

# *Research on the Improvement of College and University Students' Physical Health Level by National Aerobics Training*

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**Keywords:** National aerobics, college and university students, physical fitness level

**Abstract:** Objective: To study and observe the influence of college and university students' national aerobics training on their own system health. Methods: A total of 100 college students from a certain university were selected, and the inclusion time was within the time range from January 2021 to January 2022. Through random grouping, 50 of them were included in the reference group, and the conventional aerobics training method was used. The remaining 50 cases were assigned to the test group, and the national aerobics training method was used to compare and observe the physical health levels of the two groups of college students before and after training. Results: In the comparison of resting heart rate, maximum heart rate, heart rate reserve, vital capacity, and vital capacity index, the balance between the two groups before training was obvious ( $P>0.05$ ); after training, the indexes between the two groups were improved, but the each index of test group was significantly better than preference, and the comparison between groups was significant ( $P<0.05$ ). Conclusion: College students who have received national aerobics training for a long time have a higher level of physical health, which is helpful to promote the development of college students' physical and mental health.

## 1. Introduction

College students have to bear the dual pressure of study and employment<sup>[1]</sup>. How to promote the physical and mental development of college students and improve their physical health has become a new topic for college teachers to further explore. In order to analyze the influence of national aerobics training on the physical health of college students, 100 college students are selected to receive national aerobics training, and the research results are reported as follows.

## 2. Objects and Methods

### 2.1. Object Analysis

A total of 100 college students from a certain university were selected, and the inclusion time was within the time range from January 2021 to January 2022, and processed through random grouping. Among them, 50 were assigned to the reference group, with 28 males and 22 females.

The age range involved was 18-22 years old, and the average was calculated to be  $(20.34 \pm 2.54)$  years old; the remaining 50 were included in the test group, with 27 males and 23 females, and the involved age range was 18-22 years old, with the average was calculated to be  $(20.67 \pm 2.81)$  years old. The data balance between the groups was significant ( $P > 0.05$ ). All college students expressed their support and approval for this research work and signed the "Informed Consent" voluntarily.

## **2.2. Modeling Method**

The college students in the test group received the instruction of national aerobics training. The number of training sessions per week was 4-5 times, and the training time was controlled at 45 minutes, specifically 10 minutes for warm-up exercise, 25 minutes for national aerobics, and 10 minutes for finishing activities. College students arrange corresponding training programs, which are required to be completed in pairs. The college students in the reference group used conventional aerobics training methods, without a clear training time and training plan, and did not put forward corresponding guidance requirements for college students.

## **2.3. Detection Indicators and Detection Methods**

According to the "Student Physical Health Standards", the resting heart rate, maximum heart rate, heart rate reserve, vital capacity, and vital capacity index were detected. In addition, various tests are carried out in combination with the relevant requirements in the interpretation of the "Student Physical Health Standards" by the People's Education Press.

## **2.4. Testing Instruments and Questionnaire Survey Content**

The spirometry instrument (origin: Shanghai Xinman Science and Education Equipment Co., Ltd.) and heart rate measuring instrument (origin: Shanghai Yilian Medical Instrument Development Co., Ltd.) used in this test. The main contents of the questionnaire are sports motivation, sports goals, sports interests, sports methods, behavioral quality assessment (self-assessment, others' assessment), self-monitoring, etc., with a total of 50 questions. Through the positive affirmation method, the results of the students' questionnaires are evaluated. For each question, there are three levels of full affirmation (2 points), partial affirmation (1 point), and negative (0 points), and 100 points are full marks.

## **3. Results and Analysis**

### **3.1. Comparative Analysis within the Group Before and After the Experiment**

In the comparison of resting heart rate, maximum heart rate, heart rate reserve, vital capacity, and vital capacity index, the balance between the two groups before training was obvious ( $P > 0.05$ ). After training, the indexes between the two groups were improved, but the indexes of the experimental group were significantly better than preferences, and the comparison between the groups was significant ( $P < 0.05$ ). See Table 1 for details.

Table 1: Comparison within the group before and after the experiment

Group	Number of cases	Resting heart rate (times/min-1)		Maximum heart rate (times/min-1)		Heart rate reserve (times/min-1)		Spirometric capacity (ml)		Spirometric index	
		Before training	After training	Before training	After training	Before training	After training	Before training	After training	Before training	After training
Experiment group	50	77.3±7.51	70.7±8.42	149.4±6.32	172.6±8.43	79.3±9.49	98.3±10.22	2742±448	3252±358	49.19±9.85	54.37±8.95
reference group	50	78.7±7.95	78.1±7.33	151.3±7.02	156.2±6.02	80.2±8.09	82.3±8.54	2764±442	2811±422	49.33±8.59	50.16±7.79
t		0.9051	4.6872	1.4223	11.1948	0.5103	8.4947	0.2471	5.6349	0.0757	2.5089
p		0.3676	0.0000	0.1581	0.0000	0.6110	0.0000	0.8053	0.0000	0.9398	0.0138

### 3.2. Evaluation and Analysis of Questionnaire Survey

A total of 100 questionnaires were distributed to the research subjects in this questionnaire survey, and a total of 100 questionnaires were recovered, and the effective questionnaire recovery rate reached 100%. The results of the questionnaire survey showed that the average score of the reference group was 74 points, and the score of the test group was 88.6 points, with significant differences between the groups ( $P<0.05$ ). It can be seen that regularly organizing college students to participate in national aerobics training activities will further improve the self-evaluation level of college students' sports motivation, sports goals, sports interest, and behavior quality, indicating that actively carrying out national aerobics training activities can strengthen college students, improve the physical health level of college students and help college students form a lifelong sports concept.

### 4. Discussion

National aerobics training mainly refers to the inhalation of oxygen that can meet the consumption of the human body when performing national-related sports. It is an effective sports method to achieve the purpose of exercise and fitness without incurring oxygen debt. Regular exercise will improve the heart and lung of college students<sup>[2]</sup>, enhance the ability of skeletal muscle to utilize oxygen, reduce myocardial oxygen consumption, strengthen the threshold of myocardial ischemia, and long-term adherence to national aerobics training can make college students' heart rate reserve significantly rise. The results of this study showed that in the comparison of resting heart rate, maximum heart rate, heart rate reserve, vital capacity, and vital capacity index, the balance between the two groups before training was obvious ( $P>0.05$ ); after training, the indexes between the two groups were improved, but the indicators of the test group were significantly better than preferences, and the comparison between groups was significant ( $P<0.05$ ). It can be seen that national aerobics training can gradually strengthen the cardiac stroke volume of college students and improve the tension of the vagus nerve during cardiac exercise. When college students are in a quiet state, their heart rate also meets the requirements of human metabolism<sup>[3]</sup>. To this end, colleges and universities should actively organize college students to participate in national aerobics training activities, cultivate college students' sports hobbies, help college students set up lifelong sports goals, and gradually improve their institutional health<sup>[4]</sup>.

### 5. Conclusions

To sum up, college students who have received national aerobics training for a long time have good physical health, which can improve the physical fitness of them. National aerobics training has high application value and is worthy of popularization and application in colleges and universities.

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1). Provincial National Work Project of Guizhou Provincial National and Religious Committee in 2021 (Project Name: Liupanshui Normal University National Aerobics Project Team Construction and Training Competition, Project Number: Qian National and Religious Committee Published [2021] No. 9);

2). 2019 Science and Technology Innovation Team Project of Liupanshui Normal University (Project Number: LPSSYKJTD201911).

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