

## **Clinical research on the intervention effect of exercise therapy on patients with light and medium fatty liver.**

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### **Abstract**

**Objective:** To study the intervention effect of exercise therapy on patients with light and medium fatty liver.

**Methods:** Research methods including experiment and mathematical statistics were used in the group experiment of 64 cases of patients with community fatty liver. Effective rate was defined as the sum of effective and significantly effective people divided by total number of each group. Compliance rate was defined as the sum of general compliance, compliance and very compliance people divided by total number of each group. Intervention satisfaction rate was defined as the sum of basically satisfied, satisfied and quite satisfied people divided by total number of each group.

**Results:** The total effective rate of the experimental group and the control group showed significant difference, with  $P < 0.05$ . After treatment, the ALT, AST, GGT, and ALP of the experimental group and the control group showed significant difference, with  $P < 0.05$ . The compliance rate of both groups showed significant difference, with  $P < 0.05$ . The intervention satisfaction of both groups showed significant difference, with  $P < 0.05$ .

**Conclusion:** On the basis of routine medicine treatment and diet intervention, exercise therapy has a good effect on patients with light and medium fatty liver, which is good for the treatment and recovery.

**Keywords:** Light and medium fatty liver, Exercise therapy, Clinical, Intervention effect.

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### **Introduction**

Fatty liver refers to the excessive fat accumulation on liver cell caused by various reasons. It is threatening the health of Chinese people. Fatty liver disease, characterized by steatosis, is an important contributor to the development of type 2 diabetes and cardiovascular disease [1,2]. However, fatty liver is reversible. For patients with light and medium fatty liver, active diet intervention and appropriate exercise therapy on the basis of routine treatment can help better and faster recovery [3,4]. Similar results have been recently found in children, in whom adherence to Mediterranean Diet reduced the risk of fatty liver and diabetes [5]. In rodent models of Fatty liver, some researchers have shown that exercise training prevents liver disease progression and restores hepatic function [6,7]. Indeed, for Fatty liver patients, aerobic exercise training is an established cornerstone of disease management that attenuates nutrient overload in the liver by improving substrate metabolism [8,9]. Aim of the study was to investigate the intervention effect of exercise therapy on patients with light and medium fatty liver. 60 cases of patients with light and medium fatty liver from April 2014 to January 2017 were selected as research objects. Based on the research and discussion on the clinical effect of exercise therapy on patients

with light and medium fatty liver, the result is reported as follows.

### **Methods**

#### **Research object**

60 cases of patients with light and medium fatty liver from April 2014 to January 2017 were selected by comparing the basic information of both groups, there were no significant difference, with  $P > 0.05$ . This research was approved by the Ethical Committee of Xinjiang Normal University according to the declaration of Helsinki promulgated in 1964 as amended in 1996, the approval number is 2014001.

#### **Research grouping**

All patients were randomly divided into two groups, with 30 cases in each group. In the control group, there were 17 cases of male and 13 cases of female, with age range of 31 to 66 and average age of  $(55.29 \pm 1.28$  y old); in the experimental group, there were 18 cases of male and 12 cases of female, with age range of 32 to 68 and average age of  $(55.27 \pm 1.25$  y old). The control group was given routine medicine treatment and diet

intervention, while the experimental group was given exercise therapy on the above basis. The effects of both groups were observed.

### Research methods

**Experiment:** Patients in the control group only received routine medicine treatment and diet intervention. On this basis, patients in the experimental group were given exercise therapy, such as brisk walking, Tai Chi, jogging, biking, and badminton for 3 to 6 times a week and 40 to 90 min each time. The exercise intensity should be gradually increased. Preparation and organization before and after the exercise should be made. Besides, patients should control the pace of brisk walking until they were sweat a little. Take a 5 to 10 min break after the brisk walking. Two or three times of Tai Chi exercise should be taken each day. Patients should not adjust the exercise intensity based on their actual conditions, with avoiding fatigue.

Observation index: 1) the clinical effect of the patients with light and medium fatty liver in both groups were observed; 2) the change of ALT, AST, GGT, and ALP of both groups before and after the treatment were observed; 3) the treatment compliance of both groups were compared and analysed; and 4) the intervention satisfaction of patients with light and medium fatty liver in both groups were compared and analysed.

### Mathematical statistics

SPSS21.0 was adopted to study the related data in the research. The measurement data in this research was expressed by  $\bar{x} \pm s$ . T-test was adopted. The enumeration data was expressed by %, with  $\chi^2$  test.  $P < 0.05$  means significant statistical difference.

**Table 1.** Treatment effect comparison between patients in the experimental group and the control group.

Group	Ineffective (case)	Effective (case)	Significantly effective (case)	Total effective rate (%)
Control Group (n=30)	7	18	5	60.00
Experimental Group (n=30)	2	8	20	86.67
$\chi^2$				5.4545
P				<0.05

**Table 2.** Related index comparison of patients in both groups before and after treatment.

Group	Before Treatment				After Treatment			
	ALT	AST	GGT	ALP	ALT	AST	GGT	ALP
Control group (n=30)	48 ± 6	33 ± 5	61 ± 7	122 ± 10	20 ± 5	27 ± 6	60 ± 6	95 ± 8
Experimental group (n=30)	47 ± 5	32 ± 4	62 ± 8	123 ± 11	14 ± 2	22 ± 3	15 ± 3	72 ± 4
T	0.7012	0.8553	0.5152	0.3684	6.1025	4.0824	36.7423	14.0845
P	>0.05	>0.05	>0.05	>0.05	<0.05	<0.05	<0.05	<0.05

**Table 3.** Treatment compliance comparison of patients in both groups.

## Results

### Treatment effect comparison between patients in the experimental group and the control group

The total effective rate of the experimental group was higher than that of the control group. The difference was statistically significant, with  $P < 0.05$ , as shown in Table 1.

### Related index comparison of patients in both groups before and after treatment

Before treatment, the ALT, AST, GGT, and ALP of both groups showed no significant statistical difference, with  $P > 0.05$ . After treatment, the ALT, AST, GGT, and ALP of the experimental group were significantly lower than the control group, with  $P < 0.05$ , as shown in Table 2.

### Treatment compliance comparison of patients in both groups

The treatment compliance of patients in the experimental group was significantly higher than the control group, with  $P < 0.05$ , as shown in Table 3.

### Intervention satisfaction comparison of patients in both groups

The intervention satisfaction of patients in the experimental group was significantly higher than the control group, with  $P < 0.05$ , as shown in Table 4.

Group	Non-compliance (case)	General (case)	compliance	Compliance (case)	Very compliance (case)	Treatment rate (%)	compliance
Control group (n=30)	15	5		4	6	50.00	
Experimental group (n=30)	7	6		7	10	76.67	
$\chi^2$						4.5933	
P						<0.05	

**Table 4.** Intervention satisfaction comparison of patients in both groups.

Group	Dissatisfied (case)	Basically satisfied (case)	Satisfied (case)	Quite Satisfied (case)	Total satisfaction rate (%)
Control group (n=30)	9	5	6	10	70.00
Experimental group (n=30)	2	8	8	12	93.33
$\chi^2$					5.4545
P					<0.05

### Conclusion

For patients with light and medium fatty liver, exercise therapy on the basis of reasonable medicine therapy and diet intervention has a good effect on the recovery [10-12].

The combination of medicine treatment, diet intervention, and exercise therapy is a scientific method on the treatment of patients with light and medium fatty liver [13,14]. Appropriate aerobic exercise helps to blood circulation and lymph circulation, enhance the blood supply on the fatty liver, and promote metabolism, which is good for the treatment [15,16]. Keating et al. showed that 90-130 min of high-intensity aerobic exercise training per week decreased intrahepatic lipid by 28% in overweight or obese subjects [17]. Increased physical activity and energy restriction are known to reduce hepatic steatosis and the pathogenesis of fatty liver [18]. Similarly, a retrospective cross-sectional study reported that, compared to moderate physical activity, NAFLD patients engaged in vigorous intensity physical activity had lower prevalence of biopsy-measured hepatic fibrosis, suggesting an important role for the intensity of physical exertion [19].

According to the research result, the total effective rate of the patients in the experimental group was 86.67%, which was higher than the control group of 60.00%. The difference was statistically significant, with  $P < 0.05$ . Compared with the control group, the ALT, AST, GGT, and ALP of the experimental group showed significant difference, with  $P < 0.05$ . Compared with the control group, the treatment compliance of the experimental group showed significant difference, with  $P < 0.05$ . Compared with the control group, the intervention satisfaction of the experimental group showed significant difference, with  $P < 0.05$ . Sun [20] selected 92 cases of patients with fatty liver for medicine treatment combining

diet intervention and exercise therapy on the basis. The result showed that the serum enzyme of the treatment group was significantly better than that of the control group, with  $P < 0.05$ . The total effective rate of the treatment (97.9%) was significantly higher than that of the control group (58.7%). The difference was statistically significant, with  $P < 0.05$ . The result is similar with that in this research, which means the result is reliable to some extent.

Above all, the treatment effect of exercise therapy on the basis of routine medicine treatment and diet intervention is significant for patients with light and medium fatty liver. It helps to improve the symptoms and indexes, promotes effective rate, and helps with recovery.

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