Original Article

Effect of Aerobics Combined with Strength Training Intervention on Invisible Obese College Students

Q. Liu

Department of Sport, Zhongyuan University of Technology, Zhengzhou, Henan, China

Abstract

Objectives: The objective of the study was to discuss the influence of the intervention program of strength training on the hidden obese college students on the basis of aerobics movement. **Methods:** By means of the voluntary principle, 28 college students with invisibility obesity were selected from the test instruments, such as height and weight, and they were randomly divided into observation group and control group, each of which was 14. The control group adopted a routine training program, and the observation group adopted aerobics and strength training intervention program for 6 weeks. Moreover, the physical form, physical quality, and so on of the two groups of invisible obese college social workers were observed. **Results:** The body composition, skinfold thickness, strength, and flexibility of college students were significantly better than those in the control group. Compared with before training, the improvement effect is very obvious, and the difference is significant ($P < 0.05$). However, in the body circumference and the lung activity, the improvement was not obvious ($P > 0.05$). **Conclusions:** Aerobics combined with strength training intervention can improve the body composition of invisible obese college students, improve strength and muscle content, and can improve flexibility. Moreover, the impact is very obvious.

Keywords: Aerobics movement, body circumference, improve flexibility, skinfold thickness

Introduction

Obesity is a metabolic disease caused by the interaction of multiple factors. It is characterized by excessive accumulation of fat cells in the body and often accompanied by the decrease of heart and lung function. With the increasing level of China's economic development and the changing habits of people's living and behavior, the incidence of obesity is over 10%, and the trend is increasing year by year.[1] Obesity not only affects the physical shape, quality, and physical and mental health of college students but also affects the smooth development of physical education in colleges and universities. Studies have found that reducing exercise is an important factor in obesity. Therefore, the role of targeted sports in obesity is a hot topic nowadays. Aerobics is a sport dance that can enhance physical fitness, eliminate fatigue, cultivate sentiment, and improve health. It also has a certain effect on eliminating fat accumulation. Therefore, the purpose of this study is to investigate the effects of aerobics on body composition, body fat distribution, and cardiorespiratory function of 28 obese college students.[2]

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Overview

A total of 28 obese college students in our hospital were selected as the subjects. The subjects of the body mass index (BMI) >25 kg/m^2 were determined to be obese; all the patients had no cardiovascular disease, diabetes, serious infection, and other associated diseases after physical examination and inquiry, and no physical and sports-related taboos were found. The students were randomly divided into the observation group and the control group, 14 cases in each group. Among them, there were 10 male, 4 female which old was 20-23, and the average age was 20.3 ± 5.6 years and the average height was 165.4 ± 7.8 cm. There were nine males and five females, and their age was between 19 and 23 years in the control group, and the average age was 19–23 years (20.6 ± 6.1) years. There was no statistically significant difference in age, sex, weight, and BMI between the two groups ($P > 0.05$).

Address for correspondence: Prof. Q. Liu, Zhongyuan University of Technology, Zhengzhou 450007, Henan, China.
E-mail: hongliangma19@gmail.com

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Methods

The exercise time of the observation group was 15 weeks, four times a week. After week 1, 2, 4, and 6 in p. m., the exercise intensity was 120–140 times/min, respectively, 10-min warm-up exercises, 40-min running, and 10-min stretching exercises, respectively.[3] The control group was not involved, and the other conditions were consistent with that of the observation group. The two groups were tested according to the requirements of the sports measurement and evaluation before and after training. At the same time, the height and skinfold thickness were measured by the right triangle and the skin pleat, and the body fat percentage, body fat weight, and fat-free body weight were calculated for each student.[4] All the measurement tools used in the study were uniform models and were professionally corrected and operated by trained professionals.

Results

After training, the body weight, BMI, and skinfold thickness of the observation group were significantly lower than those before the training ($P < 0.001$), and the above indexes were significantly lower than those in the control group, the difference was statistically significant ($P < 0.001$) [Table 1].

The percentages of body fat, body weight, and remove the weight of body fat in the observation group were significantly lower than those before the training ($P < 0.001$). Compared with the control group, the above indexes also decreased significantly, and the difference was statistically significant $P < 0.001$) [Table 2].

The heart rate, systolic pressure, and blood pressure in the observation group after the aerobics training were significantly lower than those before the training ($P < 0.001$). Compared with the control group, the above indexes were also significantly higher than those in the control group. The difference was statistically significant ($P < 0.001$) [Table 3].

Conclusions

Body composition mainly consists of the composition of human tissues and organs, and its overall weight is called body weight. In general, the bodyweight is divided into fat weight and fat-free weight according to the difference in physiological function. The distribution and change of body fat, especially the change of body composition, is one of the criteria to reflect and judge obesity.[5] The study found that long-term exercise can effectively improve the body's use of fat, speed up its metabolic speed and energy efficiency, and aerobics training just can play this role. Aerobics is a sports and music as a whole, a strong rhythm, rhythmic sports, participating in aerobics sports, can make all parts of the body get a comprehensive exercise, change the body fat distribution, shape the perfect shape, the love

Table 1: Comparison of body composition

Group	*n*	Weight (kg)		BMI (kg/m^2)		Thickness of skin fold	
		Before	After	Before	After	Before	After
Observation group	14	85.13±10.32	75.32±11.30	30.24±4.30	29.32±2.32	39.21±8.32	31.52±6.32
Control group	14	82.42±11.35	83.12±10.92	32.14±4.03	30.4±2.35	39.12±7.32	37.21±6.02
t		0.292	4.352	1.901	6.214	0.621	8.321
P		0.771	0.000	0.022	0.000	0.542	0.000

BMI: Body mass index

Table 2: Comparison of body fat distribution

Group	*n*	The percentages of body fat (%)		Body weight (kg)		Remove the weight of body fat (kg)	
		Before	After	Before	After	Before	After
Observation group	14	36.62±41.32	21.06±31.32	14.24±13.30	10.32±15.32	59.21±48.32	11.52±3.32
Control group	14	32.42±5.35	33.12±0.92	12.14±3.03	10.4±6.35	49.12±8.32	47.21±8.02
t		0.521	24.352	0.901	6.041	0.721	38.321
P		0.551	0.002	0.422	0.000	0.442	0.000

Table 3: Comparison of body function

Group	*n*	Heart rate (times/min)		Systolic pressure (times/min)		Blood pressure (kPa)	
		Before	After	Before	After	Before	After
Observation group	14	85.11±14.32	121.06±1.32	132.24±2.30	14.22±10.11	9.21±8.12	7.31±2.30
Control group	14	80.12±3.35	123.12±1.92	22.04±1.03	12.4±2.35	9.12±3.32	7.21±3.02
t		1.521	3.352	1.901	13.041	4.721	0.321
P		0.321	0.222	0.002	0.000	0.132	0.220

of college students, and has become an important part of the college sports teaching.[6] The results of this study showed that after 15 weeks of continuous bodybuilding, the body composition of the obese college students changed significantly; the weight, BMI, and skinfold thickness decreased significantly; and the percentage of body fat, body fat, and decreasing weight was also significantly improved, suggesting that aerobics was significant. The author thinks that the effect of this effect may be closely related to the body temperature of the gymnastic, the oxidation decomposition function of fat, the increase of fat, the rate of resting metabolism, and the decrease of fat synthesis.

To sum up, aerobics has a good promoting effect on improving body composition, body fat distribution, and heart and lung function of obese college students in school. It has many advantages to edify sentiment, relax body and mind, and improve health. It also has a positive effect on preventing obesity.[7] It is worth applying to physical education in colleges and universities for a long time.

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Conflicts of interest

There are no conflicts of interest.

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