Volume : 4 | Issue : 3 | March 2015 • ISSN No 2277 - 8179

Research Paper

Impact of Anuloma Viloma Pranayama on Vital Capacity of Different Age Group Female

Physical Education

KEYWORDS : Anuloma Viloma pranayama, female, age, vital capacity

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ABSTRACT

The purpose of this study is to assess the impact of anuloma viloma pranayama on vital capacity of different age group female. Ninety (90) female subjects were selected in early adulthood and their age ranging between 20 to 39 years. These female working subjects were selected from Swami Vivekanand Subharti University, Meerut, Uttar Pradesh and novice with pranayama. These subjects were classified into three groups based on their age as Group 1: 21 to 25 years, Group 2: 26 to 30 years and Group 3: 31 to 35 years each constitutes fifteen (30) subjects. The vital capacity was selected as criterion variable and measured through spirometer. The selected female subjects were administered Anuloma Viloma pranayama training daily in the morning between 06:00am to 07:00am for three months. Analysis of Covariance (ANCOVA) on vital capacity between the groups was significant, $F(2,86) = 63.39$, $p = 0.000$. The findings of the study show that vital capacity tends to increase as a result of Anuloma Viloma pranayama training for three months. It is concluded that daily practice of Anuloma Viloma pranayama training for three months displayed significant increase in vital capacity among different age group female, among which 21 to 25 years old female subjects elicited 4.93% of increase in vital capacity.

Introduction

In India, proper diet and physical activity were known to be essential principles of daily living. The *Ajur Veda,* a collection of health and medical concepts verbally transmitted as early as 3000 B.C., developed into Yoga, a philosophy that included a comprehensively elaborated series of stretching and flexibility postures. The principles were first codified in 600 B.C. in the *Upanishads* and later in the *Yoga Sutras* by Patanjali sometime between 200 B.C. and 200 A.D. Yoga philosophies also asserted that physical suppleness, proper breathing, and diet were essential to control the mind and emotions and were prerequisites for religious experience. In India during this period, the linking of exercise and health may have led to the development of a medical subspecialty that today would find its equivalent in sports medicine (Snook, 1984). The regular practice of yoga teaches everyone how to develop a greater awareness of both our physical and psychological states, which in turn increases our ability to cope with everyday stresses and situations, enabling us to step back and assess our reactions and coping mechanisms (Iyengar 2008).

The ancient yogis advocated the practice of pranayama to unite the breath with the mind, and thus with the *prana* or life-force. *Prana* is energy, and *ayama* is the storing and distribution of that energy. *Ayama* has three aspects or movements: vertical extension, horizontal extension, and cyclical extension. By practicing pranayama, we learn to move energy vertically, horizontally, and cyclically to the frontiers of the body (Iyengar 2008). The purpose of this study is to assess the effects of pranayama on vital capacity of different age group females.

Methods

Subjects

Ninety (90) female subjects were selected in early adulthood and their age ranging between 20 to 39 years. These female working subjects were selected from Swami Vivekanand Subharti University, Meerut, Uttar Pradesh and novice with pranayama. These subjects were classified into three groups based on their age as Group 1: 21 to 25 years, Group 2: 26 to 30 years and Group 3: 31 to 35 years each constitutes fifteen (30) subjects. The selected subjects gave willingness to participate in this study. After getting the consent, 90 healthy male subjects were medically examined and found they were free from diseases.

Variable

The vital capacity was selected as criterion variable. It is the amount of air that can be expired after a full inspiration which was measured using wet spirometer. The subjects were instructed to stand erect and place the rubber hose in their mouth prior to which nose clip was sealed to prevent air movement through nose. Then the subject were asked to inhale deeply and keep the hose in the mouth exhale the air through the hose as result the drum in the spirometer rises gradually and the score was recorded as displacement of drum height.

Training Protocol

Anuloma Viloma pranayama practice was administered daily in the morning between 06:00am to 07:00am for three months. The subject was seated in a comfortable sitting posture with back straight. Inhalation is through one nostril, and then breath is retained followed by exhalation through the other nostril in a ratio of 2:8:4, with eyes closed and concentrating on breathing. One round of Anulom Vilom pranayam consists of six steps:-

- Inhale through the left nostril, closing the right with the thumb, to the count of four.
- Hold the breath, closing both nostrils, to the count of sixteen.
- Exhale through the right nostril, closing the left with the ring and little fingers, to the count of eight.
- Inhale through the right nostril, keeping the left nostril closed with the ring and little fingers, to the count of four.
- Hold the breath, closing both nostrils, to the count of sixteen.
- Exhale through the left nostril, keeping the right closed with the thumb, to the count of eight.

This is one complete round of Anulom Vilom pranayam. After every 10 minutes one takes rest pause for 20-30 seconds. This procedure was practiced for 20 minutes daily.

Statistical technique

The data collected were statistically analysed to examine the changes in female with respect to different age group. The experimental design used for the present investigation was Analysis of Covariance (ANCOVA). When *F* is significant Scheffe S post hoc test was applied. Paired *t* test was applied to the changes within the group as a result of Anulom Vilom pranayama. The level of confidence was fixed at 0.05 to test the significance. The data was analysed in computer system by using statistical package for social science (SPSS) version 16.

Volume : 4 | Issue : 3 | March 2015 • ISSN No 2277 - 8179

Results

Vital capacity between the groups was significant, F (2,86) = 63.39, p = 0.000, indicating that after adjusting pre-test scores, there was a significant difference among the groups on post-test scores on vital capacity. The findings of the study show that vital capacity tends to increase as a result of Anuloma Viloma pranayama training for three months. It is obvious that covariate pre testing significantly determines the difference among different age group female on vital capacity as obtained F (1, 86) = 16.59 (p = 0.000). This finding implies that the post testing data is influenced significantly by pre testing data on the difference among different age group females on vital capacity. Furthermore, it is found that though the effect of pretesting is removed, the differences on vital capacity among different age group females are statistically established.

Table 1
Descriptive statistics and *t* ratio vital capacity

Testing periods	21 to 25	26 to 30	31 to 35
Pre-test	2218.5 ± 14.21	2169.1 ± 13.78	2180.1 ± 15.22
Post-test	2327.9 ± 14.10	2231.67 ± 13.34	2254.73 ± 18.23
MD	109.4	62.57	74.63
% of changes	4.93%	2.88%	3.42%
t value	80.11	39.35	44.52
p	0.000	0.000	0.000

From table 1 it is inferred that vital capacity increased in all the three groups but in the age category 21 to 25 years female displayed greater increase in vital capacity than others. Similar, effects are elicited in other two groups.

Discussion

In the present study vital capacity showed significant difference among the groups and displayed a significant increase within different age group female as a result of Anuloma Viloma pranayama supplemented daily for three months. Earlier studies showed that yogic asanas and pranayama have been shown to reduce the resting respiratory rate and increase vital capacity, timed vital capacity, maximum voluntary ventilation, breath holding time and maximal inspiratory and expiratory pressures (Nayar et al., 1975; Joshi et al., 1992).

Conclusion

It is concluded that daily practice of Anuloma Viloma pranayama training for three months displayed significant increase in vital capacity among different age group female, among which 21 to 25 years old female subjects elicited 4.93% of increase in vital capacity. This has clinical significance by supplementing to asthma patients.

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