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## Examining the impact of a short-term Bharamari Pranayama practice on cardiorespiratory endurance among university level boys: A quantitative study

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### Abstract

The purpose of this study was to examine the impact of a short-term Bharamari Pranayama breathing practice and outcome of an intervention using the training programme to increase student's cardiorespiratory endurance. For the purpose of present study Forty (n=40), university level boys between the age group of 19-25 years were selected. The subjects were purposively assigned into two groups: Group-A: Experimental (n<sub>1</sub>=20); Group-B: Control (n<sub>2</sub>=20). The subjects from Group-A: Experimental were subjected to a 6-week training of Bharamari Pranayama. Student t test for paired samples was utilized to compare the means of pre-test and post-test. Based on the analysis of the results it is concluded that insignificant differences were noted in cardiorespiratory endurance of university level boys.

**Keywords:** Bharamari, Pranayama, Cooper 12-Minute Run Test, Cardiorespiratory Endurance.

### Introduction

Pranayama, an ancient yogic breathing practice, has garnered attention in contemporary research for its potential benefits on cardiovascular health and overall well-being among university students. Studies have shown that pranayama or breath regulation is considered an important aspect of Yoga, which is said to influence the physiological systems. The study had proved that 10 week yoga training improves cardio-breathing capabilities in normal young volunteers [2]. By integrating pranayama alongside other physical activities and mindfulness practices, universities can empower students to cultivate lifelong habits that will be able to support their well-being beyond the academic setting [5]. Bharamari pranayama was proved to cause a reduction in blood pressure after the exercise and for that reason was suggested to result in parasympathetic relaxation [7]. Incorporating pranayama into university wellness programs can offer students a holistic approach to maintaining cardiovascular health and promoting a healthy lifestyle [11]. Thus, the inclusion of pranayama in university health initiatives holds promise for fostering a campus culture that prioritizes holistic wellness and empowers students to thrive both personally and academically.

### Material and Methods

The experimental work is planned to draw meaningful results. Forty (n=40), university level boys between the age group of 19-25 years were selected from Guru Nanak Dev University, Amritsar. The subjects were purposively assigned into two groups: Group-A: Experimental (n<sub>1</sub>=20); Group-B: Control (n<sub>2</sub>=20). The subjects from Group-A: Experimental were subjected to a 6-week training of Bharamari Pranayama. This lasted 6-week and consisted of daily morning sessions. The Cooper 12-Minute Run test was used to measure cardiorespiratory endurance.

### Statistical Analysis

The paired sample t-test was used to test the between-group differences. To test the hypothesis, the level of significance was set at 0.05. The Statistical Package for the Social Sciences (SPSS) version 26.0 was used for the research findings.

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**Results**

**Table 1:** Descriptive statistics (Mean & Standard Deviation) and paired sample t-test of Experimental and Control Group of Cardiorespiratory Endurance of university level boys.

Cardiorespiratory Endurance						
Group	Number	Mean	Standard Deviation	Standard Error of the Mean	t-value	p-value
Experimental (Pre-test)	20	2063.00	213.17	47.66	1.9251	0.0693
Experimental (Post-test)	20	2164.00	192.66	43.08		
Control (Pre-test)	20	2075.00	231.41	51.74	0.4904	0.6295
Control (Post-test)	20	2065.00	187.15	41.84		

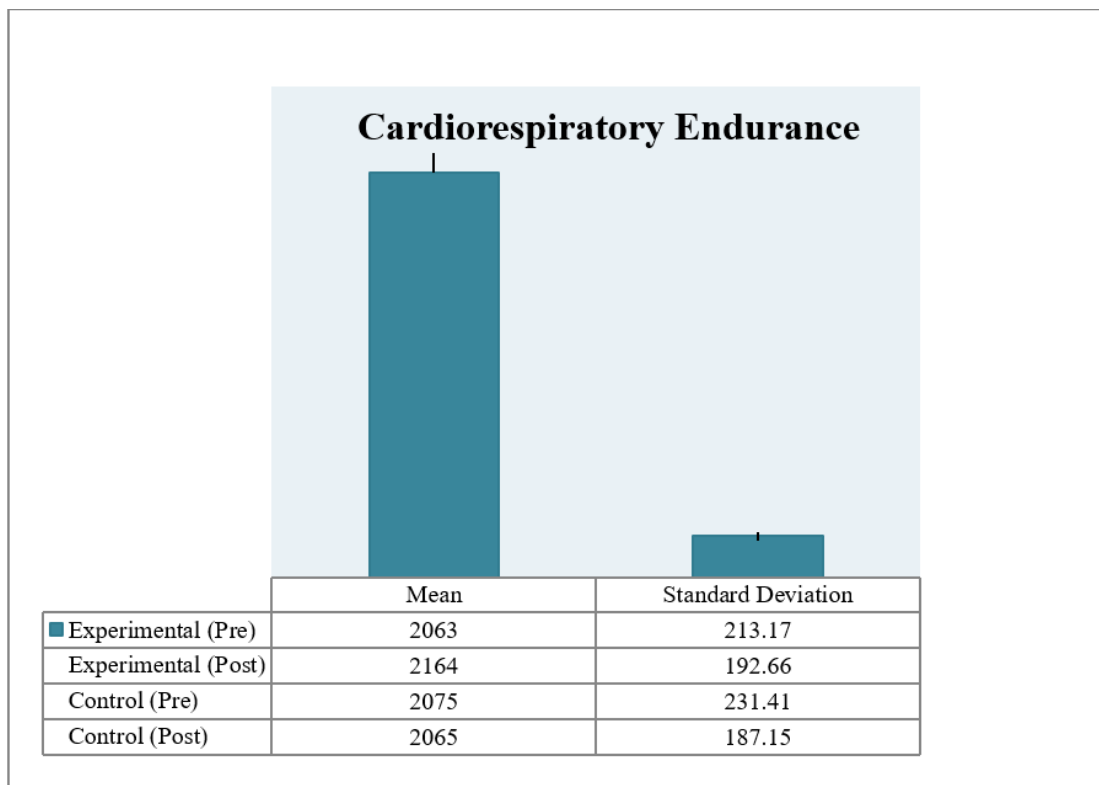
**Cardiorespiratory Endurance**

Experimental Group (n<sub>1</sub>=20)

The absolute value of the calculated p is greater than critical value [0.0693 > 0.05], so the means of experimental group (Pre-Test & Post-Test) are not significantly different regards to the variable, Cardiorespiratory Endurance of university level boys.

Control Group (n<sub>2</sub>=20)

The absolute value of the calculated p is greater than critical value [0.6295 > 0.05], so the means of control group (Pre-Test & Post-Test) are not significantly different regards to the variable, Cardiorespiratory Endurance of university level boys.



**Fig 1:** Mean and SD values of Cardiorespiratory Endurance of Experimental and Control group (n=20 each) before (Pre) and after (Post) 6-week Bharamari Pranayama Training Programme.

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