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EFFECT OF AEROBIC TRAINING ON TOTAL CHOLESTEROL AND BLOOD SUGAR AT FASTING CONDITION AMONG OBESE MEN

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Abstract:

The objective of the study was to determine the effect of aerobic training on total cholesterol (tc) and blood sugar at fasting condition among obese men. For this purpose, 40 male obese men (age 18 -25) were selected. The selected subjects were divided into two equal groups of 20 subjects each. Group –I considered as experimental who underwent 12 weeks of aerobic training and Group-II acted as control who did not undergone any special training apart from their day today activity. The subjects of experimental group recover aerobic training only one session in the morning between 6-7 am for three alternate days a week for twelve weeks. To analyse the collected data 'F' ratio was used. The level of significance was fixed at 0.05 level of confidence. The results showed that there were significant changes in total cholesterol and blood sugar at fasting condition. It was concluded that the aerobic training is widely believed to induce changes in the total cholesterol and blood sugar at fasting condition of obese men.

Keywords: Aerobic Training, Total Cholesterol, Blood Sugar at Fasting Condition & Obesity.

Introduction:

Exercise is most important for every living being; in other words we can also say that physical inactivity results in several types of diseases in the body. Regular exercise not only keeps our body regular fit but it also helps in maintaining out mind fresh for a longer period of time. Out mind will not feet tired if we do the regular exercises. It also increases the blood circulation of the body and prepares as for the hard work, all day long regular exercise also can prevent chorionic diseases and other health problems related to lungs and heart. Regular exercises help to strengthen the heart. The muscle mass can increase and the weight can be controlled Praveen Ganesan, 2009. Aerobic exercise is physical exercise that intends to improve the oxygen system. Cooper, Kenneth C aerobic means ''with oxygen'', and refers to the use of oxygen in the body s metabolic or energy- generating process. Many type of exercise are aerobic, and by definition are performed at moderate levels of intensity for extended periods of time

Blood sugar means glucose in the blood stream. Glucose is the main sugar found in the blood and the body's main source of energy. It is also called blood glucose or blood sugar. A form of sugar that is the body's primary fuet glucose broken down from food can be converted into energy or stored. Abnormally low or high levels of glucose in the blood of ten indicate

metabolic disturbances (eg, diabetes).In medicine, blood sugar is glucose in the blood. Blood sugar concentration is an important factor in diabetes. More specifically it involves the break of sugar into usable energy. The body's ability to regulate levels of sugar in the blood is also important to overall blood health weight centric, and moods. The natural hormone in the body which controls blood sugar levels is insulin which depends on the presence of the mineral clocomium in order to function. Other nutrients which activate enzymes involved in sugar and carbohydrate metabolism are zinc, magnesium, vanadium, alpha-lipoic acid and vitamin. Normal value ranges may vary slightly among different laboratories. Many factors affect a person's blood sugar level. A body's homeostatic mechanism, when operating normally, restores the blood sugar level to a narrow range of about 4.4 to 6.1 mmol/L (79.2 to 110 mg/dL) (as measured by a fasting blood glucose test). The normal blood glucose level (tested while fasting) for non-diabetics, should be between 3.9 and 5.5 mmol/L (70 to 100 mg/dL). The mean normal blood glucose level in humans is about 5.5 mmol/L (100 mg/dL); however, this level fluctuates throughout the day. Blood sugar levels for those without diabetes and who are not fasting should be below 6.9 mmol/L (125 mg/dL). The blood glucose target range for diabetics, according to the American Diabetes Association, should be 5–7.2 mmol/l (90–130 mg/dL) before meals, and less than 10 mmol/L (180 mg/dL) after meals (as measured by a blood glucose monitor).

Objective of the Study:

- The objective of the study was to determine the effect of aerobic training on total cholesterol (tc) and blood sugar at fasting condition among obese men.

Materials and Methods:

Subjects:

Forty obese male students from various departments of S.N College Chempazhanthy, Trivandrum, Kerala, India. Volunteered to participate in this study. The selected subjects were divided into two equal groups of 20 subjects each. Group –I considered as experimental group who underwent 12 weeks of aerobic training and Group-II acted as control who did not undergone any special training apart from their day today activity. The total cholesterol and blood sugar at fasting condition of all subjects were measured in Metro Scans medical laboratory Sreekariyam Trivandrum.

Aerobic Training:

The aerobic training programme was scheduled for only one session in the morning between 6-7 am for three alternate days a week for twelve weeks.

Collection and Analysis of Blood Samples:

To examine the total cholesterol and blood sugar at fastening condition, blood samples were collected from the subjects one day before the beginning of training and one day after the training at fasting condition. 5ml of blood was obtained from each subject left arm vein in sifting and resting position with the help of trained nurse. Blood was collected in a dry test tube

and allowed to coagulate at ambient temperature for 40 minutes. Serum was separated by centrifugation at 200 rpm for 10 minutes and used for lipid profile estimations serum total cholesterol and blood sugar at fasting condition were estimated by the methods of allain al.(1974)(a)and izzo et al.(10)respectively.

Statistical Analysis:

Statistical technique used for analyzing the collected data in the study was 'F' ratio. The level of significance was fixed at 0.05 level of confidence.

Results:

All subjects were tested for total cholesterol and blood sugar at fasting condition. The collected data were analyzed by 'F' ratio with the level of significance was fixed at 0.05.

Total Cholesterol:

The data obtained before and after aerobic training on total cholesterol was analyzed by 'F' ratio analysis is of covariance and presented in.

Analysis of Total Cholesterol:

Analysis of Covariance of Data on Total Cholesterol between and Pre and Post Tests of Experimental and Control Groups.

Table No-1

Analysis of Total Cholesterol before and After Training

Test	Experimental Group	Control Group	Sources of variance	Sum of squares	df	Mean square	Obtained 'F' ratio
Pre test							
Mean	289.70	290.15	Between	2.025	1	2.025.	
S.D	6.38	6.47	With in	1570.75	38	41.34	.049
Post test							
Mean	270.00	291.75	Between	4730.63	1	4730.63	
S.D	3.36	6.06	With in	911.75	38	23.99	197.16*
Adjusted Post test							
Mean	270.08	291.67	Between	4658.21	1	4658.21	
			With in	729.70	37	19.72	236.20*

*Significant at.05 level of confidence. (The table value required for significant at 0.05 level with df 1 and 38 and 1 and 37 are 4.096 and 4.104 respectively)

The table shows that the pre test mean values on total cholesterol for experimental group and control group were 289.70 and 290.15 respectively. The obtained 'F' ratio value .049 for pre test score on total cholesterol which was less than the required table value 4.096 for significance with df 1 and 38. The post test mean values on total cholesterol of experimental group and control group were 270.00 and 291.75 respectively. The obtained 'f' ratio 197.16 for post test

scores on total cholesterol which was more than the required table value 4.096 for significance with df 1 and 38.The adjusted post test mean values on total cholesterol for experimental group and control group were 270.08 and 291.67 respectively. The obtained 'f' ratio value 236.20 for adjusted post test mean values on total cholesterol which was more than the required table value 4.104 for significance with df 1 and 37. The result of the study showed that there was a significant difference between experimental group and control group on total cholesterol.

Blood Sugar:

The data obtained before and after aerobic training on blood sugar were analyzed by 'f' ratio analyses of covariance and presented in.

Analysis of Blood Sugar at Fastening Condition:

Analysis of Covariance of Data on Blood Sugar at Fastening Condition between and Pre And Post Tests of Experimental and Control Groups.

Table- II

Analysis of Blood Sugar at Fastening Condition before and After Training

Test	Experimental group	Control Group	Sources of variance	Sum of squares	df	Mean square	Obtained 'F' ratio
Pre test							
Mean	97.75	97.70	Between	2.500E-02	1	2.500E-02	.001
S.D	4.97	4.84	With in	913.95	38		
Post test							
Mean	87.60	96.60	Between	810.00	1	810.00	29.61*
S.D	5.67	4.75	With in	1039.60	38	27.36	
Adjusted Post test							
Mean	87.59	96.61	Between	812.50	1	812.50	31.05*
			With in	968.12	37	26.17	

* Significant at.05 level of confidence. (The table value required for significant at 0.05 level with df 1 and 38 and 1 and 37 are 4.096 and 4.104 respectively).

The table shows that the pre test mean values on blood sugar for experimental group and control group were 97.75 and 97.70 respectively. The obtained 'F' ratio value .001 for pre test score on blood sugar which was less than the required table value 4.096 for significance with df 1 and 38.The post test mean values on blood sugar of experimental group and control group were 87.60 and 96.60 respectively. The obtained 'f' ratio 29.61 for post test scores on blood sugar which was more than the required table value 4.096 for significance with df 1 and 38.The adjusted post test mean values on blood sugar for experimental group and control group were 87.59 and 96.61 respectively. The obtained 'f' ratio value 31.05 for adjusted post test mean

values on blood sugar which was more than the required table value 4.104 for significance with df 1 and 37.The result of the study showed that there was a significant difference between experimental group and control group on blood sugar.

Discussion:

Significant fall in cholesterol was observed by Dange et. al.2 during yoga treatment on 25obese patient over a period of 4-5 months. Khare et. al.5 also determines that running have definite value in lowering total cholesterol.

Conclusion:

- Based on the results of the study, it was concluded that, there was a significant experimental and control groups difference between on total cholesterol and blood sugar at fastening condition.
- Further it was concluded that there was a significant reduction on total cholesterol and blood sugar due to 12 weeks of aerobic training which was followed in this study.

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