Original Article International Journal of Science and Consciousness
Access online at: www.ijsc.net Sep. 2017, 3(3), 63 - 70

Yoga And Its Influential Factor Towards Obesity

Ganesh Prasad Gupta
Research scholar, Mahatma Gandhi chitrakoot Gramoday vishvavidyalaya,
Chitrakoot, Satna, M.P., India.

ABSTRACT

Background: Obesity is a risk factor for several diseases. The prevalence rate of obesity is being increasing. Yoga has been known to have stimulatory or inhibitory effects on the metabolic parameters and to be uncomplicated therapy for obesity. The purpose of the present study was to observe the effect of 04 weeks' yoga program in obese men.

Material/Methods: A single group of 38men were assessed on the first and last day of a yoga program, with 04 weeks of the intervention between assessments. The assessments were: body weight, skin fold thickness and cholesterol levels. Participants practiced yoga for 39 minutes every day. First and last day data were compared using t-test.

Results: Following the 6-week Yoga and diet control program, participants showed a decrease in bodyweight, skin fold thickness and cholesterol levels of the subjects.

Conclusions: A 04-week yoga program decreased the bodyweight, skin fold thickness and cholesterol levels of the obese men. This suggests that in brief, intensive yoga program can pose certain risks.

Keywords: Obesity, skin fold thickness, cholesterol, Yoga, Kunjal, Agnisar, Sun salutation, Sheetali, Bhastrika and Nadi-Sodhan Pranayama

Article Received: 17-05-2017, Published: 03-06-2017

Conflict of interest : None declared

***Corresponding Author : Ganesh Prasad Gupta,** Research scholar, Mahatma Gandhi chitrakoot Gramoday vishvavidyalaya, Chitrakoot, Satna, M.P., India

Yoga And Its Influential Factor Towards Obesity

Introduction:

Obesity is among the most important causes of cardiovascular pathologies associated with endothelial dysfunction, such as arterial hypertension and atherosclerosis. Further, obesity is inadvertently associated with elevated plasma triglyceride levels, which is independently associated with an increased risk of CVD [1]. Obesity is increasing globally due to changing lifestyle with rapid urbanization. Regular practice of Yoga not only helps in better metabolism but it also regulates the digestive process. The better digestion, assimilation, Absorption and elimination of the digested food, it regulates the body physiology [2]. Yoga was developed by our rishish in ancient time in India to facilitate a vibrant stability, lifestyle and meditation [3]. Currently, yoga is widely used for improving health and to attenuate or cure diseases. Shatkarma, asana, Pranayama and meditation as yoga practice emphasize in controlled breathing, meditation, and physical posture, respectively [4]. Asana uses various postures to develop physical strength, flexibility, and endurance [5], and can be used as a moderate-intensity exercise for patients with limited aerobic capacity or restricted ability to exercise [6]. Furthermore, yoga has been shown to decrease hypertension and cardiac inflammation, stabilize the sympathetic nervous system, and improve psychological health and cardiac function [7-9].

A combination of yoga practices which emphasized breathing techniques was shown to reduce the body mass index (BMI) in 177 obese persons after 7 days of a yoga intervention [10]. Apart from yoga, a low-fat, low-energy, lacto-ovo-vegetarian diet combined with physical activity, and a stress-free environment have been shown to have a positive impact on risk factors for cardiovascular diseases, including the effect on BMI and total cholesterol [11]. Being overweight has several undesirable effects. For example, obese persons have been shown to have poor musculoskeletal fitness (based on push-ups, sit-ups, grip strength, and trunk flexibility), and this is of importance, as over a 20-year period musculoskeletal fitness is a significant predictor of weight gain [12]. Also, in people who are overweight, mobility is compromised, which is closely related to decreases in proprioception [13] and balanced stability [14]. Postural instability in extremely obese persons has been shown to improve after a 3-week body weight reduction program [15].

Yoga as a lifestyle intervention:

Yoga combines a healthy lifestyle with mental peace [16], and a modification in lifestyle and calming practices are shown to improve clinical profile of patients with various pathologies [17]. Regular practice of Pranayama and meditation in healthy volunteers led to an improved cardiovascular metabolic status [18], [19], and lipid peroxidation even by a short term yoga based lifestyle intervention [20]. In a randomized controlled trial in patients with coronary atherosclerosis, a regression was observed in disease activity following a comprehensive lifestyle intervention [21]. In the study conducted by the same group, it has been shown that intensive lifestyle intervention may lead to regression of coronary atherosclerosis after one year and more regression of coronary atherosclerosis occurred after 5 years than after one year in the experimental group [22]. In a study conducted in India, the possible role of yoga-based lifestyle on retardation of coronary atherosclerosis disease was evaluated. At the end of one year, the yoga group showed significant reduction in number of angina episodes per week, an improved exercise capacity and a decrease in body weight. Serum total cholesterol, LDL cholesterol and triglyceride levels showed greater reductions as

compared to control group [17]. Importantly, even short-term yoga based comprehensive lifestyle intervention led to notable reduction in body mass index, blood pressure, and blood glucose with a clinically meaningful improvement in lipid profile, [23]. A significant decreased was also seen in body mass index and level of cholesterol in a study. This study show that yoga practices has reducing impact on Body Mass Index (BMI) and cholesterol level of the obese youth [2]. A recent study suggested that a yoga-based, residential weight loss programme may foster psychological well-being, improved nutrition behaviours, and weight loss [24]. Similar reduction in weight was observed in another study that included an 8-week of yoga training that resulted in an improvement in body composition and total cholesterol levels in obese adolescent boys [25].

Effect of Yogic Intervention significantly reduces the General Body weight of the subjects: according to a study report [26] the study shows a significant reduction in the BMI and the level of cholesterol as well, because the intervention not only based on Asana Pranayama. It included the Shatkarma (the cleansing practice) as well. One of the study over Effect of Shatkarma practices on serum glucose and serum cholesterol level of the Human subjects shows a significant reduction in both the parameters [27]. The reduction in the cholesterol of the practitioners is due to better metabolism. One such study on the effect of Hath Yogic Practices on Body weight of the Human subjects shows a significant reduction in the subjects practicing Yoga [28].

Methodology:

To observe the effect of Yogic Practice and diet control on skin fold thickness and cholesterol level of the Obese men, a four weeks' study was conducted at urban area of the spiritual capital of the India (Rishikesh) and nearby areas (doiwala etc.) commonly known as Rishikesh region. For the study 38 male subjects with the age group 26 -35 years were selected randomly. In this study to observe the impact of yoga practices for 04 weeks the parameters were:

1. Skin Fold Thickness and
2. Blood cholesterol Level of subjects.
3. Body weight

Although it is considered to be a useful way to estimate healthy body weight, it does not measure the percentage of body fat. As we are well known about the climate of Rishikesh in the month of October; its 22-15 *C, in this type of slightly cold whether people eat more than summer season. So weight gain is most obvious. That's why we had to check the efficiency of yogic protocol towards obesity commonly in male.

Intervention:

It was assumed that following Yoga practices and a suggested moderate diet (low cholesterol, high fiber vegetarian diet) will help the subject to reduce the skin fold thickness and cholesterol level of the subjects. The Yogic intervention includes: Kunjal, Agnisar, Sheetali, Bhastrika and Nadi-Sodhan Pranayama.

Kunjal: is a Hath yogic cleansing technique, for that one need to intake warm salty water more than his capacity and vomit it voluntarily with the help of first two figures pressing the tongue. **Agnisar Kriya**: is also mentioned in Hath Yogic text as a cleansing practice, for that one need to exhale completely and shake the abdomen while keeping the chins locked in a seated posture.**Surya Namaskara Asana:** it is an Hathyogic combination of twelve postures. Which had performed by every subjects 05 round /day.**Sheetali Pranayama**: is an again Hath yogic breathing technique having cooling impact on the mind, for that one need to seat comfortably in a meditative posture, folding the tongue like a pipe and inhale slowly with the same, while exhalation will be normal (nasal).

Bhastrika Pranayama: is also one of the Hath Yogic breathing techniques having heating effect on the body. For that one need to seat comfortably in a meditative posture, stat rapid inhalation and exhalation, perform it twenty times and thereafter exhale completely and hold the breath outside as per one's capacity. **Nadi-Sodhan Pranayama**: is one of the breathing techniques having a balancing impact on our body and mind both. For that one need to seat comfortably in a meditative posture start alternate nostril breathing using your thumb and ring finger. Breathe normally and slowly.

In this Pre- post study data were collected before and after intervention of yoga practices for 04 weeks (29 days). Paired t - test was applied for statistical analysis and p-value.

Procedure used to apply Yogic intervention:

	Yogic Practices	**Round/**	**Duration**
1.	Preparation for yogic practice with om chanting	Thrice	02 min
2.	Kunjal	Twice in a week	10 min
3.	Agnisar	Three rounds daily	03 min
4.	Surya Namaskara Asana	Five rounds daily	09 min
5.	Sheetali	Five rounds daily	03 min
6.	Bhastrika	Three rounds daily	06 min
7.	Nadi-Sodhan Pranayama	Five rounds daily	03 min
8.	Shantipath	Once	03 min
	Total	----------	**39 min**

Results:

Table : 1
Showing the body weightin Kilogram (kg) of the subjects.

Test	**N**	**Mean**	**SD**	**r**	**Sed**	**df**	**t**	**Significance**
Pre	25	94.2	9.22	.99	.20	24	8.77	<.01
Post	25	92.7	10.1					

Graph : 1 showing the body weight in Kilogram (kg) of the subjects.

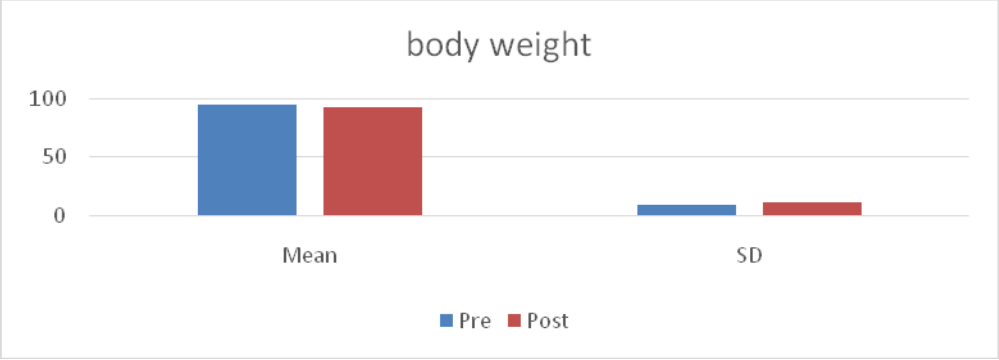


Table : 2
Showing the skin fold thickness of the subjects.

Test	N	Mean	SD	r	Sed	df	t	significance
Pre	25	53.01	10.98	0.99	.31	24	9.87	<.01
Post	25	50.31	11.8					

Graph : 02
Showing the skin fold thickness of the subjects.

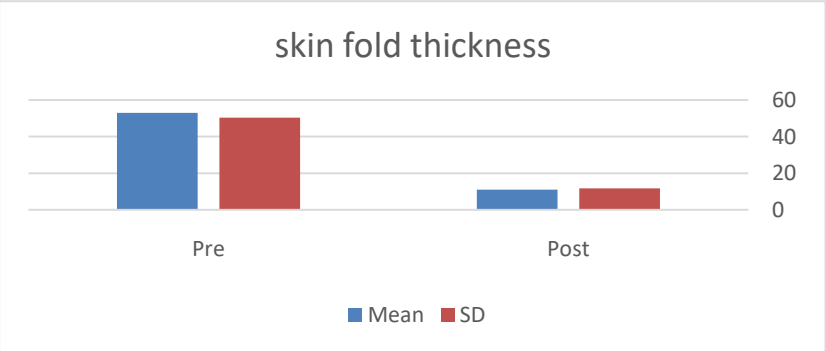
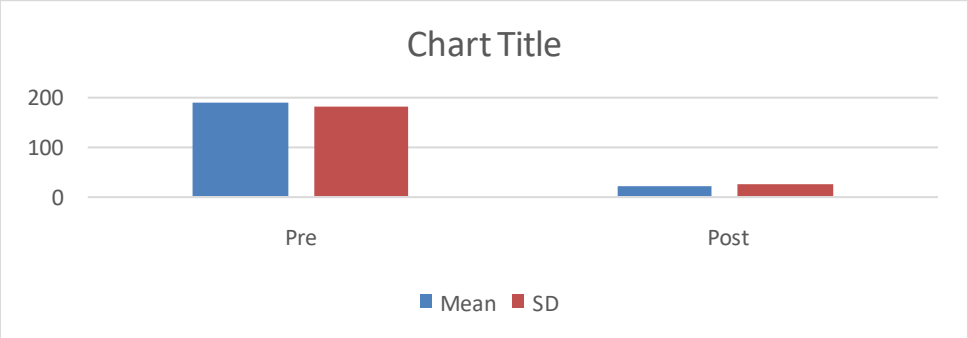


Table: 3 showing the Blood cholesterol level of the subjects.

Test	N	Mean	SD	r	Sed	df	t	significance
Pre	25	186.2	21.1	.99	.58	24	8.52	<.01
Post	25	179.8	23.6					

Graph: 3 showing the blood cholesterol level of the subjects.



Discussion:

In this study we had follow a procedure which is described in our ancient yogic text like Gherand Samhita, Hathpradipika, and there was also described the literal benefits of these type of Hathyogic practices, and Present study shows a significant reduction in the bodyweight and skin fold thickness, which reflects the reduction of obesity in the Yoga practitioners group. A yoga-based lifestyle intervention is efficacious in weight-loss [29], and it also prevents weight-gain, especially amongst those who are overweight [30]. Besides this lifestyle intervention also reduces inflammation as shown by a reduction in the levels of IL-6, IL-18, and CRP and increased adiponectin in obese men [31].

This study also shows a significant reduction in Cholesterol level of the Male subjects. Similar benefit was observed in another study where yoga improved adiponectin level, serum lipids, and metabolic syndrome risk factors in obese women [32]. A short-term yoga-based lifestyle intervention has been shown to decrease IL-6 and TNF-α in obese and normal weight individuals [33], and increase adiponectin and decrease IL-6 in obese males [34]. IL-6, hs-CRP, extracellular superoxide dismutase levels were significantly decreased in heart failure patients after short term yogic exercises [35].

The intervention also includes a moderate diet (low cholesterol – vegetarian diet), which also has an impact on weight loss as well as in reduction of cholesterol level of the subjects. One of the study also has the same impact as a diet- induced weight loss led to a decrease in ET-1 and this decrease was correlated with a decrease in systolic BP [36].

Conclusion:

A 04 weeks' practice of Hath yogic Practices and diet change which included 39 minutes of daily yoga practice (including Kunjal, Agnisar, Sun salutation, Sheetali, Bhastrika and Nadi-Sodhan Pranayama) and a high fiber vegetarian diet showed a decrease in the body weight, skin fold thickness and, total cholesterol, in 38 obese Male. The long term impact of the intervention remains to be studied.

References:

1. Firdous S. Correlation of CRP, fasting serum triglycerides and obesity as cardiovascular risk factors. *J Coll Physicians Surg Pak* 2014;*24*: 308-13
2. Patel S, Kumar K: A study on the effect of Yoga and diet-control on Body mass index and cholesterol level of the Obese Youth International Journal of Science and Consciousness, Vol: 2, Issue 1, March 2016 pp: 13-17.
3. Jayasinghe SR. Yoga in cardiac health (a review). Eur J Cardiovasc Prev Rehabil 2004;11:369–375.
4. Vaze N, Joshi S. Yoga and menopausal transition. J Midlife Health 2010;1:56–58.
5. Collins C. Yoga: intuition, preventive medicine, and treatment. J Obstet Gynecol Neonatal Nurs 1998;27:563–568.
6. Birdee GS, Legedza aT, Saper RB, Bertisch SM, Eisenberg DM, Phillips RS. Characteristics of yoga users: results of a national survey. J Gen Intern Med 2008; 23:1653–1658.
7. Innes KE, Selfe TK, Taylor AG. Menopause, the metabolic syndrome, and mind-body therapies. Menopause 2008; 15:1005–1013.
8. Pullen PR, Nagamia SH, Mehta PK, Thompson WR, Benardot D, Hammoud R, Parrott JM, Sola S, Khan BV. Effects of yoga on inflammation and exercise capacity in patients with chronic heart failure. J Card Fail 2008; 14:407–413.

9. Vempati RP, Telles S. Yoga-based guided relaxation reduces sympathetic activity judged from baseline levels. Psychol Rep 2002; 90:487–494.
10. Gokal R, Shillito L, Maharaj SR: Positive impact of yoga and pranayam on obesity, hypertension, blood sugar, and cholesterol: a pilot assessment. J Altern Complement Med, 2007; 13(10): 1056–57
11. Slavicek J, Kittnar O, Fraser GE et al: Lifestyle decreases risk factors for cardiovascular diseases. Cent Eur J Public Health, 2008; 16(4): 161–64
12. Mason C, Brien SE, Craig CL et al: Musculoskeletal fitness and weight gain in Canada. Med Sci Sports Exerc, 2007; 39(1): 38–43 Med Sci Monit, 2010; 16(1): CR35-40
13. Maffiuletti NA, Jubeau M, Agosti F et al: Quadriceps muscle function characteristics in severely obese and nonobese adolescents. Eur J Appl Physiol, 2008; [Epub ahead of print]
14. Nadas J, Putz Z, Kolev G, Nagy S, Jermendy G: Intraobserver and interobserver variability of measuring waist circumference. Med Sci Monit, 2008; 14(1): CR15–18
15. Kushner RF, Schoeller DA: Estimation of total body water by bioelectrical impedance analysis. Am J Clin Nutr, 1986; 44(3): 417–24.
16. Bijlani RL. Scientific medicine shows signs of a paradigm shift. New Approaches Med Health 2003; 11: 28-40.
17. Manchanda SC, Narang R, Reddy KS, Sachdeva U, Prabhakaran D, Dharmanand S, et al. Retardation of coronary atherosclerosis with yoga lifestyle intervention. J Assoc Physicians India 2000; 48: 687-94.
18. Vyas R, Dikshit N. Effect of meditation on respiratory system, cardiovascular system and lipid profile. Indian J Physiol Pharmacol 2002;46: 487-91.
19. Prasad KVV, Sunita M, Raju PS, Reddy MV, Sahay BK, Murthy KJY. Impact of pranayama and yoga on lipid profile in normal healthy volunteers. J Exer Physiol 2006; 9: 1-6.
20. Yadav RK, Ray RB, Vempati R, Bijlani RL. Effect of a comprehensive yoga-based lifestyle modification program on lipid peroxidation.Indian J Physiol Pharmacol 2005; 49 : 358-62.
21. Ornish D, Brown SE, Scherwitz LW, Billings JH, Armstrong WT, Ports TA, et al. Can lifestyle changes reverse coronary heart disease? Lancet 1990; 336: 129-33.
22. Ornish D, Scherwitz LW, Billings JH, Gould L, Merritt TA, Sparler S, et al. Intensive lifestyle changes for reversal of coronary heart disease. JAMA 1998; 280: 2001-7.
23. Sarvottam K, Yadav RK, Mehta N, Mahapatra SC. Effect of short term yoga on resting energy expenditure and lipid profile in overweight/obese subjects: A preliminary study. Indian J Physiol Pharmacol 2010; 54: 133.
24. Braun TD, Park CL, Conboy LA. Psychological well-being, health behaviors, and weight loss among participants in a residential, Kripalu yoga-based weight loss program. Int J Yoga Therap 2012; 22: 9-22.
25. Seo DY, Lee S, Figueroa A, Kim HK, Baek YH, Kwak YS, et al. Yoga training improves metabolic parameters in obese boys. Korean JPhysiol Pharmacol 2012; 16: 175-80.
26. Kumar K: Effect of Yogic Intervention on General Body weight of the subjects: A study report; International Journal of Yoga and Allied Sciences, Vol. 4, No. 1, 2015. pp 11- 14.
27. Pokhriyal K P, Kumar K: Effect of Shatkarma practices on serum glucose and serum cholesterol level of the Human subjects: An Observation; International Journal of Yoga and Allied Sciences, Vol. 2, No. 1, 2013. pp 10-13.
28. Pokhariyal K P, Kumar K: A study on the effect of Hatha Yogic Practices on Body weight of the Human subjects, ACADEMICIA Volume 3, Issue 2 (February, 2013) pp 257-61.

29. Sharpe PA, Blanck HM, Williams JE, Ainsworth BE, Conway JM. Use of complementary and alternative medicine for weight control in the United States. *J Altern Complement Med* 2007; *13*: 217-22.
30. Kristal AR, Littman AJ, Benitez D, White E. Yoga practice is associated with attenuated weight gain in healthy, middle-aged men and women. *Altern Ther Health Med* 2005; *11*: 28-33.
31. Katherine E, Alessandro P, Carmen DP, Giovanni G, Mariengela M, Raffaele M, *et al*. Effect of weight loss and life style changes on vascular inflammatory markers in obese women. *JAMA* 2003; *289*: 1799-804.
32. Lee JA, Kim JW, Kim DY. Effects of yoga exercise on serum adiponectin and metabolic syndrome factors in obese postmenopausal women. *Menopause* 2012; *19*: 296-301.
33. Yadav RK, Magan D, Mehta N, Sharma R, Mahapatra SC. Efficacy of a short term yoga based lifestyle intervention in reducing stress and inflammation: Preliminary results. *J Altern Complement Med* 2012; *18*: 662-7.
34. Sarvottam K, Magan D, Yadav RK, Mehta N, Mahapatra SC. Adiponectin, interleukin-6 and cardiovascular disease risk factors are modified by a short-term yoga-based lifestyle intervention in overweight/obese male subjects. *J Altern Complement Med* 2013; *19*: 397-402.
35. Pullen PR, Nagamia SH, Mehta PK, Thompson WR, Benardot D, Hammoud R, *et al*. Effects of yoga on inflammation and exercise capacity in patients with chronic heart failure. *J Card Fail* 2008; *14*: 407-13.
36. Maeda S, Jesmin S, Iemitsu M, Otsuki T, Matsuo T, Ohkawara K, *et al*. Weight loss reduces plasma endothelin-1 concentration in obese men. *Exp Biol Med (Maywood)* 2006; *231*: 1044-7.

Cite this paper as: Arya, R. K. (2017). The effect of clinical sequence of yogapathy on Type 2 diabetes mellitus. *International Journal of Science and Consciousness*; 3(2): 36-44.