

Experimental research on the effect of low and middle intensity line dance on middle-aged and elderly people with cardiovascular and cerebrovascular diseases.

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Abstract

Objective: To discuss the effect of low and middle intensity line dance on middle-aged and elderly people with cardiovascular and cerebrovascular diseases.

Method: Methods including literature, experiment, and mathematical statistics were used on 60 cases of middle-aged and elderly people with cardiovascular and cerebrovascular diseases for low and middle intensity line dance.

Result: After treatment, the SBP and DBP of the observation group were respectively 131.25 ± 12.05 mmHg and 75.11 ± 6.79 mmHg, which were lower than the control group, with $P < 0.05$; the pulse of the observation group was 72.32 ± 8.13 times/min, which was better than the control group, with $P < 0.05$; and various life quality scores of the observation group were higher than the control group, with $P < 0.05$.

Conclusion: The effect of low and middle intensity line dance on middle-aged and elderly people with cardiovascular and cerebrovascular diseases is significant, which can help improve the body's internal environmental level and life quality, thus is worth promotion in clinical implementation.

Keywords: Middle-aged and elderly people, Line dance sport, Cardiovascular and cerebrovascular, Experimental research.

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Introduction

With the improvement of life quality, the morbidity of cardiovascular and cerebrovascular diseases is increasing year by year accordingly [1]. What's more, due to the organ dedifferentiation of middle-aged and elderly people, their disability rate and fatality rate both increase. Research has shown that [2], the number of patients with cardiovascular and cerebrovascular diseases in China is beyond 200 hundred million, and three million of them die each year. Therefore, it has been a hot topic for medical and social organizations and institutions to prevent the deterioration of cardiovascular and cerebrovascular diseases and improve patients' life quality. According to some researches, appropriate aerobic exercise plays a key role in the rehabilitation of patients with cardiovascular and cerebrovascular diseases [3].

Originated from the Western Country Dance in the 1970's in the US, line dance is a branch of globalization dance. Thanks to its neat queue, colorful costume, and collective dance, line dance has swept the world after 40 years development. Line dance can help exercise cardiovascular and respiratory system, improves heart function, speed up metabolism, promote digestion, eliminate brain fatigue and mental stress, to promote health, delay deterioration, and improve human body activity.

Low and middle intensity line dance belongs to aerobic exercise. To discuss the effect of low and middle intensity line dance on middle-aged and elderly patients with cardiovascular and cerebrovascular diseases, 60 cases of middle-aged and elderly patients with cardiovascular and cerebrovascular diseases from February 2015 to January 2016 were selected as research objects and divided into two groups with different treatment. After comparison of the treatment results, the detailed report was as follows:

Research Object and Methods

Research object

A total of 60 cases of middle-aged and elderly patients with cardiovascular and cerebrovascular diseases from February 2015 to January 2016 were selected as research objects and divided into control group and observation group, with 30 cases in each group. The detailed information was as follows:

Inclusion criteria: 1) patients diagnosed with cardiovascular and cerebrovascular diseases; 2) patients with abnormal blood pressure and pulse; 3) patients lack of aerobic exercises; 4) patients with diet habit complying with requirements; and 5) patients with high treatment compliance, with accepting follow-up.

Exclusion criteria: 1) patients with severe basic diseases; 2) patients with malignant tumor; 3) patients with insufficient limb function; 4) patients with cognitive disorder or mental disease; and 5) patients reject follow-up.

The observation group: there were 19 cases of male and 11 cases of female; the age ranged from 55 to 75 years old, with the average age of 63.97 ± 5.32 years old; and the course of disease ranged from 1 to 11 years, with average course of disease of 6.75 ± 1.31 years.

The control group: there were 18 cases of male and 12 cases of female; the age ranged from 52 to 73 years old, with the average age of 63.64 ± 5.18 years old; and the course of disease ranged from 1 to 10 years, with average course of disease of 6.69 ± 1.28 years.

The blood pressure, pulse, and life quality of patients in both groups after intervention were observed. GQOL-74 was used in this research to evaluate the life quality, including body function, mental function, social function, and material life, with ranging from 0 to 100 scores.

The differences of various indexes between patients in both groups were not significant, with $P > 0.05$.

Research Methods

Experiment

A total of 60 cases of middle-aged and elderly patients with cardiovascular and cerebrovascular diseases were randomly divided into observation group and control group, with 30 cases in each group for further experimental research.

The control group was given routine medicine treatment, including treatment for high blood pressure, blood fat, and blood glucose, maintenance of electrolyte and PH balance. What's more, targeted psychological counseling and knowledge related to cardiovascular and cerebrovascular diseases were given to help improve their treatment compliance [4].

The observation group was given low and middle intensity line dance for the period of 10 weeks on the above basis [5]. The detailed intervention solution was as follows:

Exercise frequency and duration: The exercise was given between 17:30 and 18:15 on Tuesday, Thursday, and Saturday,

including warming up of 10 min, basic exercise of 30 min, and organization of 5 min.

Exercise intensity: The exercise intensity was controlled to be 70% under the highest heart rate, and the pulse was controlled to be 75% under the highest heart rate. Heart rate telemeter was used to measure the heart rate of patients randomly chosen. Instant pulse was measured 10 s after the exercise to monitor the exercise intensity.

Exercise content: The 10 min warming up included flexibility and preparation exercise, with background music of 100 beats/min; the 30 min basic exercise included the combination of various line dance movements, such as split kick, turn, cross step, toes on the floor, treadmill step, swing step, and body wave, without any explosive, high-frequency movements. The background music was controlled to be 120 beats/min; and the 5 min organization included relaxing and stretching gymnastics, with background music of 100 beat/min.

Mathematical statistics

Mean \pm standard deviation was used to express the blood pressure level, pulse, and life quality of patients in both groups after treatment. T test was adopted. SPSS20.0 software was used. $P < 0.05$ means that there were significant difference of blood pressure, pulse, and life quality between the observation group and the control group.

Results and Analysis

Comparison of blood pressure and pulse of both groups

Before treatment, there were no significant difference in blood pressure and pulse between the observation group and the control group, with $P > 0.05$; After treatment, the blood pressure and pulse of the observation group were better than the control group. The differences were statistically significant, with $P < 0.05$, as is shown in Table 1.

Comparison of life quality of both groups

Various indexes of the observation group were significantly better than the control group, with $P < 0.05$, as is shown in Table 2.

Table 1. Comparison of blood pressure and pulse of both groups ($n, x \pm s$).

Group	Number of Cases	Time	SBP (mmHg)	DBP (mmHg)	Pulse (times/min)
Observation Group	30	Before Treatment	148.16 ± 12.25	96.16 ± 10.13	90.69 ± 7.85
		After Treatment	131.25 ± 12.05^A	75.11 ± 6.79^A	72.32 ± 8.13^A
Control Group	30	Before Treatment	147.98 ± 12.22	96.25 ± 8.97	91.11 ± 7.36
		After Treatment	141.54 ± 10.67	82.20 ± 6.17	83.87 ± 6.16

Note: ^Δmeans that the observation group was better than the control group, with P<0.05.

Table 2. Comparison of life quality of both groups (n, x ± s, grade).

Group	Number of Cases	Body Function	Mental Function	Social Function	Material Life
Observation Group	30	81.68 ± 8.63 ^Δ	85.97 ± 8.11 ^Δ	82.66 ± 8.15 ^Δ	90.64 ± 7.71 ^Δ
Control Group	30	69.59 ± 7.79	70.49 ± 7.13	71.36 ± 6.98	72.66 ± 6.73

Note: ^Δmeans that the observation group was better than the control group, with P<0.05.

Conclusion

Cardiovascular and cerebrovascular diseases are also regarded as “diseases of affluence” [6]. Patients with cardiovascular and cerebrovascular diseases often suffer from high blood pressure, blood fat, and blood glucose, which contribute to the key factors that reduce patients’ life quality. Research has shown that appropriate aerobic exercise plays a key role in the rehabilitation of patients with cardiovascular and cerebrovascular diseases and helps increase patients’ life quality through improving internal environmental level [7].

Aerobic exercise can prevent cardiovascular and cerebrovascular diseases, significantly improve heart fat and nutrition metabolism, promote the elasticity of arterial wall, and fight against atherosclerosis. Other researches show that aerobic exercise can delay the senescence of organs, prevent the increasing of superoxide dismutase, and delay the aging and decline of heart and muscle. In her “Effect of Aerobic Exercise on the Rehabilitation of Elderly Patients with Cardiovascular and Cerebrovascular Diseases”, Yanmei [8] believed that exercise could help to reduce the body age of patients to prevent decline and prolong life. In this research, low and middle intensity line dance on middle-aged and elderly patients with cardiovascular and cerebrovascular diseases can help ensure that the amount of required oxygen is greater than the maximum oxygen intake. The energy maintenance would be supported by oxygen metabolism to meet the requirement of oxygen supply. What’s more, aerobic exercise can help promote sugar decomposition to generate water and carbon dioxide, thus to prevent lactic acid accumulation and muscle fatigue. Therefore, exercise time is accordingly extended.

Based on the research data, before treatment, there were no significant difference in blood pressure and pulse between the observation group and the control group, with P>0.05; After treatment, the blood pressure and pulse of the observation group were better than the control group. The differences were statistically significant, with P<0.05. That is to say, low and middle intensity line dance helps to steady patients’ blood pressure and pulse to promote normal metabolism and improve their life quality. The low and middle intensity line dance in this research has relatively high requirements to body harmonious. Through basic movements, patients’ blood circulation can be promoted. What’s more, it promotes the breath circulation to make full play of the chest function. The

abdominal respiration can help increase the rise and fall scale of the diaphragm to reduce chest pressure, increase abdominal pressure, and helps venous blood back to the atrium, thus to promote blood circulation.

Above all, the effect of low and middle intensity line dance on middle-aged and elderly people with cardiovascular and cerebrovascular diseases is significant, which can help improve the body's internal environmental level and life quality, thus is worth promotion in clinical implementation.

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