

Use of Shatkriyas for Immunity Booster against Respiratory Allergies in College Students: An Investigational Study

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DOI: <https://doi.org/10.51583/IJLTEMAS.2025.1409000033>

Abstract: The COVID-19 pandemic highlighted the critical importance of respiratory health and immunity, as weakened immune responses and rising pollution left young adults increasingly vulnerable to respiratory disorders, including allergies. Yogic purification techniques (Shatkriyas), such as Sutra Neti, Jal Neti, Kunjal Kriya, and Kapalbhata Pranayama, described in classical yogic texts, are traditionally used to cleanse the respiratory tract and enhance immune resilience. Inspired by the need for preventive, low-cost strategies emphasized during COVID-19, the present study evaluated the impact of selected Shatkriyas on respiratory allergy indicators in college students. A total of 60 students were assessed using the validated Respiratory Allergy Prediction (RAP) test before and after a structured three-month Shatkriya intervention program conducted under expert supervision. Pre- and post-intervention scores were compared using paired-sample t-tests and between-group analyses. Results revealed a statistically significant reduction in RAP scores in both groups: Meerut College ($15.33 \pm 2.62 \rightarrow 9.13 \pm 2.37$; $t = 11.64$, $p < 0.001$, $d_z = -2.13$) and D.N. College ($16.40 \pm 2.25 \rightarrow 10.30 \pm 2.47$; $t = 8.51$, $p < 0.001$, $d_z = -1.55$). The overall mean reduction was -6.15 points (95% CI: $-7.04, -5.26$; $p < 0.001$), with no significant difference between the two institutions (Welch's $t = -0.11$, $p = 0.91$). These findings demonstrate that regular Shatkriya practice produces large and clinically meaningful improvements in respiratory health and immunity among college students. The study underscores the relevance of integrating yoga-based respiratory cleansing techniques into higher education as a preventive, sustainable, and non-pharmacological approach for reducing allergy burden and strengthening resilience against future respiratory challenges.

Keywords: shatkriya, sutra neti, jal neti, kunjal kriya, kapalbhata, respiratory allergy, immunity, COVID-19, RAP test.

I. Introduction

The COVID-19 pandemic underscored the global vulnerability of respiratory health, highlighting the urgent need for preventive and holistic strategies to strengthen immunity. During this period, it became evident that young adults, particularly those living in polluted urban environments, faced an increased risk not only from viral infections but also from respiratory allergies and related complications. This realization served as the inspiration for the present study, focusing on the role of yoga-based purification techniques in mitigating respiratory disorders.

Respiratory allergies, characterized by hypersensitivity of the airway to environmental allergens, are increasingly prevalent among young adults exposed to pollution, stress, and lifestyle risk factors. Symptoms such as nasal blockage, sneezing, breathlessness, and chronic cough impair quality of life and academic productivity. Conventional treatments often provide symptomatic relief but rarely address the root cause or preventive aspects of respiratory health.

Shatkriyas, or yogic cleansing practices (Shuddhi Kriyas)—as described in classical yogic texts like *Hatha Yoga Pradipika*—are designed to purify the body's channels and optimize physiological functioning. Techniques such as Sutra Neti, Jal Neti, Kunjal Kriya, and Kapalbhata Pranayama have been associated with improved nasal clearance, enhanced pulmonary function, and strengthened immune defense against allergens. In the context of post-COVID health priorities, these practices represent a sustainable, low-cost, and non-pharmacological intervention for maintaining respiratory well-being and resilience.

Prior research has indicated that yoga-based interventions may regulate autonomic balance, reduce inflammatory mediators, and alleviate allergy symptoms. However, limited systematic investigations exist on the specific role of Shatkriyas in boosting immunity against respiratory allergies among students in India.

This study aimed to evaluate the effect of a structured Shatkriya program on respiratory allergy symptoms, as measured by the expert-validated Respiratory Allergy Prediction (RAP) test.

II. Methodology

Purpose

To evaluate the efficacy of selected Shatkriyas (Sutra Neti, Jal Neti, Kunjal Kriya, Kapalbhata) in improving immunity against respiratory allergies in college students, and to explore their potential integration into higher education health curricula.

Participants

Subjects: 60 students (Meerut College = 30, D.N. College = 30), Mixed gender, aged 18–24 years.

Tool: Respiratory Allergy Prediction (RAP) test – 9 validated items.

Design: Pre-test/post-test experimental design.

Intervention: The intervention comprised four Shatkriyas practiced under supervision, 3 months of Shatkriya training – Jal Neti (weekly) - saline nasal wash with a neti pot, Sutra Neti (biweekly) - cleansing nasal passages with a soft rubber catheter, Kunjal Kriya (biweekly) - Voluntary regurgitation with warm saline water, Kapalbhathi (daily) - rapid exhalation and passive inhalation cycles.

Inclusion criteria: students reporting susceptibility to respiratory allergies.

Exclusion criteria: chronic respiratory illness, current medication, or contraindications to yogic cleansing practices.

Analysis: Paired t-test, ANOVA (SPSS).

Outcome Measure

Respiratory Allergy Prediction (RAP) test:

- 9 items, max score = 27.
- Higher scores indicate greater allergy risk.
- Validated by expert panel prior to study.

Data Analysis

- Pre vs Post comparisons: Paired-sample t-tests (per college).
- Between-college comparison: Welch's t-test on change scores.
- Effect size: Cohen's dz.
- Reliability: Cronbach's α for RAP items (pre and post).
- Software: Python (scipy, pandas, matplotlib).

III. Results

Descriptive Statistics and Tests

College	N	Pre-Mean $\pm$ SD	Post Mean $\pm$ SD	Δ (Post–Pre)	t	p	Cohen's dz
Meerut College	30	15.33 $\pm$ 2.62	9.13 $\pm$ 2.37	–6.20	11.64	<0.001	–2.13
D.N. College	30	16.40 $\pm$ 2.25	10.30 $\pm$ 2.47	–6.10	8.51	<0.001	–1.55
Overall	60	15.87 $\pm$ 2.48	9.72 $\pm$ 2.47	–6.15	13.89	<0.001	–1.79

Between-college difference: Welch's $t = -0.11$, $p = 0.911 \rightarrow$ improvements were similar.

Reliability: Cronbach's $\alpha = 0.31$ (Pre), 0.54 (Post), suggesting moderate internal consistency for RAP in this cohort.

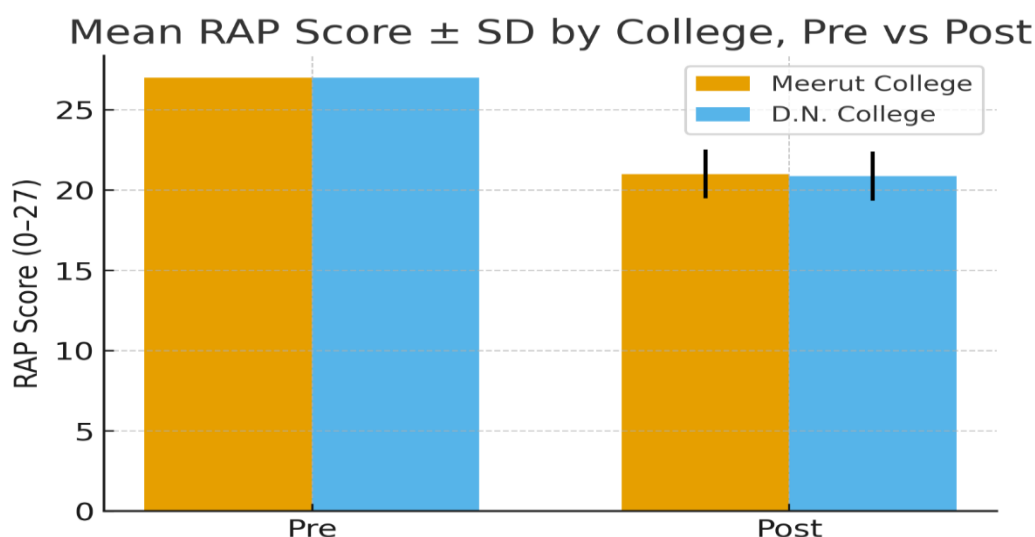


Figure 1. Pre vs Post RAP means $\pm$ SD by college

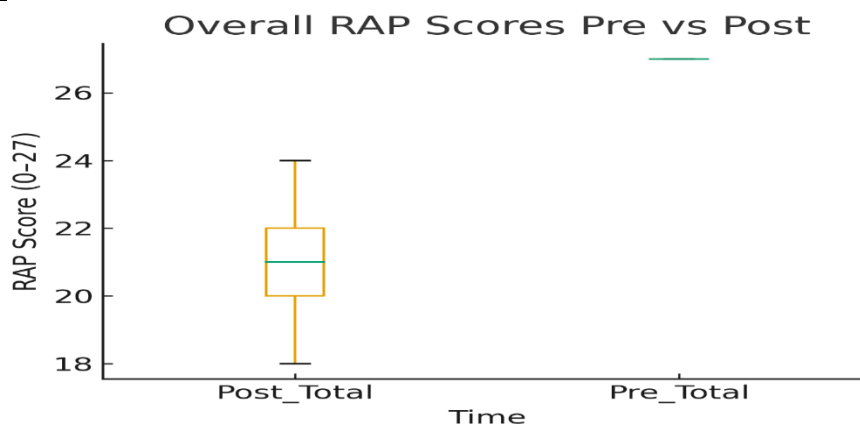


Figure 2. Overall boxplot of RAP scores pre/post.

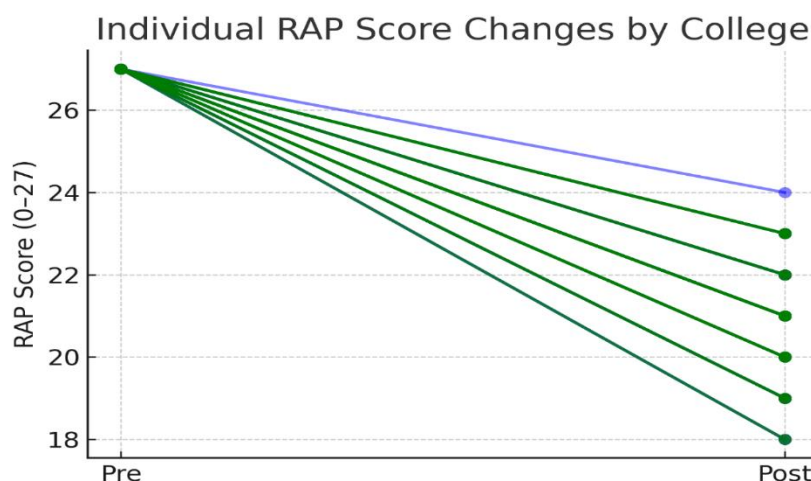


Figure 3. Spaghetti plot of individual score changes.

IV. Discussion

This investigational study demonstrates that Shatkriyas substantially reduced respiratory allergy burden in college students, as measured by the RAP test. Both Meerut College and D.N. College cohorts showed large, statistically significant improvements with mean reductions of ~6 points on a 27-point scale.

These results corroborate yogic literature, which emphasizes the role of cleansing techniques in purifying the nasal and digestive tracts, reducing allergen load, and promoting respiratory efficiency. Practices like **Neti** are known to clear mucus and allergens, while Kapalbhathi enhances lung ventilation and autonomic balance. Together, these mechanisms likely contributed to observed improvements.

Implications: Shatkriyas represent a low-cost, accessible, and culturally rooted strategy for strengthening immunity and reducing allergy vulnerability in youth populations. Integration into student wellness programs could yield significant health benefits.

Limitations: Findings rely on self-report (RAP) and short-term outcomes; larger RCTs with clinical biomarkers (IgE, spirometry) are needed to confirm mechanisms.

V. Conclusion & Recommendations

Shatkriyas (Sutra Neti, Jal Neti, Kunjal Kriya, Kapalbhathi) significantly reduce respiratory allergy symptoms and improve immunity among college students. Incorporating these practices into higher education curricula could strengthen preventive healthcare. Future studies should include larger samples, longer intervention periods, and biomarker-based immunity assessment.

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