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Effect of bhastrika pranayama practices on breath holding time among university hostel students

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Abstract

The purpose of the study was to find out the effect of Bhastrika pranayama practices on breath holding time among M.S University hostel men students. To achieve the purpose of this study, 20 men Hostel students were randomly selected as subjects from the Manonmaniam Sundaranar University, Abishekapatti, Tirunelveli, Tamil Nadu, India. Their age ranged from 18 to 25 years. The selected participants were randomly divided into two groups such as group 'A' Bhastrika pranayama practices (n=10) and group 'B' acted as control group (n=10). Group 'A' underwent Bhastrika pranayama practices for alternative three days and each session lasted for an hour for six week. Control group was not exposed to any specific training but they were participated in regular activities. The "nostril clip method" (seconds) was used to measure breath holding time were selected as variables. The pre and post tests data were collected on selected criterion variables prior and immediately after the training program. The pre and post-test scores were statistically examined by the dependent 't' test and Analysis of covariance (ANCOVA). The level of significant was fixed at 0.05 level. It was concluded that the breath holding time group had shown significantly improved in breath holding time. However the control group had not shown any significant improvement on breath holding time.

Keywords: Bhastrika pranayama practices, breath holding time, students

Introduction

Yoga is a science practiced in India for thousands of years. Many studies have shown that it produces consistent physiological changes with proven health benefits.^[1, 2] Yoga is designed to balance physical, mental, emotional, and spiritual well-being in an individual. It includes gentle stretching of muscles and breathing exercises with wide range of classical Asanas and Pranayama practices.^[3] Pranayama is an important component of yoga training. Pranayama (controlled breathing exercise) improves the airway reactivity in the asthmatic individuals^[4]. 'Pranayama' is a Sanskrit word, Prana and Ayama. Prana refers to all forms of energy in the universe. Breathing symbolizes life force, which is a part of Prana. 'Ayama' means development or control. Therefore Pranayama is the development and control of life force^[5]. Pranayama is considered to regulate breathing. Slow and deep breathing reduces the dead space ventilation, renews air throughout the lungs^[6].

Bhastrika pranayama is one of the important type of pranayama. The Sanskrit word "Bhastrika" means "Bellows". Thus, Bhastrika Pranayama is also known as the Bellows breathing, as air is drawn forcefully in and out of the lungs like the bellows of village blacksmith. Bhastrika practice strengthens the diaphragm and abdominal muscles, increases exchange of O₂ and CO₂ in the bloodstream, alleviate inflammation in the throat, reduce accumulation of phlegm and balances and strengthens the nervous system^[7].

Purpose of the study

The purpose of the study was to find the effect of Bhastrika pranayama practices on breath holding time among university hostel students.

Methodology

To achieve the purpose of this study, 20 men hostel students were randomly selected as subjects from the manonmaniam Sundaranar University, Abishekapatti, Tirunelveli,

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Tamilnadu, India. Their age ranged from 18 to 25 years. The selected participants were randomly divided into two groups such as group ‘A’ ‘Bhastrika pranayama practices’ (n=10) and group ‘B’ acted as control group (n=10). Group ‘A’ underwent Bhastrika pranayama practices for alternative three days and each session lasted for an hour for six week. However, control group was not exposed to any specific training but they participated in their regular schedule. The “nostril clip method” (seconds) was used to measure breath

holding time were collected on selected criterion variables prior and immediately after the training program. The pre and post-test selected criterion variable scores were statistically examined by the dependent ‘t’ test and Analysis of Covariance (ANCOVA). The level of significance was fixed at .05 level of confidence, which was considered as appropriate.

Analysis of data

Table 1: Means and dependent ‘t’ test for the pre and post tests on breath holding time of experimental and control groups

| Criterion variables | Test | Experimental Group Mean | Control Group Mean |
|---------------------|-----------|-------------------------|--------------------|
| Breath Holding Time | Pre test | 37.92 | 37.04 |
| | Post test | 43.76 | 39.43 |
| | ‘t’ test | 6.90* | 1.13 |

*Significant at .05 level. (Table value required for significance at .05 level for ‘t’-test with df 9 is 2.26)

The table-1 shows that the pre-test mean value of experimental and control groups on breath holding time are 37.92 and 37.04 respectively and the post test means are 43.76 and 39.43 respectively. The obtained dependent t-ratio values between the pre and post test means of Bhastrika pranayama practices and control groups are 6.90 and 1.13 respectively. The table value required for significant

difference with df 9 at 0.05 level is 2.26. From the above table the dependent ‘t’-test value of breath holding time between pre and post tests means of experimental group was greater than the table value 2.26 with df 9 at .05 level of confidence, it was concluded that the experimental group had significant improvement in the breath holding time when compared to control group.

Table 2: Computation of mean and analysis of covariance breath holding time of experimental and control groups

| | Experimental Group | Control Group | Source of Variance | Sum of Squares | Df | Mean Square | F |
|---------------------|--------------------|---------------|--------------------|----------------|----|-------------|--------|
| Breath Holding Time | 44.06 | 39.67 | BG | 215.23 | 1 | 215.23 | 26.12* |
| | | | WG | 140.08 | 17 | 8.24 | |

* Significant at 0.05 level. Table value for df 1, 17 was 4.45

Table-2 shows that the adjusted post test means values on breath holding time of experimental and control groups 44.06 & 39.67 respectively. The obtained f- ratio of 26.12 for adjusted post test mean is greater than the table value 4.45 with df 1 and 17 required for significance at 0.05 level of confidence. The results of the study indicated that there was a

significant mean difference exist between the adjusted post test means of Bhastrika pranayama practices and control groups on breath holding time.

The bar diagram figure-1 shows that the mean values of pre, post and adjusted post tests on breath holding time of Bhastrika pranayama practices and control groups.

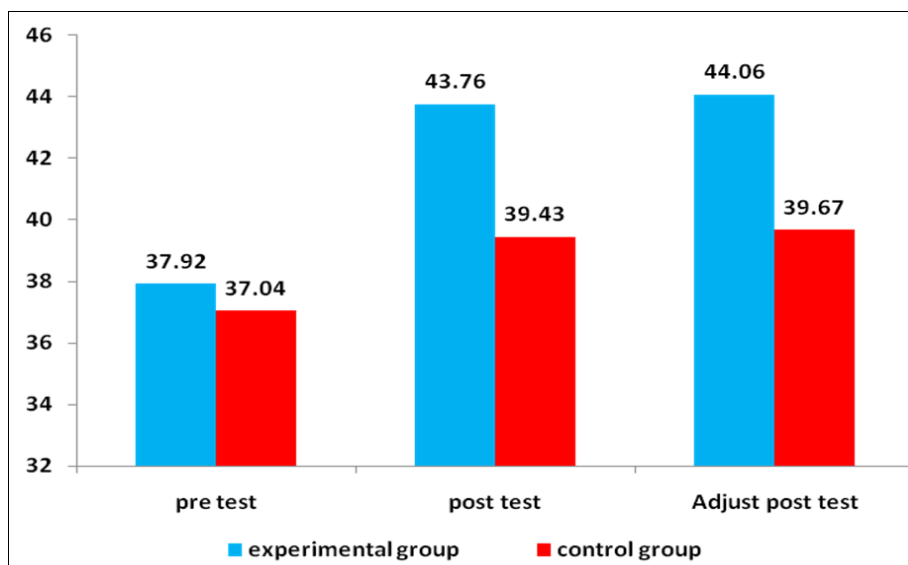


Fig 1: Pre, post and adjusted post tests mean values of experimental and control groups on breath holding time (seconds).

Conclusions

1. There was significant improvement on breath holding time due to the effect of Bhastrika pranayama practices among M.S. University hostel men students.
2. However the control group had not shown any significant improvement on any of the selected variables.

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