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The Effects of Yogic Asana Practice on Body Fat Percentage: A Systematic Review

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Abstract:

Yoga is a spiritual, mental, and physical discipline-based activity practised thousands of years ago and originated in India. Yoga is a science-rich unique holistic approach that focuses on harmony between mind and body. Exercise neuroscientists and physiologists long acknowledged the health benefits of physical postures, meditation and breathing exercises, however, recent research has demonstrated that breathing and meditation practices provide active attentional benefits as well. Scientific evidence-based research on yoga creates interest among the research fraternity. This article highlights the current understanding of yoga asanas and their documented positive impacts on body fat percentage. We reviewed 13 studies examining the effects of yogic asanas practice on body fat percentage. Collectively, the studies show a positive effect of yogic asanas practices on the different elements of body composition. The studies offer promising evidence that yogic asanas practice may hold promise to mitigate body fat percentage along with other body composition elements.

Keywords: *Body fat percentage; BMI, Asanas; PRISMA 2020; yoga*

Introduction:

Obesity is one of the vital health factors which can be altered through different treatments. In this modern fast world, obesity is a significant public health problem and has become an epidemic in both developed and developing nations. Weight gain and obesity have emerged as global health issues that impact the quality of life, increase illnesses, and increase healthcare costs across the globe over the past 50 years (Bray et al., 2016). However, the term 'weight loss' and 'fatloss' are not similar. The term weight loss is the sum of the muscles, bones, organs, and the amount of water the body retains.

In contrast, fat loss is directly concerned with the body's fat percentage. Apart from

insufficient diet, the most crucial contributor to obesity for a sedentary lifestyle. Thus, regular exercise is recommended by the medical fraternity to manage obesity. Lots of alternative practices are found other than a traditional exercise regime. Yoga is one of the oldest forms of physical, mental, and spiritual activity that is increasingly used for health goals in India and abroad. The popularity of Yoga is spreading like wildfire in this modern world. The practice of Yoga is often considered to be about physical postures ('Asanas'), breathing exercises ('Pranayama'), and meditation ('Dhyana'). It is found that Yoga effectively promotes weight loss and improves body composition (Rioux & Ritenbaugh, 2013). There is no systematic review on Yoga for women's fat-loss-related outcomes until now. In this review, we used PRISMA to systematically examine the effects of yoga on fat loss-related outcomes among women.

Significance of the study:

The systematic literature review related to yogic exercise and Body fat percentage is responsible for providing adequate knowledge for the control process of obesity. The systematic literature review highlights the importance of alternative traditional training and its requirement for reducing the occurrence of metabolic disorders in the case of obesity. Yogic exercise can control serious health issues such as Type II diabetes mellitus (T2DM) and cardiovascular diseases related to the adverse effect of obesity.

Objective and review question:

Aim of the review:

The aim of the review is associated with the derivation of the effectiveness of yogic exercise (Asanas) in the case of obese people.

Objectives

- To identify the effectiveness of yogic exercise (Asanas) on obesity management
- To evaluate the involvement of yogic exercise (Asanas) to minimize health complications related to obesity
- To recommend creating general awareness of yogic exercise (Asanas) for obesity control

Review question:

“How do the yogic exercise (Asanas) help control Body fat percentage, obesity, and relative health issues?”

Population	Intervention	Comparison	Outcome
The population is related to the people suffering from obesity	The interventions are yogic exercise	The comparative group involves people with yogic exercise (Asanas)	The outcome is connected to controlling of obesity and lowering Body fat percentage

Table 1: PICO framework for a review question(Kloda et al., 2020)

Methods:

The PRISMA 2020 standards were followed for conducting this review (Moher et al., 2009).

Literature search:

Data were taken by using a stepwise search process online in PubMed, Scopus, and Google Scholar. The search Strategy for this paper has considered the availability of relevant keywords and knowledge on the considered topic. Keywords included are, “obesity”, “Body fat percentage”, “Asanas”, “yogic exercise,” and others. The search was limited to human studies with English language articles published between 2012 and 2022 (10 years), While the conference proceedings, editorials, commentaries, case reports, qualitative studies, book chapters, and book reviews were not included in the list. The aggregate hits from searching the above databases were combined in the second stage, and duplicate articles were removed. Afterwards, the studies were screened for quality by reviewing the title, abstract, and full text of the manuscripts. At this point, studies that didn't meet the inclusion criteria were thrown out.

	PubMed Central	Google Scholar	Scopus
Keywords	<ul style="list-style-type: none"> ● yogic exercise ● Asanas ● Body Fat Percentage 	<ul style="list-style-type: none"> ● Body Fat Percentage ● Obesity ● Body Composition 	<ul style="list-style-type: none"> ● Yogic asana ● Fat Percentage ● Obesity and Asana

Inclusion/exclusion criteria and analysis

The systematic literature review was conducted for relevant literature by using the following criteria.

Inclusion Criteria	Exclusion Criteria
The journals or literature published after 2012 are included	Journals or literature published before 2012 are excluded
Only peer-reviewed journals along with authentic internet sources are considered	Journals that are not peer-reviewed and inauthentic internet sources are not considered
Journals in the English Language are included	Journals published in other languages except English are excluded
Literature with relevant and considered keywords is considered	Journals and literature without relevant and considered keywords are readily excluded
Articles published in journals are included	book chapters and book reviews, editorials, case studies, qualitative studies, and conference proceedings

Description of all studies and Results

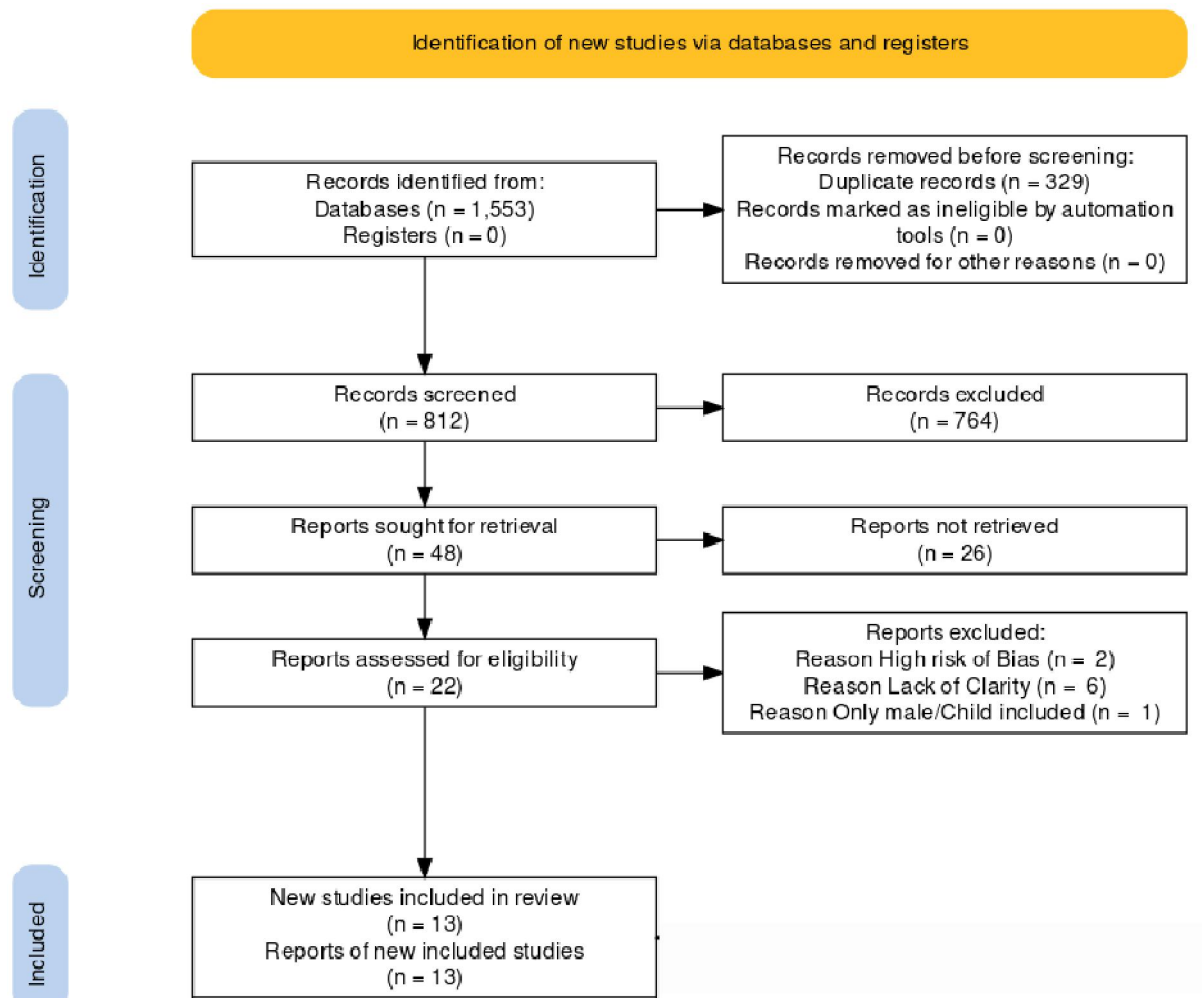


Fig:1 PRISMA flow chart 2020

In this systematic review, it has been observed that the selected studies are involved with the derivation of the effectiveness and responsibilities of yogic exercise on body fat percentage. After searching three databases (PubMed, Google Scholar, and Scopus), found n=812 potentially relevant articles, of which n=764 remained after assembling the 3 databases and removing the duplicates. Of these, A total of 26 were removed from consideration due to their incompatibility with the inclusion criteria. Among the 48 articles that remained, a full-text review yielded n=13 studies that met the inclusion/exclusion criteria.

Result and Discussion:

For thousands of years, Yoga has been practised. It is predicated on old theories, observations, and principles relating to the mind-body link. The health benefits of asana, yoga breathing (pranayama), and meditation have been the subject of much research. Yoga may interact with a variety of somatic and neuroendocrine mechanisms, resulting in therapeutic effects. A comparative study conducted by Sil. P (2017) and in 30 schoolgirls aged between 14-16 years with Six-week Yoga-Asanas (posture) to find out the effect on PBF. He disclosed and established that the

PBF post-treatment value (23.60) was less than the pre-treatment value (25.15)(Sil, 2017)(Sil, 2017). However, the difference in averages across groups was not statistically significant ($p>0.05$) ($t=0.99$).According to a review of the data, Yoga generally does not burn as many calories as an aerobic activity. According to a review of the data, Yoga does not normally burn as many calories as aerobic exercise.(*Drop Those Pounds With Yoga — Studies Show Yoga Stimulates Weight Loss*, n.d.)Static postures such as yoga asanas practised according to the timetable used in this study did not result in a significant increase in body fat burn during the adolescent era.

Kesehatan and Masyarakat didan experimental study the purpose was to investigate the effects of an 8-week low-impact aerobics and Yoga on women's body fat percentages(Kesehatan Masyarakat et al., 2019).To ascertain the efficiency of an 8-week combination of low-impact aerobics and Yoga, this study used a quantitative methodology using a pre-post approach. Female college students, ages 19 to 24.For an 8-week low-impact aerobics and yoga combo program, a paired sample hypothesis test was utilized to determine the difference in fat percentage. To put it another way, the sig value (two-tailed) of 0.0000.05 means the program is effective in reducing body fat. Obese women's body fat percentage decreased from 34.1 percent to 30.5 percent on average (Kesehatan Masyarakat et al., 2019). However, this level of body fat was still considered obese. During the first hour or two of exercise, the amount of energy derived from carbohydrates and fat is equal, but as the carbohydrate intake decreases, the amount of triglyceride used as energy increases, which results in a decrease in blood sugar, an increase in insulin, and a reduction in glucagon (Chourpiliadis & Mohiuddin, 2021).The beta-oxidation process will provide the energy (ATP) needed for aerobic exercise. This paper concluded that 8-week low-impact aerobics and yoga combo program is beneficial in reducing fat percentage in obese people by 10.56 percent on average.

An experimental study was done by Thakur J.S (2019), and the intent of the study was to know the influence of yogic exercises on body fat percentage with Pre and post-test randomized groups designed and consisting of CG (n=10) and EG (n=10) for 6 weeks of study. The statistical findings show co-variance (ANCOVA) with a significance level of 0.05. This study concluded with an insignificant difference in pre and post-test body fat percentage(Dehghan et al., 2017).

The Asanas training program was found to help reduce Body Fat %. In contrast, the Pilates training program effectively reduced weight, BMI, Body Fat %, Visceral Fat Percentage, and Body Fat %, as concluded by Pathan N and Kumar A (2013).

Pandit D. P et al. (2019) found that short-range yoga intervention does cause any effect on body composition. Anon-residential 1-week yoga involved (n=51 males and n=64 females aged between 18-60 years under homemade lacto-vegetarian diet restriction in sugar, salt, and fat intake found no statistical evidence of effectiveness on body composition, including body fat %, BMI, Body mass, and BP. However, Yoga is known to reduce anxiety and tension and to aid in the

regulation of food intake, all of which contribute to weight loss and fat mass reduction(Sharma, 2014).

Body fat percentage is a crucial indicator of obesity that decreased dramatically in the intervention done by (Shiraishi et al., 2016) The study evaluated the effects of a 12-week yoga interference on body composition, including relative body fat percentage. The intervention consisted of a 50-minute yoga class 2 times per week for 12 weeks. After the yoga intervention, the results found a 0.7 (0.9 - 1.5) decrease in BF% ($p=0.01$). In particular, the applied yoga program was linked to a considerable reduction in WC and relative body fat.

A randomized controlled trial was conducted by Cramer C. et al. (2016) and concluded that the 12-week yoga intervention had a moderately significant positive impact on participants' waist circumference, waist-hip ratio, body weight, BMI, and percentage of body fat while also increasing their muscle mass. Two 90-minute hatha yoga classes are offered each week for a period of 12 weeks in this trial. Body weight ($P = 0.003$), waist-hip ratio ($P = 0.034$), BMI ($P = 0.008$), fat percentage ($P = 0.007$), and muscle percentage ($P = 0.10$; Table 1) were all significantly different between groups. The BP measurements didn't differ in systolic ($P=0.446$) or diastolic ($P=0.709$) (Lauche et al., 2016).

Csala et al. report that ten sessions of 1.5 hours of hatha yoga per week increase balance, flexibility, and core strength in healthy young women, but do not affect body mass index, body fat percentage, resting heart rate, or heart rate variability (Csala et al., 2021a).

Guo Y H. et al. (2014) demonstrate that aerobics, as represented by high-temperature Yoga, improves body fat percentage, lipid parameters, and body shape in overweight middle-aged and young women. Exercise excites the sympathetic nervous system, boosts catecholamine activity, increases lipid oxidation enzymes' amount and activity, and reduces fat levels, consumption rises, and body fat is reduced (Guo et al., 2014).

In the review article, S. Behla S and Misraa A (2017) concluded that obesity is becoming more common in India. The country needs to take the proper steps to prevent and manage it. Obesity characteristics, such as ectopic fat, are more terrible for Asian Indians and cause more problems at lower BMI levels than they do for white Caucasians. Researchers suggested that Advanced obesity treatment centres can use bioelectrical impedance analysis (BIA) and dual-energy X-ray absorptiometry (DXA) to measure body fat percentage (Behl & Misra, 2017).

Lauche R et al. (2016) concluded in their systematic review and meta-analysis that preliminarily, Yoga appears to be a safe and effective intervention for lowering body mass index and BF percent in overweight or obese people(Cramer et al., 2016).

The effect of a one-month fasting program comes with yoga training on the body configuration of learner female athletes has been scrutinized by (Zorofi et al., 2013) A total of 20 women were randomly allocated to EG and CG groups, both of which attended yoga classes for four

weeks, for two 60-min sessions per week, and found yoga exercises can provide athletes with a reasonable option to maintain their ideal weight, body fat percentage, and WHR (Zorofi et al., 2013).

Using yoga-asana training as an exercise for reducing obesity in adolescent boys, (Seo et al., 2012) demonstrated improvements in BMI, FM, BF%, FFM, BMR, and TC from baseline when compared with non-yoga exercise.

Conclusion:

This systematic review has provided the conditions for reviewing the authentic and appropriate application of the yogic asana practice and its effect on the body fat percentage of obesity. Complications that are related to the condition of obesity have been reduced through the application of the yogic asana practice. The yogic asana practice has reduced the body fat percentage in a moderate and long duration of practice. Yogic asana practice planning for a longer duration has been encouraged for the treatment procedure of obese patients. In the case of obesity, yogic asana practice has been recommended in association with the condition for reducing the risk of health-related complications. The application of yogic asana practice, as well as resistance exercise, is involved with the process of reducing fats and calories by lowering BMI levels.

Conflict of Interest: Nil

References:

1. Behl, S., & Misra, A. (2017). Management of obesity in adult Asian Indians. *Indian Heart Journal*, 69(4), 539–544. <https://doi.org/10.1016/j.ihj.2017.04.015>
2. Bray, G. A., Frühbeck, G., Ryan, D. H., & Wilding, J. P. H. (2016). Management of obesity. In *The Lancet* (Vol. 387, Issue 10031, pp. 1947–1956). Lancet Publishing Group. [https://doi.org/10.1016/S0140-6736\(16\)00271-3](https://doi.org/10.1016/S0140-6736(16)00271-3)
3. Chourpiliadis, C., & Mohiuddin, S. S. (2021). Biochemistry, Gluconeogenesis. *StatPearls*. <https://www.ncbi.nlm.nih.gov/books/NBK544346/>
4. Cramer, H., Thoms, M. S., Anheyer, D., Lauche, R., & Dobos, G. (2016). Yoga in Women With Abdominal Obesity— a Randomized Controlled Trial. *Deutsches Ärzteblatt International*, 113(39), 645. <https://doi.org/10.3238/ARZTEBL.2016.0645>
5. Csala, B., Szemerszky, R., Körmendi, J., Köteles, F., & Boros, S. (2021a). Is Weekly Frequency of Yoga Practice Sufficient? Physiological Effects of Hatha Yoga Among Healthy Novice Women. *Frontiers in Public Health*, 9(October), 4–9. <https://doi.org/10.3389/fpubh.2021.702793>
6. Csala, B., Szemerszky, R., Körmendi, J., Köteles, F., & Boros, S. (2021b). Is Weekly Frequency of Yoga Practice Sufficient? Physiological Effects of Hatha Yoga Among Healthy Novice Women. *Frontiers in Public Health*, 9, 702793. <https://doi.org/10.3389/FPUBH.2021.702793/FULL>

7. Dehghan, M., Mente, A., Zhang, X., Swaminathan, S., Li, W., Mohan, V., Iqbal, R., Kumar, R., Wentzel-Viljoen, E., Rosengren, A., Amma, L. I., Avezum, A., Chifamba, J., Diaz, R., Khatib, R., Lear, S., Lopez-Jaramillo, P., Liu, X., Gupta, R., ... Mapanga, R. (2017). Associations of fats and carbohydrate intake with cardiovascular disease and mortality in 18 countries from five continents (PURE): a prospective cohort study. *The Lancet*, *390*(10107), 2050–2062. [https://doi.org/10.1016/S0140-6736\(17\)32252-3](https://doi.org/10.1016/S0140-6736(17)32252-3)
8. *Drop Those Pounds With Yoga — Studies Show Yoga Stimulates Weight Loss*. (n.d.). Retrieved March 21, 2022, from <https://www.todaysdietitian.com/newarchives/030612p18.shtml>
9. Guo, Y. H., Wang, F., Hu, J. P., Wang, Y., & Zhang, L. Y. (2014). Effect of high temperature yoga exercise on improving physical and mental well-being of overweight middle-aged and young women. *International Journal of Clinical and Experimental Medicine*, *7*(12), 5842–5846.
10. Kesehatan Masyarakat, J., Januardi Irawan, R., Adiprahara Anggarani, M., Pendidikan Kesehatan dan Rekreasi, J., Ilmu Olahraga, F., Negeri Surabaya, U., Kimia, J., & Matematika dan Ilmu Pengetahuan Alam, F. (2019). The Effectiveness of 8 Weeks Low Impact Aerobics and Yoga Combination Program on Body Fat Percentage among Obese Female. *KEMAS*, *14*(3), 426–431. <https://doi.org/10.15294/kemas.v14i3.13780>
11. Kloda, L. A., Boruff, J. T., & Cavalcante, A. S. (2020). A comparison of patient, intervention, comparison, outcome (PICO) to a new, alternative clinical question framework for search skills, search results, and self-efficacy: A randomized controlled trial. *Journal of the Medical Library Association*, *108*(2), 185–194. <https://doi.org/10.5195/jmla.2020.739>
12. Lauche, R., Langhorst, J., Lee, M. S., Dobos, G., & Cramer, H. (2016). A systematic review and meta-analysis on the effects of yoga on weight-related outcomes. *Preventive Medicine*, *87*, 213–232. <https://doi.org/10.1016/j.ypmed.2016.03.013>
13. Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *BMJ (Online)*, *339*(7716), 332–336. <https://doi.org/10.1136/bmj.b2535>
14. Rioux, J., & Ritenbaugh, C. (2013). Narrative review of yoga intervention clinical trials including weight-related outcomes. *Alternative Therapies in Health and Medicine*, *19*(3), 32–46.
15. Seo, D. Y., Lee, S. R., Figueroa, A., Kim, H. K., Baek, Y. H., Kwak, Y. S., Kim, N., Choi, T. H., Rhee, B. D., Ko, K. S., Park, B. J., Park, S. Y., & Han, J. (2012). Yoga Training Improves Metabolic Parameters in Obese Boys. *The Korean Journal of Physiology & Pharmacology*, *16*(3), 175–180. <https://doi.org/10.4196/KJPP.2012.16.3.175>

16. Sharma, M. (2014). Yoga as an Alternative and Complementary Approach for Stress Management: A Systematic Review. *Journal of Evidence-Based Complementary and Alternative Medicine*, 19(1), 59–67. <https://doi.org/10.1177/2156587213503344>
17. Shiraishi, J. C., Gadelha, A. B., Bezerra, L. M. A., Porto, L. G. G., Shiraishi, J. C., Gadelha, A. B., Bezerra, L. M. A., & Porto, L. G. G. (2016). Effects of a 12-Week Systematized Yoga Intervention on Health-Related Physical Fitness in Healthy Adults. *Advances in Physical Education*, 7(1), 27–37. <https://doi.org/10.4236/APE.2017.71003>
18. Sil, P. (2017). *Ruduction of body fat practicing yogic posture : An experimental study*. 2(2), 62–65.
19. Zorofi, F., Hojjati, Z., & Elmiyeh, A. (2013). Effect of Yoga Exercises on the Body Composition of Fasting Females. *J Fasting Health*, 1(2), 70–78.

