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## Impact of aerobic training on blood sugar of diabetic men

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### Abstract

The purpose of the study was to find out the impact of aerobic training on blood sugar of diabetic men. For the purpose of the study thirty men selected as subjects from Chidambaram, TN. The subjects were aged between 35 to 40 years. The subjects chosen for the study divided into two equal groups as called one experimental (Aerobic training) group and another one control group, each group consists of fifteen diabetic men. The data collected from the two groups prior to and post experimentation were statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). In all the cases level of confidence fixed at 0.05 for significance. The results the effects aerobic training had significantly contributed to decreased on blood sugar of diabetic men.

**Keywords:** Aerobic training, blood sugar and diabetic

### Introduction

Aerobic training describes the practical capability of the metastasis system, (The heart, lungs and blood vessels). Aerobic capability is outlined because the most quantity of gas the body will use throughout such as amount, sometimes throughout intense exercise. It's operating each of metastasis performance and therefore the most ability to get rid of and utilize gas from current blood.

To live supreme aerobic capability associate in exercise life scientist or medical practitioner can perform a  $VO_2$  liquid ecstasy check, during which an issue can endure a lot of more strenuous exercise on a treadmill, from a simple practice to exhaustion. The individual is often connected to a respirometer to live gas consumption, and therefore the speed is augmented incrementally over a hard and fast period of your time. The upper the measured metastasis endurance level, the additional gas has been transported to and employed by exercise muscles, and therefore the higher the amount of intensity at that the individual will exercise.

Diabetes mellitus (DM), normally alluded to as diabetes, is a gathering of metabolic issue portrayed by high glucose levels over a drawn out period. Side effects of high glucose incorporate successive pee, expanded thirst, and expanded yearning. Whenever left untreated, diabetes can cause numerous inconveniences (WHO, 2013) [6]. Intense difficulties can incorporate diabetic ketoacidosis, hyperosmolar hyperglycemic state, or demise (Kitabchi, *et al.*, 2009) [3]. Genuine long haul difficulties incorporate cardiovascular illness, stroke, incessant kidney malady, foot ulcers, and harm to the eyes.

### Methodology

The purpose of the study was to find out the impact of aerobic training on blood sugar of diabetic men. In this study thirty men selected as subjects from Chidambaram, TN. The subjects were aged between 35 to 40 years. The subjects chosen for the study divided into two equal groups as called one experimental (aerobic training) group and another one control group, each group consists of fifteen diabetic men. The data collected from the two groups prior to and post experimentation were statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). In all the cases level of confidence fixed at 0.05 for significance.

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### Training protocol and statistical analysis

The experimental Group – I subjects underwent aerobic training programme for five days a week for twelve weeks. The intensity of training during the first week of training fixed at 30% of HRR. The training load progressively increased once in two weeks for 5%, the duration of aerobic training from 20 minutes to 30 minutes. Group – II acted as control. Blood sugar was estimated by the method of Trinder using

reagent kit (1969). The data collected from the two groups prior to and post experimentation were statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). In all the cases level of confidence fixed at 0.05 for significance.

### Results

**Table I:** Analysis of covariance on blood sugar of aerobic training and control groups

	Aerobic Training Group	Control Group	SOV	Sum of Squares	df	Mean squares	'F' ratio
Pre-test Mean SD	142.86	143.73	B	5.63	1	5.63	0.71
	2.82	2.78	W	220.66	28	7.88	
Post-test Mean SD	127.80	144.66	B	2133.63	1	2133.63	278.59*
	1.26	3.63	W	207.73	28	7.41	
Adjusted Post-test Mean	127.74	144.71	B	2105.53	1	2105.53	277.68*
			W	204.73	27	7.58	

\*Significant at .05 level of confidence

(The required table value for significance at 0.05 level of confidence with degrees of freedom 1 and 27 is 4.21 and degree of freedom 1 and 28 is 4.20.)

At pre-test the aerobic training group mean value is 142.86 and standard deviation value is 2.82; control group mean value is 143.73 and standard deviation value is 2.78 on blood sugar. Aerobic training and control groups obtained 'F' ratio value is 0.71; this is lower than the fixed table value of 4.20. It shows that there is no significant difference between the aerobic training and control groups at the pre-test level on blood sugar.

At post-test the aerobic training group mean value is 127.80 and standard deviation value is 1.26; control group mean value is 144.66 and standard deviation value is 3.63 on blood sugar. Aerobic training and control groups obtained 'F' ratio value is 278.59; this is higher than the fixed table value of 4.20. It shows that there is significant difference between the aerobic training and control groups at the post test level on blood sugar.

At adjusted post-test the aerobic training group mean value is 127.74 and control group mean value is 144.71 on blood sugar. Aerobic training and control groups obtained 'F' ratio value is 277.68; this is higher than the fixed table value of 4.21. It shows that there is significant difference between the aerobic training and control groups at the adjusted post test level on blood sugar. Hence it was concluded that due to the effects of twelve weeks of aerobic training the blood sugar of the subjects was significantly decreased.

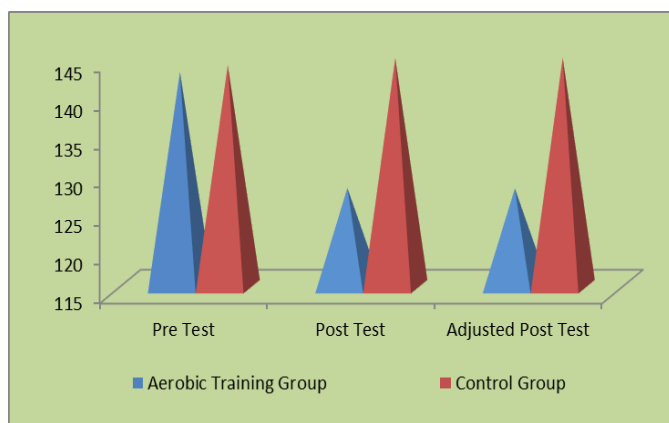
training induced to decrease on blood sugar of the diabetic men when compared to the control group's diabetic men. The following studies are strengthening the present results. Bruna and Ramiro, (2017) <sup>[1]</sup> summarized the major findings of aerobic, resistance, and combined training influence in patients with Type 2 Diabetes Mellitus. As a conclusion, physical exercise is a safe and effective strategy to prevent and mitigate the changes associated with Type 2 Diabetes Mellitus. Narges, *et al.*, (2015) <sup>[5]</sup> assessed the effect of aerobic exercise on insulin resistance in Type 2 Diabetes Mellitus. The current exercise protocol has been effective in lowering plasma glucose ( $p = 0.05$ ), insulin levels ( $p = 0.000$ ) and insulin resistance ( $p = 0.02$ ). It seems that aerobic exercises training promote the effectiveness of medical treatment in Type 2 Diabetes Mellitus. Karthikeyan, (2015) <sup>[2]</sup> found out the effects of yoga and Aerobic Training on selected biochemical variables blood sugar and Glucose Tolerance among diabetic patients. Results showed that there were significant difference between experimental groups and control group on selected variables on blood sugar and oral glucose tolerance. Muthuraj (2017) <sup>[4]</sup> examined the effect of low intensity aerobic training on superoxide dismutase. The analysis of data revealed that twelve weeks of low intensity aerobic training increased on superoxide dismutase.

### Conclusion

The conclusion of the study showed that the effect of twelve weeks of aerobic training had significant decrease on blood sugar of the diabetic men.

### References

1. Bruna Marmett, Ramiro Barcos Nunes. Resistance and aerobic training in the treatment of type 2 diabetes mellitus. *Journal of Diabetes, Metabolic Disorders & Control*. 2017; 4(5):150-154.
2. Karthikeyan J. Effect of yoga and aerobic training on biochemical variables in middle aged diabetic patients. *International Journal of Science Culture and Sport*. 2015; 3(2):13-20.
3. Kitabchi AE, Umpierrez GE, Mile JM, Fisher JN, Hyperglycemic crises in adult patients with diabetes. *Diabetes care*. 2009; 32(7):1335-43.
4. Muthuraj M. Effect of low intensity aerobic training on superoxide dismutase. *Indian Journal for Research in Physical Education and Sports Sciences*. 2017; 11(2):36-



**Fig 1:** Pyramid diagram of the data on blood sugar of experimental and control groups

### Discussion and Conclusion

The result of the study inform that twelve weeks of aerobic

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5. Narges Motahari Tabari, Marjan Ahmad Shirvani, Mahbobeh Shirzad-e-Ahoodashty, Elham Yousefi Abdolmaleki, Mojgan Teimourzadeh. The Effect of 8 weeks aerobic exercise on insulin resistance in type 2 diabetes. *Glob J Health Sci.* 2015; 7(1):115-121.
6. WHO. Diabetes Fact sheet N°312. Archived from the original on, 2013. Retrieved 25 March 2014.