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The Influence of the Ninth Set of Radio Gymnastics on the Physical Quality of Female Drug Addicts

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Abstract: *To explore the influence of the ninth set of mass broadcasting gymnastics on the physical fitness of female new drug addicts based on the national physical fitness test. Methods: 60 new drug addicts from Hubei Women's Drug Rehabilitation Center were randomly selected into experimental and control groups. The experimental group received an additional 3-month radio gymnastics intervention, five times a week, 40 minutes each time. The control group voluntarily did not do moderate-intensity or above exercise. The two groups were tested before and after the experiment. Results: Compared with the control group, the weight and BMI of the experimental group decreased, and the vital capacity increased ($P < 0.05$); the resting heart rate decreased, and the performance of step-index, vertical jump, and sitting forward flexion increased ($P < 0.01$, there was a significant difference). Conclusion: The ninth set of mass broadcasting gymnastics can help female new drug addicts to improve their physical quality, assist in drug rehab, and shorten the time of drug rehab.*

Keywords: *Radio gymnastics; Women's new drugs; Compulsory detoxification*

1. Introduction

The abuse of new drugs is a serious problem affecting public order [1]. In recent years, the increase in women taking drugs has been much higher than that of men [2]. Chinese drug addiction treatment is mainly based on compulsory drug addiction, which can help physical drug addiction to a certain extent, but there is a lack of physical and mental rehabilitation methods for female drug addicts. Broadcast gymnastics is a medium-intensity aerobic exercise that positively affects health promotion, lays a good foundation for female drug addicts to return to society normally, and provides a reference for implementing sports detoxification in compulsory isolation detoxification places [3].

2. Data and Methods

2.1 The Equipment Used

Height tester, weight tester model BG0416; Grip strength tester model BG04007; Reaction time tester model BG04012; Eyes closed standing tester model BG4009; Seated forward flexion model BG04017; Vertical jump tester model BG04009; Spirometry tester model BG04005. The above equipment manufacturers are Beijing Xindong Huateng Sports Equipment Co., Ltd. Step index tester model BG04019; Sphygmomanometer model 0023, Jiangsu Yuyue Medical Equipment Co., Ltd.

2.2 Observer

2.2.1 Observer Filter Criteria

Taking the new drug addicts in Hubei Women's Drug Rehabilitation Center as the research object, the drug addicts who entered the center from April 2020 to November 2020 were screened according to the inclusion criteria.

(1) Meet the American diagnostic criteria for drug dependence (diagnostic and statistical manual of mental disorders, 4th ed, DSM-IV).

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(2) The urine test was positive for drugs during the entrance examination.

(3) Age is from 30 to 50 years old.

(4) Able to complete all physical fitness test items.

(5)Voluntarily participate in the research and sign the informed consent.

Exclusion criteria:

(1) Complicated with other psychoactive drug abuse history.

(2) Complicated with a history of mental illness or treatment.

(3) Complicated with the severe brain, heart, lung, liver, kidney, and other vital organ diseases.

(4) Combined with diseases of the nervous and motor systems that affect motor function.

(5) Those who have regular exercise habits or have received exercise intervention within the past three months.

(6) The subjects have poor compliance and cannot complete the teaching and training tasks seriously.

2.2.2 The Confirmation of the Observers

Sixty people who were forcibly abstained were finally selected. The randomized controlled trial design was adopted, and the research subjects were divided into experimental and control groups. One person was excluded from the experimental group and two from the control group during the experiment. The reasons for the exclusion were: ① Transfer within the institute; ②No key data was recorded during the treatment process. There were 29 people in the final experimental group and 28 people in the control group.

2.3 Methods

2.3.1 The Explanation of Methods

The addicts in the control group received routine drug rehabilitation treatment and nursing care, including drug rehabilitation knowledge education, legal education, and labor hygiene. They voluntarily do not participate in sports and engage in recreational activities such as chatting and playing chess in their free time. On this basis, the experimental group received from December 2020 to February 2021 for three months, five times a week. The specific time is from 7:00 pm to 8:00 pm from Monday to Saturday, and each 40-minute moderate-intensity exercise intervention. The exercise location is the Rehabilitation Center of Hubei Women's Drug Rehabilitation Center. The exercise form is mainly broadcast gymnastics training, warm-up exercise, and finishing supplementary activities.

2.3.2 Specific Operations

(1)Warm-up exercise, about 5 minutes.

(2)The ninth set of mass broadcasting gymnastics is about 20 minutes.

(3)Whole-body stretching exercise and yoga breathing adjustment, about 10 minutes.

(4)Yoga relaxation meditation for 5 minutes. Broadcast gymnastics is guided and practiced by professionally trained officers on duty. If there are obvious symptoms such as difficulty breathing, dizziness, cold sweat, severe pain, etc., stop exercising immediately and take corresponding measures.

2.3.3 Monitoring Indicators

Before and after the intervention, the national physique monitoring was used to assess the physique of female new drug addicts. Monitoring indicators: height (cm), BMI, weight (kg), vital capacity (ml), step-index, grip strength (kg), vertical jump (cm), push-ups (pieces), sitting forward bend (cm), resting heart rate (times/min), diastolic blood pressure (mm Hg).

2.4 Statistical Methods

SPSS 19.0 statistical software was used for statistical processing. The measurement data conformed to the normal distribution and was represented by ($\overline{X} \pm S$)). Counting data were compared using tests two and T, the difference was statistically significant at $P<0.05$, and there was a significant difference at

ISSN 2618-1576 Vol. 4, Issue 5: 1-4, DOI: 10.25236/FSR.2022.040501

P<0.01.

3. Result

3.1 Comparison of Drug Addicts' Basic Data

There was no statistical significance in age, drug use time, drug addict time, education level, and marital status of the two groups of drug addicts (P<0.05). See Table 1.

Table 1: Comparison of general data of two groups of drug addicts

Group	Cases No.	Age($\overline{X} \pm S$),	Duration of drug use	Quit drugs time	Education level [n(%)]			Marital status [n(%)]		
					Elementary school and below	Secondary Schools	High School and above	Unmarried	Married	Divorced or widowed
Test group	28	37.1±2.12	2.1±1.20	4.3±1.44	14(50)	9(32.1)	5(17.9)	10(35.7)	15(53.6)	3(10.7)
Control group	29	36.4±3.14	1.9±1.41	3.8±2.11	16(55.2)	10(34.5)	3(10.3)	11(37.9)	8(27.6)	0(34.5)
Test statistics		0.912	0.781	1.12		0.556			0.876	
P-Value		0.41	0.93	0.11		0.34			0.21	

3.2 Comparison of Physical Fitness Test Results

The results of the physical fitness test before and after exercise intervention were compared between the experimental group and the control group: weight and BMI decreased, spirometry increased, and were statistically significant (P<0.05); and long jump, sitting forward bend, step-index ability increased, and quiet heart rate decreased (P<001) in the experimental group of drug addicts. It is shown in Table 2.

Table 2: The text result comparison of before and after exercise intervention in the two groups

	Project	Weight(kg)	BMI	Lung capacity (ml)	Step index	Grip (kg)	Vertical jump (cm)	Push-ups (个)	Sitting forward bend (cm)	Stand on one foot with eyes closed (s)	Resting heart rate (beats/min)	Systolic blood pressure (mm Hg)	Diastolic blood pressure(mmHg)
Test group	Before intervention	58.53±10.45	21.5	2764.75±606.11	59.50±11.42	43.93±8.48	26.97±2.95	24.03±3.07	11.12±2.53	23.20±3.37	69.07±6.01	116.46±7.62	75.03±10.47
	After intervention	57.89±10.65	21.2	2953.75±553.09	60.75±10.70	43.14±8.81	29.06±2.86	23.43±3.64	11.95±2.34	23.67±3.17	67.07±6.0	116.35±10.34	69.92±9.59
	T value	1.987	2.341	2.751	3.813	2.565	10.488	0.929	6.6	1.271	9.702	1.05	1.716
	P-value	＜0.05	＜0.05	＜0.05	＜0.01	0.344	＜0.01	0.361	＜0.01	0.215	＜0.01	0.961	0.098
Control group	Before intervention	57.12±11.48	21.2	2670±624.08	60.50±11.42	46.17±9.50	27.73±4.43	23.64±4.46	13.44±2.56	23.07±2.38	67.82±5.29	117.46±10.41	69.28±6.32
	After intervention	57.39±11.01	21.1	2647.03±575.95	61.17±10.63	47.42±8.59	28.92±4.11	22.25±2.36	12.44±1.99	22.25±2.36	68.57±5.30	114.46±10.50	67.75±6.32
	T value	2.181	1.945	1.469	1.636	1.809	7.625	0.978	1.51	1.56	1.56	1.57	1.13
	P value	0.45	0.07	0.14	0.113	0.632	0.054	0.33	1.43	0.861	0.136	1.34	0.143

4. Conclusion

The nineteenth set of radio gymnastics is a neuromotor exercise that is classified as moderate-intensity aerobic exercise. It benefits improving women's cardiopulmonary function [4], hypertension, and neurological functions, such as improving brain function and concentration [5]. Women have a greater ability to activate muscle electromyography than men [6]. As a result of fully absorbing the advantages of the first eight sets of radio gymnastics, the ninth set of radio gymnastics was created. Concerning the eighth set of radio gymnastics, the exercise intensity, load, difficulty, flexibility, exercise plane, and other aspects have been improved, and the exercise effect is more efficient [7]. As little research has been conducted on the effects of the ninth set of radio gymnastics on the physique of drug addicts, this study added running, meditation and other exercises before and after the radio gymnastics to ensure the scientific nature of the activity.

There is evidence that drugs can cause serious damage to the human nervous system, respiratory system, cardiovascular system, endocrine system, and motor system, particularly cardiopulmonary function and muscle strength [8]. The vertical jump reflects the strength of the lower limbs of the human body and measures the quality of strength in the human body. In addition to sitting forward flexion as an index of human flexibility, step-index, vital capacity, and heart rate are indicators of human cardiopulmonary function. During the intervention period, it was found that the two groups of drug

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addicts were under roughly the same conditions in terms of age, drug use time, drug addiction time, education level, marital status, residence, diet, and general life circumstances. Statistical significance was not found in the data of each group before and after the intervention (P>0.05). In the experimental group, there were significant differences in the vertical jump, forward flexion in sitting position, step-index ability, and resting heart rate before and after intervention (P0.01). The body weight, BMI, and lung capacity of the experimental group were also significantly different (P0.05). It was determined that, following the ninth set of radio gymnastics, the addicts' vertical jump, sitting body forward flexion, and step-index ability significantly improved as well as their resting heart rate index, body weight, BMI, and lung capacity significantly decreased, which suggests that the physical fitness quality of the intervened patients has substantially improved. Strength, flexibility, and cardiopulmonary capacity have been systematically developed during the training process. The results of the grip strength, push-ups, standing on one foot with eyes closed, systolic blood pressure, and diastolic blood pressure tests were not statistically significant (P>0.05). Multiple factor analyses indicate that drug use by intervention subjects is relatively toxic to the brain, and short-term interventions have little effect on these results [9]. Radio gymnastics did not impact the blood pressure of the forced abstinence personnel in this study, which was not in accordance with the research results obtained from people sitting at the desk for long periods [10]. In addition, it may be related to the relatively normal blood pressure and endocrine disorder of the forced abstainer before the intervention.

The ninth set of radio gymnastics aerobic interventions can help drug addicts to recover mental health, improve self-regulation function in the state of drug craving [11], facilitate drug detoxification, and shorten drug detoxification times. Several indicators of physical health of persons in forced detoxification are positively associated with the level of mindfulness and mental health. Therefore, they can indirectly affect the risk of relapse[12]. Still, this study did not examine the psychological and relapse rate of persons in the ninth broadcast gymnastics for detoxification, which requires further investigation.

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