

Yoga for Wellbeing – A Mini Review of Scientific Evidence

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ABSTRACT

Yoga, an ancient Indian holistic practice, has gained global recognition for its potential health benefits. It integrates physical postures (asanas), breathing exercises (pranayamas), and meditation, aiming to promote harmony between the body, mind, and spirit. With growing interest in complementary and integrative approaches, yoga has been increasingly explored as an adjunct therapy in modern healthcare. This mini-review aims to synthesize the scientific evidence regarding the effects of yoga practices on various aspects of well-being across diverse populations. Peer-reviewed studies investigating the impact of yoga interventions on health outcomes were analyzed. Studies lacking detailed methodology, statistical analyses, or accurate translations were excluded. The reviewed studies demonstrate that yoga practices can confer multidimensional benefits for physical, mental, and emotional wellbeing. Substantial evidence supports the efficacy of yoga in managing chronic conditions, reducing stress and anxiety, improving cardiovascular health, enhancing musculoskeletal function, and



promoting overall quality of life. The collective evidence from this mini-review suggests that yoga, as a holistic mind-body practice, can be a valuable complementary approach in healthcare. By integrating yoga into conventional treatment plans, healthcare providers can offer patients a comprehensive strategy for promoting well-being and managing various health concerns. Further research is warranted to explore the therapeutic potential of yoga in specific clinical settings and populations.

Introduction

Yoga, originating over 5,000 years ago in ancient India, is a holistic practice that integrates physical postures (asanas), breathing techniques (pranayama), and meditation (dhyana)(Kaur; Shobana, Bhaskar, et al., 2022b). Yoga was originally performed as a pathway to spiritual liberation and serenity (Gobillot, 2023). However, it has gained widespread popularity worldwide as a comprehensive health and wellness practice in recent decades (Maheshkumar et al., 2020a). Currently, the popularity of yoga has increased significantly due to a heightened awareness concerning the effects of the practice on the human system and its positive impacts on general health(Telles et al., 2021). Yoga originated from the Indus Valley civilization, evidenced in the Vedas and the Upanishads. Developing throughout the years, yoga has absorbed different schools and styles, and today, people practice a wide range of yoga styles(Lohan, 2021). Historical texts, such as Patanjali's Yoga Sutras, provide a foundational framework for the philosophy and practice of yoga, emphasizing the eight limbs of yoga, which guide practitioners toward achieving a balanced and harmonious life(Basu). In the contemporary world, especially in the 20th and 21st centuries, yoga has become a practice in the spiritual and philosophical realms and health and fitness fields(Shaw & Kaytaz, 2021). The increasing prevalence of lifestyle-related diseases, and mental health issues, and the growing recognition of the mind-body connection have further fueled yoga's integration into modern healthcare (Padmavathi, Dhamodhini, et al., 2023). With the rise of evidencebased practice, there has been a significant increase in scientific research exploring the effects of yoga on various health outcomes (Prashanth et al., 2024). Researchers have employed rigorous methodologies, including randomized controlled trials, systematic reviews, and meta-analyses, to investigate yoga's impact on physical health (e.g., cardiovascular, respiratory and musculoskeletal function), mental health (e.g., anxiety, depression, stress), and chronic disease management (e.g.,



diabetes, hypertension, arthritis) (A et al., 2017; Arumugam et al., 2024; M et al., 2019). This review will provide a comprehensive overview of the current evidence supporting the use of yoga as a complementary therapy in healthcare settings. Additionally, it will highlight the potential benefits of integrating yoga into conventional treatment plans for a wide range of medical conditions.

Methodology

This mini review was conducted by collating data from peer-reviewed journals. The selection process involved a systematic search of electronic databases, including PubMed, Scopus, and Web of Science, focusing on studies related to yoga practices. The search strategy employed a combination of keywords and MeSH terms such as "yoga," "pranayama," "meditation," "health benefits," "randomized controlled trial," "systematic review," "meta-analysis," and "case report." The studies included in this review were randomized controlled trials, systematic reviews, meta-analyses, or case reports published in recognized peer-reviewed scientific journals. The selected studies involved various populations, such as healthy individuals, patients with chronic conditions, women, children, and special populations, and specifically focused on yoga practices, including asanas (physical postures), pranayama (breathing techniques), and dhyana (meditation). Studies were required to report on physical, mental, or emotional health outcomes. Exclusion criteria comprised non-peer-reviewed publications like conference abstracts, theses, dissertations, and studies published in languages other than English due to language barriers and potential translation inaccuracies. Additionally, studies lacking detailed methodology, results, or statistical analyses were excluded to maintain the review's scientific rigor.

Yoga Breathing Practices

Several studies focus on the impact of yoga breathing techniques, more particularly Bhramari pranayama, on various health parameters. One of the previous randomised controlled trials demonstrated that yoga breathing improves heart rate variability in healthy adolescents, indicating enhanced autonomic function and stress resilience(Kuppusamy et al., 2020). Another study found that Bhramari pranayama significantly enhances pulmonary function in healthy adolescents, suggesting benefits for respiratory health(Kuppusamy et al., 2017). Additionally, the immediate effects of Bhramari pranayama include improvements in resting cardiovascular parameters, highlighting its potential for cardiovascular health management(Kuppusamy et al., 2016; Kuppusamy et al., 2018). Moreover, practicing Bhramari pranayama has been shown to improve simple reaction time in adolescents, pointing to enhanced cognitive function and alertness(Arumugam et al., 2024; Choudhary et al., 2021; Prabu Kumar et al., 2020; Venkateswaran, 2021). Additionally, bhastrika pranayama and jala neti, two integral components



of yogic practice, have been identified as effective methods for relieving sinus symptoms and addressing sinusitis-induced psychological comorbidities(Balakrishnan et al., 2024). Furthermore, the case series showed the vatakarma kaphalbhati reduces stress and improves sleep quality in patients with paranasal sinusitis(Ravi et al., 2023). These findings suggest that incorporating yogic pranayama into daily routines can have a wide range of benefits for adolescents, not only in terms of physical health of respiratory health but also in cognitive and emotional well-being. Other pranayama such as sheetali (Jagadeesan et al., 2021b; Rohini et al., 2021), sheetkari, bhasthrika (Abirami et al., 2024) and kapabhathi pranayama (Lalitha et al., 2021)also showed some clinical improvement among the healthy participants.

Yoga and Psychological Health

Yoga has been shown to improve mental health across various populations significantly. Notably, a validated yoga protocol effectively improved mental health among college students, managing stress and anxiety. Likewise, yoga interventions helped alleviate psychological distress and enhance sleep quality in COVID-19 patients during home isolation(Jerrin et al., 2021; Kumar et al., 2024; Kuppusamy Maheshkumar et al., 2022; Ravi et al., 2022). Furthermore, a randomized controlled study indicated that pranayama training reduces stress-induced salivary cortisol responses in adolescents, promoting better stress management and sleep quality(K. Maheshkumar et al., 2022). Moreover, Yoga plays a crucial role in stress management and has significant implications for alleviating symptoms of major depressive disorder(Padmavathi, Kumar, et al., 2023). Additionally, Cyclic Meditation and sound therapy in yoga has shown positive effects on improving sleep quality (Boopalan et al., 2024; Rajagopalan et al., 2022; Venugopal et al., 2023).

Yoga for Chronic Conditions

Yoga has demonstrated significant therapeutic potential for various chronic conditions(Jagadeesan et al., 2021a). A previous study showed that six-month yoga practice significantly improved the quality of life for asthma patients, highlighting yoga's therapeutic benefits(Malarvizhi et al., 2019). Additionally, intense lifestyle modifications, including yoga, have led to long-term remission of type 2 diabetes in several case reports, emphasizing the transformative potential of holistic practices(Tripathi, Kadam, Tiwari, et al., 2024; Tripathi et al., 2023). Furthermore, integrated naturopathy and yoga interventions showed promise in managing seronegative rheumatoid arthritis, as evidenced by a single case report(Chidambaram et al., 2022). Recent cross-sectional studies have also highlighted the importance of assessing biomarker alterations to evaluate the prognosis of osteoarthritis in patients undergoing total



knee replacement, further showcasing yoga's role in chronic disease management(Sundaram et al., 2023). One of the study protocol showed that yogic intervention for systemic lupus erythrematous enhancing physical functioning and fostering improved psychological health for affected individuals(Shobana, Bhaskar, et al., 2022a). Additionally, another study showed after practicing yoga of type 2 diabetes in a liver transplantation recipient showed improvement in blood sugar and normalisation of HbA1C levels(Tripathi, Kadam, Sharma, et al., 2024). These findings underscore the growing recognition of yoga as a valuable adjunct therapy for chronic diseases.

Yoga and Women's Health

A systematic review and meta-analysis concluded that antenatal yoga is an effective nonpharmacological option for pain management, as it significantly reduces the intensity of labor pain(Boopalan, Vijayakumar, Ravi, Kunjumon, et al., 2023). Additionally, research has identified stress as a potential risk factor for premenstrual syndrome (PMS) among adolescent girls, suggesting that yoga could be a beneficial intervention for managing PMS symptoms(Nandakumar et al., 2023). Furthermore, One study found that yoga significantly decreased stress levels and PMS symptoms in female students(Nandakumar et al., 2023). Moreover, deep breathing exercises, significantly improve fatigue and sleep quality in women receiving radiation therapy for breast cancer, highlighting yoga's beneficial impact on women's health(Gündogdu, 2023). This highlights yoga not only for pain management during pregnancy but also for addressing hormonal fluctuations and emotional distress in women well-being.

Yoga and Lifestyle Diseases

Yoga's role in managing lifestyle diseases such as obesity and non-communicable diseases (NCDs) has been explored, highlighting its holistic benefits. A case report indicated that yoga and naturopathy treatments effectively reduce the psychological burden in individuals with obesity, highlighting the comprehensive advantages of these practices(Boopalan, Vijayakumar, Ravi, Chidambaram, et al., 2023). Additionally, trends in Tamil Nadu, South India, reveal increased utilization of yoga and naturopathy clinics for managing NCDs, reflecting the growing acceptance and efficacy of these interventions in addressing lifestyle-related health disorders(Maheshkumar et al., 2020b; Sadhana et al., 2024). One of the case study highlights the efficacy of a one-month Yoga and Naturopathy intervention, comprising yoga, acupuncture, and mud therapy, in significantly improving IBS severity scale, quality of life, and autonomic function, suggesting its potential as a safe and effective adjunctive therapy for managing IBS(Palanimurugan et al., 2024). This shift towards incorporating alternative therapies in the management of chronic diseases is a promising development in the healthcare system.



Yoga in Special Populations

Studies have also focused on the benefits of yoga in special populations, including children(Kuppusamy et al.) and office workers. In children with autism spectrum disorder, yoga practices have been shown to improve heart rate variability and autonomic function, enhancing their overall well-being(Vidyashree et al., 2019). Furthermore, research has shown that office workers who practice OM chanting, a specific yoga practice, into their daily routine experience decreased levels of stress, improved focus and productivity, and reduced musculoskeletal pain(Thanalakshmi et al., 2024). These findings suggest that the benefits of yoga extend beyond just physical fitness and may have a positive impact on various aspects of mental and emotional health in different populations.

Yoga and Cardiovascular Health

Research has explored the immediate and long-term effects of yoga on cardiovascular health. The immediate effects of Kapalbhathi pranayama include improvements in short-term heart rate variability, suggesting benefits for cardiovascular health(Lalitha et al., 2021). Long-term studies have also shown that regular practice of yoga can lead to decreased blood pressure, lower cholesterol levels, and increased blood circulation(Shobana, Maheshkumar, et al., 2022). Additionally, the practice of Sheetali pranayama has been shown to improve cardiac autonomic function among patients with primary hypertension, highlighting its potential as a complementary treatment for hypertension(Thanalakshmi et al., 2020). Another study emphasizes the potential of yogic breathing techniques in enhancing cardio autonomic function, as evidenced by a case report involving a patient with Right Bundle Branch Block(Ravi & Kuppusamy). These findings suggest that including yoga based techniques into a regular exercise routine can have significant positive effects on cardiovascular health.

Discussion

Yoga has a wide range of health benefits thanks to its holistic approach, which combines physical postures (asanas), breathing exercises (pranayama), and meditation (dhyana). Together, these elements have a positive impact on both our bodies and minds. The extensive body of research on yoga underscores its wide-ranging health benefits. Yoga practices, particularly breathing techniques and meditation, offer significant therapeutic potential across diverse populations and health conditions. These findings support the integration of yoga into mainstream healthcare as a complementary therapy(Shanmugam et al., 2023). Continued research is essential to further elucidate the mechanisms behind yoga's benefits and expand its application in health and wellness.



Conclusion

As we look forward to embracing yoga's therapeutic potential, it becomes clear that this practice is more than a series of positions; it is a lifestyle choice that cultivates balance, harmony, and peace within. The implications of incorporating yoga into daily routines extend beyond individual health benefits, promoting a broader understanding of holistic health practices. By adopting yoga as part of a comprehensive approach to wellness, individuals can explore new dimensions of health and possibly inspire further research into the expansive benefits of this timeless practice.

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