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MANAGEMENT OF BLOOD CHOLESTEROL LEVEL OF OBESE MALE COLLEGE STUDENTS OF DISTRICT BUDGAM, JAMMU AND KASHMIR, INDIA BY SOME YOGASANA AND SOME SELECTED EXERCISE WITH DIET REGULATIONS

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Abstract:

In the present study, an attempt has been made to find out the management of blood cholesterol level of obese male college students by some yogasana and some selected exercises with diet regulations. Randomly selected 40 obese college students were divided into four groups consisting of 10 subjects each. Experiment group I underwent yogic practice with diet regulation, experiment group II underwent exercise (Aerobics) with diet regulation, Experiment group III underwent combined exercise with diet regulations and controlled was not subjected to any experiment. Before the treatment, the subjects were tested of their blood cholesterol level, total cholesterol (TC), low Density Lipoproteins, (LDH), High Density Lipoproteins (HDL) which formed pre test scores. And after the experiment period of 10 weeks, the subjects were again assured of their cholesterol level which formed the final score. Experiment protocol significantly altered cholesterol levels, total cholesterol, low Density Lipoproteins, High Density Lipoproteins. As the obtained f values were on adjusted mean 164.90, 124.48 and 10.68 were greater than the required F table value to be significant at 0.05 level. Comparison among treatment groups showed that yogasana with diet regulation and combined groups with diet regulations were better than exercise (aerobics) with diet regulation in reducing total cholesterol and low density lipoproteins. As for high density lipoproteins, the result proved that the combined group was better than other two treatment group in increasing high density lipoprotein. Finding of this study was further proved that while combining yogasana and exercise with diet regulations significantly contributes to alter protocol of college male students. It was concluded that

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the combined protocol namely exercises, yogic practice with diet regulations was found to be better than exercise with diet regulations in managing cholesterol of obese among male college students.

Keywords: obesity, exercises, yogasana, diet, cholesterol, low density lipoproteins, high density lipoproteins

1. Introduction

1.1 Meaning of obesity

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have a negative effect on health. People are generally considered obese when their body mass index (BMI), a measurement obtained by dividing a person's weight by the square of the person's height, is over 30 kg/m2, with the range 25–30 kg/m2 defined as overweight. Some East Asian countries use lower values. Obesity increases the likelihood of various diseases, particularly heart disease, type 2 diabetes, obstructive sleep apnea, certain types of cancer, and osteoarthritis.

Coronary heart disease has assumed epidemic proportion in India. Over 80% of deaths and 85% of disability from cardiovascular disease (CVD) occur in low and middle income countries. The India sub-continent is home to 20% of the world's population and may be one of the regions with the highest burden of CVD in the world. (WHO1999). In 2003, the prevalence of coronary heart diseases (CHD) in India was estimated to be 3-4% in the rural areas and 8-40% in the urban areas with the total of 29.8 million affected according to population based cross sectional survey. Urbanization is a characterized by a marked increase in the intake of energy dense food, a decrease in the physical activity and a heightened level of psychological stress all of which promote the development of dysglycemia, hypertension and dyslipidemia.

2. Methodology

Randomly selected 40 obese college male students of district Budgam were selected for the experiment purposes and the age was 17 to 22 years. the subjects (n=40) were divided in to four groups Experiment group I, Experiment group II, Experiment group III and control group, all groups consisting of 10 subjects in each group. Experiment group I underwent yogic practice with diet regulations, Experiment Group II underwent aerobic exercise with diet regulations, experiment Group III underwent

combined exercises with diet regulations and the Control Group was not subjected to any experiment. Before the treatment the subjects cholesterol level, total cholesterol level, low density lipoproteins, high density lipoproteins were assessed, which formed pre test scores and after the experiment period of 10 weeks, the subjects were again assessed of their cholesterol levels, which formed the final scores. The difference between the initial and the final scores was the effect of selected experiment treatment on the subjects. To test the significance ANCOVA was used and were significant F ratio obtained the results were further subjected to post hoc analysis using Scheffe`s confidence interval test to compare the paired mean.

3. Results

Comparison among treatment groups showed that yogasana with diet regulation and combined groups with diet regulations were better than exercise (Aerobics) with diet regulation in reducing total cholesterol and low density lipoproteins. As for high density lipoproteins, the result proved that the combined group was better than other two treatment group in increasing high density lipoprotein. Finding of this study was further proved that while combining yogasana and exercise with diet regulations significantly contributes to alter protocol of college male students.. It was concluded that the combined protocol namely exercises, yogic practice with diet regulations was found to be better than exercise with diet regulations in managing cholesterol of obese among male college students.

The effect of exercise, yogasana and combined exercise with diet regulation on cholesterol levels of obese male college students is presented in the table I

Table 1: Effect of exercise, yogasana with diet regulations and combined exercises with diet regulation on cholesterol levels among male college students of Budgam District

Total Cholesterol									
	Yogasana with Diet	**Aerobics with Diet**	**Combined Exercises with Diet**	**Control**	**Sov**	**Sum of Squares**	**Df**	**Mean Squares**	**Obtained F**
Pre Test Mean	219.24	211.85	217.21	215.4	B	887.13	3	295.71	2.52
					W	13603.23	116	117.27	
Post Test Mean	204.84	200.25	204.28	215.1	B	3611.75	3	203.92	11.24*
					W	12422.43	116	107.09	
Adjusted Post Test	201.78	204.00	203.9	215.6	B	3670.76	3	3	164.90*
					W	853.34	115	7.42	

Mean									
Mean Difference	14.40	11.60	12.93	0.25					
Low Density Lipoproteins Cholesterol									
Pre Test Mean	126.73	120.99	125.20	123.96	B	538.92	3	179.64	2.27
					W	9187.97	116	79.21	
Post Test Mean	112.97	112.40	11187	122.82	B	2455.00	3	818.23	10.54*
					W	9006.36	116	77.64	
Adjusted Post Test Mean	110.56	115.36	110.90	123.25	B	3103.49	3	1034.50	124.48*
					W	955.73	115	8.31	
Mean Difference	-13.76	-8.59	-13.32	-0.84					
High Density Lipoproteins Cholesterol									
Pre Test Mean	55.77	54.63	55.33	55.3	B	19.63	3	6.54	1.79
					W	424.87	116	3.66	
Post Test Mean	57.27	55.70	59.07	56.0	B	213.00	3	71.00	10.03*
					W	821.00	116	7.08	
Adjusted Post Test Mean	56.93	56.11	59.01	56.0	B	177.35	3	59.12	10.68
					W	636.25	115	5.53	
Mean Difference	1.50	1.07	3.73	0.70					

Table F ratio at0.05 level of confidence for 3 and 116(df)=2.68, 3 and 115(df)=2.68
*significant at 0.05 level

The obtained result proved significant, the results were subjected post hoc analyzing using Scheffe1` Interval test and result are presented in the table 2.

Table 2: Multiple comparisons of Adjusted Mean due to Exercise, yogasana with Diet regulations and combined exercises on cholesterol levels

Adjusted Mean				**Mean Difference**	**Ci**
Yogasana with Diet	**Aerobics with Diet**	**Combined Exercise with Diet**	**Control Group**		
Paired Mean Comparison On Total Cholesterol					
201.78	204.00			2.22*	2.00
201.78		203.9		1.31	2.00
201.78			215.62	13.85*	2.00
	204.00	203.9		0.91	2.00
	204.00		215.62	11.62*	2.00
		203.9	215.62	12.53*	2.00

Paired Mean Comparison On Low Density Lipoprotein					
110.56	115.36			4.80*	2.11
110.56		110.90		0.34	2.11
110.56			123.25	12.69*	2.11
	115.36	110.90		4.47*	2.11
	115.36		123.25	7.8*	2.11
		110.90	123.25	12.35*	2.11
Paired Mean Comparison On High Density Lipoprotein					
56.93	56.11			0.82	1.73
56.93		59.01		2.09*	1.73
56.93			55.96	0.97	1.73
	56.11	59.01		2.91*	1.73
	56.11		55.96	0.15	1.73
		59.01	55.96	3.06*	1.73

*significant at 0.05 level

4. Discussion

There have been research finding on the effect of exercise with diet regulation has proved beneficial for managing obesity. However, when one involved in improved physical activity, the requirements for diet intake would be more and keeping one with increasing physical activity with diet restrictions would be difficult. Hence, in this study, the investigator tried with exercise with diet regulations, yogasana with diet regulations and combinations of exercise with diet regulations and their effect on cholesterol levels of obese college students of district Budgam. The diet regulation was given to the subjects under the care of dieticians and balanced diet was prescribed to the subject. The result of the study proved that suggested experimental protocols significantly altered cholesterol level, total cholesterol, low density lipoproteins, and high density lipoproteins, as the obtained f values were on adjusted mean 164.90,14.48 and 10.68 were greater than the required F value to the significant at 0.05 level. Post hoc test analyzing made through paired adjusted mean proved all the three experiment al protocol s, namely exercise wit diet regulations, yogasana with diet regulation and combined exercise significantly decreases total cholesterol, low density lipoprotein, high density lipoproteins of the college male students of district Budgam comparison among the experiment treatment groups showed that yogasana with diet regulations and combined exercise were better than exercises with diet regulations in reducing the total cholesterol and low density lipoprotein. The result also proved that the combined group was significantly better than the other treatment group in increasing the high

density lipoprotein. The finding of the study is in agreement with the researcher done by Teller S. et.al (2010) and Moorthy (1991). The finding of the study is in agreement with the researcher done by Mocrzar C. et. Al. (2007)

5. Conclusion

It was concluded that the combined protocol namely exercises, yogic practice with diet regulations was found better than the exercises (Aerobics) with diet regulations in managing the cholesterol level of obese college students of district Budgam.

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