



The effects of exercise on the olds' health care and rehabilitation

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ABSTRACT

In order to investigate the effect of exercise on the elderly care and rehabilitation effect, 270 patients were randomly selected and divided into control group, parallel group and experimental group. There are 90 cases in each group. The experimental group patients make regular exercise program timing exercise according to the nursing staff, parallel group patients in accordance with their wishes freely exercise and the patients in the control group did not exercise. After 6 months, we tested three groups of patients with heart rate, body weight, blood glucose, blood lipid, blood cholesterol, blood pressure and heart function index, and ratio measurement results before exercise, conducted a comparative analysis. Results are as follow: heart rate of the elderly patients of experimental group after 6 months of exercise decreased moderately, body weight, heart function, blood pressure, blood glucose, blood lipid index, blood cholesterol were decreased significantly($P < 0.05$); the index of patients of parallel groups changed slightly. As the patients' bodies are preference overall, there is no significant difference ($P > 0.05$); the index of control group changes showed no significant difference ($P > 0.05$). The conclusion is, exercise, especially for making a plan of exercise could enhance the effect of the olds' health care and rehabilitation significantly. Therefore, it can be strongly advocated that the old should insist on exercising properly.

Keywords: the old; exercise; cardiovascular system; health care; rehabilitation

INTRODUCTION

Nowadays, health problems have become elders' most concerned problems. WHO suggested the most respected health care and rehabilitation method is the use of exercise prescription for exercise because exercise human science research shows that, the recession suitable aerobic exercise can not only delay the physiological function of the human body, but also improve the life quality of the elderly and the prevention of cardiovascular and cerebrovascular diseases and cancer objective. This paper studied mainly about the effect of exercise on the olds' health care and rehabilitation. It analysis summarize exercise, instructive exercise arbitrary and not exercising influence respectively in the health of the elderly.

1 Experimental section

1.1 The object of study

270 old patients were randomly selected with the informed consent to participate in the study in 2012 May ~2013 year in February in hospital treated patients, including 150 cases of male, female 120 cases. They were randomly divided into experimental group, parallel group and control group and each group has 90 people aged 60~70, wherein the patient age, gender, degree showed no statistically significant difference ($P > 0.05$), but comparable.

1.2 The experimental group exercise method --rehabilitation exercise prescription [2]

1.2.1 Preparation activities

Before the start of the exercise, 5~10min movement of breathing exercises and stretching in low intensity exercise training should be done; Respiratory movement is mainly to ensure oxygen is supplied enough in the wake of the electric couplet, as well as to avoid the breath holding action because the breath will make the old systolic blood

pressure increased, thus cause syncope; Stretching is to avoid damage of skeletal muscle in the process of movement, but the stretching rate cannot be too large, the extensional movement is mainly about rehabilitation gymnastics.

1.2.2 Relaxation activity

When the movement is completed, elderly people also need to complete at least 5~10min relaxation activities, help the heart rate recovery to pre exercise 10~15 times/min higher than it. Suddenly stop after exercise should not be taken.

1.2.3 The type of exercise

The old's traditional exercise types are various including traditional climbing, swimming, small ball movement, Taijiquan, aerobics, jogging, brisk walking, walking, and so on. When planning the official exercise plan, people should take diversified principle, and should maintain its strength from weak to strong, avoiding sudden violent movement.

1.2.4 Exercise intensity

The main exercise intensity of elderly in 90 cases of the experimental group is low intensity endurance exercise, so the exercise heart rate is generally maintained at 100~120 /min.

1.2.5 Exercise time

The whole time of the exercise should be controlled in 30~40min including the 5~10min ready movement, 15~20min formal motion, which is the period of time that can achieve the expected heart rate; 5~10min relaxation exercise should be kept at last.

1.2.6 Frequency of exercise

Exercise frequency should be maintained in the next 1 day or 3~5 times a week, and it is necessary to do a good job of medical supervision and self-supervision in the process of movement, finding problems timely in the implementation process, to solve the problem according to formulate corresponding measures, and to adjust the rehabilitation exercise prescription in the end.

1.3 Exercise method of parallel group

90 cases of the old research object of parallel group choose different types of movement freely according to their preferences, and the nursing staff does not give any interference and guiding.

1.4 Observation index

The nursing staff should determine the heart rate, body weight, blood glucose, blood lipid, blood cholesterol, blood pressure and heart function index of 3 groups patients of the experimental group, parallel group and the control group before the start of the study; After 6-months-exercise, the nursing staff should measure the mentioned 7 physiological indexes again, and carefully record the data.

1.5 Statistical data

Statistics data will be analysis by EXCEL software package analysis tool , the average figure of the 3 groups need to be tested and test results for $P < 0.05$ represented a statistically significant difference, if $P > 0.05$, it represents a gap of no statistical significance.

RESULTS AND DISCUSSION

2. Results

No significant physiological indexes of 270 cases of senile research object differences in the previous exercise ($P > 0.05$); And after 6-months-training, all the indexes of parallel group and the control group are still of no statistical significance ($P > 0.05$); the physiological index of the experimental group were decreased, with a significant difference, with statistical significance ($P < 0.05$), see Table 1.

Table 1 Changes of physiological index object of study before and after exercise

	Experimental group		Parallel group		Control group	
	before exercise	after exercise	before exercise	after exercise	before exercise	after exercise
The heart rate	83.62±3.21	73.15±4.9	83.11±3.41	82.72±4.3	84.1±5.3	83.97±4.96
The body weight (Kg)	62.51±2.3	55.77±2.9*	61.27±2.62	59.34±3.1	63.11±3.09	63.13±2.88
Fasting blood glucose	7.62±2.2	5.38±1.61*	7.72±3.67	7.71±3.58	7.74±3.09	7.74±3.35
Lipids	1.61±0.13	1.03±0.23*	1.62±0.34	1.60±0.29	1.58±0.22	1.57±0.32
Blood cholesterol	8.51±1.17	7.32±1.29*	8.57±1.21	8.59±1.31	8.62±1.21	8.61±1.33
Systolic blood pressure	150.31±7.3	132.7±8.21*	149.7±7.21	148.9±8.05	149.35±8.2	149.88±9.1
Heart function index	8.62±3.11	5.49±2.81*	8.44±2.96	8.36±3.21	8.52±2.91	8.49±3.51

Note: Compared with their own before exercise, * $P < 0.05$; $1 \text{ mmHg} = 0.133 \text{ kPa}$.

DISCUSSION

3.1 Making the individual, step by step, combined with its own characteristics elderly exercise prescription is the fundamental means to improve health care and rehabilitation effect. According to the elderly characteristics like physique weak, the metabolism slows, osteoporosis and others, doing some stretching exercises should be in the preparatory activities, which helps the body to adapt to the formal action is about to begin; General selection of low strength in the choice of sports on the aerobic endurance exercise, so as to effectively strengthen the respiratory muscle endurance and strength, improve the metabolism circulating oxygen, improving alveolar opening rate at the same time, increased pulmonary ventilation, and ultimately achieve activity to maintain flexibility, thoracic lung tissue, enhance the oxygen ability, improve the respiratory system, improve the internal organs of the body's metabolism of purpose, in the process of the implementation of exercise prescription, make personnel according to its own object of study hobby and body situation change exercise program, and follow the appropriate, appropriate and timely exercise principle [3].

3.2 When making exercise prescription, elderly suffering from cervical diseases and scapulohumeral periarthritis should be treated combined with cervical vertebra rehabilitation and shoulder rehabilitation exercise to improve health care and rehabilitation effect.

3.2.1 Cervical vertebra rehabilitation exercise

The effect of neck motion rehabilitation is quick and significant in patients' treatment when they play subjective initiative with rehabilitation self-process. Local nutrition improved significantly and neck ligament, muscle stretch, which makes the flexibility of ligament improved, as well as the spastic muscles relax, the joint movable degree increases, separate vertebral body adjacent, vertebral gap increases, improved on the nerve root and the surrounding soft tissue compression state, finally relieve numbness, pain symptoms, guarantee the stability of the cervical spine. Cervical vertebrae exercise rehabilitation exercise is divided into three sets from the difficult and easy. Patients can select one set of exercises according to their own condition.

3.2.2 Periarthritis of shoulder movement rehabilitation method

Elbow flexion outreach: lie on your back in bed or standing, in patients with upper arm shall be close-fitting, elbow flexion, with a fulcrum of elbow, make out activities; Side wall and stand, finger to climb a wall: patients with lateral finger slowly move up along the wall, the maximum make arms holding up as far as possible, make a mark on the wall, and then slowly back to the origin, down cycle, increasing height; Patients with shoulder pressure: standing or devices for flexion, lift on two arms straight arm by relying on, shoulder to shoulder a biggest pressure Angle;

Natural standing body after the shake handshandle: patient, spin and back in the side upper limb posture, the contralateral hand side of the hand or wrist, and gradually to the contralateral pull upward; Give, side give before and after the exhibition arm: patients with upper limb natural prolapse, arms straight front, side and back, then restore, repeated; Arm around the ring: stand, in patients with limb natural prolapse, elbow straight, with walls before and after, left, right circle around the ring, range from small to large, the ring around 36 weeks.

Arm circle is the core action of periarthritis of shoulder functional treating.

The mentioned five species of action can be chosen according to the specific condition of patients, and should be exercised 3~5 times a day alternately, better combined with massage. Sticking to the functional exercise is beneficial to the prevention and treatment of periarthritis of shoulder.

3.3 The exercise intensity should be appropriate, generally controlled in the maintaining of heart rate about 100~120 times /min because too high intensity is not conducive to the health of the elderly and too small strength cannot

reach the positive effect of movement; After the movement, 5~10min relaxation activity is still needed in order to relax the muscles, promote the excretion of lactic acid, regulating blood circulation, so that blood and heart rate can be kept as the time level before exercise, avoiding sudden stop motion which might cause the heart load mutation and leading heart disease.

3.4 Heart rate is not only an important index to reflect the human health, but also the most important and most convenient of moving load. Reasonable insistence of physical exercise can increase the pulse output of the heart, enhancing myocardial contractility, thereby reducing the heart rate, improve old people's health level [4]. In this study, after the implementation of exercise prescription, the heart rate of the experimental group decreased significantly, with statistically significant difference ($P<0.05$), and it also explains the improvement of blood flow of research object, their enhanced myocardial contractility, and myocardial oxygen utilization ability improvement.

3.5 Excessing energy intake and the lack of exercise can lead the body to the accumulation of fat, which leads to obesity and hypertension, coronary heart disease and other cardiovascular diseases. Appropriate amount of exercise can promote the consumption of energy, fat burning, weight loss, reduce the cardiovascular burden, which is more conducive to the health of the elderly; after exercise, the experimental group students weight decreased significantly, and there was a significant difference in the determination of weight before exercise ($P<0.05$).

3.6 Glucose is the major supply source of various cells' energy to body organizations. Therefore, to maintain a certain level of blood glucose concentration is the fundamental factors to maintain the operation of the human body; As the blood sugar value pasts the prescribed level, it will cause disease of hyperglycemia immediately. Long-term hyperglycemia will lead to organs human body end up having lesions occur, which leads to all kinds of complication. In this study, all the blood of 3 groups of subjects glucose levels were exceeded normal value, but after exercise of 6 months, the blood glucose of experimental group decreased significantly, but parallel group and control group of the same basic blood glucose level. So the science reasonable physical exercise is the effective way of decreasing blood glucose.

3.7 Blood lipid plays an important role in maintaining human functioning. If the blood concentration pasts over the normal value, it will be deposited in the vessel wall, and forms the atherosclerotic plaque gradually, which makes blood vessel diameter narrowed, blood flow supply myocardial reduction, eventually lead to myocardial infarction or angina[5]. The results from this study indicate that serum triglyceride, serum cholesterol decreased significantly in the exercise, and it ensured adequate supply of myocardial blood flow, reduced the incidence of cardiovascular disease.

3.8 The important index of reflecting the function of cardiovascular is blood pressure, according to the research, sports can not only reduce the excitability of sympathetic nerve, increase the excitability of the vagus nerve, adjust the function of nerve, relieve spasm of arterioles, but also can reduce fluctuation of blood pressure, stable blood pressure[6]. After taking the prescription of exercise, the blood pressure of the experimental group dropped, and the differences of this record also have statistical significance.

CONCLUSION

The result of the study shows that proper exercise can slow down the heart rate, can strong the cardiovascular, keep fit, and preserve blood pressure, blood lipid and blood glucose in a normal range. Comparing with the former measured record, the record of experimental group changes obviously, while the record of parallel group and the control group do not change significantly, in summary, the targeted exercise can not only improve senior people's health but also can achieve the rehabilitative effect.

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