



YOGA AS A PREVENTIVE TOOL FOR NON-COMMUNICABLE DISEASES (NCDS)

***Dr. Girish Shende¹, Dr. Maheshchandra Khandate²**

¹Professor & HOD, Department of Swasthvritta, Smt. Vimla Devi Ayurvedic Medical College & Hospital Chandrapur, Maharashtra

²Professor, Department of Panchkarma, Naiminath Ayurvedic Medical College Agra, Uttar Pradesh

Email: drmaheshkhndt@gmail.com, Mobile: 9975432049

***Corresponding Author** -Dr. Girish Shende, Professor & HOD, Department of Swasthvritta, Smt. Vimla Devi Ayurvedic Medical College & Hospital Chandrapur, Maharashtra

Email: girishmshende@rediffmail.com, Mobile: 9960031411

ABSTRACT

Background: Non-communicable diseases (NCDs) such as cardiovascular diseases, diabetes mellitus, obesity, chronic respiratory disorders, and mental health conditions are major public health challenges worldwide. Rapid urbanization, sedentary lifestyle, unhealthy diet, stress, and disturbed daily routines are key contributing factors. *Yoga*, an ancient holistic health system rooted in Indian tradition, emphasizes physical discipline, breath regulation, mental relaxation, and lifestyle modification, making it a promising preventive approach for NCDs. **Aim:** To evaluate the role of *Yoga* as a preventive tool in reducing the risk and burden of non-communicable diseases. **Objectives:** To understand the concept and principles of *Yoga* in health promotion. To assess the role of *Yoga* practices in preventing major NCDs. To explore the physiological and psychological benefits of *Yoga* relevant to lifestyle disorders.

Materials and Methods: A conceptual and narrative review was conducted using classical *Yoga* texts, *Ayurvedic* literature, and contemporary scientific studies related to *Yoga* and NCD prevention. Data were analyzed descriptively to correlate traditional concepts with modern preventive healthcare approaches. **Results:** Regular practice of *Yoga* including *Asana*, *Pranayama*, *Dhyana*, and *Yama-Niyama* was found to improve metabolic control, cardiovascular function, respiratory efficiency, stress tolerance, and mental well-being. *Yoga* practices help regulate body weight, blood pressure, blood glucose levels, and lipid profile, while also reducing stress, anxiety, and inflammation. These effects directly address major

modifiable risk factors associated with NCDs. **Conclusion:** *Yoga* serves as an effective, safe, low-cost, and holistic preventive tool for non-communicable diseases. By promoting physical activity, mental balance, and healthy lifestyle practices, *Yoga* plays a significant role in reducing NCD risk and improving quality of life. Integration of *Yoga* into public health strategies can contribute substantially to long-term NCD prevention.

Keywords: *Yoga*, non-communicable diseases, Lifestyle disorders, *Asana*, *Pranayama*, Preventive health

INTRODUCTION

Non-communicable diseases (NCDs) such as cardiovascular diseases, diabetes mellitus, obesity, chronic respiratory disorders, and mental health conditions have emerged as leading causes of morbidity and mortality worldwide. These disorders are primarily linked to modifiable lifestyle factors including physical inactivity, unhealthy dietary habits, chronic stress, disturbed sleep, and poor work-life balance. The growing burden of NCDs poses a serious challenge to healthcare systems, especially in developing countries, highlighting the urgent need for effective and sustainable preventive strategies.¹

In recent decades, rapid urbanization and technological advancement have significantly reduced physical activity levels while increasing psychological stress. Sedentary occupations, prolonged screen time, irregular daily routines, and unhealthy coping mechanisms have collectively accelerated the onset of lifestyle-related diseases. Conventional medical management often focuses on long-term pharmacological treatment, which, although essential, may not adequately address the root behavioral and psychosocial causes of NCDs. Therefore, a holistic preventive approach that targets both physical and mental dimensions of health is increasingly being emphasized.²

Yoga is an ancient Indian system of health and well-being that integrates physical postures, breath regulation, mental discipline, and ethical living. Rooted in classical texts such as the *Yoga Sutra* of Patanjali, *Yoga* aims at achieving harmony between body, mind, and spirit. Practices such as *Asana*, *Pranayama*, *Dhyana*, and observance of *Yama* and *Niyama* promote physical fitness, autonomic balance, emotional stability, and stress resilience, which are crucial in preventing lifestyle-related disorders.³

Scientific evidence increasingly supports the role of *Yoga* in reducing key risk factors associated with NCDs. Regular practice of *Yoga* has been shown to improve glycemic control,

blood pressure, lipid profile, body composition, pulmonary function, and mental health parameters. In this context, *Yoga* emerges as a cost-effective, safe, and culturally acceptable preventive tool. Understanding its role in NCD prevention provides valuable insights for integrating traditional practices into modern public health frameworks aimed at promoting long-term health and disease prevention.⁴

AIM AND OBJECTIVES

Aim:

To evaluate the role of *Yoga* as a preventive tool in reducing the risk and burden of non-communicable diseases.⁴

Objectives:

1. To understand the concept and principles of *Yoga* in health promotion.
2. To assess the role of *Yoga* practices in preventing major NCDs.
3. To explore the physiological and psychological benefits of *Yoga* relevant to lifestyle disorders.

MATERIALS AND METHODS

The present study was designed as a conceptual and narrative review. Relevant information was collected from classical *Yoga* texts, *Ayurvedic* literature, and contemporary scientific publications related to *Yoga* and prevention of non-communicable diseases. Standard databases, textbooks, and peer-reviewed journals were referred to for modern evidence on the physiological and psychological effects of *Yoga*. The collected data were systematically reviewed and descriptively analyzed to understand the preventive role of *Yoga* in reducing risk factors and improving health outcomes associated with non-communicable diseases.

CONCEPTUAL STUDY

YOGA

Yoga is an ancient holistic discipline that aims at achieving balance and harmony between the body, mind, and consciousness. Derived from the Sanskrit root *Yuj*, meaning union, *Yoga* signifies the integration of physical, mental, emotional, and spiritual dimensions of life. Classical texts describe *Yoga* not merely as a set of physical exercises but as a comprehensive way of living that promotes health, self-discipline, and inner stability. The ultimate goal of

Yoga is maintenance of health in a healthy individual and prevention of disease through regulation of body and mind.⁵

According to the *Yoga Sutra* of Patanjali, *Yoga* is defined as *Chitta Vritti Nirodha*, which refers to control over mental fluctuations. This mental discipline is achieved through the practice of *Ashtanga Yoga*, comprising *Yama*, *Niyama*, *Asana*, *Pranayama*, *Pratyahara*, *Dharana*, *Dhyana*, and *Samadhi*. Each limb has a specific role, beginning with ethical conduct and personal discipline, progressing through physical and respiratory regulation, and culminating in mental concentration and meditation. Together, these limbs form a structured framework for physical health, mental clarity, and emotional balance.⁶

From a physiological perspective, practices such as *Asana* enhance flexibility, muscle strength, circulation, and neuromuscular coordination, while *Pranayama* regulates respiratory and autonomic functions. Controlled breathing improves oxygenation, reduces sympathetic overactivity, and promotes parasympathetic dominance, leading to relaxation and stress reduction. *Dhyana* and other meditative practices stabilize mental functions, reduce anxiety, and improve cognitive performance, thereby supporting psychosomatic health.⁷

In the context of prevention, *Yoga* acts at the root level by modifying lifestyle, behavior, and stress responses. Regular practice encourages physical activity, mindfulness, emotional regulation, and healthy daily routines. These effects directly counteract the major risk factors responsible for non-communicable diseases such as physical inactivity, stress, obesity, and metabolic imbalance. Thus, the conceptual framework of *Yoga* strongly supports its role as a preventive tool for maintaining health and preventing lifestyle-related disorders.⁸

NON-COMMUNICABLE DISEASES (NCDs)

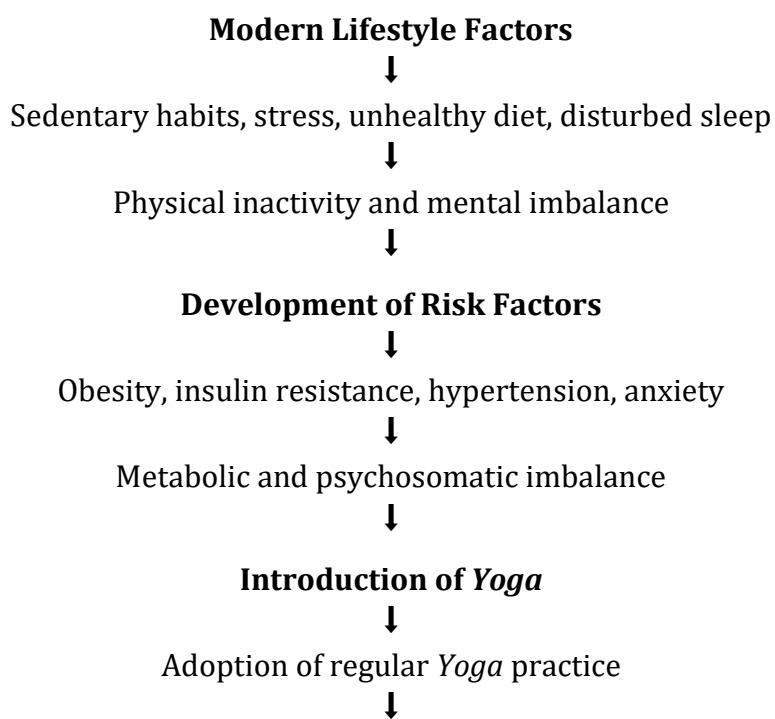
Non-communicable diseases (NCDs) are chronic diseases that are not transmitted from person to person and usually progress slowly over a long period. Major NCDs include cardiovascular diseases, diabetes mellitus, obesity, chronic respiratory diseases, and mental health disorders. These conditions are now the leading cause of morbidity and mortality globally and are responsible for a significant burden on individuals, families, and healthcare systems. Unlike infectious diseases, NCDs are strongly linked to lifestyle and behavioral factors.⁹

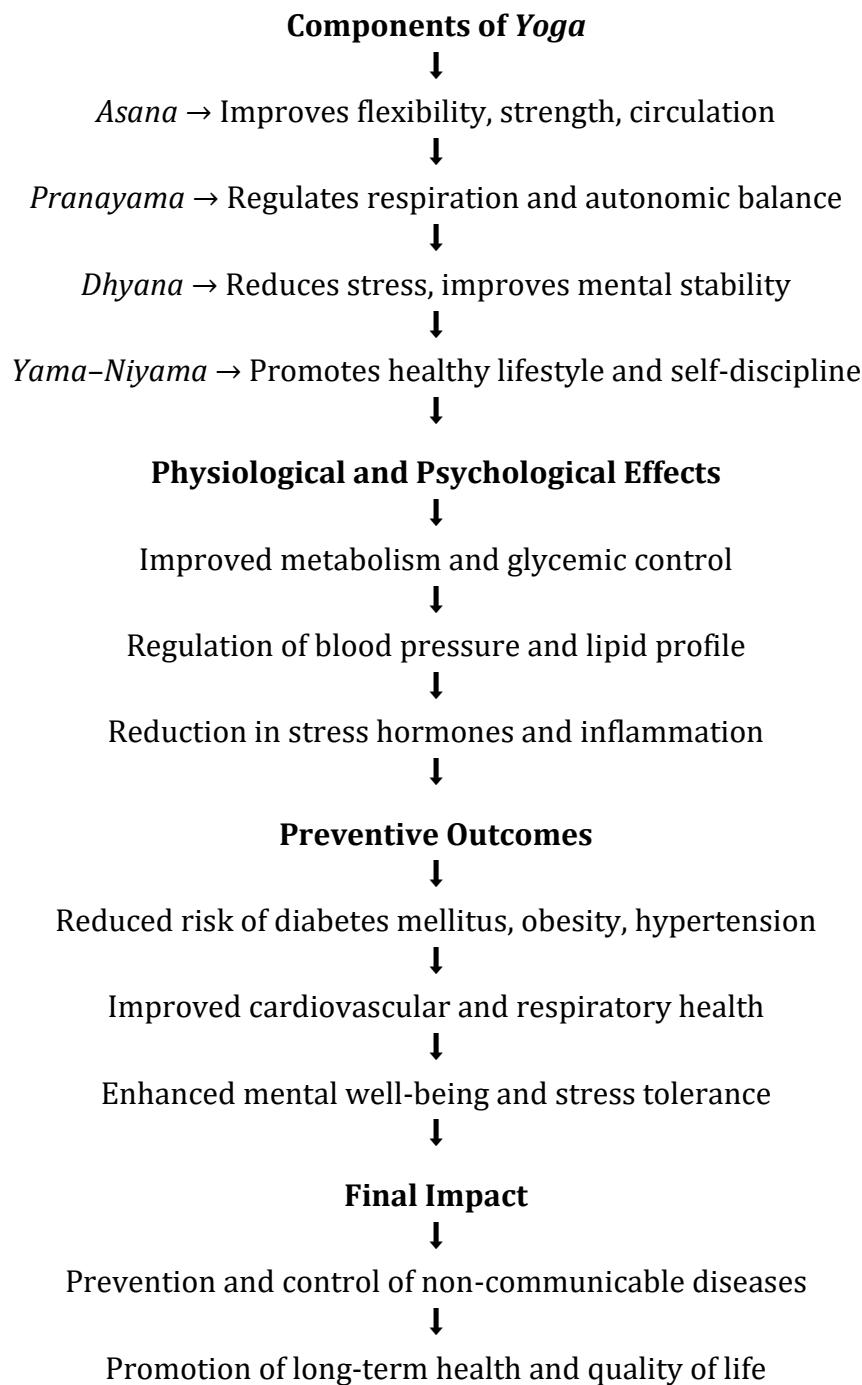
The primary risk factors for NCDs include physical inactivity, unhealthy dietary habits, tobacco use, excessive alcohol consumption, chronic stress, disturbed sleep, and poor work-life balance. Rapid urbanization, mechanization, and technological dependence have further reduced daily physical activity and increased mental strain. These factors lead to metabolic imbalance, hormonal dysregulation, systemic inflammation, and psychological stress, which collectively contribute to the onset and progression of NCDs.¹⁰

From a holistic health perspective, NCDs are largely preventable because most of their risk factors are modifiable. Long-term imbalance in body and mind plays a central role in their development. Continuous stress and sedentary habits disturb normal physiological regulation, weaken adaptive capacity, and promote chronic disease states. Therefore, prevention requires more than pharmacological control and demands lifestyle correction, stress management, and mental well-being.¹¹

In this context, *Yoga* emerges as a valuable preventive approach for NCDs. By promoting regular physical activity, breath control, mental relaxation, and disciplined living, *Yoga* directly targets the root causes of NCDs. Its integrative effect on physical, mental, and emotional health makes it especially relevant in the prevention and long-term management of non-communicable diseases.¹²

Yoga as a Preventive Tool for Non-Communicable Diseases (NCDs) – Flow Chart Wise





RESULTS AND FINDINGS

- Regular practice of *Yoga* was found to improve overall physical fitness, flexibility, and muscular endurance.
- *Yoga* practices showed a positive effect on metabolic parameters by helping in weight regulation and improving insulin sensitivity.

- Reduction in stress, anxiety, and mental fatigue was observed with consistent practice of *Pranayama* and *Dhyana*.
- *Yoga* contributed to better regulation of blood pressure and improved cardiovascular efficiency.
- Improvement in respiratory capacity and breathing efficiency was noted through regular *Pranayama*.
- Adoption of *Yoga* practices promoted healthy lifestyle habits and better self-discipline.
- Regular *Yoga* practice reduced the risk factors associated with major non-communicable diseases such as diabetes mellitus, obesity, hypertension, and mental health disorders.

DISCUSSION

Yoga is a holistic health discipline that addresses both physical and mental dimensions of well-being, making it especially relevant in the prevention of non-communicable diseases. The present conceptual analysis indicates that regular practice of *Yoga* improves physical fitness, metabolic balance, and autonomic regulation. Practices such as *Asana* enhance musculoskeletal strength and flexibility, while *Pranayama* supports respiratory efficiency and cardiovascular stability. These physiological effects directly counteract sedentary lifestyle patterns, which are a primary contributor to the rising burden of non-communicable diseases.¹³

Stress is a major underlying factor in the development and progression of non-communicable diseases, and *Yoga* plays a significant role in stress modulation. Techniques like *Pranayama* and *Dhyana* help in reducing sympathetic overactivity and promote parasympathetic dominance, leading to improved emotional stability and mental clarity. Reduced stress levels contribute to better hormonal regulation, improved glycemic control, and lower blood pressure, thereby decreasing the risk of metabolic and cardiovascular disorders. This mind-body integration is a unique strength of *Yoga* as a preventive intervention.¹⁴

The discussion also highlights that *Yoga* influences behavior and lifestyle, which are critical in long-term disease prevention. Regular practice encourages physical activity, mindful eating, disciplined routines, and improved sleep patterns. Observance of *Yama* and *Niyama* supports ethical conduct, self-control, and mental balance, reinforcing positive health

behaviors. Therefore, *Yoga* not only helps in physiological regulation but also fosters sustainable lifestyle modification, making it an effective, economical, and culturally acceptable preventive tool for non-communicable diseases.¹⁵

CONCLUSION

Yoga is an effective and holistic preventive tool for non-communicable diseases that addresses the root causes of lifestyle-related disorders. The present study highlights that regular practice of *Yoga*, including *Asana*, *Pranayama*, *Dhyana*, and adherence to *Yama-Niyama*, improves physical fitness, metabolic regulation, cardiovascular and respiratory function, and mental well-being. By reducing stress, promoting healthy lifestyle habits, and enhancing mind–body balance, *Yoga* plays a significant role in lowering the risk of major non-communicable diseases such as diabetes mellitus, obesity, hypertension, and mental health disorders. Integrating *Yoga* into daily life and public health strategies can contribute to sustainable disease prevention and improved quality of life.

CONFLICT OF INTEREST -NIL

SOURCE OF SUPPORT -NONE

REFERENCES

1. World Health Organization. *Global status report on noncommunicable diseases 2014*. Geneva: World Health Organization; 2014. p. 1-176.
2. Hunter DJ, Reddy KS. Noncommunicable diseases. *N Engl J Med*. 2013;369(14):1336-1343.
3. Taimni IK. *The Science of Yoga*. Madras: The Theosophical Publishing House; 2013. p. 1-25.
4. Ross A, Thomas S. The health benefits of yoga and exercise: a review of comparison studies. *J Altern Complement Med*. 2010;16(1):3-12.
5. Feuerstein G. *The Yoga Tradition: Its History, Literature, Philosophy and Practice*. Delhi: Motilal BanarsiDass; 2008. p. 15-42.
6. Swami Satchidananda. *The Yoga Sutras of Patanjali*. Yogaville: Integral Yoga Publications; 2012. p. 3-18.

7. Jerath R, Edry JW, Barnes VA, Jerath V. Physiology of long pranayamic breathing: neural respiratory elements may provide a mechanism that explains how slow deep breathing shifts the autonomic nervous system. *Med Hypotheses*. 2006;67(3):566–571.
8. Innes KE, Selfe TK, Taylor AG. Yoga for adults with type 2 diabetes: a systematic review of controlled trials. *J Diabetes Res*. 2016;2016:6979370.
9. World Health Organization. *Noncommunicable diseases: key facts*. Geneva: World Health Organization; 2021. p. 1–6.
10. Hu FB. Globalization of diabetes: the role of diet, lifestyle, and genes. *Diabetes Care*. 2011;34(6):1249–1257.
11. Chatterjee S, Ray S, Mukherjee A. Lifestyle modification for prevention of noncommunicable diseases. *Indian J Public Health*. 2018;62(4):258–265.
12. Sengupta P. Health impacts of yoga and pranayama: a state-of-the-art review. *Int J Prev Med*. 2012;3(7):444–458.
13. Field T. Yoga clinical research review. *Complement Ther Clin Pract*. 2011;17(1):1–8.
14. Pascoe MC, Thompson DR, Ski CF. Yoga, mindfulness-based stress reduction and stress-related physiological measures: a meta-analysis. *Psychoneuroendocrinology*. 2017;86:152–168.
15. Cramer H, Lauche R, Haller H, Dobos G. A systematic review and meta-analysis of yoga for hypertension. *Am J Hypertens*. 2014;27(9):1146–1151.