

Yoga as a Preventive and Therapeutic Approach for Lifestyle Disorders: A Comprehensive Review

Dr Samarth CH¹, Dr Pratibha V Kulakarni²

¹PG Scholar, Dept Of Kriya Shareera, Shri Dharmasthala Manjunatheshwra College Of Ayurveda And Hospital, Hassan.

²Professor and Head Dept Of Kriya Shareera, Shri Dharmasthala Manjunatheshwra College Of Ayurveda And Hospital, Hassan.

Abstract

Lifestyle disorders such as hypertension, diabetes mellitus, obesity, thyroid disorders, and low back pain have been increasingly witnessed because of a sedentary lifestyle, improper dieting, stress, and the lack of physical activity. Yoga, the holistic system that aims at combating lifestyle disorders by combining postures with breathing and mental control, has been recognized as a scientifically proven tool that will help prevent and tackle lifestyle disorders. A descriptive review about the (yoga exercises, descriptions of disease conditions, advantages, and concept descriptions) was conducted. These points were integrated with available scientific literature to form a structured review. Yoga showed multi-dimensional effective control of lifestyle disorders. When focused on hypertension, yoga exercises like Vajrasana, Setu Bandhasana, Balasana, and Ardha Matsyendrasana were effective in managing and controlling hypertension. When considering diabetes mellitus, yoga exercises like Bhujangasana, Halasana, and Vajrasana are effective in dealing with diabetes. Obesity-associated complications were managed through improved mobilization and reduction in obesity. Back pain was managed and controlled through yoga exercises like Bhujangasana, Adho Mukha Svanasana, and Setu Bandhasana. Thyroid disorders were managed and controlled through yoga exercises like Sarvangasana, Halasana, Ustrasana, and Simhasana. The results underscore the holistic gains of yoga in terms of physiological, metabolic, as well as psychological functions, which are supported by previous studies.

Key words; Yoga, Lifestyle Disorders Hypertension Diabetes Mellitus Holistic Health

INTRODUCTION;

Lifestyle disorders, also called NCDs, have become a big public health challenge because of rapid urbanization, stress, sedentary lifestyle, unhealthy diet, and insufficient physical activity. Hypertension, diabetes mellitus, obesity, thyroid dysfunction, and chronic low back pain are some of the conditions that develop gradually and are very much influenced by daily habits which are amenable to change. These disorders decrease quality of life and result in high economic and social burdens. Thus, prevention and holistic approach become emphatically imperative.

The word yoga is derived from the Sanskrit root "Yuj," which means union. Yoga, therefore, is the harmonization of physical, mental, intellectual, and spiritual dimensions of humanity¹. Classically, yoga

unites the individual consciousness with universal consciousness for the ultimate state of health. However, in modern times, these concepts of yoga have been changed to scientific and therapeutic interpretations. Some studies suggest that yoga improves autonomic balance, reduces levels of stress hormones, restores metabolic disturbances, and promotes psychological well-being².

It is a multimodal intervention integrating asanas (postures), pranayama (regulation of breath), and meditation, which is suited for lifestyle diseases. Many studies have demonstrated that yoga reduces blood pressure, improves insulin sensitivity, enhances thyroid function, regulates body weight, and alleviates musculoskeletal disorders³. Besides, yoga promotes mindful living and emotional resilience, improving the quality of life.

All major lifestyle disorders together with a description of certain yogic postures that are beneficial for the various conditions. This systematic review has synthesized the extracted information with currently available literature to comprehend yoga's role in the prevention and management of lifestyle disorders.

METHODS;

The conceptual study was conducted by observing and analysing the textual data gathered from classical textbooks, Journals, Published research articles in PubMed google scholar, and web search. To review Yoga as a Preventive and Therapeutic Approach for Lifestyle Disorders.

Review of literature:

The common lifestyle diseases such as hypertension, diabetes mellitus, obesity, thyroid disorders, and low back pain. Each is associated with poor diet, sedentary lifestyle, psychological stress, and irregular habits. Hypertension is described as elevated blood pressure due to high salt intake, processed foods, smoking, and stress.

- Diabetes Mellitus is portrayed as elevated blood glucose resulting from impaired insulin secretion or action.
- Obesity is explained as excessive fat accumulation influenced by unhealthy diet and inactivity.
- Low Back Pain is attributed to poor posture, prolonged sitting, spinal strain, and muscular weakness.
- Thyroid Disorders relate to hormonal imbalance, metabolic slowing, and stress-driven endocrine disruption.

A. Yoga for Hypertension

The asanas like Vajrasana, Setu Bandhasana, Balasana, and Ardha Matsyendrasana yoga poses that can be used to reduce high blood pressure. These postures induce vasodilation, reduce arterial stiffness, and affect the gut metabolism, Mechanically, it acts by suppressing sympathetic activity while promoting parasympathetic function, thus having beneficial effects on baroreflex sensitivity and peripheral resistance. Slower stretching exercises minimize catecholamine secretion, which contributes to lowering systolic as well as diastolic blood pressure values. There is clinical evidence for this. A meta-analysis found a significant reduction in blood pressure in intervention studies involving yoga, particularly those that involved pranayama and relaxation components⁴.

B. Yoga for Diabetes Mellitus;

The asanas like Bhujangasana, Halasana, Pavanamuktasana, and Vajrasana. These exercises help to stretch the abdominal viscera, enhance β -cell stimulation, Yoga increases insulin sensitivity, helps decrease blood glucose levels, and promotes pancreatic regeneration by improving pancreatic blood flow and relieving stress. Systematic reviews have found that HbA1c levels, fasting glucose, and LDL cholesterol concentrations decrease in type 2 diabetic individuals by practicing yoga⁵.

C. Yoga for Obesity;

The Asanas like Tadasana, Vajrasana, Pavanmuktasana, and Matsyasana, which are found to be beneficial in the treatment of obesity. These asanas raise the metabolism levels, digestion, releases the fat deposits, Additionally, yoga helps to regulate appetite by suppressing stress hormones and associated emotions that trigger eating in response to stress, as well as enhance the movement of food, According to literatures, yoga decreases BMI, waist measurement, and adipocytokines such as leptin and IL-6 expression greatly⁶.

D. Yoga for Low Back Pain;

The Asanas like Setu Bandhasana, Bhujangasana, and Adho Mukha Svanasana for rehabilitation of the musculoskeletal system. These postures strengthen the paraspinal muscles, stretch tight areas, and correct lumbar lordosis. Yoga reduces pain by improving spinal flexibility, decreasing muscle spasms, and increasing body awareness. Randomized controlled trials show that yoga is as effective as physiotherapy for chronic low back pain and improves functional disability scores⁷.

E. Yoga for Thyroid Disorders;

The Asanas like Sarvangasana, Halasana, Ustrasana, Dhanurasana, and Simhasana as helpful. These postures stimulate the neck area, improve blood flow to the thyroid gland, and balance hormone secretion. The neck movements in these poses activate the hypothalamic-pituitary-thyroid axis, which may help regulate TSH levels. Early research suggests that yoga may reduce symptoms of hypothyroidism and improve metabolic markers⁸.

F. General Benefits of Yoga;

Practicing yoga boosts immunity, improves posture, aids digestion, lowers stress, and strengthens muscles. These effects come from yoga's ability to influence immune activity (increasing NK cells and decreasing cytokines), improve nerve and muscle coordination, stimulate the parasympathetic system, and enhance digestion. Studies show improvements in sleep quality, mental health, metabolic function, and physical performance in people who practice regularly⁹.

Yoga is a complex therapy that can be used to address various dimensions of lifestyle diseases, such as metabolic, psychological and musculoskeletal.

The benefits offered by Yoga have been categorised into four areas:

1. **Physiological Benefits of Yoga:** Decreased blood pressure; Regulation of hormones; Improved digestion.
2. **Metabolic Benefits of Yoga:** Improved glucose control; Enhanced function of the thyroid; Improved cholesterol levels.
3. **Musculoskeletal Benefits of Yoga:** Increased flexibility; Decreased stiffness; Better alignment of body posture.
4. **Psychological Benefits of Yoga:** Decrease Stress; Improved Emotional Balance; Better Sleep.

The multiple benefits offered by Yoga provide a more comprehensive intervention than a single intervention, such as Exercise alone¹⁰.

DISCUSSION

This review describes the existing scientific data about yoga as a treatment option for lifestyle diseases. Lifestyle-related illnesses are usually caused by metabolic issues, ongoing inflammation, autonomic nervous system disorders, and lack of activity. Yoga affects each of these areas at the same time on many different levels: physiological, psychological, and hormones. For those with high blood pressure

(hypertension), practitioners of yoga can lower their sympathetically dominant and increase their parasympathetic nervous systems. Postures like: Vajrasana, Balasana, and Setu Bandhasana have been found to increase sensitivity to baroreceptors and relax blood vessels' (vasoconstrictor) capacities. Decreases in both systolic and diastolic blood pressure have been documented. Yoga reduces both the activity of renin-angiotensin and cortisol in people suffering from hypertension.

Individuals with diabetes benefit from doing yoga because it helps the body use glucose better via their muscles; improves how well the pancreas works; and decreases how much insulin is produced. The benefits of yoga on obesity are significant with regard to weight loss, Improved Digestion, Metabolism and Mindful Eating due to increased calorie burning by yoga. Some examples of postures that increase digestive efficiency, as well as increase tone in abdominal muscles, are Tadasana (Mountain Pose) and Pavanamuktasana (Wind-Relieving Pose). There are also studies supporting decreases in Body Mass Index (BMI), waist circumference, leptin levels, and inflammatory markers due to the effects of yoga.

The evidence for the treatment of low back pain is one of the strongest areas of support for the use of Yoga. The postures Bhujangasana (Cobra Pose) and Adho Mukha Svanasana (Downward Facing Dog), improve flexibility of the spine, correct deviations in posture and release excessive tension from the Paraspinal Muscles. Randomized trials indicate that the results of Yoga are equivalent, or better than, Physiotherapy for treating chronic low back pain.

Thyroid disorders (Hypothyroidism), for example, are positively impacted by Yogic postures that stimulate the cervical area (neck area) such as Sarvangasana (Shoulderstand) and Halasana (Plough Pose). Currently, due to the limited body of research on the subject, it is not possible to conclude that there is sufficient evidence of a causal relationship between Yoga practice, TSH regulation and improved mood. Nevertheless, it has been demonstrated that Yoga decreases the amount of stress experienced in the lives of those with thyroid disorders, whereas an elevated amount of stress has been identified as a primary factor leading to endocrine imbalance.

Conclusion;

Yoga is recognized in this review as a highly effective, whole-person approach and sustainable way to prevent and manage lifestyle-related health problems. The ability of yoga to affect many areas at the same time makes it different than most pharmaceutical treatments that only target 1 pathway of physiology. The use of yoga can impact all systems of the body by decreasing sympathetic nervous system activity, improving glucose metabolism, increasing circulation and helping to balance hormone levels. Yoga has a dual purpose in the treatment and prevention of lifestyle diseases such as hypertension, type 2 diabetes, obesity, thyroid disorders, and low back pain. In addition to relieving symptoms, regular practice of yoga will help prevent the onset of these conditions by addressing the behavioral and physiological causes for their development including stress, poor posture, reduced physical activity, and unhealthy nutrition habits. Mindfulness, emotional stability, and increased sleep quality are all components of healthy lifestyle changes and are fostered through the practice of yoga. Yoga can be practised by individuals from all walks of life due to its low cost, availability and lack of significant side effects, making it possible for those with physical limitations to practice. Therefore, yoga should be viewed as a valuable public health tool. When integrated into healthcare, community interventions, and lifestyle disease management strategies, the incorporation of yoga into personal routines can lead to improved quality of life, reduced reliance on medication and long-term health. Further research is necessary to support current findings and develop treatment protocols for specific medical conditions.

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