



TO STUDY THE EFFECTIVENESS OF AEROBIC EXERCISE IN DIABETES MELLITUS PATIENTS

Nursing

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KEYWORDS

INTRODUCTION

- Diabetes mellitus is a disease that prevents the body from properly using the energy from the food you eat. Diabetes occurs in one of the following situations.
- The pancreas produces little insulin or no insulin at all. Insulin is a naturally occurring hormone, produced by the beta cells of the pancreas, which helps the body use sugar for energy. The blood vessels and blood are the highways that transport sugar from where it is either taken in (the stomach) or manufactured (in the liver) to the cells where it is used (muscles) or where it is stored (fat).

When sugar leaves the bloodstream and enters the cells, the blood sugar level lowered. Without insulin, sugar cannot get into the body's cells for use as energy. This causes sugar to rise. Too much sugar in the blood is called hyperglycemia.

Causes of Diabetes Mellitus

The causes of diabetes are not known. The following risk factors may increase chance of getting diabetes:

- Family history of diabetes
- Being overweight
- Physical stress (such as surgery or illness)
- Use of certain medications, including steroids
- Injury to the pancreas (such as infection, tumor, surgery or accident)

AIMS AND OBJECTIVES

Aim of the study

- To evaluate the effectiveness of the aerobic exercise in diabetic patients.

OBJECTIVES :-

- To investigate the effectiveness of aerobic exercise in diabetic patients.
- To investigate the lipid profile level of diabetic patient performing aerobic exercise.

STUDY DESIGN

- A pre-test and post-test experimental study design.

STUDY SETTING

- This study is proposed to be conducted in the out patient physiotherapy department, patients referred from department of medicine and other departments of Guru Gobind Singh Hospital, Faridkot.

STUDY SAMPLING

- The sample included in this study is convenient sampling.
- A sample of 30 patients were conveniently selected according to the pre-determined inclusion criteria.

DURATION OF THE STUDY

- Total duration of this study is 8 weeks.

DURATION OF THE TREATMENT

- Each patient received the treatment for 40 minutes, single session for 4 days in a week.

INCLUSION CRITERIA

- Mean age of 25-60 years.
- Non smokers.

- BMI between 30 and 42kg/m² who are able to exercise safely on a treadmill and stationary bicycle.

EXCLUSION CRITERIA

- Individual earlier diagnosed with the stroke.
- Pregnancy.
- Sleep perturbations.
- Night shift workers.

PARAMETERS OF THE STUDY

- Blood glucose level
- Fasting blood glucose level
- Postprandial blood glucose level
- Lipid profile level

STATISTICAL TOOL

- The statistical method in this experimental study used to show the effectiveness of pre test and post test was Paired "t" test.
- The Paired "t" test was calculated using the formula

$$t = \frac{\bar{D}\sqrt{n}}{S} \quad S = \sqrt{\frac{\sum d^2}{n-1}}$$

$$\bar{D} = \frac{\sum D}{n}$$

$$d = D - \bar{D}$$

PROCEDURE

For this study, 30 samples were selected according to inclusion and exclusion criteria. All the selected patients were explained about the aim and the objective of the study. The consent form was signed by them. Study was conducted for 8 weeks and pretest and posttest evaluation was done. Glucometer and blood test was used to evaluate blood sugar level and lipid levels in diabetic individuals.

EXERCISE SESSION

The exercise bout consisted of 40 minutes of aerobic exercise broken into three sections. This included 15 minutes on a treadmill, 15 minutes on stationary cycle and 10 minutes on treadmill again. For first 15 minutes patient was instructed to walk on the treadmill and for last 10 minutes patients were instructed to run on the treadmill.

FASTING BLOOD GLUCOSE LEVELS.

Figure 1: mean Difference Between Pre And Post Test Of Postprandial Blood Glucose Levels.

Parameter	Groups	Mean	Standard deviation	Calculated "t" value	Table value
Fasting blood glucose levels	pre-test	160.3	1.85	7.22	3.65
	post-test	159.4			

RESULTS

- The result of this study suggests that aerobic exercises are effective in diabetes mellitus patients in lowering the parameters assessed in the study as fasting blood glucose level, postprandial blood glucose levels and lipid profile levels.
- The result were statistically analysed by using the paired t test. Fasting blood glucose level was found to be decreased effectively in post-test studies using glucometer. In paired t test the t value is 2.088. The t value is greater than the one tailed table value 2.045 with 29 degree of freedom at p= 0.05 respectively.

DISCUSSION

The statistical analysis was performed between the pre-test and post-

test variables. The parameters taken for this study was fasting blood glucose levels, postprandial blood glucose levels and lipid profile levels. The values were assessed using these parameters before and after the treatment duration.

CONCLUSION

Based on the statistical analysis from the data collected aerobic exercises have shown the significant in reduction in blood glucose level and the lipid profile levels in diabetic patients by increasing the activity of the insulin level in blood.

Hence the null hypothesis is rejected and the alternative hypothesis of this study accepted and it could be stated as " There is significant effectiveness on the aerobic exercise in the diabetes mellitus patient".

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