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Effect of selected asanas training on lipids and lipoproteins of obese men

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ABSTRACT

The study was conducted to find out the effect of selected Asanas on lipids and lipoproteins of obese men. To achieve the purpose of the study, twenty four obese men were randomly selected from various faculties of Annamalai University, and their age ranged between 35 to 45 years. Selected subjects were divided into two groups with twelve members of each. Group 1 served as control and Group 2 as Experimental group of performing act as asana training group. Asanas training performed by a period 12 weeks (4 days/ week) and the control group was given no special training other than regular activities. Blood samples were collected before and after the completion of full training course. Biochemical analyses were done on lipids (total cholesterol, triglycerides, free fatty acids) and lipoproteins (LDL, HDL, VLDL) to find out the significant effect of training on obese men. The data was collected and analyzed using ANCOVA. Level of confidence was fixed at .05. The study revealed significant different in lipids and lipoproteins levels of experimental group. The resulted study showed that selected Asanas were found to be efficient in reducing the lipids and lipoproteins levels and increase of HDL level when compared to control groups.

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Key words : Obesity, Asana, Lipids, Lipoproteins

Obesity is a growing global health problem. Obesity is overweight that it is a threat to health. Obesity typically results from over-eating and lack of proper exercise. Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health, leading to reduced life expectancy and/ or increased health problems. Body mass index (BMI), a measurement which compares weight and height, defines people as overweight if their BMI is between 25 and 30 kg/ m^2, and obese when it is greater than 30 kg/ m^2.

Obesity increases the likelihood of various diseases, particularly heart disease, type 2 diabetes, breathing difficulties during sleep, certain types of cancer, and osteoarthritis. Obesity is most commonly caused by a combination of excessive food energy intake, lack of physical activity, and genetic susceptibility, although a few cases are caused primarily by genes, endocrine disorders, medications or psychiatric illness.

In middle aged and senior persons, such lifestyle promotes or increases the risk of hypertension, obesity, muscle weakness, postural deficiencies, diabetes and coronary heart disease. Asanas practices are especially useful to reduce the fats in various parts, especially reduce the fats near abdomen, hips and other areas. In addition, the practice of Asanas improves functioning of internal organs, strengthening heart, lungs, kidneys, excretory and reproductive organs.

The practice of Asanas involves stretching and moving the body into various positions and holding the position comfortably. This is very good for muscle flexibility, and many practitioners believe the positions massage and bring balance to the various internal glands and organs of the body. High cholesterol levels are strong indicators of those individuals that are prone to coronary heart disease. Elevated total cholesterol is a risk factor for coronary heart disease. Triglycerides are the chemical form in which most fat exists in food and the body. High triglyceride level had been linked to the occurrence of coronary artery disease in some people. High density lipoprotein is also known as "good cholesterol". Raising your levels of HDL is recommended, because it can decrease your risk of a heart attack. The good news is that for those with low HDL, raising HDL is usually possible through lifestyle changes. Aspects of a person's lifestyle that may cause low HDL include obesity, smoking, and a lack of physical activity. VLDL (Very low density lipoprotein) transports cholesterol and triglycerides within the body. It is made in the liver in response to a high-carbohydrate meal. Conditions known to increase levels include diabetes, obesity and acute hepatitis.

Hence, the present study was going to examine the effect of Asana training may influence on the significant

changes in the lipids and lipoproteins level on experimental group.

METHODOLOGY

For the purpose of the study, twenty-four obese men were randomly selected as subjects from various faculties of Annamalai University and their age ranged between 35-45 years. Selected subjects were divided into two groups with twelve members in each. Group I as Control group (without training) who did not participate any special training apart from the regular activities. Group II – Experimental group acted as asanas training with selected Aasanas including Suryanamaskar, Tadasana, ParivarittaTrikona-asana, Paschimottanasana, Naukasna, Ardhahalasana, Dhanurasana, Pavanamukthasana, Sarvangasna Ardhakatichakrasana and Bhujangasana including warming up and cooling down exercises on both experimental groups. Asana training programmes were conducted simultaneously in the Department of Physical Education and Sports Science, Annamalai University for a period of 3 months (4days/week). Lipids such as total cholesterol, triglycerides, free fatty acids and lipoproteins as LDL, VLDL and HDL measured using appropriate Boehringer- Manheim and other high graded biochemical analytical kit methods. Biochemical analysis was done in the Department of Biochemistry, Raja Muthiah Medical College and Hospital, Annamalai University by the concerned Biochemist and the results were produced. Biochemical variables were assessed before and after 3 months of Asana practices. The data were collected and analyzed using ANCOVA. Level of confidence was fixed at .05.

OBSERVATIONS AND DISCUSSION

The table values required for significance at 0.05 level of confidence for 1 and 21 is 3.23.

Table 1 shows that there was a significant difference between control group and experimental group on lipid and lipoproteins variables. Hence, the subjects performing selected experimental group Asanas were found to be efficient in reducing the lipid and lipoproteins levels when compared to control groups (Fig. 1).

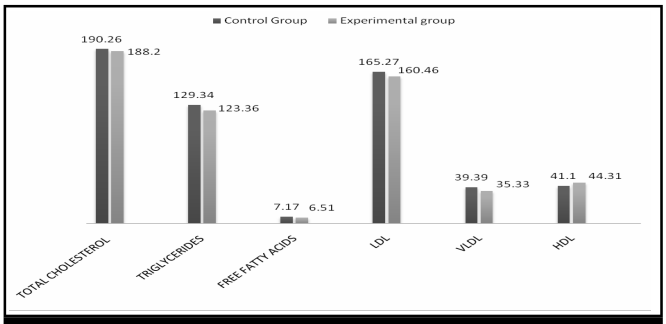

Fig. 1: Adjusted post test mean values on lipids amd lipoproteins of experimental group and control group

The above results of study were supported by the pervious study conducted. A daily life pattern of insufficient physical activity can cause obesity, which is a serious worldwide health threat (World Health Organization, 1997). While fat accumulates in any part of the body, the associated risks depend on the area of the accumulation. In particular, fat in the abdominal organs is closely associated with diabetes, cardiovascular diseases and other metabolic diseases (Hunter *et al.,* 1997). Asana exercises given to the specific training group, showed better changes in reducing the LDL and VLDL and thereby retains the high density lipoproteins in obese males.

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Table 1: Ancova for lipids and lipoproteins variables between experimental group (Asana training) and control group

Test	Control group	Experimental group	SOV	SS	d.f.	M.S.	F
Total cholesterol ()	190.26	188.20	B	25.28	1	25.28	67.38*
			W	7.88	21	0.37	
Triglycerides	129.34	123.36	B	141.36	1	141.369	1453.49*
			W	2.04	21	0.09	
Free fatty acids	7.17	6.51	B	2.33	1	2.33	94.28*
			W	0.52	21	0.025	
LDL	165.27	160.46	B	127.58	1	127.585	1492.79*
			W	1.7	21	0.08	
VLDL	39.39	35.33	B	94.27	1	94.27	2580.45*
			W	.76	21	.03	
HDL	41.10	44.31	B	61.41	1	61.41	2496.89*
			W	0.51	21	0.02	

*Significant at .05 level of confidence

Yogasana and Pranayama in young male students for a period of 12 weeks training showed better effect in reducing cholesterol, triglycerides, LDL, VLDL and blood pressure. It also retained the HDL to normal (Sarvanan *et al.,* 2010).

Although factors may, affect lipid and exercise studies, particularly with respect to the absence of a significant total cholesterol reduction, based on research related to the timing of blood sampling procedures after exercise. Holloszy *et al.* (1964) reported that an apparent reduction in total cholesterol concentration with training in hypercholesterolemic men was, on closer inspection, a transient response to the previous training session that persisted for at least 44 hrs. This early finding of a transient (acute) response to exercise has been corroborated by others in normocholesterolemic men.

The low-density lipoproteins (LDLs) are the major carriers of cholesterol towards tissue having atherogenic potential, while the high density lipoproteins (HDLs) carry cholesterol from peripheral tissues to the liver. The HDLs thus give protection against many cardiac problems and obesity. (Kitamura *et al.,* 1994). Numerous studies have examined the effect of aerobic exercise through exercise training. Studies also showed that intense aerobic exercise has been shown to reduce cholesterol concentration and to increase high density lipoprotein concentration (Heath *et al.,* 1983) and exercise training after myocardial infarction has resulted favorable lipoprotein changes. More research illustrates that the practice of Yoga was found to be associated with significant decrease in cholesterol among subjects with cardiovascular disease (Machanda *et al.*, 2000). It was found that in recent research on different intensities of Asana training among coronary heart disease on middle aged obese men determine their effect in reducing the risk factors in medium intensity of aerobic training groups. (Narayanasamy *et al.,* 2010). However, this recent research also supports the present study to derive the better training programme. In our study, we found that 12 weeks of Asana training at medium intensity significantly reduced the serum lipids and plasma lipoproteins in obese males.

Conclusion:

The Asanas training programme used in this study produced significant benefits on reducing such as total cholesterol, triglycerides, free fatty acids and LDL, VLDL and increase of HDL level on short-term period.

Implication:

Accordingly, the results of the current study suggest that Asanas training programme was found to be better than control group. Obesity was declined in Asanas training because of the merits found. Asanas training was trained in all age groups and is enough to positively influence the metabolic health indicators of sedentary older women and men.

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