

Left Nostril Breathing Modifies Reaction Time and Autonomic Activity of Heart

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Abstract

Every activity requires a certain amount of concentration and no effective action may be performed without deep concentration. Chandranadi pranayama was analyzed scientifically in our study to assess its effect on reaction times and pulse rate.

Material and Methods: Chandranadi Suddhi pranayama starts with closing the right nostril with the thumb of the right hand. This is followed by exhalation through left nostril and then inhaling through the same nostril. Visual reaction time and pulse rate was measured before and after the pranayama.

Results: Pulse rate and reaction times decreases significantly.

Discussion By calming the breath during pranayama, control of life-force or prana results. This helps to withdraw the currents from the senses, preventing disturbing sensations from reaching the brain, thus calming the mind.

Conclusion Several rounds of Chandranadi pranayama helps to decrease blood pressure especially in hypertensives. It helps to calm the restless mind and heart.

Key Words: Pranayama Visual Reaction Time Pulse Rate.

Introduction

Every activity requires a certain amount of concentration and no effective action may be performed without deep concentration. Businessman or artists or students in school must know the art of focusing all powers of attention on a single point in order to succeed in their respective vocation. Various schools of breath control, meditation, chanting, devotional singing, concentration on the prayer wheel, holy rolling, concentration on the prayer wheel, holy rolling, concentration by diversion and so forth are variants of the real science of Pranayama or switching off of the life force.⁽¹⁾

Which is the best method to control the mind? How Chandra nadi pranayama or left nostril breathing helps increase concentration? Chandranadi pranayama was analyzed scientifically in our study to assess its effect on reaction times and pulse rate.

Material and Methods

The study is performed at Santosh Medical College, National Capital Region, India in the morning time.

Chandranadi Pranayama: The subject was seated in a comfortable sitting posture with back straight. With eyes focused on the point between eyebrows. The index finger touches the point between eyebrows and the thumb closes the right nostril. In this mudra begins the practice of chandranadi suddhi pranayama.

Chandranadi Suddhi pranayama starts with closing the right nostril with the thumb of the right hand. This is followed by exhalation through left nostril and then inhaling through the same nostril. This forms one round of Chandra Nadisuddhi pranayama. The subject was asked to perform 12 rounds of Chandranadi Shuddhi pranayama. The subject was instructed to count mentally from 1 to 25 while inhaling, hold to count of 12, and exhale to count of 25. Pulse rate was recorded before and after pranayama.

Reaction Time: Reaction time was taken online.⁽²⁾

It consists of a traffic light signal of red, yellow and green. The subject is instructed to click on a button to begin when ready, to wait for the spotlight to turn green, and click the button when it turns green quickly. The response in seconds is taken as a reading.

Visual reaction time readings of the Red light green light reaction were taken before and after the left nostril breathing.

Result

Twenty readings were taken. The visual reaction time decreased from 0.345 ± 0.069 to 0.298 ± 0.049 (**Fig. 1**)

The change is significant at $p < 0.034$ (using paired t test).

Pulse rate dropped from 73.7 ± 5.3 to 66.7 ± 6.7 . (**Fig. 2**)

The change is significant at $p < 0.001$ (using paired t test).

The subjects felt joy, peace, and were calm.

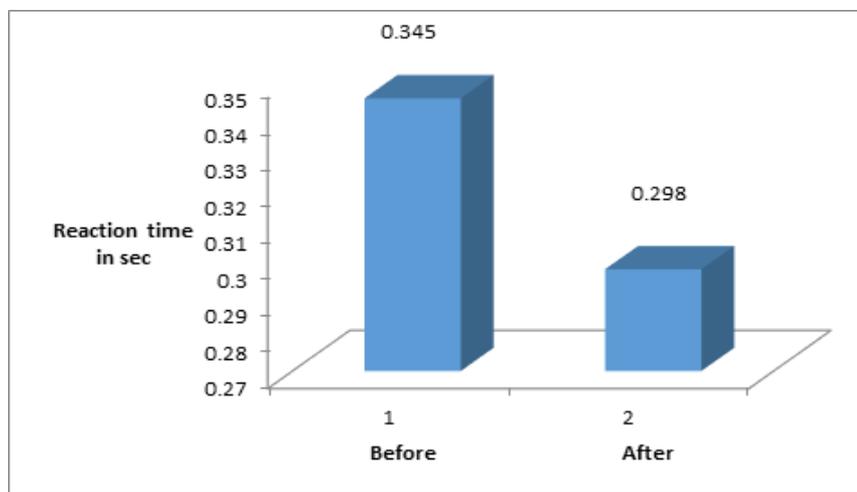


Fig. 1: Reaction times before and after Chandranadi pranayama at $p=0.34$

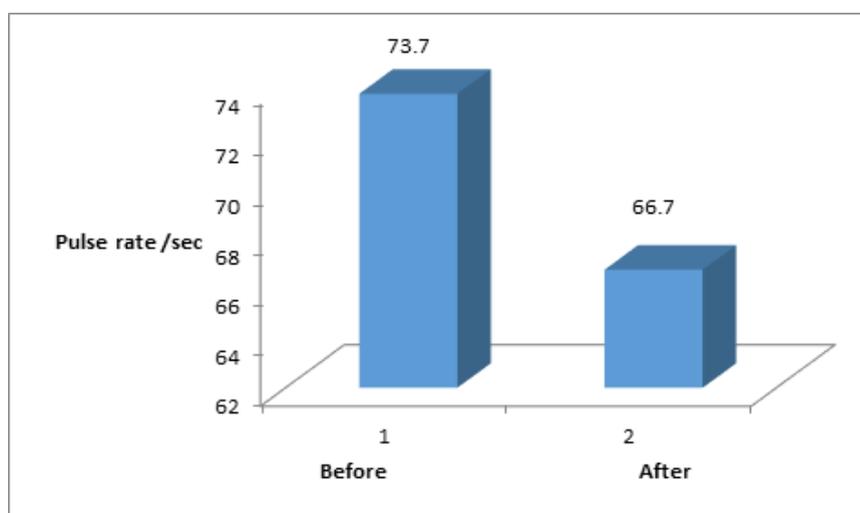


Fig. 2: Pulse rate before and after Chandra nadi pranayama at $p<0.001$

Discussion

Nostril breathing is a process of continuous regularity of inhalation, holding of breath and exhalation. It charges the body with an increase supply of oxygen through the lungs. This oxygen “burns” or oxidizes the waste impurities, chiefly carbon, in the venous blood. This process of purification is enhanced by an accompanying large increase in expulsion of waste carbon dioxide from the lungs during exhalation. As a consequence, very little of the tissue remains in the blood as waste material. There is less need for the breath, as the flow to the lungs of blood for purification slows down. The heart and lungs are given extraordinary rest.⁽¹⁾

By calming the breath during pranayama, control of life-force or prana results. This helps to withdraw the currents from the senses, preventing disturbing sensations from reaching the brain, thus calming the mind.⁽³⁾ Concentration is focusing of the mind through interest and determination on one line of thought.⁽⁴⁾ Response or reaction times to various situations in life

can be altered by pranayama. A habitual response of anger to an irritating stimulus can be changed by calming the mind. By Chandra nadi pranayama, the subject is alert, aware, aroused, relaxed and peaceful. The subject then can throw the attention at will on the object of concentration for example the changing light in the online reaction test in our study.

The nasal cycle is a ultradian rhythm characterized by alternating patency of the left and right nares, with a periodicity of eight hours.⁽⁵⁾ At any particular time breath may flow predominantly from one nostril for example during peaceful work, sleeping, obtaining nourishment and collecting grain the breath flows in the left nostril predominantly.⁽⁶⁾ By breathing predominantly through the left nostril parasympathetic dominance is produced that decreases the heart rate.⁽⁷⁾

Conclusion

Nadi suddhi pranayama means “purification of subtle energy paths”, inhalation and exhalation are through alternative nostrils for successive respiratory

cycles. Surya Anuloma Viloma Pranayama means “heat generating particle” when the respiratory cycle of inhalation and exhalation is completed through the right nostril exclusively. When completed through the left nostril exclusively it is called Chandra nadi Viloma Pranayam” which means heat dissipating or cooling liberating practice.⁽⁸⁻¹⁰⁾

Several rounds of Chandranadi pranayama helps to decrease blood pressure especially in hypertensives. It helps to calm the restless mind.

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