



## Effect of Exercise Program in Rehabilitation of Drug Addicts

\* Mathew Anand \*\* S.Prathap \*\*\* Jagatheesan Alagesan

\* Assistant Professor, Dayananda Sagar College of Physiotherapy, Kumaraswamy Layout, Bangalore, India

\*\* Associate Professor, Saveetha College of Physiotherapy, Saveetha University, Chennai, India.

\*\*\* Associate Professor, Saveetha College of Physiotherapy, Saveetha University, Chennai, India.

### ABSTRACT

*Drug addiction or substance abuse has been a social menace worldwide. Owing to various reasons the occurrence of drug addiction related problems cannot be done away completely by any country. But, as a responsible society every community, nations or administration cannot turn its face on this social evil. A major observation of the programs of rehabilitation centers revealed complete negligence to therapeutic effect of exercise for the purpose of rehabilitation. The purpose of this pilot study is to find out the effect of exercises in rehabilitation of drug addicts. 20 male subjects were randomly assigned into experimental or control group and treated with exercise program or conventional de-addiction program for six weeks. Self Confidence Inventory and Optimistic Pessimistic Attitude Scale were used as Outcome measures. Statistically significant results were observed in exercise program group than control group. This study concludes that exercise program is effective in the rehabilitation of drug addicts.*

**Keywords : Exercises, Drug Addicts, Rehabilitation**

### Introduction

Drug addiction is characterized by a sequence of processes that lead to the relapsing nature of the disorder. Since the dopaminergic mesocorticolimbic system is considered to be involved in reward-related associative learning<sup>1</sup>, reinforcement<sup>2</sup> and incentive salience<sup>3</sup>, it may have a crucial role in the development of drug addiction. From 1870 to 1900, most physicians regarded addiction as a morbid appetite, a habit, or a vice. After the turn of the century, medical interest in the problem increased. Various physicians began to speak of the condition as a disease. A concept that aims to describe the full reality of addiction must incorporate non-biological factors as essential ingredients in addiction-up to and including the appearance of craving, withdrawal, and tolerance effects. When medical or public health organizations that subscribe to biological assumptions about addiction have attempted to define the term they have relied primarily on the hallmark behaviors of addiction, such as "an overpowering desire or need (compulsion) to continue taking the drug and to obtain it by any means" (WHO Expert Committee on Mental Health, 1957) or, for alcoholism, "impairment of social or occupational functioning such as violence while intoxicated, absence from work, loss of job, traffic accidents while intoxicated, arrested for intoxicated behavior, familial arguments or difficulties with family or friends related to drinking" (American Psychiatric Association, 1980).

In 1964 the World Health Organization Expert Committee of Addiction-Producing Drugs changed its name by replacing "Addiction" with "Dependence". At that time, pharmacologists identified two kinds of drug dependence, physical and psychic. Physical dependence is an inevitable result of the pharmacological action of some drugs with sufficient amount and time of administration. Psychic dependence while also related

to pharmacological action is more particularly a manifestation of the individual's reaction to the effects of a specific drug and varies with the individual as well as the drug.

A structured and organized exercise programs emphasizing fitness are seen as essential component of every drug de-addiction and rehabilitation programs in the west. A person who exercises everyday feels happy and remains in a positive mood. People suffering from stress, anxiety and depression are especially known to benefit a lot from aerobic exercising<sup>4</sup>. The efficacy of exercise programs for drug rehabilitation has also been well established through numerous researches. Research on such experimentation have provided the necessary technical back-up and feed back to successful implementation of exercise programs in drug rehabilitation. So this study is aimed to find out the effect of exercise program on drug addicts in terms of self-confidence and attitude.

### Methodology

A pilot study was conducted at 4S De-Addiction Center, Bangalore. Conveniently selected sample of 20 inmates of the center were included in the study. All participants were explained about the exercise program and the testing procedure used in the study. All subjects signed an informed consent before participation in the study. The subjects were randomly assigned into any of the two groups. Control group (Group-1) was receiving the center's de-addiction program while experimental group (Group-2) was exposed to an Exercise Therapy Program in addition to regular center's program. The exercise program includes Brisk Walking, Stretching exercise, Variable pace jogs, Short distance relay, Aerobics, Calisthenics and Recreational games. The exercise therapy intervention was given for 6 days/week, 2 sessions/day of each one hour in the morning and evening. The experimental exercise reha-

bilitation program was continued for six weeks. While administering the program care was taken to conform that every subject performs the work comfortably without any difficulty, work load was adjusted if required according individual subject. No adverse events were noted during the course of the study. Rekha Agnihotry's Self Confidence Inventory<sup>5</sup> and Parasar's Optimistic Pessimistic Attitude Scale<sup>6</sup> were used as Outcome measures before and after exercise intervention for six weeks.

**Data Analysis**

Twenty male subjects with the mean ±SD age of 28.4±6.15 years were selected for the study, randomly divided into control and experimental group, 10 subjects each. Analyses of pre and post intervention data within group was done by paired t-test and homogeneity of groups & significance difference between groups was tested by independent t-test by using IBM SPSS-20. The level of significance was kept at 0.05.

**Table-1: Comparison of before and after intervention values within group**

Outcome	Groups	Mean(SD)	t	p	
Agnihotry's Self Confidence Inventory	Experimental	Before	41.90(5.86)	26.73	.000
		After	7.50(4.11)		
	Control	Before	42.35(5.91)	15.67	.000
		After	20.80(5.20)		
Parasar's Optimistic Pessimistic Attitude Scale	Experimental	Before	20.95(2.91)	19.06	.000
		After	33.85(2.60)		
	Control	Before	19.65(2.71)	13.69	.000
		After	27.70(2.79)		

Table-1 shows the paired t-test values for comparison of before and after intervention values of both outcome measures within group. In experimental group and control group the p value < 0.001 shows there is statistically significant improvement in self-confidence and Optimistic Pessimistic Attitude in both groups. Independent t-test was used to find out homogeneity of groups before intervention and any significant difference in after intervention values between the groups.

**Table-2: Comparison between groups**

Outcome	Groups	Mean(SD)	t	p	
Agnihotry's Self Confidence Inventory	Before	Experimental	41.90(5.86)	0.568	.575
		Control	42.35(5.91)		
	After	Experimental	7.50(4.11)	4.871	.000
		Control	20.80(5.20)		
Parasar's Optimistic Pessimistic Attitude Scale	Before	Experimental	20.95(2.91)	0.975	.338
		Control	19.65(2.71)		
	After	Experimental	33.85(2.60)	3.982	.000
		Control	27.70(2.79)		

Table-2 shows the independent t-test values for comparison between groups before and after intervention. Homogeneity of groups before intervention was proved with p > 0.05 for both outcome measures. The p value after intervention is less than 0.001 shows that there is statistically significant difference between both groups after intervention with increased self-confidence and Optimistic Pessimistic Attitude in experimental group than control group.

**Discussion**

This study was deliberate attempt to experiment a compre-

hensive exercise therapy program for effective rehabilitation of drug addicts. The study was conceptualized with the very idea that when worldwide trends in rehabilitation program of drug addiction primarily emphasis on regaining health and fitness status through structured exercise program. Indian practices have shown complete negligence to this fact. The efficacy of exercise based rehabilitation program is not well understood or not accepted in the context of practices in India. Hence taking up a research work on drug rehabilitation with exercise program concurrently with a regular stereo typed program of an established center did fill up a need of the time.

This study compared the effects of exercise therapy program with conventional de-addiction program and conventional de-addiction program alone in improving self-confidence and Optimistic Pessimistic Attitude of drug addicts.

The used training protocol was designed considering that moderate regular exercise for at least six weeks can bring beneficial effects in a long term basis, not only at cardiovascular and muscular, but also at a neurochemical level<sup>7,8</sup>. We have to consider that this type of exercise is forced and not spontaneous. Therefore, one cannot rule out the contribution played by stress inherent to the training procedure to the obtained results<sup>9</sup>. In fact, previous studies show that activation of prefrontal circuits may play a crucial role in mechanisms by which some kind of stress stimulates reward circuits<sup>10-12</sup>.

Immediate effect of single bout of 30 minutes aerobic exercises had detrimental effect on mood changes and behavioral pattern in the research by Alagesan J<sup>4</sup>, but this study had been done for a period of 6 weeks. Although exercise may prevent drug addiction, one should be aware that when the exercise schedules interfere with the social, occupational and family lives it can be consider itself as dependence<sup>13</sup>.

Exercises were well accepted as an adjunct therapy in the management of chronic illness for improving cardiovascular fitness and quality of life<sup>14</sup>, this finding can be well attributed to the facts that a well-planned exercise program does improve every systems of human functioning, organic structure their by inducing rise in working ability evident through fitness development. Exercise effects on musculo-skeletal system, cardio respiratory system, nervous system, internal digestive system etc are well documented facts. Psychological variables were only tested in this study, physical and physiological not tested.

Exercise based rehabilitation program are significantly effective in rehabilitation of drug addicts than conventional program of existing drug rehabilitation centers of India. Research project should be carried out with specific grouping according to types of drugs one is addicted to investigate whether rehabilitation in terms of nature of drug varies. Research project should be carried out according to age group of addicts to investigate rehabilitation pattern between the age groups.

**Conclusion**

The findings of this study conclude that exercise program is effective in the rehabilitation of drug addicts. This study has revealed the use of exercise program for the rehabilitation of drug addicts.

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