International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 13 Issue: 03 | Mar 2026 www.irjet.net p-ISSN: 2395-0072
National Conference on "PRANAYAMA BHARAT-2026"
Organized by: Scientific Pranayama Foundation Trust® Mysuru, in collaboration with ATME College of Engineering, Mysuru.

Effect of Scientific Pranayama on Management of Hypertension

Dr. Ramadevi S[1], Dr. Devaki Madhav[2]

[1]Audiologist and Scientific Pranayama Practitioner
[2]Professor, Founder, Scientific Pranayama Foundation Trust, Mysore, India

----------***----------

Abstract *- Today's lifestyle disorders, such as Hypertension, Diabetes, Hypothyroidism, Hyperthyroidism, and nervous breakdown, can be addressed by the practice of Scientific Pranayama. This study focuses on the impact of Scientific Pranayama on individuals with hypertension. Many studies conclude that Pranayama can be used as a cost-effective complementary therapy for hypertension. The present study was conducted on five hypertensive patients aged from 30 years to 70 years. The Scientific Pranayama package of four pranayamas (Ujjayi, Anuloma-Viloma, Bhramari, and Udgeetha) was demonstrated and practiced twice daily for 21 days. Results show that scientific pranayama resulted in a significant reduction in blood pressure in hypertensive individuals, with a positive impact experienced within four days of continuous practice.*

Key Words: Scientific Pranayama, Hypertension, Blood Pressure, Ujjayi, Anuloma-Viloma, Bhramari, Udgeetha, Wellness

1. INTRODUCTION

Pranayama is the fourth limb of the eight limbs of Ashtanga Yoga, as defined by Rishi Patanjali. Scientific Pranayama is a technique that uses a scientific method in normal breathing. Scientific Pranayama offers a multitude of benefits for physical, mental, and emotional well-being.

1.1 Physical Well-being

Enhanced Respiratory Function: Regular practice of pranayama improves lung capacity and efficiency, aiding individuals with respiratory conditions like asthma and bronchitis.

Improved Cardiovascular Health: Pranayama helps regulate heart rate, lowers blood pressure, and improves circulation, reducing the risk of heart disease and stroke. It has been shown to decrease both systolic and diastolic blood pressure in hypertensive individuals.

Improved Digestion: Deep breathing stimulates the vagus nerve, enhancing digestive function and alleviating issues like bloating, constipation, and acid reflux.

Detoxification: Pranayama aids in expelling toxins from the body through enhanced oxygenation and the elimination of carbon dioxide, boosting overall health and vitality.

Boosted Immune System: Regular practice strengthens the immune system by increasing oxygen levels in the blood and improving circulation, making the body more resilient to infections.

1.2 Mental and Emotional Well-being

Scientific Pranayama also affects mental and emotional well-being through stress reduction and anxiety reduction, enhanced mental clarity and focus, emotional stability, and improved sleep quality. In the present-day scenario, people are suffering from many lifestyle disorders such as Hypertension, Diabetes, Hypothyroidism, Hyperthyroidism, and nervous breakdown. These can be addressed by the practice of Scientific Pranayama. One of these lifestyle disorders, hypertension, is the focus of this study.

1.3 Hypertension

Hypertension is the most common cardiovascular disease. The prevalence of Hypertension in Indian population is about 30-40%. Hypertension is a condition in which the blood pressure (BP) in the arteries is persistently raised. Blood pressure is measured in terms of millimeters of mercury (mm Hg). The typical values are: Normal BP: 120/80, High BP: 140/90, Severe BP: 180/120, Low BP: 90/60.

Symptoms: The symptoms of High BP include headache, fatigue or confusion, and irregular heartbeat.

Management: Lifestyle modification and drug treatment. Lifestyle modification includes diet, regular exercise and Yoga. Drugs commonly used are diuretics and beta-blockers.

2. AIM

To study the impact of Scientific Pranayama on individuals with hypertension.

3. METHOD

The study was conducted on five hypertensive patients aged from 30 years to 70 years. The Scientific Pranayama package of four pranayamas included:

Table 1: Morning Practice

Pranayama	Duration
Ujjayi	10 minutes
Anuloma-Viloma	20 minutes
Bhramari	10 times
Udgeetha	10 minutes

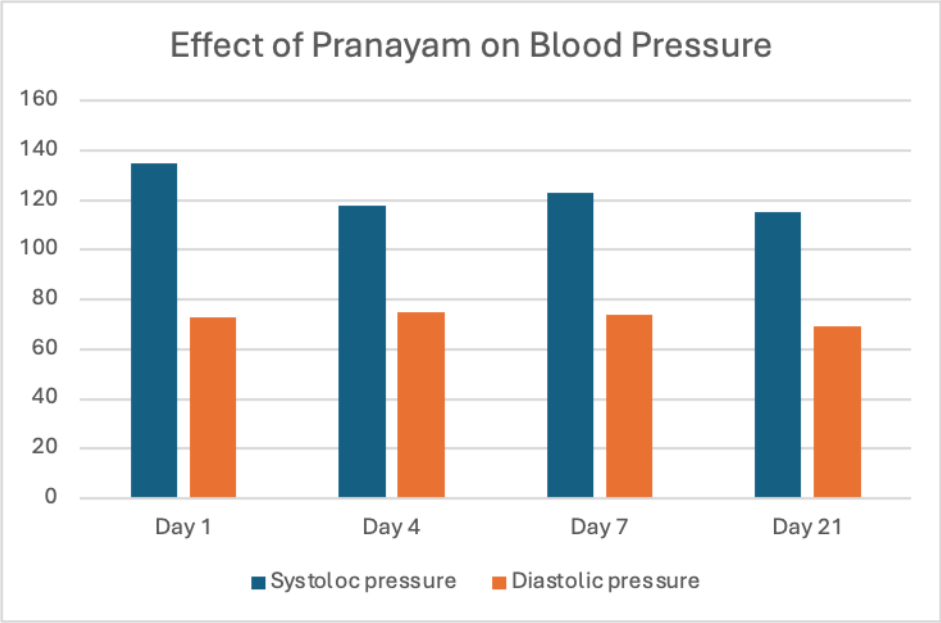
Table 2: Evening Practice

Pranayama	Duration
Anuloma-Viloma	20 minutes
Udgeetha	10 minutes

All 5 subjects were given a demonstration of the four scientific pranayama practices. They were instructed to practice twice daily following the morning and evening schedules. Blood pressure readings were taken before starting practice on the first day and monitored daily throughout the 21-day period. After 21 days, subjects consulted their doctors. Two subjects were advised to stop allopathic medication, one had the dosage reduced to half, and the remaining two showed blood pressure values returning to normal.

4. RESULTS

The median values of Systolic and Diastolic blood pressures of 5 subjects were recorded after the first day, fourth day, seventh day, and twenty-first day. The graph analysis revealed a significant difference in Systolic blood pressure between Day 1 and Day 4, Day 1 and Day 7, and Day 1 and Day 21. However, Diastolic blood pressure showed marginal changes.



4.1 Friedman's Test Results - Systolic Blood Pressure

Pairwise comparisons reveal specific significant differences: Day 21 is significantly different from Day 1 (Sig. = .003, Adj. Sig. = .020). This indicates a significant reduction in systolic blood pressure when comparing Day 1 and Day 21 of

Pranayama practice.

4.2 Friedman's Test Results - Diastolic Blood Pressure

Friedman's test does not show a significant difference in the distributions across Day 1, Day 4, Day 7, and Day 21 (Sig. = .051). The null hypothesis is retained for diastolic blood pressure.

5. CONCLUSION

Scientific pranayama (Ujjayi, Anuloma-Viloma, Bhramari, and Udgeetha) results in significant reduction in systolic blood pressure in hypertensive individuals. This positive impact was experienced within four days of continuous pranayama practice and is attributed to the activation of the parasympathetic nervous system. The study demonstrates that Scientific pranayama can be recommended for management of hypertension, contributing to overall wellness. While systolic blood pressure showed significant improvement, diastolic blood pressure showed marginal benefits. Future research with larger populations and longer duration is recommended for more conclusive results.

ACKNOWLEDGEMENT

The authors acknowledge all the participants who volunteered for this study and the Scientific Pranayama Foundation Trust for their support in conducting this research.

REFERENCES

[1] Ranjana G.T., "The Effectiveness of Pranayama on Blood Pressure of Hypertensive Patients," International Journal of Science and Research (IJSR), vol. 4, Issue 8, Aug. 2015, pp. 561-564.

[2] Devaki Madhav, Scientific Pranayama, second edition. Bangalore, Karnataka: Abhi publications, 2025.

[3] Devaki Madhav, Impact of Science of Pranayama, first edition. Mysore, Karnataka: Scientific pranayama Shishyavrinda, 2022.

[4] Devaki Madhav, Compendium on "The Science of Pranayama", second edition. Mysore, Karnataka: Scientific Pranayama Foundation Trust (R), 2025.

[5] Adlin Shinija N., "Effectiveness of Bhramari Pranayama on Hypertension," International Journal of Science and Research (IJSR), vol. 8, Issue 2, Feb. 2019, pp. 2261-2265.

[6] Manju J., Bharati R., and Hrishikesh P., "Effect of Bhastrika and Nadisodhan Pranayama on Selected Physiological Functions of Sedentary Women," IOSR Journal Of Humanities And Social Science (IOSR-JHSS), vol. 22, Issue 9, Ver. 1, Sep. 2017, pp. 70-72.

[7] Poonam N., Shashikant A., Ishrat K., and Himanshu S., "Study the effect of different types of Pranayams on physiological parameters in hypertensive patients," International Journal of Applied Research, vol. 8, Issue 1, 2022, pp. 160-165.

[8] Minaxikumari S. S., and Niru P., "A Study to evaluate the effect of Pranayama on the physiological parameters among the hypertension patients admitted in Shri Vinobabhave Civil hospital, Silvassan DNH &DD," International Journal of Creative Research Thoughts (IJCRT), vol. 11, Issue 3, Mar. 2023, pp. d165-d168.

[9] Dheeraj J., Suresh K. M., Mamta M., and Nidhi G., "Effect of Pranayama Practices on the Management of Hypertension," International Journal of Pharmaceutical and Clinical Research, vol. 14, Issue 3, 2022, pp. 664-667.

[10] Ganapathy S. U., and Monisha R., "Effectiveness of Pranayama on Heart Rate and Blood Pressure in Hypertension (Stage I)," J. Pharm. Sci. & Res, vol. 12, Issue 1, 2020, pp. 165-166.

[11] Reema C. K., and Sekar B. K., "Influence of pranayama practices on hypertension," International Journal of Yogic, Human Movement and Sports Sciences, vol. 3, Issue 1, 2018, pp. 616-619.

[12] Nitai B., Dilip K. D., Pradip S., and Sajal H., "A Review of Pranayama Practice and Its Effects on Blood Pressure and Heart Rate," International Journal of Science and Research (IJSR), vol. 12, Issue 6, Jun. 2023, pp. 526-529.

[13] Samiksha S., Kirti T., Tejal R., and Anshu A., "To Find Out Immediate Effect of Bhramari Pranayama on Blood Pressure, Heart Rate and Oxygen Saturation in Hypertensive Patients," International Journal of Current Research and Review, vol. 12, Issue 19, 2020, pp. 193-197.