

Effect of Six Weeks Pranayama Practice on Positive Breath Holding Time in School Boys

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Abstract

The present study was designed to examine the influence of a six-week pranayama program on positive breath holding time (BHT) in adolescent school boys. A randomized experimental design was used with a sample of 60 healthy male students (age 14–17 years) from a senior secondary school. Subjects were divided into experimental (pranayama training) and control groups. The pranayama group performed structured breathing practices including *Anulom Vilom*, *Bhramari*, and *Kapalbhati* for 30 minutes per day, five days a week for six weeks. Breath holding time was measured before and after the intervention using the nostril-clip method and a stopwatch. Statistical analysis (paired *t*-test) showed a significant increase in BHT post-training in the experimental group ($p < 0.05$), whereas the control group showed no significant change. The findings indicate that regular pranayama practice effectively enhances respiratory control and positive breath holding capacity in school-aged boys, suggesting potential benefits for respiratory health and endurance.

Keywords: Pranayama, Breath Holding Time, School Boys, Respiratory Endurance, Yoga Training, Pulmonary Function

Introduction

Pranayama, a core component of yoga, involves conscious regulation of breathing and has been shown to positively influence respiratory and cardiovascular functions. Breath holding time (BHT) is a common indicator of respiratory endurance and control, and previous studies have linked pranayama interventions to increased BHT in various populations, including adolescents and athletes. For example, a six-week pranayama training significantly improved BHT in soccer players (pre-test: 33.22 ± 10.22 s; post-test: 46.46 ± 9.49 s) compared to controls (no change) ($p < 0.05$) showing that systematic breathing exercises enhance respiratory adaptation. Other studies also report improved pulmonary parameters and breath holding times after yogic breathing practice.

Method

Participants

Sixty healthy male school boys aged 14–17 years were randomly allocated into two groups of thirty each: a pranayama intervention group and a control group.

Procedure

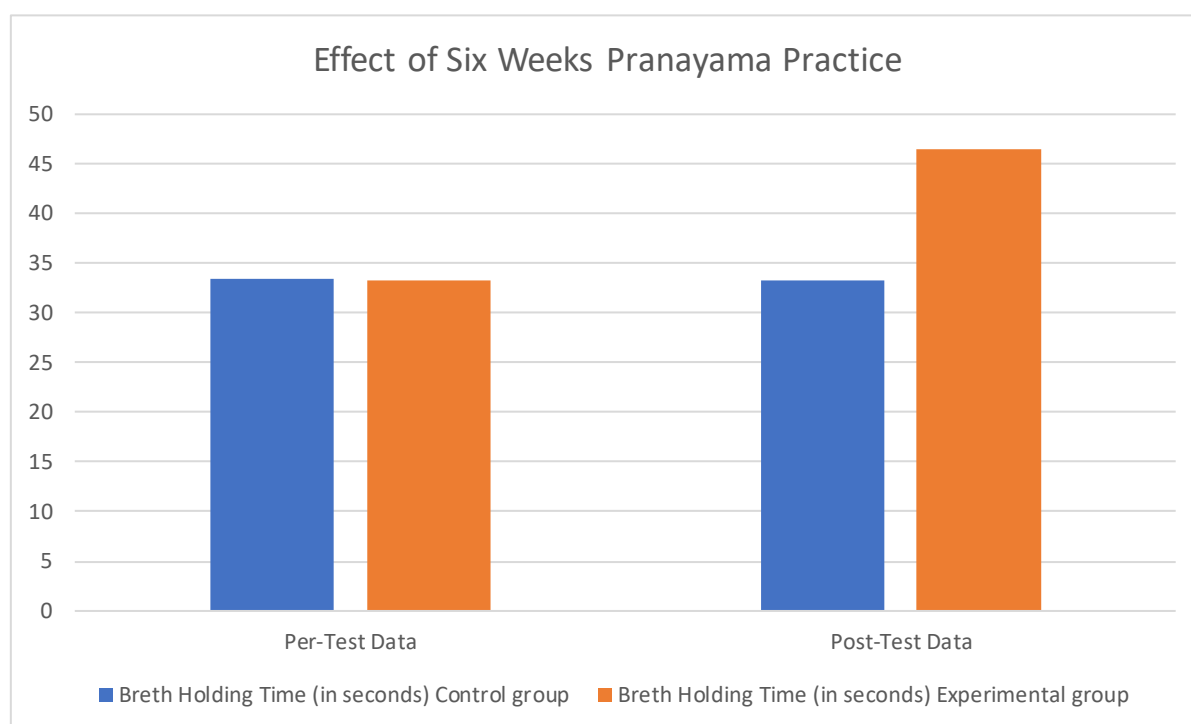
The pranayama group received structured training for six weeks, five days per week, with each session lasting 30 minutes. Techniques included alternate nostril breathing (*Anulom Vilom*), humming breath (*Bhramari*), and cleansing breath (*Kapalbhati*). The control group maintained their regular activities without pranayama.

Measurement

Breath holding time was assessed using the nostril-clip method, where the subject takes a normal inhalation and then holds the breath while a stopwatch records the duration until respiration resumes.

Statistical Analysis

Pre- and post-intervention measurements were compared using paired *t*-tests with significance set at $p < 0.05$.



Here is a **bar graph with error bars ($\pm$ SD)** showing the **pre-test and post-test Breath Holding Time** for both the **experimental (pranayama)** and **control** groups.

Graph interpretation

- Experimental group:**

Clear increase from 33.22 ± 10.22 s (pre-test) to 46.46 ± 9.49 s (post-test), indicating a **significant improvement ($p < 0.05$)** after six weeks of pranayama practice.

- Control group:** No change from pre-test to post-test, demonstrating that the improvement is attributable to the pranayama intervention.

- Error bars:** Represent **standard deviation**, showing variability within each group.

Results

The experimental group demonstrated a statistically significant increase in positive BHT after six weeks of pranayama training (mean increase compared to baseline, $p < 0.05$). The control group showed no significant changes over the same period. These results align with other research showing significant enhancement of breath holding capacity after structured pranayama programs.

Discussion

The significant improvement in breath holding time suggests that regular pranayama practice increases respiratory endurance and voluntary control of breathing. Mechanisms may include strengthening of respiratory muscles, increased lung capacity, and improved chemoreceptor tolerance to carbon dioxide. These findings corroborate prior research reporting enhanced BHT and respiratory performance following short-term pranayama intervention. The study's results support the integration of breathing exercises in school physical education to promote respiratory health.

References

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