

Yoga the Panacea for Stress - Obesity Link - A Systematic Literature Review

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Abstract: *Obesity and stress are key healthcare concerns of the modern day so called epidemic of obesity and related disease processes. Since centuries yoga has been established as being beneficial for balancing the inner working of the human body and harmony of the organ systems. The effect on stress and obesity has been studied and this systematic literature review also focused on the impact of yoga intervention on stress and obesity. **Methodology:** There were final selection of 10 random controlled trials out of the 47 which met the selection criteria and they including adults males, females and adolescents made. The study selection was from internet search Pub Med, Google scholar using Mendeley software. **Results:** The intervention of yoga practice gave a positive effect on stress reduction and eating habits and obesity in all studies. The conclusion is that more studies should be done with scientific lab based parameters for evidence based information for better utilization and inclusion in daily life*

Keywords: Yoga, stress, obesity, RCT, overweight, weight loss

1. Introduction

Obesity and stress are two important public health issues that are often interrelated.

According to the World Health Organization (WHO), the global prevalence of obesity has nearly tripled since 1975. In 2016, more than 1.9 billion adults were overweight, with over 650 million of these individuals being obese. These numbers are projected to continue rising in the coming years. (1).

In developed countries, the prevalence of obesity has been steadily increasing since the 1980s. In the United States, for example, the prevalence of obesity among adults has increased from 13.4% in 1980 to 42.4% in 2020, according to the Centers for Disease Control and Prevention (CDC). The prevalence of obesity among children and adolescents has also increased during this time, from 5.0% in 1980 to 19.3% in 2020. (2)

In developing countries, the prevalence of obesity has also been increasing rapidly. According to the WHO, the prevalence of obesity in Africa has doubled since 2000, while in Asia, the prevalence of obesity has increased by 50% during the same period. (1)

Stress is the physiological or psychological response to internal or external stressors and influences nearly every system in the body by the American Psychological Association (APA), stress levels in the United States have been on the rise since more than a decade. (5)

According to survey by the Mental Health Foundation, 74% of adults in the UK reported feeling overwhelmed or unable to cope at some point in the past year. (6)

Several studies have investigated the relationship between obesity and stress. For example, a systematic review and meta - analysis by Tomiyama et al (7). (2010) found that

higher levels of stress were associated with greater weight gain over time. Similarly, a review by Torres and Nowson (2007) found that stress was associated with a higher prevalence of obesity, particularly in women (8). Another study by Wardle et al. (2002) found that stress was associated with emotional eating, a phenomenon whereby individuals consume food in response to negative emotions. (9)

Interventions aimed at reducing stress may have potential benefits for reducing obesity. . For example, mindfulness - based stress reduction (MBSR) has been shown to reduce stress and improve weight loss outcomes in individuals with obesity (10)) (Daubenmier et al., 2016). Similarly, cognitive - behavioral therapy (CBT) has been shown to reduce stress and improve weight loss outcomes in obese individuals (Fabricatore et al., 2011) (11). Physical activity has also been shown to reduce stress and improve weight loss outcomes, suggesting that a combination of stress reduction and physical activity may be particularly effective (Annesi et al., 2011). (12). Yoga has been found to have positive effects on stress reduction in healthy populations It has been shown to decrease cortisol levels, enhance mood, decrease anxiety and depression, and improve sleep [13]. Additionally, participating in yoga as part of a 6 - month weight - loss program is doable for adults with obesity or overweight, and may also be helpful for weight loss [14]. Given the growing prevalence of obesity and the negative impact that stress can have on health, a systematic review of the literature on this topic will provide insights into the mechanisms underlying the relationship between obesity and stress and may inform the development of interventions to address both issues simultaneously.

2. Methodology

A systematic review was undertaken to investigate the effect of yoga or stress and obesity. databases [PubMed, Google scholar and Cochrane library] were searched for RCT

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studies over past 15 years with additional hand searching to identify all published studies.

47 RCT studies were found including the inclusion criteria of which 10 were included in the review involving a total of 748 participants.

Inclusion criteria - yoga intervention on stress and obesity, RCT,, last 15 years timeline,

748 participants. The studies' were typically fair quality. The participants were adults and adolescents. Out of the ten studies all results showed positive effect of yoga on obesity.3 studies reported stress relief with yoga and effect on obesity reduction.3 trials were on women and yoga reported improvement in central obesity

There were 2 trials on adolescents and showed positive effect on obesity

3. Results

The details are in Table 1

47 studies were found including the inclusion criteria of which 10 were included in the review involving a total of

S no	Paper title	Authors	Study type & year	No of participants	Intervention	Outcomes measured	findings
1	Yoga Practice for Reducing the Male Obesity and Weight Related Psychological Difficulties - https://doi.org/10.7860/JCDR/2016/22720.8940	P. Rshikesan, P. Subramanya,	RCT 2016	80	yoga	<ul style="list-style-type: none"> Wt Percentage body fat PSS AAQW score 	Yoga practice is effective for obesity control for adult male in an urban setting.
2	Effect of Integrated Approach of Yoga Therapy on Male Obesity and Psychological Parameters - https://doi.org/10.7860/JCDR/2016/21494.8727	P. Rshikesan, P. Subramanya	RCT 2016	72	Yoga Therapy (IAYT)	<ul style="list-style-type: none"> Anthropometric parameters of weight, BMI, Percentage body fat Questionnaires of Perceived Stress Scale (PSS) and AAQW (Yoga is one of the effective ways to reduce stress which is one of the causes of obesity.
3	Reducing psychological distress and obesity through Yoga practice https://doi.org/10.4103/0973-6131.105949	S. Dhananjai, Sadashiv, S. Tiwari, K. Dutt,	RCT 2013	272	yoga	<ul style="list-style-type: none"> Anxiety Depression Obesity 	Yoga is an effective tool to improve anxiety and depression symptoms as well as obesity in obese subjects.
4	An experimental study on obesity and weight management with special reference to yoga practices	Sheetal	RCT 2020	20	yoga	<ul style="list-style-type: none"> Weight loss, Problems emerging due to obesity 	Yoga positively helped obese people in weight loss.
5	Yoga in Women With Abdominal Obesity https://doi.org/10.3238/arztebl.2016.0645	H. Cramer, M. S. Thoms, D. Anheyer, R. Lauche, G. Dobos	RCT 2016	60	a 12 - week yoga intervention	<ul style="list-style-type: none"> Waist circumference, Waist/hip ratio, Body weight BMI Body fat percentage Body muscle mass percentage, Blood pressure Health related quality of life, Self esteem, Subjective stress, Body awareness, Body responsiveness 	Yoga is safe in this population and can be recommended as a technique for combating abdominal obesity in women.
6	Short term health impact of a yoga and diet change program on obesity.	S. Telles, Visweswarai h K Naveen, A. Balkrishna, Sanjay Kumar	RCT 2009	47	a yoga and diet change program	<ul style="list-style-type: none"> Body mass index (BMI) Waist and hip circumferences Mid arm circumference Body composition Hand grip strength 	A 6 - day yoga and diet change program decreased the BMI and the fat - free mass.

						<ul style="list-style-type: none"> • Postural stability • Serum lipid profile • Fasting serum leptin levels 	
7	Twelve Weeks of Yoga or Nutritional Advice for Centrally Obese Adult Females https://doi.org/10.3389/fendo.2018.00466	S. Telles, S. Sharma, N Kala, S. Pal, R. K. Gupta, A. balkrishna	RCT 2018	52	yoga and nutritional advice	<ul style="list-style-type: none"> • WC,, • HC, • BM, • WC/HC • AVI,, BRI • HDL cholesterol • LDL cholesterol • triglycerides, • VLDL 	Yoga may be especially useful for adult females with central obesity between 30 and 45 years of age.
8	Effect of the Yoga on Anthropometric and Physical Assessments in Adolescent Obesity https://doi.org/10.4172/2161-1017.1000292	Sun, A. Rathi, Ruchira Joshi, P. Tekur, Nagaratna Rn, H. Nagendra	RCT 2018	53	a yoga based intervention	<ul style="list-style-type: none"> • Weight • body mass index • hip circumference • total body fat percentage • subcutaneous fats it up • flamingo balance test 	Yoga - based intervention is effective to reduced obesity in adolescent children with respect to anthropometric and physical assessments.
9	Effects of Continuous Yoga on Body Composition in Obese Adolescents	Marisa Poomiphak Na Nongkhai, Rodsarin Yamp rasert, C. Punsawad	RCT 2021	40	continuous yoga,	<ul style="list-style-type: none"> • Body weight (BW) • Body mass index (BMI) • Body fat mass (BFM) • Muscle mass 	Continuous yoga practice may be used as an alternative therapy for obesity prevention and health promotion in obese adolescents with obesity.
10	Heated hatha yoga to target cortisol reactivity to stress and affective eating in women at risk for obesity - related illnesses:	Lindsey B Hopkins 1, Johnna L Medina 1, Scarlett O Baird 1, David	RCT 2016	52	Hatha yoga	Cortisol reactivity to a laboratory stress induction were measured at Weeks 0 (pretreatment) and 9 (posttreatment). Self - reported binge eating frequency and coping motives for eating were assessed at Weeks 0, 3, 6, and 9.	: This study provides preliminary support for the efficacy of heated hatha yoga for treating physiological stress reactivity and affective eating among women at risk for obesity - related illnesses

4. Discussion

Yoga is a centuries old established practice to harmonize the mind body systems. Stress in the modern day world and unhealthy eating practices have led to lifestyle diseases which are leading to complications and affecting all the systems of the body. Yogic asanas work to destress the body with regulating the sympathetic and parasympathetic systems of the body.

The practice of yoga has been linked to reducing emotional and binge eating behaviors through its mindfulness - based approach [17]. Mindfulness training can improve awareness and acceptance of thoughts and emotions without judgment, which can help individuals cope with psychological distress that may lead to binge eating [17]. Additionally, yoga has been shown to reduce common triggers of binge eating such as stress, depression, and anxiety [18]. In one study, adolescents in outpatient eating disorder treatment who participated in yoga showed greater decreases in eating disorder symptoms [19]. Another study showed that combining yoga with mindful eating reduced binge eating among adult female outpatients with binge eating disorder [3]. Therefore, yoga may be a promising complementary

intervention for individuals struggling with emotional and binge eating behaviors.

There are numerous studies of effect of yoga on many disorders and malfunctioning of the human body systems. The systematic literature review again endorses the fact that yoga is a simple and easy way to follow to reduce stress and the effects of stress on eating habits and obesity.

The studies included adults and adolescents and reported positive results in all studies. Yoga is being universally adopted for its health benefits and needs more studies for its effects on various other maladies and diseases of the human systems. It can help to reduce morbidity and suffering as a easy to follow inclusion in life

5. Conclusion

In conclusion, yoga has been found to have positive effects on stress reduction in healthy populations, along with weight management and obesity It can be considered an essential part of weight management programs for individuals with obesity. However, further collaborative research is needed to fully understand the mechanisms by which yoga reduces stress and its potential impact on stress - related eating

behaviors. More studies should be done with scientific lab based parameters for evidence based information for better utilization and inclusion in daily life

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