

Research article

**INFLUENCE OF AEROBIC EXERCISES WITH AND WITHOUT DIET
ON SYSTOLIC AND DIASTOLIC BLOOD PRESSURE AMONG
MIDDLE AGED WOMEN WITH NIDDM**

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Received 7th January 2019, Accepted 30th March 2019

Abstract

The aim of this study was to find out the effect of aerobic exercises with and without diet modification on systolic and diastolic blood pressure among women with NIDDM. Sixty women NIDDM patients undergoing treatment in Government Hospitals and Diabetic Centre selected as subjects in the age group of 35 to 45 and divided into experimental group I, which underwent aerobic exercises with diet, experimental group II which underwent aerobic exercise without diet and control group did not underwent any treatment. Systolic and diastolic blood pressure were statistically analyzed using ANCOVA. It was concluded that there was a significant modification on blood pressure due to aerobic exercise with and without diet modification among middle aged women with NIDDM.

Key words: *Aerobic Exercise, Diet, NIDDM*

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INTRODUCTION

Diabetes is a chronic disease that usually manifests itself as one of two major types: type 1, mainly occurring in children and adolescents 18 years and younger, in which the body does not produce insulin and thus insulin administration is required to sustain life; or type 2, occurring usually in adults over 30 years of age, in which the body's tissues become unable to use its own limited amount of insulin effectively (Clark, 1998). While all persons with diabetes require self-management training, the treatment for type 2 diabetes usually consists of a combination of physical activity, proper nutrition, oral hypoglycemic tablets, and insulin if required. Previously, type 1 diabetes has been referred to as juvenile or insulin-dependent diabetes and type 2 diabetes as adult-onset or non-insulin-dependent diabetes.

Any exercise or activity that elevates the heart rate to one hundred and twenty beats per minute for at least twelve minutes is said to be aerobic (Creggaing, 1984). Harris et al. (1998) passed on that weight reduction and physical exercise are the best on enhancing insulin affectability in patients with sort 2 diabetes. The imminent, randomized trial has demonstrated that eating regimen related weight reduction and physical exercise can each decrease the rate of diabetes beginning in patients with weakened glucose resistance (Knowler et al. 2002). These behavioral ways to deal with keeping the beginning of diabetes or to enhancing insulin affectability in built up diabetes are hard to actualize and

support. Decreased exercise limit, as surveyed by crest oxygen utilization (crest VO₂), was freely connected with an expanded frequency of diabetic nephropathy and retinopathy in patients with diabetes without a background marked by coronary vein sickness (Estacio et al. 1998). The rate of hypertension is high among patients with sort 2 diabetes mellitus; the condition is available in roughly 40% of patients at determination, expanding to 80– 90% when diabetic nephropathy creates. Randomized Appropriate Blood Pressure Control in Diabetes (ABCD) clinical trial was embraced with speculation that pulse control would avert or moderate the movement of diabetic nephropathy, neuropathy, retinopathy and cardiovascular occasions and underscored the significance of forceful circulatory strain control, in both hypertensive and normotensive patients, as one successful methods for reducing the weight of confusions caused by sort 2 diabetes mellitus.

Thent et al. (2013) reported that activity preparing programs have developed as a valuable helpful regimen for the administration of sort 2 diabetes mellitus (T2DM) Researches were attempted to discover which of the diverse types of physical exercises are advantageous to control NIDDM. Hegde et al. (2013) examined the adequacy of yoga mediation on oxidative anxiety, glycemic status, pulse and anthropometry in prediabetes and discovered Yoga is valuable in decrease in BMI, midsection periphery, systolic circulatory strain and fasting glucose. Sanghani et al. (2013)

evaluated the impact of organized exercise preparing and unstructured physical movement intercessions on glycemic control and discovered organized exercise preparing was valuable than unstructured physical action. In this way, the hypothetical establishments laid demonstrated that yogic practices and physical exercises can usefully contribute in overseeing NIDDM. Nonetheless, there was further investigate for research to discover which of the two, regardless of whether yogic practices or physical exercises is more proficient to control NIDDM, particularly among ladies. Consequently, this examination was attempted.

METHODS AND MATERIALS

The aim of this study was to find out the effect of aerobic exercises with and without diet modification on systolic and diastolic blood pressure among women with NIDDM. Sixty women NIDDM patients undergoing treatment in Government Hospitals and Diabetic Centre were selected as subjects in the age group of 35 to 45 and divided into experimental group I, which underwent aerobic exercises with diet, experimental group II which underwent aerobic exercise without diet and control group which did not underwent any treatment, systolic and diastolic blood pressure were statistically analyzed using ANCOVA.

RESULTS

TABLE - I
EFFECT OF AEROBIC EXERCISES WITH AND WITHOUT DIET MODIFICATION ON SYSTOLIC AND DIASTOLIC BLOOD PRESSURE AMONG WOMEN WITH NIDDM

Tests	Aerobic without Diet	Aerobic with Diet	Control Group	Source of Variance	Sum of Squares	df	Mean	F
Systolic blood pressure								
Pre Test	143.75	144.75	145.50	Between	30.83	2	15.42	0.14
				Within	6162.50	57	108.11	
Post Test	137.00	136.25	147.25	Between	1510.83	2	755.42	10.94*
				Within	3937.50	57	69.08	
Adjusted Post Test	137.63	136.19	146.67	Between	1287.62	2	643.81	36.26*
				Within	994.38	56	17.76	
Diastolic blood pressure								
Pre Test	93.00	92.00	93.25	Between	17.50	2	8.75	0.25
				Within	2003.75	57	35.15	
Post Test	88.00	83.50	95.25	Between	1405.83	2	702.92	34.88*
				Within	1148.75	57	20.15	
Adjusted Post Test	87.86	83.93	94.97	Between	1243.99	2	622.00	69.44*
				Within	501.59	56	8.96	

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 56 (df) =3.16.

TABLE - II
MULTIPLE COMPARISONS OF ADJUSTED PAIRED MEANS AMONG
AEROBIC EXERCISE WITH AND WITHOUT DIET GROUP AND CONTROL
GROUP ON SYSTOLIC AND DIASTOLIC BLOOD PRESSURE

Aerobic without Diet	Aerobic with Diet	Control Group	MD	C.I
Systolic Blood Pressure				
137.63	136.19		1.44	3.35
137.63		146.67	9.04*	3.35
	136.19	146.67	10.48*	3.35
Diastolic Blood Pressure				
87.86	83.93		3.93*	2.38
87.86		94.97	7.11*	2.38
	83.93	94.97	11.04*	2.38

*Significant

The obtained results are proved that the blood pressure was stabilized and the systolic blood pressure was reduced by 6.75 in aerobic exercise without diet group and by 8.50 in aerobic exercise with diet group while there was a slight increase of 1.75 in control group. Similarly, there was a decrease in diastolic blood pressure to the extent of 5.00 among aerobic exercise without diet group and 8.5 among aerobic exercise with diet group and an increase of 2.00 among control group.

The adjusted mean comparisons through post hoc analysis of results proved that aerobic exercise with and without diet significantly altered systolic blood pressure compared to control group. As for as systolic blood pressure it

was found that both groups significantly regularized compared to control group. The results further proved that aerobic with diet was significantly better than without diet in beneficially altering diastolic blood pressure.

CONCLUSION

It was concluded that there was a significant modification on blood pressure due to aerobic exercise with and without diet modification among middle aged women with NIDDM.

It was concluded that aerobic exercise with diet group was found to be better in modification of diastolic blood pressure compared with aerobic exercise without diet group.

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Site this article:

Sona Santhakumari, G., & Grace Helina. (2019). Influence of aerobic exercises with and without diet on systolic and diastolic blood pressure among middle aged women with NIDDM. *International Journal of Adapted Physical Education & Yoga*, Vol. 4, No. 4, pp. 1 to 5.