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## Effect of pranayama on physiological variables of aged people

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### Abstract

Thousands of years ago yoga originated in India, and in present day and age, an alarming awareness was observed in health and natural remedies among people by yoga and pranayama which has been proven an effective method for improving health. For the purpose of the study 20 aged Women's were selected purposively from Asrafabad Horimandir Ashoknagar north 24pgs, W.B. The Experiment was conducted for a period of 3 months, every day in the early morning. The subjects had undergone pranayama practises for 60 minutes, 7 days /week. Frequency, Duration and repetition of pranayama were determined under a steady progressive manner from the first day to last day of the treatment. To find out the effect of pranayama on Breath Holding Capacity and Vital Capacity the "t" test was used to calculate the collected data at 0.05 level of significant. The result reflects that there was significant difference between pre- test and post-test on Breath Holding Capacity and Vital Capacity on aged women.

**Keywords:** Yoga, pranayama, aged women, breath holding capacity, vital capacity

### Introduction

Yoga is an ancient discipline designed to bring balance and health to the physical, mental, emotional, and spiritual dimensions of the individual. It is long popular practice in India that has become increasingly more common in Western society. Yoga originated in India thousands of years ago and in present day an alarming awareness was observed in health and natural remedies among people by yoga and pranayama which has been proven an effective method for improving health in addition to prevention and management of diseases. Maharshi Patanjali in Yogasutra has recommended eight stages for the purification of body, mind and breath. These stages that constitute Ashtanga Yoga, are Yama, Niyam, Asana, Pranayama, Dharana, Dhyana, and Samadhi.

Pranayama is the control of the Prana and the vital forces of the body. It is regulation of the breath. This is the most important step. The aim of Pranayama is the control of Prana. Pranayama begins with the regulation of the breath for having control over the life-currents or inner vital force. In other words, Pranayama is the perfect control of the life-currents through control of breath. Breath is external manifestation of the gross Prana. A correct habit of breathing must be established by the regular practice of Pranayama. In ordinary worldly persons the breathing is irregular. If you can control the Prana you can completely control all the forces of the Universe, mental and physical.

The Yogi can also control the Omnipresent manifesting power out of which all energies take their origin, whether concerning magnetism, electricity, gravitation, cohesion, nerve-currents, vital forces or thought-vibrations, in fact the total forces of the Universe, physical and mental. If one controls the breath or Prana, the mind also is controlled. He who has controlled his mind has also controlled his breath. If one is suspended, the other is also suspended. If the mind and Prana are both controlled one gets liberation from the round of births and deaths and attains immortality. There is intimate connection between the mind, Prana and semen. If one controls the seminal energy, the mind and Prana are also controlled. He who has controlled his seminal energy has also controlled his Prana and mind

Ordinarily when people talk about pranayama they generally mean those yogic practices, which involved some kind of manipulation of the breathing activity. But when one looks at the tradition of the yoga, one finds that the concept of pranayama has much greater width and its techniques include vast array of very subtle elements apart from the simple manipulation of breathing activity.

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Pranayama is not just automatic habitual breathing process to keep body and soul together. Through the abundant intake of oxygen by its disciplined techniques, subtle chemical changes take place in the practitioner's body. The practice of asanas removes the obstructions which impede the flow of prana (breath, life force), and the practice of pranayama regulates the flow of prana throughout the body. It also regulates the entire practitioner's thoughts, desires and actions, gives poise and the tremendous willpower needed to become a master of one. Pranayama is an art and has techniques to make the respiratory organs to move and expand intentionally, rhythmically and intensively. It consists of long, sustained subtle flow of inhalation, exhalation and retention of breath. Puraka stimulates the system, rechaka throws out vitiated air and toxins; kumbhaka distributes the energy throughout the body. The movements include horizontal of the lungs and the ribcage. This disciplined breathing helps the mind to concentrate and enables the practitioner to attain robust health and longevity. Another important reason about the importance of pranayama is that proper breathing is one of the most important ways through which we are able to get rid of waste products and toxins from our body. The word pranayama is formed by two words i.e. PRANA and AYAMA. Prana means a subtle life force, which provides energy to different organs (including mind) and also controls many vital life process (e.g. circulation, respiration etc.). Ayama signifies the voluntary effort to control and direct this prana. Breathing is one of the vital activities governed by prana on a gross

Therefore pranayama essentially becomes a process by which the mind is controlled by voluntary regulation of the breathing. The effects of pranayama are more visible on this respiration. Through pranayama, the changes taking place here become more disciplined and optimized; also breathing is controlled. Due to this, the fields of action of the autonomous nervous system such as heart, intestines, liver etc., are calmed down and, as a result, a kind of mental stability ensues. Such mental calmness becomes more stabilized with the regular practice of pranayama.

For the aging there are so many physical, physiological and biological decay of body organs these are –

- Loss of muscle mass and tone, decreased muscle to fat ratio
- Loss of bone density
- Loss of flexibility, joint disorders such as arthritis
- Deterioration of lung elasticity and capacity
- Disorders of the circulatory system - decreased sensitivity of baroreceptors
- Degenerative disorders of nervous system - e.g. tremor, Parkinson's disease

For this reason researcher take an attempt to find out the effect of pranayama on physiological variables of aged Women.

**Statement of the Problem**

The aim of the present study was to find out the effect of pranayama on physiological variables of aged Women.

**Methods**

For the purpose of the study 20 aged Women's were selected purposively from Asrafabad Horimandir Ashoknagar north 24pgs, W.B. The Experiment was conducted for a period of 3 months, every day in the early morning. The subjects had undergone pranayama practises for 60 minutes, 7 days /week. Frequency, Duration and repetition of pranayama were

determined under a steady progressive manner from the first day to last day of the treatment.

**Study Protocol**

Sl. No.	Name of The Pranayama	Repetition	Passive Rest	Duration
1	Anuloma-Viloma	6 Times	10 Seconds	9 Minutes
2	Kapalabhati	6 Times	10 Seconds	9 Minutes
3	Surya Bhedana	6 Times	10 Seconds	9 Minutes
4	Ujjayi	6 Times	10 Seconds	9 Minutes
5	Bhastrika	6 Times	10 Seconds	9 Minutes
6	Bhramari	6 Times	10 Seconds	9 Minutes

To find out the effect of pranayama on physiological variables the "t" test was used to calculate the collected data at 0.05 level of significant.

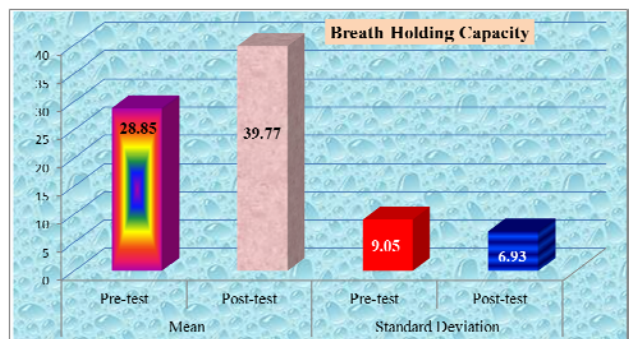
**Findings**

**Table 1:** Mean, Standard deviation and "t" test of physiological variables between pre-test and post-trst of aged women

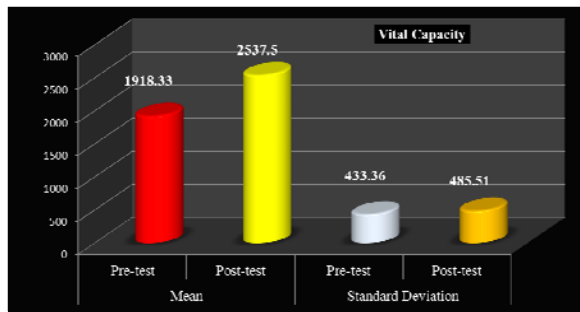
Variables	Mean		Standard Deviation		"t"-Ratio
	Pre-test	Post-test	Pre-test	Post-test	
Breath Holding Capacity	28.85	39.77	9.05	6.93	4.32*
Vital Capacity	1918.33	2537.50	433.36	485.51	4.15*

\*Significant, "t" 0.05(38)=2.021

From table 1 indicates that mean, standard deviation and "t"-test of breath holding capacity in respect to aged women has been found 28.85±9.05 on pre-test and 39.77±6.93 on post-test. The "t" value was 4.32 which were higher than table value, so it was significant at 0.05 level of confidence. In case of vital capacity of aged women on Mean, Standard deviation and "t" has been found 1918.33±433.36 on pre-test and 2537.50±485.51 on post-test. The "t" value was 4.15 which were higher than table value, so it was significant at 0.05 level of confidence.



**Fig 1:** Comparison of breath holding capacity between pre-test and post-test of aged women.



**Fig 2:** Comparison of vital capacity between pre-test and post-test of aged women.

### Discussion of Findings

In case of breath holding capacity of aged woman were significantly increase. Practice of pranayama can be advocated to improve pulmonary functions in aged women and hence to prevent respiratory disease. These beneficial effects of pranayama can be used as an adjuvant therapy for many respiratory diseases. The daily practice could also be parts of physical fitness and lifestyle modification programmes in maintain better physical and mental health. Hence, it can be said that pranayama improves respiratory breathing capacity by increasing chest wall expansion and forced expiratory lungs volumes. This study was consonance with the study of P. Shyam Karthik-2014.

In case of vital capacity of aged woman were significantly increase. Yoga asanas are psychophysical practices to culture body and mind. Yoga practices are known to significantly improve health status. From the results it is evident that the 3 months of pranayama training programme showed significant improvement in vital capacity and maximal ventilator volume. The findings are supported by the study conducted by Upadhyay *et al.* (2008),

### Reference

1. Araujo Claudio CrilSoaresde, Flexi test, An Innovative Flexibility Assessment Method Philadelphia: Human Kinetics Publishers, 1959.
2. Jones M. Marfell *et al.* International Standards for Anthropometric Assessment South Africa: Potchefstroom, ISAK, 2006.
3. Kansal Devinder. Applied Measurement, Evaluation & Sports Selection 2<sup>nd</sup> Edi, New Delhi: DVS Publication, 1996.
4. Nelson Jack K, Barry L Johnson. Practical Measurement & Evaluation in Physical Education New Delhi: Surjeet Publication, 2012.
5. Anand B, Chhina G, Singh B. Some aspects of electroencephalographic studies in Yogis. *Electroencephalography and Clinical Neurophysiology.* 1961; 13:452-456.
6. Bhole MV, Karambelkar PV. Effect of Yoga Training on Vital Capacity and Breath Holding Time *Yoga Mimansa*, XVI (October 1971 and January 1972):19-26.
7. Bhole MV *et al.* Effects of Yoga practices on Vital Capacity – A Preliminary Communication”, *Ind. Jour. Chest Dis.* 1970; XII:1-2.
8. Bhowmik, Sanjib Kumar, Umed Singh Boora, Sameer Kumar Yadav and Dataram Comparative Effect of Chandra and Surya Bedana on Selected Physiological Variables. *Journal of Physical Education and Yoga.* 2010; 1:33-39.

9. Bijlani RL *et al.* A brief but comprehensive lifestyle education program based on yoga reduces risk factors for cardiovascular disease and diabetes mellitus, *J Altern Complement Med.* 2005; 11:267-74
10. Gore MM, Gharote ML. Effect of Yogic Training on Peak Flow Rate, *Yoga Mimamsa* 1981; XX:100-104.
11. Gore MM, Gharote ML. Immediate effect of one minute Kapalbhathi on respiratory functions, *Yoga Mimamsa.* 1986; XXV:14-23.
12. Karambelkar PV *et al.* Some Respiratory studies in Ujjayi and Bhastrika Pranayama with bahyakumbhaka, *Yoga Mimamsa* 1984; XXII:7-12.
13. Karambelkar PV *et al.* Some respiratory studies on BhastrikaPanayama with Internal & External retention of breath, *Yoga Mimamsa* 1983; XXI:14-20.
14. Mourya M, Mahajan AS, Singh NP, Jain AK. Effect of slow- and fast-breathing exercises on autonomic functions in patients with essential hypertension, *Journal of Alternative and Complementary Medicine.* 2009; 15:711-717.
15. Pramanik T, Sharma HO, Mishra A, Prajapati R, Singh S. Immediate effect of slow pace bhastrika pranayama on blood pressure and heart rate. *Journal of Alternative and Complementary Medicine.* 2009; 15:293-295.
16. Singh Samay, Effect of Suryabhedna on Selected Physiological Variables Unpublished Master’s Thesis, LNIPE, 2001.
17. Singh Dharmender. Comparative Effect of Kapalbhathi and Anulom-Vilom on Selected Respiratory Variables Unpublished Master’s Thesis, LNIPE, 2001.
18. Sanju M., The Comparative Effect of Kapalbhathi Suryabhedna, their Combination of Cardio-Respiratory Endurance and Selected Physiological Variables Unpublished Master’s Thesis, LNIPE, 2000.