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Impact of aerobic exercises with and without diet on LDL and triglycerides among middle aged women with NIDDM

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Abstract

The aim of this study was to find out the effect of aerobic exercises with and without diet modification on LDL and triglycerides among women with NIDDM. 45 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 consist of 15 subjects each, LDL and triglycerides were statistically analyzed using ANCOVA. It was concluded that there was a significant modification on LDL and triglycerides due to aerobic exercise with and without diet modification among middle aged women with NIDDM.

Keywords: Aerobic exercise, diet, NIDDM

Introduction

Diabetes Mellitus is a constitutional disease with heritable tendencies. A disorder caused by decreased production of insulin, or by decreased ability to use insulin. Insulin is a hormone produced by the pancreas that is necessary for cells to be able to use blood sugar. The medical name for diabetes, diabetes mellitus, comes with Greek and Latin roots. Diabetes comes from a Greek word that means to 'Siphon'. The most obvious sign of diabetes is excessive urination. Water passes through the body of a person with diabetes as if it were being siphoned from the mouth through the urinary system out of the body. Mellitus comes from a Latin word that means "sweet like honey" (Strukic, 1981) [3].

Non-Insulin dependent diabetes mellitus (NIDDM), is non-insulin dependent form and develops slowly and is usually milder and more stable. Insulin may be produced by pancreas but action is impaired. This form occurs mainly in adults and the person is usually overweight. Acidosis is infrequent. The majority of patients improves with weight loss and is maintained on diet therapy. Women who have had large babies or large families are also prone to develop this type of diabetes later in life (Srilakshmi, 2007) [2].

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) [1] passed on that weight reduction and physical exercise are the best on enhancing insulin affectability in patients with sort 2 diabetes. Thent *et al.* (2013) [4] 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. Yeater (1990) [5] documented in their study on "Coronary risk factors in type II diabetes response to low intensity aerobic exercise". Triglycerides decreased in the exercise group from 285 to 223 mg/dl Body weight, total and HDL cholesterol, glucose and insulin independent of dietary changes is an effective and feasible method of improving cardiovascular risk factors. Physical fitness, systolic blood pressure, plasma triglycerides and glycemic control in non-insulin dependent diabetic subjects.

Methodology

The aim of this study was to find out the effect of aerobic exercises with and without diet

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modification on LDL and triglycerides among women with NIDDM. 45 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 consist of 15 subjects each, LDL and triglycerides were statistically analyzed using ANCOVA.

Results

Table I: Effect of Aerobic Exercises with and Without Diet Modification on LDL and Triglycerides among Women with NIDDM

Tests	Aerobic without Diet	Aerobic with Diet	Control Group	Source of Variance	Sum of Squares	df	Mean	Obtained F
LDL								
Pre Test	103.067	104.80	103.01	between	31.12	2	15.560	0.25
				within	2628.40	42	62.58	
Post Test	93.8467	94.93	101.73	between	548.10	2	274.05	5.61*
				within	2051.36	42	48.84	
Adjusted Post Test	94.28	94.01	102.22	between	649.71	2	324.85	31.01*
				within	429.503	41	10.48	
Mean Difference	9.22	9.87	1.27					
Triglycerides								
Pre Test	179.53	177.9333	177.40	between	36.98	2	18.489	0.27
				within	2924.27	42	69.63	
Post Test	170.27	162.4	180.20	between	2386.98	2	1193.49	10.88*
				within	4608.93	42	109.74	
Adjusted Post Test	170.22	162.41	180.23	between	2391.18	2	1195.59	10.65*
				within	4604.562	41	112.31	
Mean Difference	9.27	15.53333	-2.80					

Table F-ratio at 0.05 level of confidence for 2 and 42, 41 (df) =3.16.

Table II: Multiple Comparisons of Adjusted Paired Means among Aerobic Exercise with and Without Diet Group and Control Group on LDL and Triglycerides

Aerobic without Diet	Aerobic with Diet	Control Group	MD	C.I
LDL				
94.28	94.01	-	0.27*	0.24
94.28		102.22	7.93*	0.24
-	94.01	102.22	8.21*	0.24
Triglycerides				
162.41	170.22	-	7.80*	7.64
162.41		180.23	17.82*	7.64
-	170.22	180.23	10.02*	7.64

*Significant

The obtained results are proved that LDL and the triglycerides was reduced 9.22 and 9.27 respectively in aerobic exercise without diet group and 9.87 and 15.33 respectively in aerobic exercise with diet group.

The adjusted mean comparisons through post hoc analysis of results proved that aerobic exercise with and without diet significantly reduced the LDL and triglycerides compared to control group. As for LDL and triglycerides it proved that aerobic with diet was significantly better than without diet in beneficially reduce the LDL and triglycerides.

Conclusion

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

It was concluded that aerobic exercise with diet group better in modification of LDL and triglycerides compared with aerobic exercise without diet group.

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