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Effect of 24 weeks yogic practices on lipid profile of obese men in Malnad region

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Abstract

Lipids are important for cell health, but they can be harmful when they build up in the blood. Lipids are fats and fat-like substances that are important parts of cells and sources of energy. Yoga is an ancient form of practice aiming at harmony between body and mind. It is the science practiced in India since ancient times. The subjects for the study were one hundred obese men selected purposively from Shivamogga Urban locality. The subjects were equally divided to Experimental and Control groups. Their age ranged between 35 to 55 years. The data on lipid profile was collected by means of blood sample collection and hematological analysis in a laboratory setting by a qualified lab technician. The data was collected twice during pre and post test situations. In between a well planned and executed yoga training program was conducted on experimental group for twenty four weeks. Some of the asanas practiced are mentioned in the article for future research. All the aspects of lipid profile significantly reduced due to yogic practice and was evident during post test situation. The results revealed the fact that there was an improvement in all the aspects of lipid profile except High Density Lipoprotein in control group under investigation. It was concluded that, the twenty four weeks yogic practice significantly reduced all the aspects of lipid profile in obese men of Malnad region.

Keywords: Lipid, cholesterol, yoga, asana, pranayama, health

Introduction

Cholesterol and triglycerides are lipids, or fats. Cholesterol is a soft, waxy fat that your body needs to function properly. These are important for cell health, but they can be harmful when they build up in the blood. Sometimes they can lead to clogged, inflamed arteries, a condition called atherosclerosis. This may keep the heart from working normally if the arteries of heart muscle are affected.

Hence, it is understood that the lipids are fats and fat-like substances that are important parts of cells and sources of energy. A lipid panel measures the level of specific lipids in blood to help assess someone's risk of cardiovascular disease. A complete cholesterol test is also called a lipid panel or lipid profile. Lipid profile is a pattern of lipids in the blood. This panel of tests helps predict risk for heart disease and stroke. A lipid panel measures these fats: Total cholesterol, Low Density Lipoprotein ("bad") cholesterol, High Density Lipoprotein ("good") cholesterol and Triglycerides, another type of fat that causes hardening of the arteries.

High cholesterol is manageable. High cholesterol can be treated with lifestyle changes and medication. It may include changes to your diet, exercise routine, and other daily habits. Lowering high levels of Low Density Lipoprotein in blood can help avoid problems with heart and blood vessels.

Yoga is an ancient form of practice aiming at harmony between body and mind. It is the science practiced in India since ancient times. Some of the seals recovered at Mohenjo-daro show a divinity sitting in yogic posture. Rigveda mentions a seer sitting in yogic asana. Early upanisads mention different yogic asanas and procedures (Chakrabarti, Ghosh and Sahana, 1984) [4]. Yoga is the word derived from Sanskrit word 'YUJ' means to bind or to join together. Modern medical science tries to achieve an optimum physical and mental health of an individual through preventive, curative and promotive approach. In yogic practices, the stress is mainly on promotive aspect, although some yogic postures are prescribed for the curative purpose also (Jaggi., 1990) [8].

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There are 200 different asanas used for a variety of medical conditions ranging from musculoskeletal complaints to internal organ disturbances such as hypertension, diabetes mellitus and heart diseases.

Yoga is an ancient traditional Indian (Mondal, 2013) [9] psychological, physical and spiritual exercise practice that has been studied for several decades for its role in the management of numerous chronic diseases. It is a form of physical activity consisting of various postures (Asana) and breathing techniques (Pranayama) (Singh., et. al., 2004) [11] Yoga is generally safe, simple to learn, and can be practiced by even ill, elderly or disabled individuals (Bernardi., et. al., 2001) [2] Yoga has been shown to have therapeutic benefits for individuals with a wide range of health conditions (Carlson, et. Al., 2007; and Raub, 2000) [3, 10]. In view of this, the present investigation has been conducted to elicit the effects of yoga intervention on lipid profiles of obese men.

Methodology

The subjects for the study were one hundred obese men selected purposively from Shivamogga Urban locality. The subjects were equally divided to Experimental (N=50) and Control groups (N=50). Their age ranged between 35 to 55 years. The inclusive criteria for selection of subjects were: BMI above 30, free of medications and free of illnesses. The data on lipid profile was collected by means of blood sample collection and hematological analysis in a laboratory setting by a qualified lab technician. The data was collected twice during pre and post test situations. In between a well planned and executed yoga training program was conducted on experimental group for twenty four weeks. The yogic practices were performed on daily basis for about forty minutes in the morning. The experimental protocol is presented in table 1. Meanwhile the control group continued their daily routine without any lifestyle modifications. The raw data was treated with descriptive statistics and ‘t’ test for paired samples.

Table 1: Experimental protocol used for finding the effect of yogic practices on lipid profile of obese men.

1 to 8 weeks	9 to 16 weeks	17 to 24 weeks
Omkaara any mediation poster (3 minutes)	Omkaara any mediation poster (3 minutes)	Omkaara any mediation poster (3 minutes)
Warm up with stretching joints movements, rotation etc (5 minutes)	Warm up with stretching joints movements, rotation etc (5 minutes)	Warm up with stretching joints movements, rotation etc (5 minutes)
Surya Namaskar with prayer (5 minutes)	Surya Namaskar with prayer (5 minutes)	Surya Namaskar with prayer (5 minutes)
(Standing)	(Standing)	(Standing)
Tandasana (2 minutes)	Padahasthasana (2 minutes)	Veerabhadrasana (2 minutes)
Ardhakatichakrasana (2 minutes)	Thrikonasana (2 minutes)	Padahasthasana (2 minutes)
Ardhachakrasana (2 minutes)	Utkataasana (2 minutes)	Ardhachandrasana (2 minutes)
(Sitting)	(Sitting)	(Sitting)
Pachimuttanasana (2 minutes)	Ustrasana (2 minutes)	Ardhamatsyendrasana (2 minutes)
Vakrasana (2 minutes)	Baddhakonasana (2 minutes)	Baddhakonasana (2 minutes)
Jausirasana (2 minutes)	Jausirasana (2 minutes)	Yogamudra (2 minutes)
(Kneeling)	(Kneeling)	(Kneeling)
Vajrasana (2 minutes)	Padmasana (2 minutes)	Veerasana (2 minutes)
(Prone)	(Prone)	(Prone)
Bhujangasana (2 minutes)	Shalabasana (2 minutes)	Bhujangasana (2 minutes)
Dhanurasana (2 minutes)	Dhanurasana (2 minutes)	Shalabasana (2 minutes)
(Supin)	(Supin)	(Supin)
Viparithakaranasana (2 minutes)	Mathyasana (2 minutes)	Parvathasana (2 minutes)
Sarvangasana (2 minutes)	Chakrasana (2 minutes)	Jataraparthasana (2 minutes)
(Pranayama)	(Pranayama)	(Pranayama)
Ujjayaipranayama (5 minutes)	Kapalibathi (5 minutes)	Basthrika (5 minutes)
Suryabedana Pranayama (5 minutes)	Viloma/Anuloma (5 minutes)	Kapalibathi (5 minutes)
Nadishodhana Pranayama (5 minutes)	Bhramari (5 minutes)	Bhramari (5 minutes)
Shavasana (10 minutes)	Shravasana (10 minutes)	Shravasana (10 minutes)

Findings

The raw data on lipid profile was subjected to various suitable

statistical analyses and the results are provided in table 2.

Table 2: Summary of lipid profile comparison between pre and post test results

		Experimental group			Control group		
		Mean ± S.D.	‘t’	Sig (2 tailed)	Mean ± S.D.	‘t’	Sig (2 tailed)
High Density Lipoprotein	Pre-test	43.52±5.07	-7.892	.000	43.20±6.33	-1.064	.293
	Post-test	47.22±3.86			44.34±7.04		
Low Density Lipoprotein	Pre-test	126.60±33.82	10.069	.000	94.24±32.39	-6.886	.000
	Post-test	87.40±22.73			128.58±33.93		
Very Low Density Lipoprotein	Pre-test	31.44±11.57	6.969	.000	27.94±9.29	-5.263	.000
	Post-test	23.96±6.66			34.98±14.06		
Total Cholesterol	Pre-test	207.34±53.88	8.447	.000	164.98±34.37	-9.794	.000
	Post-test	150.94±26.226			207.88±40.31		
Serum Triglyceride	Pre-test	157.54±58.30	6.874	.000	142.28±49.62	-4.958	.000
	Post-test	120.44±33.27			177.56±72.07		

From table 2 it is obvious that the data on lipid profile during pre and post test situation significantly differed in experimental group. All the aspects of lipid profile significantly reduced (except High Density Lipoprotein which increased) due to yogic practice and was evident during post test situation. At the same time, the aspects of lipid profile showed significant difference from pre to post test situation in control group as well. The results revealed the fact that there was an improvement in all the aspects of lipid profile except High Density Lipoprotein in control group under investigation.

Discussion

Yoga practice has been believed to have numerous health benefits since time immemorial. 12 weeks yogic practice has again proved to be useful in reducing lipid profile of obese men in the present investigation. However, a decrease in high density lipoprotein observed in the experimental group provokes discussion in light of the similar research findings. Devi, et al., (2016) [5] assessed the effect of Yoga on lipid profile parameters in mild hypertensive patients. Yogic asanas has been found to correct dyslipidemia which is a modifiable risk factor for coronary heart disease.

Arati, Arpita and Arati (2015) [1] evaluated the effect of Yoga (Asana and Pranayama) on blood lipid profile of normal healthy volunteers. The results indicated that Yoga (Asana and Pranayama) can be helpful in patients with lipid metabolism disorders such as Coronary Artery Disease, Diabetes Mellitus and Dyslipidemia etc. Also Yoga can be used for the primary prevention of coronary heart disease.

Gadham, Sajja and Rooha (2015) [6] assessed the impact of Pranayama and Yogasanas on healthy individuals in Patanjali yoga centre, Kurnool. A Significant reduction was observed in Total Triglycerides, Total Cholesterol, Very Low density lipoprotein-cholesterol and Low density lipoprotein Cholesterol and a significant elevation of High density lipoprotein-cholesterol was seen in the healthy volunteers at the end of 3 months.

Conclusion

Twenty four weeks yogic practice significantly reduced low density lipoprotein, very low density lipoprotein, total cholesterol and serum triglyceride; and significantly increased high density lipoprotein in obese men of Malnad region. All the aspects of lipid profile significantly increased, except high density lipoprotein in age matched control under investigation.

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