

Effect of yogic asana on body fat percentage

Dr. Aloke Sen Barman and Dr. Deba Prasad Sahu

Abstract

Yoga is one such intervention, with studies reporting long-term adherence and benefits in various health conditions, including obesity. Total 48 subjects were selected for this study. The mean age of the subjects was (12 ± 1) years. All the subjects were randomized by www.randomizer.org into two groups: Experimental (n = 24) and wait list control (n = 24). After 6 weeks regular 16 yogic asana practice in progressive training load method the percentage of body fat decreased by 17.84% (p < 0.05) and 33.63% after 12 weeks significantly (p < 0.001). It may be concluded that 12 weeks regular progressive training load oriented practice of asana may decrease body fat percentage significantly.

Keywords: Yoga-asana-body-fat-percentage

Introduction

One-third of the world's population is now categorized as overweight, and all signs point to a further escalation of this situation in the years to come. This health problem is increasing worldwide, especially in developing countries and newly industrializing countries. Improvements in living standards and changes in lifestyle, physical inactivity, sedentary behaviour, and excessive energy intake have resulted in a rapid increase in overweight and obesity rates among children and adolescents. A high percentage of body fat can increase the risk of diabetes, cardiovascular disease, and other health conditions. The researcher intends to investigate whether regular yogic asana practice may elicit any change in the body fat percentage or not.

Review of Related Literature: L. A. Cota E. Souza and A. A. Lima (2022) ^[1] investigated on 28 women between 40 and 65 years old who started yoga practices in pre-menopause and they found yoga elicited decrease in body fat percentage significantly. Marisa Poomiphak Na Nongkhai *et al.* (2021) ^[2] reported that continuous yoga practice may decrease body fat mass significantly 12 week. Indranil Manna (2018) ^[3] reported that significant reduction in the percentage of body fat levels was noted in the yoga group after 12 weeks when compared to baseline data.

Subject: Total 48 subjects were selected for this study. The mean age of the subjects was (12 \pm 1) years. All the subjects were randomized by www.randomizer.org into two groups: Experimental (n = 24) and wait list control (n = 24).

Asana Practice Protocol: The researcher with the help of his guide and other yoga expert's selected 16 yogic asanas and suryanamaskar set for yogic asanas practice protocol. Suryanamaskar is a set of 12 separate asanas jointly observed in a coordinated way with syncronised breathing. Suryanamaskar has been selected after getting strong support from the reviews as energy expenditure point of view. Other asanas also been taken from studying authentic literature and the recommendation of yoga expert for the development of physical fitness. As the subject group is children, it is expected that they have better flexibility, suppleness and much energy to perform all these selected asanas. The asana practice protocol was constructed with progressive training load method. The load was distributed with execution time, reparation/frequency, density/recovery. In the initial week the experimental group practiced one hour yogasana in the afternoon (5PM–6 PM).

ISSN: 2456-4419 Impact Factor: (RJIF): 5.18 Yoga 2019; 4(1): 1263-1265 © 2019 Yoga www.theyogicjournal.com Received: 25-11-2018 Accepted: 29-12-2018

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Every week the time has been increased by 6 minutes per week. After 5 weeks the total time was one hour and thirty minutes. For increasing of time one week duration and other week repetition of asana has been increased. From the sixth week the total time was fixed i.e. one hour and thirty minutes. The number of suryanamaskar was increase by one times per week up to 6th week i.e. finally 6 times of suryanamaskar was practiced. The duration of asana practiced 60 sec at the final stage. After 6 weeks the same practice schedule was followed up to 12 weeks as per the principle of overload and maintenance of load method.

Method

To observe body fat % Harpenden skin fold calliper was used. Procedure: i) The subjects were only short and with necked upper body. ii) Scapula and medial thigh skinfold taken by the caliper. iii) Then both these skinfold put into the equation [Body density = 1.1043 - .00132(Thigh skin fold) - .00131(Scapula skin fold)] for body density and siri's (1961) formula [(4.950/Body density - 4.500)100] for % body fat calculation. In case of skinfold measurement time of reading was between 3 and 4 seconds. Skinfold took at proper position otherwise it may differ the score. Skin fold measurement had taken for three times. Middle one was final score.

Result

In this study after 6 weeks regular yogic as ana practice the percentage of body fat decreased by 17.84% (p < 0.05) and 33.63% after 12 weeks significantly (p < 0.001) (Fig. no. 1 and Table no. 1).



Fig 1: Mean of Body Fat Percentage

Table 1: Mean and S.D. of bo	ody Fat Percentage
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Group	Pre-test mean and S.D. in percentage	Mid-test mean and S.D. in percentage	Post-test mean and S.D. in percentage
Ex. Gr. (YSG)	5.1 <u>+</u> 2.36	4.19 <u>+</u> 2.25	3.38 <u>+</u> 1.98
Con. Ex. (WCG)	6.28 <u>+</u> 3.23	7.23 <u>+</u> 3.18	7.97 <u>+</u> 3.19

Discussion

Chaya et al. (2006), Ades et al. (2004), Elavsky et al. (2009), Jimenez et al. (2009) were reported decrease in percentage body fat by after multiple intervention of yoga. The Mama study (2019) reported that 12 weeks of yoga led to a significant decrease in body fat. The decrease in body fat may be because the volunteers experienced an abnormal state of yoga exercise over some stretch of time, which produced a decrease in the body fat rate. Yoga includes profound nostril breathing, adaptability of limbs, and extension of various body parts, which may be the reason for the decrease in body fat of the volunteers performing yoga. The decrease in body fat may impact body mass, and the present examination found a significant decrease in body mass in the volunteers performing yoga. Comparable perceptions were noted in numerous studies, where a decrease in body fat was noted after yoga training. A previous study found that an increase in frequency, a longer duration, and the use of complex yoga interventions with multiple components affected anthropometric measures. The combination of yoga with dietary/nutritional recommendations, especially a vegetarian diet with or without calorie reduction, also affected

anthropometric measures. In this study the researcher found that the percentage body fat decreased significantly regular yogic asana practice that may be due to the body loses fat, the fat cell does not go anywhere or move into the muscle cell to be burned. Fat is stored inside the fat cell in the form of triaglycerol. The fat is not burned right there in the fat cell; it must be liberated from the fat cell through somewhat complex hormonal/enzymatic pathways. When stimulated to do so, the fat cell simply releases triaglycerol into the bloodstream as free fatty acids (FFA's), and they are transported through the blood to the tissues where the energy is needed. By lipolysis, each molecule of triaglycerol splits into glycerol and three fatty acids. The reaction catalyzed by hormone-sensitive lipase (HSL). The stored fat gets released into the bloodstream as FFA's and they are shuttled off to the muscles where the energy is needed. As blood flow increases to the active muscles, more FFA's are delivered to the muscles that need them. FFA's get inside the mitochondria by LPL and this is where the FFA's go to be burned. When the FFA's are released from the fat cell, the latter shrinks and that is the reason for the leaner look when the body loses fat because the fat cell is now smaller. The scientists concluded that "we don't International Journal of Yogic, Human Movement and Sports Sciences

actually "lose" fat cells, we "empty out" fat cells," our body fat is basically just a reserve source of energy and fat cells are like the storage tanks. Unlike a gas tank in the car that is fixed in size, fat cells can expand or shrink in size depending on how "filled" they are (Robergs and Keteyian 2013).

Conclusion

It may be concluded that 12 weeks regular progressive training load oriented practice of asana may decrease body fat percentage significantly.

Reference

- Cota LA, Souza E, Lima AA. Anthropometric, biochemical and clinical parameters in climacteric yoga practitioners, Climacteric, Jun. 2022;25(3):293-299. DOI: 10.1080/13697137.2021.1965115. Epub 2021 Aug 23. PMID: 34423699 DOI: 10.1080/13697137.2021.1965115
- Nongkhai MPN, Yamprasert R, Punsawad C. Effects of Continuous Yoga on Body Composition in Obese Adolescents, Evid Based Complement Alternat Med. 2021;6(70):27-67. DOI: 10.1155/2021/6702767. eCollection 2021. PMID: 34484400 PMCID: PMC8410386 DOI: 10.1155/2021/6702767
- Indranil Manna. Effects of Yoga Training on Body Composition and Oxidant-Antioxidant Status among Healthy Male', Int J Yoga. 2018;11(2):105-110. DOI: 10.4103/ijoy.IJOY_31_17. PMID: 29755218 PMCID: PMC5934944 DOI: 10.4103/ijoy.IJOY_31_17.