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

Rahul Dev Choudhury  
Research Scholar,  
Lovely Professional University,  
Phagwara (Punjab, India)  
E-mail: devrahul09@gmail.com

Sukanta Chandra Nath  
Research Scholar,  
Tripura University,  
Agartala (Tripura, India)

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?”

<table>
<thead>
<tr>
<th>Population</th>
<th>Intervention</th>
<th>Comparison</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>The population is related to the people suffering from obesity</td>
<td>The interventions are yogic exercise</td>
<td>The comparative group involves people with yogic exercise (Asanas)</td>
<td>The outcome is connected to controlling of obesity and lowering Body fat percentage</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Keywords</th>
<th>PubMed Central</th>
<th>Google Scholar</th>
<th>Scopus</th>
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<tr>
<td></td>
<td>● yogic exercise ● Asanas ● Body Fat Percentage</td>
<td>● Body Fat Percentage ● Obesity ● Body Composition</td>
<td>● Yogic asana ● Fat Percentage ● Obesity and Asana</td>
</tr>
</tbody>
</table>

**Inclusion/exclusion criteria and analysis**

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

<table>
<thead>
<tr>
<th>Inclusion Criteria</th>
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<tbody>
<tr>
<td>The journals or literature published after 2012 are included</td>
<td>Journals or literature published before 2012 are excluded</td>
</tr>
<tr>
<td>Only peer-reviewed journals along with authentic internet sources are considered</td>
<td>Journals that are not peer-reviewed and inauthentic internet sources are not considered</td>
</tr>
<tr>
<td>Journals in the English Language are included</td>
<td>Journals published in other languages except English are excluded</td>
</tr>
<tr>
<td>Literature with relevant and considered keywords is considered</td>
<td>Journals and literature without relevant and considered keywords are readily excluded</td>
</tr>
<tr>
<td>Articles published in journals are included</td>
<td>book chapters and book reviews, editorials, case studies, qualitative studies, and conference proceedings</td>
</tr>
</tbody>
</table>
Description of all studies and Results

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). 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 did an 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 centers 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:**


