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Impact of twenty-four weeks yogic practice on percent body fat of obese men in Shivamogga urban locality

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Abstract

Obesity does not result simply from over-eating and a lack of exercise, but is a consequence of modern life. The menace of obesity has not just limited to developed country anymore. It has spread its vicious wings in the developing as well as under developed countries as well. Practitioners of medicine usually define obesity as a state of person's health, when the amount of body fat has risen to the point when it could possibly have an effect on his/her health. Study showed that among Indians, both abdominal and central obesity are present in male and female. The present solutions for reduction and prevention of obesity are limited and have adverse effects. Hence, it is prudent to explore the treatments from alternative therapies like yoga, pilate, tai-chi, etc. The purpose of the present study was to elicit the effects of twenty-four weeks yogic practice on skin fold thickness of obese men. The subjects for the study were one hundred obese men selected purposively from Shivamogga city. The subjects were equally divided to Experimental (N=50) and Control (N=50) groups. 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 skin fold thickness was measured by the investigator at seven sites and later on converted into percent body fat through Jackson/Pollock 7-Site Caliper Method. 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. Yoga practice for twenty four weeks with specific yogic asanas, pranayamas and suryanamaskara are beneficial in decreasing percent body fat in obese men.

Keywords: Obesity, skin fold thickness, body mass index, Harpenden, health

Introduction

Obesity is a growing global health problem (WHO, 2000) [12]. Obesity does not result simply from over-eating and a lack of exercise, but is a consequence of modern life. It found that the technological revolution of the 20th century has led to weight gain becoming unavoidable for the majority of the population, because our bodies and biological make-up are out of step with our surroundings (Hill, 2007) [5]. The menace of obesity has not just limited to developed country anymore. It has spread its vicious wings in the developing as well as under developed countries as well. The problem has been called an epidemic and compared to the harmful effects of tobacco and alcohol in terms of the extent of its negative impact on the health of the population (Rubenstein, 2005) [11].

Practitioners of medicine usually define obesity as a state of person's health, when the amount of body fat has risen to the point when it could possibly have an effect on his/her health. It is also considered to be a chronic metabolic disease which may start in any age and cause a huge weight gain. In 2016 The Lancet has published the results of the latest research which show that there will have been about 20 per cent inhabitants of the Earth suffering from obesity by 2025. Being overweight and obese is a leading cause of many different health problems such as diabetes, heart disease, high cholesterol, and hypertension. These health conditions are not only evident in elderly but are being known to exist in young adults and even children.

Study showed that among Indians, both abdominal and central obesity are present in male and female (Deepa. et. al., 2009) [2]. Generalized obesity is more in male and abdominal obesity in female. Also, studies showed that Asian Indians have some special features of obesity regarding effect of excess body fat (Misra. et. al., 2009) [9].

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The exact body fat percentage cannot be precisely determined, but multiple methods are used to estimate it. There is no single ideal percentage of body fat for everyone. Levels of body fat are epidemiologically dependent on sex and age (Jackson, et. al., 2002) [7]. There are many methods examine the percentage of body fat, such like, underwater body weight, skinfold test, bioelectrical impedance analysis, etc.

The present solutions for reduction and prevention of obesity are limited and have adverse effects (Dhurandhara, 2014) [3]. Hence, it is prudent to explore the treatments from alternative therapies like yoga, pilate, tai-chi, etc. There are short term studies showing the usefulness of Yoga practices for weight and body fat reduction (Benavides and Caballero, 2009) [1]. However, studies of the long term yoga training for weight and body fat reduction were not found sufficiently found especially in Indian scenario. The purpose of the present study was to elicit the effects of twenty-four weeks yogic practice on skin fold thickness of obese men.

Methodology

The subjects for the study were one hundred obese men selected purposively from Shivamogga city. The subjects

were equally divided to Experimental (N=50) and Control (N=50) groups. 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 skin fold thickness was measured by the investigator at seven sites and later on converted into percent body fat through Jackson/Pollock 7-Site Caliper Method. The seven sites are: chest, axillary, triceps, subscapular, abdomen, suprailiac and thigh. The Harpenden Skinfold Caliper, a precision instrument designed for use in the performance of Skinfold thickness measurements was used in the present investigation. A skin fold test with Harpenden skinfold caliper is considered to be the more accurate way to estimate body fat percentage, as opposed to other methods (Jackson and Pollock, 1978) [6]. 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 percent body fat measured through skin fold thickness 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)	Utkatasana (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)	Jataraparivarthasana (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)	Shrivasana (10 minutes)	Shrivasana (10 minutes)

Findings

The results on percent body fat of obese men and age matched

control during pre and post test situation is provided in Table 2.

Table 2: Summary of percent body fat during pre and post test of experimental and control groups.

		Experimental group			Control group		
		Mean ± S.D.	‘t’	Sig (2 tailed)	Mean ± S.D.	‘t’	Sig (2 tailed)
Percent body fat	Pre-test	27.18 ±2.43	9.944	.000	26.10±2.09	-.605	.548
	Post-test	24.85 ±2.37			26.15±2.27		

From table 2 it is apparent that the percent body fat is reduced in the experimental group due to twenty four weeks yogic practices as compared to control group. The pretest percent body fat was 27.18 ±2.43 during pre-test and it reduced to

24.85 ±2.37 in experimental group with significant ‘t’ value of 9.944. At the same time there was no significant differences in control group from pretest (26.10±2.09) to post test (26.15±2.27) with ‘t’ value of -.605.

Discussion

The result of the present study is in line with the popular belief that the practice of yoga has favorable effects on percent body fat. In a similar study, 6 week practice of yoga and diet change which included 45 minutes of daily yoga practice (including Kunjal, Agnisar, Sheetal, Bhastrika and Nadi-Sodhan Pranayama) and a high fiber vegetarian diet showed a decrease in the body weight, BMI, skin fold thickness and, total cholesterol, in practice group of obese women in comparisons to the control group (Kumar and Patel, 2016) [8]. In another study by Gupta (2017) [4], A 04-week yoga program decreased the bodyweight, skin fold thickness and cholesterol levels of the obese men.

Integrated Approach of Yoga Therapy (IAYT) yoga module was found to be effective in improving the anthropometric parameters of male obesity in urban setting wherein skinfold measurements were decreased (Rshikesan and Subramanya, 2016) [10].

Conclusion

Yoga practice for twenty four weeks with specific yogic asanas, pranayamas and suryanamaskara are beneficial in decreasing percent body fat in obese men.

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