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The Integrative approach of āyurveda and yoga therapy for *Sthaulya* (obesity): A therapeutic overview

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Abstract

The World Health Organization reported that in 2016, 1.9 billion individuals were overweight, with 650 million classified as obese. In 2020, obesity affected 39 million children under five. This growing issue now impacts low-income countries and is one of the most critical health problems of the 21st century, with obesity rates nearly tripling since 1975. It contributes to 2.8 million deaths annually and is a significant risk factor for diabetes and heart diseases among people of all ages. Ancient Āyurveda, through Charaka's teachings, describes *sthaulya* as a common metabolic disorder linked to inactivity and poor eating habits. To prevent and manage it, Āyurveda and yoga promotes holistic measures including medication, daily routines diet, exercise, asana, pranayama, and meditation. These methods aim to improve public health by encouraging lifestyle changes. Integrating traditional wisdom with modern medical science highlights the importance of a holistic and collaborative strategy for preventing and managing obesity. When practiced alongside Āyurvedic dietary guidelines, Panchakarma therapies, and herbal formulations, yoga supports improved compliance and outcome. For instance, practicing Surya Namaskar as part of Dinacharya (daily routine) aligns with Āyurvedic principles of maintaining healthy Agni and regulating Kapha dosha, both central to obesity pathogenesis. Integrating yoga into daily life not only aids in reducing body weight and fat mass but also helps in controlling risk factors such as hypertension, dyslipidaemia, and insulin resistance. In the context of *sthaulya* treatment, yoga is recognized within Āyurveda as a convenient and effective element of an integrated care model.

Keywords: Yoga therapy, āyurveda, *sthaulya*, obesity, metabolic syndrome, holistic health

Introduction

Ayurveda, an ancient Indian system of medicine dating back to around the 12th century BCE, promotes a comprehensive approach to health that emphasizes harmony in all dimensions of life physical, mental, and spiritual (WHO, 2020) [2]. Within this tradition, lifestyle-related disorders such as obesity (*sthaulya*) are considered *nindya prakruties* undesirable or imbalanced body constitutions. This condition is viewed not merely as excess body weight but as a disruption in the body's natural equilibrium and metabolic processes (Acharya, 2009) [3]. Ayurveda offers a multidimensional framework for managing obesity, combining dietary management, lifestyle modification, detoxification procedures (*shodhana*), and herbal therapies. These practices aim to re-establish homeostasis within the body's systems and enhance overall vitality and longevity (Chopra & Doiphode, 2002; Chandola, 2012) [4, 8]. The Sushruta Samhita categorizes obesity as a serious disease (*Dārun Vyādhi*), noting its contribution to various chronic health complications such as cardiovascular disorders, type 2 diabetes, respiratory diseases, and certain cancers (Shukla *et al.*, 2016) [7]. The underlying mechanisms are explained through concepts like *Dhātvaagni* Mandya, or impaired metabolic activity at the tissue level. The theoretical foundation of Ayurveda lies in the Tridosha principle Vata, Pitta, and Kapha wherein health is the result of a balanced interaction among these fundamental forces. Obesity is predominantly associated with an imbalance in Kapha dosha and an abnormal increase in Meda dhatu (fat tissue) (Parwe *et al.*, 2021) [12]. Excessive consumption of calorie-dense, oily, and sweet foods, coupled with a sedentary lifestyle, contributes to the aggravation of Kapha and accumulation of Meda, resulting in symptoms such as fatigue, lethargy, excessive perspiration, and heaviness. Although modern medicine offers a variety of interventions for obesity including pharmacotherapy, calorie restriction, and

bariatric surgery these approaches often provide limited long-term efficacy and are frequently accompanied by adverse effects. Medications such as phentermine, orlistat, liraglutide, and setmelanotide, despite regulatory approval, have been linked to side effects including gastrointestinal issues, anxiety, liver toxicity, and sexual dysfunction (Lewis *et al.*, 2024; Gambardella & Docimo, 2023; Williams *et al.*, 2020) [37, 38, 39]. In contrast, traditional medical systems like Ayurveda emphasize preventive care, natural remedies, and personalized treatment. These characteristics are driving a global resurgence in interest, especially as modern healthcare systems face increasing burdens from chronic diseases (Aguessy, 2023) [40]. Public interest in holistic, nature-based approaches to health often described as a “back to nature” movement continues to grow as individuals seek alternatives that are perceived as safer, more sustainable, and culturally aligned (Monalisa *et al.*, 2022) [41]. The integration of traditional and modern medical systems is increasingly recognized as a way to provide more holistic, patient-centred care. This hybrid approach enhances treatment outcomes by aligning with patients’ cultural beliefs and improving therapeutic cooperation (Frost *et al.*, 2021; Nanda, 2023) [42, 43]. Additionally, it creates opportunities for clinical research to validate traditional therapies within the framework of evidence-based medicine, fostering acceptance among healthcare professionals and institutions (WHO, 2020; [2]. This research aims to contribute to the growing body of knowledge on integrative medicine by critically evaluating the role of *Ayurvedic* therapies in managing obesity. By examining clinical evidence, exploring underlying

mechanisms, and addressing gaps in the literature, it seeks to provide a scientific foundation for incorporating Ayurveda into mainstream healthcare practices for managing the global epidemic of obesity (Ng *et al.*, 2014; Upadhyay *et al.*, 2023) [13, 17].

Methodology

This study adopts an integrative review approach, combining classical Āyurvedic literature with contemporary research and digital resources. Foundational texts such as the Sushruta Samhitā and Charaka Samhitā serve as primary sources, offering essential insights into traditional Āyurvedic theory and practice. Alongside these, the study incorporates reviews, interpretations, and analyses conducted by various research groups. Data was retrieved through extensive searches of national and international research databases, including PubMed, Science Direct, and Google Scholar, as well as credible websites and national portals. This comprehensive strategy aims to bridge the gap between ancient wisdom and modern scientific inquiry by merging conventional narratives with current research findings. Digital tools and online academic platforms expand the study’s reach and adaptability in the ever-evolving field of Āyurvedic medicine. By critically analysing content from diverse sources, the research synthesizes traditional and modern perspectives, offering a holistic understanding of Āyurveda. This methodological integration supports a deeper appreciation of its multifaceted knowledge system and evolving applications, contributing to both historical understanding and contemporary relevance.

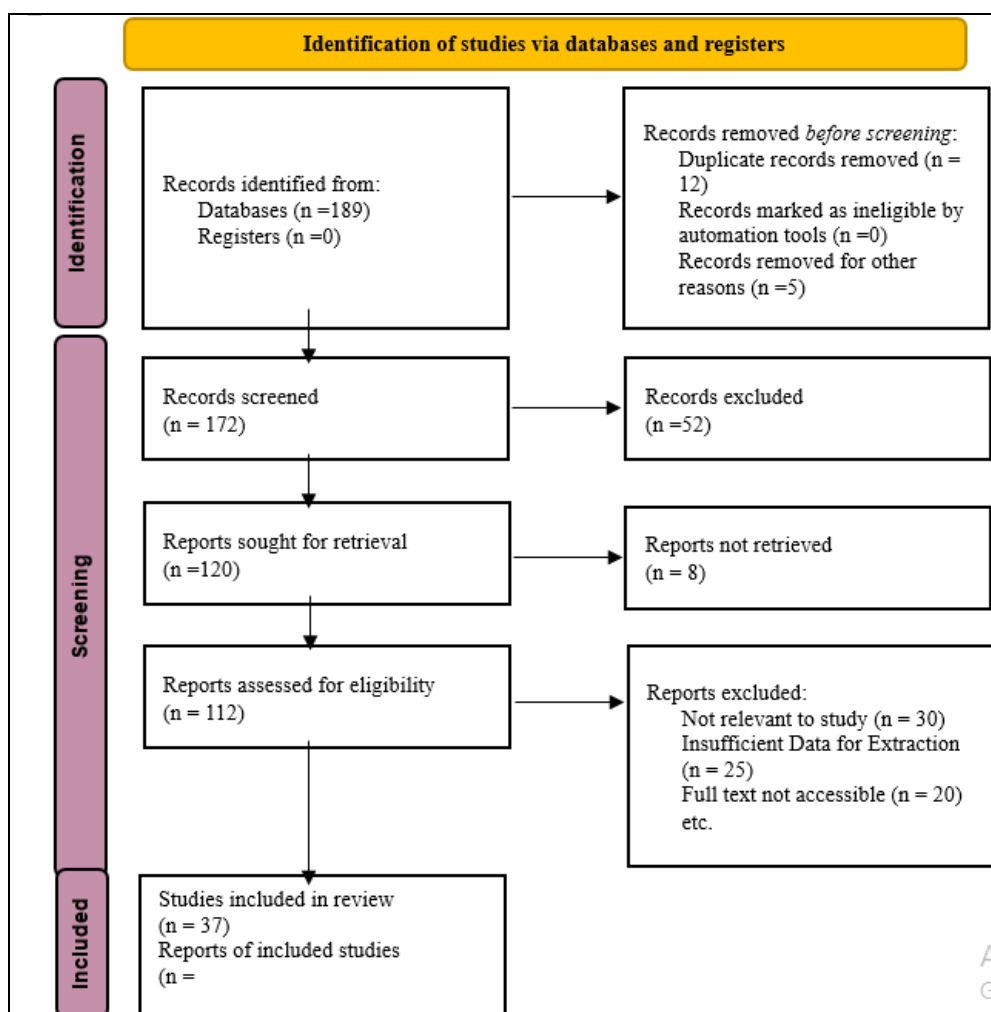


Fig 1: Identification and Inclusion of the study

Table 1: Clinical trials on yoga-based interventions for obesity

S. N.	Title	Methodology	Clinical Outcomes	References
1.	Outcome from a whole systems <i>āyurvedic</i> medicine and yoga therapy treatment for obesity pilot study.	Pilot study	Programmes incorporating yoga and <i>āyurvedic</i> techniques are suitable for managing weight. Modifying one's lifestyle through yoga therapy is doable; beneficial effects on vitality, psychosocial well-being, relationships suggest prospective health advantages. After the intervention, weight loss of 3.5 kg was observed, and after six months, it decreased to 5 kg.	Rioux, J., & Howerter, A. (2019) ^[6]
2.	Integrated <i>āyurveda</i> and yoga therapy in the management of obesity: A case report	Randomized control Trial	This study reveals the anticipated benefits of an integrated strategy that combines <i>Āyurveda</i> and yoga therapy for the treatment of <i>Sthaulya</i> in men aged 40. The 11.5 kg weight loss that was seen, together with improvements in other well-being indicators, highlights the potential of these traditional practices in promoting holistic health. It is advised to do additional studies with a range of demographics and longer periods of observation in order to confirm and elaborate upon these results, highlighting the need of combining <i>Āyurveda</i> and yoga therapy as comprehensive approaches to managing obesity.	Vasudeva, N., Yadav, N., & Sharma, S. K. (2012) ^[44]
3.	Effect of rodhradi gana udavartana in the management of <i>Sthaulya</i> (Overweight) with special reference to obesity	Randomised control trials	Both physical and mental components of <i>Sthaulya</i> were addressed by <i>Rodhradi gana Udavartana</i> , indicating a significant influence. The improvement in lipid profiles demonstrates its effectiveness.	Parwe, S., Mohan et al., (2021) ^[12]
4.	Lifestyle related factors associated with <i>sthaulya</i> (obesity)- A cross sectional study	A cross-sectional survey study	A study on individuals aged 20 to 60 identified key risk factors for <i>sthaulya</i> (obesity): heavy food intake, daytime sleep, insufficient exercise and psychological distress these factors highlighted crucial considerations for preventive strategies and health interventions in this age group. According to a cross-sectional study, obesity (<i>sthaulya</i>) was linked to sedentary behaviour, high calorie intake, low physical activity, bad eating habits, and urbanisation. The study highlights the need for promoting healthy lifestyle habits to treat <i>sthaulya</i> .	Priya, E. P., Giri, P. V., & Jayan, D. (2023) ^[45]
5.	Prevalence of obesity among adults and youth: United States, 2015-2016.	Statistical analysis	The report on the prevalence of obesity in the United States in 2015-2016, indicating alarming trends among adults and youth. The study emphasises the critical importance of dealing with this public health issue and also emphasizes the significance of a well- balanced diet, herbal medicine, detoxification and lifestyle modifications in managing <i>sthaulya</i> .	Hales et al., (2017) ^[16]
6.	Clinical study on effect of Arogyavardhini vati in the management of Sthaulya w.r.t. obesity.	Randomised control trials	An <i>Āyurvedic</i> compound called <i>Arogyavardhini vati</i> , which contains garlic, guggul, and copper, was found to be useful in treating obesity when combined with lifestyle modifications in a recent clinical experiment. Reduced blood pressure, lipid levels, and waist circumference were the results, suggesting that it may help with weight loss and cardiac risk factor improvement. While urging more research into the safety and effectiveness of <i>Ayurveda</i> , this study emphasises the treatment's remarkable potential in treating obesity	Upadhyay, K. G., Upadhyay, A. G., & Sharma, R. (2023) ^[17]
7.	Effect of integrated approach of yoga therapy on male obesity and psychological parameters- a randomised controlled trial	Randomised control trials	The study found that a structured yoga program significantly reduced body weight, BMI, and waist size in obese men, while also improving their mental well-being by lowering stress and anxiety. This suggests yoga is an effective holistic approach for managing both physical and psychological aspects of obesity.	(Rshikesan & Subramanya, 2016) ^[22]
8.	An integrated therapy approach for the management of obesity - associated disorders- a case report	Case Study	The integrated therapy combining Ayurveda and yoga led to significant improvements in the patient's health. Lung function increased by over 70%, musculoskeletal pain reduced by 27.5%, and quality of life improved across physical, psychological, and social domains. The patient regained mobility, experienced less joint pain and breathlessness, and reported better sleep and digestion. The treatment was safe and well-tolerated, with no adverse effects observed.	(Verma et al., 2019) ^[23]
9.	A comprehensive yoga programme for weight reduction in children and adolescents with obesity: a randomized controlled trial	Randomized controlled trial	The study found that a family-based yoga program with dietary changes effectively reduced BMI and blood pressure in obese children, performing as well as standard lifestyle counseling. It also helped prevent rises in blood sugar seen in the control group, showing yoga is a valuable tool in managing childhood obesity.	(Jain et al., 2022) ^[25]
10.	A 12- week yoga based lifestyle intervention might positivity modify cellular aging in Indian obese individuals: A randomized-controlled trial	Randomized-controlled trial	The yoga group showed early signs of positive cellular changes, with a significant rise in TERT gene expression after just 2 weeks, suggesting enhanced telomerase activity. Over 12 weeks, participants also experienced reductions in body weight, BMI, and waist-to-hip ratio. While telomere length did not significantly change, these findings indicate that yoga may support early cellular anti-aging effects and improve physical health in obese individuals.	(Sharma et al., 2022) ^[26]

Discussion

The studies included in the table provide important insights into the global obesity issue as well as the possibilities of āyurvedic and yoga therapies for obesity management. Gupta *et al.*, (2015) ^[5] emphasized the contributions of ancient Indian physicians Charaka and Shushruta, as described in the Sushruta Samhita, which demonstrated Indian medical advances in Āyurveda, particularly in surgery. A comprehensive review of global and regional obesity trends from 1980 to 2013 by Ng *et al.*, (2014) ^[13] revealed a marked rise in adult obesity globally, in developing and developed countries, as well as an increase in childhood obesity. A pilot study by Rioux and Howerter (2019) ^[6] on the combination of Āyurvedic medicine and yoga therapy for obesity revealed positive effects on vitality, psychosocial well-being, and relationships, with a 3.5 kg weight loss after intervention and a 5 kg weight loss after six months. A study based on Hales *et al.*, highlighted the incidence of obesity in the US in 2015-2016, highlighting how vital it is to address this public health concern. Randomized controlled studies on Āyurvedic remedies for obesity were presented by Parwe *et al* (2021) ^[12], and Upadhyay *et al.*, (2023) ^[17]. The trials demonstrated significant changes in lipid profiles and the physical and mental components of obesity. Arogyavardhini Vati therapies significantly reduced the symptoms of obesity, according to case reports on Āyurvedic treatments for obesity published by Vasudeva *et al.*, (2012) ^[44] and Priya *et al.*, (2023) ^[45]. In order to promote holistic health and well-being, more research is required to confirm and expand upon the key risk factors for obesity identified by Shukla *et al.*, (2016) ^[7], emphasizing the need for preventive strategies and health interventions. These findings emphasize the significance of addressing the expanding public health issue of obesity through comprehensive approaches that integrate traditional practices with modern medicine.

Conclusion

The prevalence of sthaulya, or obesity, has nearly tripled since 1975 as a result of sedentary lifestyles, poor eating habits, and physical inactivity, making it a global health issue of the twenty-first century. This study emphasizes the value of ayurvedic concepts, particularly the identification of nidanas (cause factors), in managing and preventing obesity. The restoration of metabolic balance through detoxification treatments, a balanced diet, and lifestyle control are all stressed in classical writings. When combined with yoga techniques like asana, pranayama, and meditation, the method becomes more comprehensive and addresses obesity's psychological and physical components. The therapeutic methods of Āyurveda are complemented by yoga, which increases fat metabolism, lowers stress, and fosters discipline. The best course of action is preventive treatment, and encouraging people to embrace healthier lifestyles by raising knowledge of the advantages of combining yoga and Āyurveda. An effective and long-lasting strategy for lowering the burden of obesity and improving general well-being is provided by this integrative method.

Conflict of interest

There is no conflict of interest amongst the authors.

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