JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH

How to cite this article:
V MALHOTRA,K U DHUNGEL,GANGA J. DOES THE EFFECT OF PRANAYAMA DIFFER IN YOGA PRACTITIONER AND NAIVE? Journal of Clinical and Diagnostic Research [serial online] 2010 December [cited: 2010 December 10]; 4:3503-3506.

Available from
http://www.jcdr.in/article_fulltext.asp?issn=0973-709x&year=2010&volume=4&issue=6&page=3503-3506&issn=0973-709x&id=XXX

ORIGINAL ARTICLE

Does The Effect Of Pranayama Differ In Yoga Practitioner And Naive?

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Abstracts

The effect of Chandra nadisuddhi pranayama was studied on a yoga practitioners and a naïve subject. Chandra nadisuddhi pranayama is simply a left nostril breathing exercise. The heart beat rate was taken immediately before and immediately after each session, which consisted of twelve cycles of Chandra nadisuddhi pranayama. The mean heart beat rate of the yoga practitioners dropped from 73.94 ± 2.71 to 65.89 ± 2.02 and that in the naïve subject dropped from 79.83 ± 3.26 to 76.14 ±2.31 after Chandra nadisuddhi *Pranayama*. The drop was significant at $p<0.001$ in both the cases. But the drop was high in case of the yoga practitioners. So, it has been concluded that the effect of pranayama is the same in all, but to a higher degree in experienced yoga practitioners than in a naïve person.

Key Words: Chandra nadisuddhi, Pranayama, Heart beat rate

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Introduction

Patanjali, the foremost exponent of Yoga, described pranayama as the gradual, unforced cessation of breathing. Pranayama is derived from two Sanskrit words-prana (life) and yama (control). Pranayam or the control of prana or the life force yields control over bodily functions and the mind. Astanga yoga or Patanjali yoga combines the scientific technique of right behaviour (Yama-Niyama), proper posture (asana), life force control (pranayama), interiorisation of the mind (pratyahara), concentration (dhyan), developing intuition (dharna) and Samadhi (ultimate realization) to achieve the ultimate goal of life [1].

In recent years, there has been considerable interest in scientific research on yoga in the east and in the west. The focus of the scientific studies is mainly on the asanas and pranayama. The effect of different pranayamas on healthy [2] and diseased people [3,4, 5] has been well studied and they are known to affect the cardiopulmonary activities and autonomic functions.

The ancient science of yoga makes use of the voluntary regulation of breathing to make respiration rhythmic and to calm the mind [**6**]. This practice is called '*Pranayama'*. It is an art of controlling the breath. It involves taking in breath, retaining it then exhaling it [**7,8**]. Some studies have shown the various effects of Pranayama on young volunteers [**9,4].** In this study, an attempt has been made to observe the effect of Chandra nadisuddhi pranayama (left nostril breathing) on experienced yoga practitioners and a naïve.

Subjects and Methods

The study consisted of two subjects: the first was the yoga practitioners who had been practicing yoga and pranayama for more than 10 years and the second, the naïve or inexperienced person (who had just started practicing the techniques of pranayama). The demographic details of both the subjects are presented in [Table/Fig 1]. Both the subjects performed 12 rounds of Chandra nadisuddhi pranayama in each session.

[Table/Fig 1]: Demographic details of the study subjects:

	YOGA PRACTIONERS	NAÏVE
Age (years)	33	27
Sex	male	male
Weight (kg)	76	72
Height (cm)	176	167
Body Mass Index	24.54	25.82
Practice of yoga (in years)	> 10	< 1

>, greater than; <, less than

The subjects were seated in a comfortable sitting posture, with back straight while practicing the pranayama. Chandra nadisuddhi pranayama starts with closing the right nostril with the thumb of the right hand, followed by hold and exhalation through the left nostril and inhalation slowly through the same nostril [**10**]. This forms one round of chandranadisuddi pranayama. There is a pause between the inhalation and the exhalation. The heart beat rate was taken immediately before and immediately after twelve cycles of the left nostril breathing. The heart beat rate was measured by counting radial pulse. The readings were taken each day in the morning and in the evening for about 3 weeks. A total of thirty six readings of each subjects were taken. The Pranayama session was performed before meals. The subjects where told not to hold the breath for an uncomfortably long period in each round.

Result:

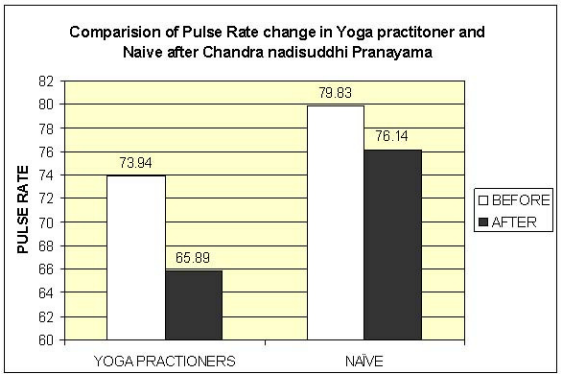
After taking the reading, the data were analyzed by using the SPSS (version 12) software. The mean heart beat rate dropped from 73.94 ± 2.71 to 65.89 ± 2.02 after Chandra nadisuddhi *Pranayama* in the yoga practitioners and it dropped from 79.83 ± 3.26 to 76.14 ±2.31 in the naive [Table/Fig 2].

[Table/Fig 2]: Comparison of Pulse rate in Yoga practitioner and Naïve before and after the Chandra nadisuddhi Pranayama session:

	Pulse rate Before	Pulse rate After	Level of significance
YOGA PRACTIONERS	73.94 ± 2.71	65.89 ± 2.02	Significant at p<0.001
NAÏVE	79.83 ± 3.26	76.14 ±2.31	Significant at p<0.001

The drop was significant at p<0.001 in both the cases. But the drop was high in case of the yoga practitioners than in that of the naïve subject [Table/Fig 3].

[Table/Fig 3]:



Discussion:

Chandra nadisuddhi pranayama (left nostril breathing), which was practiced by our study subjects showed a significant drop in the heart beat rate immediately after the Pranayama. The decrease in heart beat rate can be related to an increase in the vagal tone and a decrease in cardiac sympathetic activity [**11**]. A practitioner of *Pranayama* not only tries to breathe, but at the same time, tries to keep his attention on the act of breathing, leading to concentration. This act of concentration removes his attention from worldly worries and "de-stresses" him. This may decrease adrenaline release i.e. decrease sympathetic activity and hence, there is a decrease in the heart beat rate [**12**]. [**13**], from their study, had also shown that there was an increase in volar galvanic skin resistance after the practice of left nostril breathing, which was interpreted as a reduction in sympathetic activity

supply to the sweat glands. In the yogic text, it is said that- left nostril breathing leads to the activation of the 'Ida' subtle energy channel, which has a heat dissipating effect or cooling effect, as the word 'Chandra' indicates. The cooling effect can be correlated with an increase in the parasympathetic activity or a decrease in the sympathetic activity [**14],[8**].

The practice of left nostril breathing leads to the activation of the parasympathetic activity or a decrease in the sympathetic activity, which isshown by a decrease in BP, RR, HR and baseline oxygen consumption [**14**]. Similarly, right nostril breathing leads to the activation of the sympathetic activity, which is shown by increased BP, RR, HR and baseline oxygen consumption [**13],[14]**

It is now an established fact that there is an altering dominance of the left and right nostrils, with a periodicity of 30 minutes to more than 2-3 hours, which is called as the nasal cycle [**15],[16]** Previous studies have shown that the nasal cycle is correlated in an inversely coupled fashion to the alternating dominance of activity in the two cerebral hemispheres, thus suggesting a common mechanism of regulation [**17],[18], [19**]. The two hemispheres have their own dominant functions. For most of the right handed persons, the left part of the brain governs sequential analytical processes, whereas the right side of the brain governs visuo-spatial relations [**20**]. This can be another cause and a reason for the study of the effect of left nostril breathing and right nostril breathing viz. Chandra nadisuddhi *Pranayama* and Surya nadisuddhi *Pranayama* on different individuals in detail.

The effect of the pranayama in our study is more prominent in the yoga practitioners than in the naïve subject. In yogic persons or in regular practitioners of yoga, a modification or resetting of the autonomic activity might occur due to their regular habit of practicing asanas and pranayama.

Conclusion

The exact mechanism by which a particular nostril breathing influences the function of the autonomic nervous system is not well known, though it has been speculated that this may occur through a neural reflex mechanism in the superior nasal meatus. However, it can be concluded that the effect of pranayama is the same in experienced and new yoga practitioners, but the degree of change in the yoga practitioners is greater. Further research is necessary to understand the mechanism of this change and the difference in the change among the yoga practitioners and naïve persons, so that pranayama with its so many benefits can be used as a rational non-invasive therapy in the treatment of different ailments.

Acknowledgement

We would like to thank Kist Medical College, Imadol, Lalitpur, Nepal, for providing us the resources for this study. We also would like to extend our thanks to the Yogada Satsang Society and the Vinayaka Missions University, Salem, Tamilnadu, India, for their help and support.

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