

The Efficacy of Cultural Asanas and Pranayama Practices on the Vital Capacity of College Men

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ABSTRACT

An essential element of overall health is the lungs' vital capacity. Vital capacity is a significant concern for smokers, people with known lung problems, and people with asthma, heart problems, and other lung ailments. The purpose of the study was to find out how well college-aged men's vital capacities were affected by cultural asanas and pranayama practices. Sixty college men, ages 18 to 24, which were randomly selected as subjects from Rajiv Gandhi Arts and Science College, Puducherry, were used to accomplish the goal. There were four groups created out of them. Group I of the experiment was designated as a practice group for cultural asanas, Group II as a pranayama practice group, Group III as a combined cultural asanas and pranayama practice group, and Group IV as a control group. The investigator didn't try to compare the groups in any way. Three days a week, the experimental groups received cultural asanas and pranayama practices; the control group received no treatment or exercise. For a duration of twelve weeks, the experimental groups received instruction in cultural asanas, pranayama, and combined cultural asanas and pranayama practices. Vital capacity was selected as the dependent variable, and evaluations were conducted both prior to and following the 12-week training regimen. The SPSS program was used to evaluate the acquired data. The influence of cultural asanas and pranayama

practices significantly improved the vital capacity, as indicated by the F value.

Introduction

Yoga is a traditional Indian mind-body practice that emphasizes mudras with bandhas, shatkarmas, asanas, pranayamas, and meditation. Yoga is a long-standing custom that dates back to before 3000 B.C. in India. C. It is a comprehensive approach to mental, emotional, and spiritual health. The Gherandasamhita and Hatha Yoga Pradipika provide guidance on how to overcome obstacles in the path of samadhi through the practice of postures (Asanas), breathing exercises (Pranayamas), and purification techniques (Kriyas). Tiwari (1984) asserts that consistent practice of "asanas" develops strength, "mudras" leads to steadiness, "shatkriyas" aid in purification, and "pranayama" cultivates lightness. By their positive effects on the body's systems, these practices guarantee tissue nourishment and aid in maintaining and enhancing both physical and mental well-being. In addition to strengthening the body and muscles, the primary purpose of yogasanas is to control the appropriate function of all internal organs and glands to influence the nervous system. This, in turn, regulates the over-well-being of muscles to a greater extent than we genuinely believe (Devi, 1969).

Cultural Asanas

For the various systems operating within the human body, cultural asanas aim to create physiological balance. To enable it to have the highest level of natural strength. In order to enable the digestive system to function elastically, the other goal is to train the spinal cord. The greatest poses to effectively strengthen your abdominal muscles are bhujangasana, shalabhasana, dhanurasana, yoga mudra, paschimotanasana, and halasana. Simple movements known as asanas help maintain the health of the body both internally and outside. The internal organs of the body get enough exercise from asanas. According to Kuvalayananda (1933), an individual can maintain good health and a long life as a result. Pranayama is the Sanskrit term for breath control. Comprising of the words prana and yama, pranayama is a compound word. Prana is a Sanskrit words that meaning life force, vital energy, or the force that sustains life. Ayama is a term for control. E. regulation of breathing. According to Abhedananda (1999), that is the precise idea..

Pranayama

The benefits of pranayama on lung functions are well-established, and it is essentially a breathing exercise against resistance (Saxena andSaxena, 2009). The art of pranayama involves methods to deliberately, rhythmically, and intensely expand and move the respiratory organs. It is composed of a

long, slow, and delicate flow of breath retention (kumbhaka), exhalation (rechaka), and inhalation (puraka). Puraka activates the toxic, vitiated air-ejecting system, rechaka, while kumbhaka disperses energy throughout the body. The lungs and rib cage can move in three different ways: horizontally (dairghya), vertically (aroha), and circumferentially (visalata). By practicing this disciplined breathing, one can achieve robust health and longevity as well as improve concentration (Iyengar, 2010).

Objectives of the Study

1. This study set out to record how cultural practices related to asanas and pranayamas affected the group's overall vital capacity as well as the population under investigation.
2. With this study, we aimed to develop a standardized protocol to enhance college-age male students' vital capacity.

Hypothesis

1. We will presume that we will achieve better results in vital capacity if we employ cultural asanas and pranayama protocols.
2. This paper argues that by practicing cultural asanas and pranayama protocol for a duration of twelve weeks, male college students can considerably increase their vital capacity.
3. Therefore, the purpose of this study was to look into how college-age men's vital capacities changed after doing cultural asanas, pranayama, and a combined cultural asanas and pranayama protocol for twelve weeks.

Methodology

Selection of Subjects

We randomly selected sixty college men from Rajiv Gandhi Arts and Science College, Puducherry, India, as our subjects in order to investigate the hypothesis put forth here. They were between the ages of 18 and 24. Participants were not allowed to be smokers, drinkers, or active athletes; they were also not allowed to have any major illnesses, have recently had surgery, have endocrine or cardiovascular disorders, or engage in any kind of regular physical activity. Written consent was obtained from the subjects after they and their parents were informed about the study. The chosen participants were split up into four groups. Experimental group I consisted of fifteen participants who practiced cultural asanas; group II consisted of fifteen participants who practiced pranayama; group III

consisted of fifteen participants who practiced both cultural asanas and pranayama; group IV consisted of fifteen participants who served as a control group. Aside from their routine work, the subjects in the control group did not participate in any training regimen.

Research Design

Maintaining their regular sleep schedules was advised for every participant. A wet spirometer was used to measure the evaluated parameter, which was vital capacity. Twelve weeks after the asana practices (CAP, PP, and CCAPP) were implemented, the parameter was measured again to assess its impact. Ten minutes of dynamic and static stretching of the upper and lower extremity muscles served as a general warm-up for the subjects prior to the tests, which included a five-minute low-intensity aerobic run.

Training Protocol

Every practice session lasted for sixty minutes during which the practice was given. Three days a week were dedicated to the training protocols, which included five minutes for warming up and five minutes for relaxing after the program. Group I engaged in cultural asanas as listed in Table I; Group II focused on pranayama as listed in Table II; and Group III integrated cultural asanas and pranayama practises within one session. The twelve-week cultural asanas and pranayama protocols that were originally developed by the researcher for this study were adhered to by the experimental groups.

Table - 1
Cultural Asanas Practice Protocol

| Name of the Cultural Asanas | Duration of Each Session | Intensity |
|---|--------------------------|---|
| Suryanamaskar(12 poses each pose being maintained for 5 secs) | 2 Minutes (2 rounds) | Increase 1 round for every two weeks |
| Standing Position Asanas | | |
| Tadasana | 1 Minutes | Increase 10 seconds to all the asanas for every two weeks |
| Vrikshasana | 1 Minutes | |
| Chakrasana | 30 Seconds | |
| Trikonasana | 1 Minutes | |



| Sitting Position Asanas | | |
|--------------------------------|------------|---|
| Paschimottanasana | 1 Minutes | Increase 10 seconds to all the asanas for every two weeks |
| Ustrasana | 30 Seconds | |
| Kurmasana | 1 Minutes | |
| Vajrasana | 1 Minutes | |
| Prone Position Asanas | | |
| Bhujangasana | 1 Minutes | Increase 10 seconds to all the asanas for every two weeks |
| Salabasana | 30 Seconds | |
| Dhanurasana | 30 Seconds | |
| Makarasana | 2 Minutes | |
| Supine Position Asanas | | |
| Halasana | 1 Minutes | Increase 10 seconds to all the asanas for every two weeks |
| Sarvangasana | 2 Minutes | |
| Pavanamuktasana | 2 Minutes | |
| Matsyasana | 1 Minutes | |

Table – II
Pranayama Practice Protocol

| Name of the Cultural Asanas | Duration of Each Session | Intensity |
|---|--|---|
| Sectional Breathing (Three Sections) | 9 Minutes (Each Sections 3 Minutes) | Increase 10 seconds for each section in every two weeks |
| NadiShuddhi Pranayama | 4 Minutes (6 Cycles) | Increase 1 round for every two weeks |
| Anuloma-Viloma | 2 Minutes (2 Cycles) | |
| Bhramari Pranayama | 3 Minutes (3 Cycles) | |
| Bhastrika | 2 Minutes (2 Cycles) | |
| Kapalapathi | 3 Minutes (3 Cycles) | |

5 - 10 seconds gap between each pranayama.

Table – III
Cultural Asanas and Pranayama Practice Protocol

| Name of the Cultural Asanas | Duration of Each Session | Intensity |
|------------------------------------|---------------------------------|------------------|
|------------------------------------|---------------------------------|------------------|



| | | |
|---|-------------------------------------|---|
| and Pranayama | | |
| Suryanamaskar(12 poses each pose being maintained for 5 secs) | 2 Minutes (2 Rounds) | Increase 1 round for every four weeks |
| Standing Position Asanas | | |
| Tadasana | 1 Minutes | Increase 30 sec to all the asana for every four weeks |
| Vrikshasana | 1 Minutes | |
| Sitting Position Asanas | | |
| Paschimottanasana | 1 Minutes | Increase 30 sec to all the asana for every four weeks |
| Ustrasana | 1 Minutes | |
| Vajrasana | 2 Minutes | |
| Prone Position Asanas | | |
| Makarasana | 2 Minutes | Increase 30 sec to all the asana for every four weeks |
| Bhujangasana | 2 Minutes | |
| Salabasana | 1 Minutes | |
| Supine Position Asanas | | |
| Pavanamuktasana | 2 Minutes | Increase 30 sec to all the asana for every four weeks |
| Halasana | 1 Minutes | |
| Sarvangasana | 1 Minutes | |
| Savasana | 2 Minutes (Relaxation) | |
| Sectional Breathing (Three Sections) | 9 Minutes (Each Sections 3 Minutes) | Increase 30 seconds for eachsection in every four weeks |
| NadiShuddhi Pranayama | 4 Minutes (6 Cycles) | Increase 1 round for every 2 weeks |
| Anuloma-Viloma | 2 Minutes (2 Cycles) | |
| Bhastrika | 2 Minutes (2 Cycles) | |
| Kapalapathi | 3 Minutes (3 Cycles) | |

5 - 10 seconds gap between each cultural asanas and pranayama.

Statistical Analysis

The SPSS software was used to analyze the gathered data. To determine whether there was a unique effect from the baseline to the post-test, the "t" test was employed. To ascertain whether there

was a significant difference between the experimental means, additional analysis of covariance (ANCOVA) was performed. Scheffe's post hoc test was used to determine whether there was a significant difference between the paired adjusted means whenever the 'F' ratios were determined to be significant. The degree of significance was tested at a fixed 0.05 level of confidence. **Results and Discussion**

Table – IV
Computation of 't' Ratio on Vital Capacity of College Men
(Scores in Litres)

| Groups | Pre Test | | Post Test | | Obtained 't' ratio |
|--|----------|------|-----------|------|--------------------|
| | Mean | S.D | Mean | S.D | |
| Cultural Asanas Practice Group (CAPG) | 3.77 | 0.1 | 3.99 | 0.1 | 6.02* |
| Pranayama Practice Group (PPG) | 3.79 | 0.1 | 3.89 | 0.04 | 3.60* |
| Cultural Asanas and Pranayama Practice Group (CAPPG) | 3.78 | 0.02 | 3.83 | 0.04 | 4.33* |
| Control Group (CG) | 3.75 | 0.09 | 3.77 | 0.1 | 0.58 |

*Significant at 0.05 level for the degrees of freedom 14 (2.14).

Table IV displays the "t" ratios for the pranayama practice group, cultural asanas practice group, and both of these groups' vital capacities: 6.02, 3.60, and 4.33, respectively. At the 0 point05 level of confidence for degrees of freedom, it was determined that these values were statistically significant because they exceeded the necessary table value of 2.14. It was determined that the obtained "t" ratio of 0.58 between the control group's pre- and post-test was not statistically significant because it was less than the necessary table value of 2.14.

Table - V
Analysis of Covariance on Pre Test, Post Test and Adjusted Post Test Means on

| Test | CAPG | PPG | CAPPG | CG | Source of Variance | Sum of Squares | df | Mean Squares | Obtained 'F' Ratio |
|----------------|------|------|-------|------|--------------------|----------------|----|--------------|--------------------|
| PreTest | | | | | | | | | |
| Mean | 3.78 | 3.79 | 3.77 | 3.75 | Between | 0.01 | 3 | 0.0031 | 0.34 |
| S.D. | 0.02 | 0.10 | 0.10 | 0.09 | Within | 0.51 | 56 | 0.0091 | |

| PostTest | | | | | | | | | |
|-------------------------|------|------|------|------|---------|------|----|--------|--------|
| Mean | 3.83 | 3.89 | 3.99 | 3.77 | Between | 0.42 | 3 | 0.1402 | 20.16* |
| S.D. | 0.04 | 0.04 | 0.10 | 0.10 | Within | 0.39 | 56 | 0.0070 | |
| AdjustedPostTest | | | | | | | | | |
| Mean | 3.82 | 3.88 | 3.99 | 3.78 | Between | 0.39 | 3 | 0.1291 | 33.34* |
| | | | | | Within | 0.21 | 55 | 0.0039 | |

**Vital Capacity of CAPG, PPG and CAPPG and Control Group
(Scores in Litres)**

***Significant at 0.05 level of confidence.**

The table values required for significance at 0.05 level of confidence for (3, 56) and (3, 55) are 2.768 and 2.77 respectively.

Table V shows the 'F' ratios calculated on the means of CAPG, PPG, CAPPG, and CG on vital capacity for the pre-test, post-test, and adjusted post-test. CG, PPG, CAPPG, and CAPG pre-test means on vital capacity yielded an "F" ratio of 0 point 34. It was determined to be not significant at the 0.05 level of confidence because the "F" value was less than the necessary table value of 2.768 for degrees of freedom 3 and 56. In addition, the post-test "F" ratio of 20.16 following the application of CAPG, PPG, CAPPG, and CG on vital capacity was found to be statistically significant at the 0.05 level of confidence because it exceeded the necessary table value of 2.768 for the degrees of freedom 3 and 56. 33.34 was the obtained "F" ratio for the adjusted post-test means of CG, PPG, CAPPG, and CAPG on vital capacity. The "F" value was determined to be statistically significant at the 0.05 level of confidence because it was greater than the necessary table value of 2.77 for degrees of freedom 3 and 55.

Table - VI

Scheffe’s Post Hoc Test for the Differences between the Paired Adjusted Post-Test Means of Vital Capacity

| CAPG | PPG | CAPPG | CG | Mean Differences | Confidence Interval Value |
|------|------|-------|------|------------------|---------------------------|
| 3.82 | 3.88 | - | - | 0.06* | 0.3 |
| 3.82 | - | 3.99 | - | 0.17* | 0.3 |
| 3.82 | - | - | 3.78 | 0.21* | 0.3 |

| | | | | | |
|---|------|------|------|-------|-----|
| - | 3.88 | 3.99 | - | 0.11* | 0.3 |
| - | 3.88 | - | 3.78 | 0.10* | 0.3 |
| - | - | 3.99 | 3.78 | 0.04* | 0.3 |

*Significant at 0.05 level.

The mean differences between each group's paired adjusted post-test means were displayed in Table VI. The mean differences were 0.06, 0.17, 0.21, 0.11, 0.10, and 0.04 between CAPG and PPG, CAPG and CAPPG, CAPG and CG, PPG and CAPPG, PPG and CG, and CAPPG and CG, respectively. It was determined that the adjusted post-test mean difference was significant because it exceeded the required confidence interval value of 0 points. These findings suggested that CAPPG outperformed the other training groups of CAPG, PPG, and CG in terms of improvements in vital capacity.

Discussion on Findings

This study looked at the relationship between college men's vital capacity and their combined experiences with cultural asanas and pranayama. These results align with previous studies that have demonstrated the beneficial impact of yoga on lung vital capacity. According to the study's findings, college-aged men can enhance their vital capacity by combining cultural asanas and pranayama techniques. Better perfusion of tissues results from increased circulation, which is enhanced by yoga. An additional benefit of yogic breathing is that it's a type of vertical breathing that causes both lungs' alveoli to open uniformly and sufficiently, increasing the alveolar surface area available for gas exchange. According to Rai (2010), diffusion is therefore better on a larger surface available for gas exchange.

Conclusion

Within the limitations and delimitations set for the present study and considering the results obtained, the following conclusions were drawn:

The selected variables, such as vital capacity, were significantly improved by three experimental groups, namely cultural asanas practice, pranayama practice, and combined cultural asanas and pranayama practice.

Combined cultural asanas and pranayama practices were found to be better at improving vital capacity than cultural asanas and pranayama practices.

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