results of the test subjects before and after the training.2. Through the difference of training methods, study the degree of experimental content to the degree of physical quality.3. Prostrate the real effect of the special physical fitness teaching.

Keywords: Physical Quality of College Students; Teaching Experiment; Physical Fitness Special Intensive Training.

1. Introduction

The physical quality level of college students is declining year by year, and the physical health problem of college students has always been a bottleneck troubling the physical education work in universities. How to better promote students' physical quality and improve their health level in physical training is an unavoidable problem in college physical education teaching.Through the basic theoretical knowledge of sports physiology to study the practical characteristics of physical training courses in the teaching application of physical training courses, we find that the development of physical training courses can effectively help students to improve their physical health level.[1] The physical quality content conducive to improving students' health level should be integrated into the teaching of other optional courses in colleges and universities.[2]Open physical training courses in college sports teaching, and integrate the physical quality practice content is conducive to improving the physical health level of college students.The research in this paper can provide the latest research results for workers in relevant fields, and provide some reference for carrying out special physical intensive training in colleges and universities.

2. Study Subjects and Methods

2.1 Study Subjects

The subjects were a total of 545 students who failed in the 2020 physical test of China University of Mining and Technology (Beijing) in 2020, including 471 boys and 69 girls.

2.2 Study Methods

2.2.1 Literature and Data Method

The terms "physical fitness", "physical training", "national physical fitness", "functional training" and "physical fitness of college students", were searched in the Chinese Academic Journal Network (CNKI) and sports discus of foreign language journal database. Have a comprehensive understanding

of the research status and research trends related to this research, and provide a reference theoretical basis for this study.

2.2.2 Expert Interview Method

In order to ensure the effectiveness of physical reinforcement training in the application of college teaching, many experts in related fields were interviewed before the experiment, and its content mainly focused on how to make a training plan to improve physical fitness for people who failed physical testing. Analysis and possible implementation difficulties to record the requirements and suggestions of experts on this paper, and design the physical training experiment scheme of this study according to the valuable opinions of experts, pointing out the right direction for this research and providing constructive opinions.

2.2.3 Mathematical and Statistical Method

In order to meet the experimental purpose and experimental requirements, the measured data were used for statistical processing using EXCEL2019 before and after training, and the paired sample T-test was performed with SPSS26 (Chinese version) data software. The measured data were tested, compared, and the reasons of the changes were analyzed to provide the basis for the writing of the paper.

2.2.4 Comparative Analysis Method

Compare and analyze the statistical results of the experimental data, find out the influence of the physical reinforcement training on the teaching effect, analyze the causes, and put forward the corresponding countermeasures and suggestions.

2.2.5 Physical Fitness Test Method

The experiment mainly uses the physical fitness test method to test the physical quality indicators before and after the test subjects. the items of this test were selected according to the National Physical Health Standards for Students (2014 Revision), as shown in Table 1.

Table 1. Details of the test items

order number	test content	test purpose
1	50Meters	Test the speed of the students
2	800/1000m	Test the students for their aerobic endurance
3	standing long jump	Test the explosive power
4	Sit forward	Test the students of flexibility
5	Sit-ups / pull-up	Test the core power of the students

Note: 800 m and sit-ups are girls 'test items, and 1,000 m and pull-ups are boys' test items.

2.2.6 Experimental Method

2.2.6.1 Subjects, Time, Place, and of the Experiment

Subjects: The subjects were all the students who failed the physical test of China University of Mining and Technology (Beijing) in Grade 2020

Experimental time: From April to June 2021 for 16 weeks, trained once a week for 90 minutes each.

Experimental site: Track and Field, Shahe Campus, China University of Mining and Technology (Beijing)

2.2.6.2 Experimental Content

This experiment was mainly modified in accordance with the books "Modern University Physical Education Tutorial", "Physical Training Theory and Practice" and "Physical Training", and under the guidance of the physical fitness teacher, Gao Di. The time of this experiment was. The experiment

was 16 weeks, every 4 weeks for a total of 4 cycles. Training occurred once a week with mainly 90 minutes. The warm-up part before the training is 10 minutes, which is divided into 400 meters of warm-up running, freehand exercise and simple sports games. The training part is 75 minutes, and the relaxation activity is 5 minutes, including the upper and lower limb relaxation and whole-body muscle relaxation exercises. Specific training contents are shown in Table 2.

Table 2. Training content of the experimental intervention

period	Class time	Training content
The first cycle	1	(1) High leg lifting, rear pedal running auxiliary technology, high leg lifting practice between marching (2) Learn 50m running technical action (3) Learn sit-up technology
	2	(1) 50 m running intensive exercise (bow jump, kettlebell bow walk) (2) Pull-up auxiliary exercise (straight arm suspension, upper oblique rowing, bending arm suspension)
	3	(1) Pull-up (with elastic belt) Technical action (2) Standard push-ups
	4	(1) Review pull-up auxiliary technical actions (2) dorsal muscle group equipment practice (sitting position pulldown, bending over rowing)
The second cycle	1	(1) Free basic squat practice (Olympic squat practice; one, two, three sections of consecutive jump) (2) standing long jump technology
	2	(1) Kettlebell lower limb weight-bearing squat jump (2) standing long jump intensive exercises (high and low horizontal bar obstacle jump) (3) sit-up auxiliary exercises (abdomen rolling, leg rolling, supine hip lifting, supine alternate leg lifting)
	3	(1) Review the pull-up auxiliary technical action (2) Pull-up reinforcement exercises (fitness ladder climbing)
	4	(1) Intensive practice of standing long jump (obstacle jumping practice, enhanced running ability relay race) (2) Learn double swing jump skipping action
The third cycle	1	(1) HIIT high-intensity cardiac and pulmonary circulation exercise (2) 1000m running technology
	2	(1) Review the technical action of 1000m running (2) special endurance of variable speed running 100m + 100m mode variable speed running (3) sit-up practice
	3	(1) Review the pull-up (2) Review the standing long jump movement (3) HIIT high-intensity cardio-pulmonary circulation exercise
	4	(1) Review 50m running technical actions (2) Review 1000m run (3) Review the sit-ups
The fourth cycle	1	(1) Review the pull-up (2) Review the standing long jump action (3) Special endurance of 100m + 100m mode of variable speed running
	2	(1) Review the sit-ups (2) Review the 50m running technical movements
	3	(1) Review the 1000m running technique (2) HIIT high-intensity cardio and pulmonary circulation exercise
	4	(1) Pull-up (2) sit-ups (3) standing long jump (4) 50 m (5) 1000 m / 800 m

3. Study Results and Analysis

3.1 Results of the Subject Test Index after the Experiment

To further analyze the results of the physical reinforcement class, the results of the two groups were tested, and the test results are shown in Table 3.

Table 3. Test results of the test results after the experiment

Fixture	Before training	After training	T value	P
The 50-m Run (s)	8.69±1.04	8.29±1.00	14.25	0.000
standing long jump (cm)	193.70±29.60	207.01±31.62	-12.8	0.000
Sitting position anterior flexion (cm)	13.22±7.17	14.97±6.35	-5.95	0.000
Run 800 meters	4.64±0.50	4.32±0.44	6.38	0.000
Run 1000 meters	4.47±0.49	4.27±0.45	8.11	0.000
Lie up for a minute (individual)	29.60±7.13	39.78±8.89	-12.42	0.000
Pull-up (s)	3.60±3.55	5.39±4.13	-5.24	0.000

3.2 Analysis of the Test Index Results of the Experimental Subjects after the Experiment

As shown in Table 3, after 16 weeks of physical intensive training, the 50 m timing running performance was 8.69 ± 1.04 and 50 m paired sample T-test of 50 m ± 1.00 showed the p-value of 0.000 (P <0.05), indicating that after 16 weeks of training, the performance was greatly improved and significantly different after the 50 m running training. Vertical long jump results were 193.70 ± 29.60 before training, 207.01 ± 31.62 after 16 weeks of training. The results of the paired sample of the two groups showed a p-value of 0.000 (P <0.05), indicating the significant improvement after training and the significant difference between the two groups. After 16 weeks of training before and after training, 13.22 ± 7.17 and 14.97 ± 6.35, a paired sample T test of the two groups showed a p-value of 0.000 (P <0.005), showing a significant difference in pre-training performance. The average score of the 800 m run before training was 4.64 ± 0.50 and 4.32 ± 0.44, and a paired sample T test for the two groups showed a p-value of 0.000 (P <0.05), thus indicating that the physical intensive training effect was very significant between the two groups. As shown in the chart above, the average 1000 m run was 4.47 ± 0.49 and 4.27 ± 0.45 after 16 weeks of physical intensive training, which shows a certain improvement in pre-training performance. The two groups of data were further subjected to a paired sample T-test, and the p-value was 0.000 (P <0.05), indicating that the results of the two groups were significantly different. With one-minute sit-ups of 29.60 ± 7.13 before training and 39.78 ± 8.89 after 16 weeks of training, data were a paired sample T test showing a p-value of 0.000 (P <0.05) with significant differences between the two groups. The pull-up average was 3.60 ± 3.55 and 5.39 ± 4.13 after 16 weeks of physical reinforcement class training, and the paired sample T test showed a p-value of 0.000 (P <0.05), indicating a significant difference between the two groups.

4. Conclusions and Suggestions

4.1 Conclusion

(1) After 16 weeks of physical reinforcement training, the T test p-value of the last paired samples of the 7 physical test items showed a significant difference, indicating that the physical reinforcement class had a significant effect on the students who failed the physical test.

(2) Most students who failed the special physical training have reached more than 60 points, indicating that the physical class has played a positive effect, improving the physical quality is better than the regular physical education class.

(3) It can be concluded from the data that although both sit-ups and pull-ups are significantly improved, the growth of sit-ups is far high and pull-up. This can show that the more difficulty for boys requires more core forces.

4.2 Suggestions

(1) After 16 weeks of physical intensive training, it is found that it has a good effect in improving students 'physical quality and exercise methods. It is suggested to appropriately add physical intensive training to the usual physical education teaching of college students, so as to better develop students' speed and strength quality and optimize the physical fitness teaching effect.

(2) The amount of physical reinforcement training is large, so the training load can be reasonably adjusted according to the situation in the future training, which can increase the diversity of physical training and increase students' interest.

(3) Pull-up for boys in the future course training arrangement should be arranged more training time to strengthen the core strength training of the trunk and other related auxiliary exercises.

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