



ISSN Print: 2394-7500  
ISSN Online: 2394-5869  
Impact Factor: 5.2  
IJAR 2020; 6(3): 15-17  
[www.allresearchjournal.com](http://www.allresearchjournal.com)  
Received: 19-01-2020  
Accepted: 21-02-2020

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## Effectiveness of alternate nostril breathing on blood pressure among hypertensive patients

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### Abstract

Hypertension is psychologically classified as quiet executioner, it has a hallmark of many cardiovascular issue basically happening because of mainly occurring due to increase in the total peripheral resistance because of several aetiological factors-genetic, obesity, glucose intolerance, high salt intake, cigarette smoking, heavy alcohol consumption, increased serum renin level. Hypertension otherwise called hypertension is long haul ailment in which the circulatory strain in the conduits is steadily raised. Hypertension ordinarily doesn't cause side effects. Long term hypertension has a significant hazard factor for coronary supply route illness, stroke, cardiovascular breakdown, fringe vascular infection, vision misfortune, and incessant kidney ailment. Hypertension is a significant general medical issue, in both monetarily created and creating countries. The focus of this research paper is to evaluate independent effects of the yogic breathing exercise, alternate nostril breathing (ANB). Quasi Experimental study was conducted among Hypertensive clients. Sample size was 50 (Experimental group-25, and Control Group-25). The sample who met the Inclusion criteria was selected by using non-probability Convenience sampling method was used. The pre assessment of Blood pressure was done. Then the Alternative Nasal Breathing Exercises was taught for 30 minute for twice day for one Week. Then the Post Assessment was Blood Pressure done. The Data were tabulated and analysed by descriptive and inferential statistics. The Calculated 't' Value is significant  $p < 0.005$ . This study indicates practicing Alternative breathing significantly lower the Systolic and Diastolic Blood pressure among Hypertensive Clients.

**Keywords:** Hypertension, systole, diastole

### Introduction

Hypertension is psychologically classified as quiet executioner, it has a hallmark of many cardiovascular issue basically happening because of mainly occurring due to increase in the total peripheral resistance because of several aetiological factors-genetic, obesity, glucose intolerance, high salt intake, cigarette smoking, heavy alcohol consumption, increased serum renin level <sup>[1]</sup>. Hypertension otherwise called hypertension is long haul ailment in which the circulatory strain in the conduits is steadily raised. Hypertension ordinarily doesn't cause side effects. Long haul high weight, in any case, is a significant hazard factor for coronary supply route illness, stroke, cardiovascular breakdown, fringe vascular infection, vision misfortune, and incessant kidney ailment <sup>[2]</sup>.

Hypertension is a significant general medical issue, in both monetarily created and creating countries. According to world wellbeing association report, about 40% of individuals matured over 25 years had hypertension in 2008. Dependable data about the pervasiveness of hypertension is basic to the advancement of national and nearby level wellbeing polices for avoidance and control of hypertension. Network level information for hypertension and hazard factors is rare in Delhi. In this manner, this examination was led with the goal of discoveries pervasiveness of hypertension and hazard factors in a country zone in Delhi <sup>[3]</sup>.

The yoga Sutras compiled by Indian philosopher Maharsh Patanjali includes Ashtanga yoga which has eight limbs/ components; Yama (form of moral imperatives), Niyama (virtuous habits and behaviour), Asana (postures), Pranayama (control of breath), Pratyahara (withdrawal of sense), Dharana (profound meditation), Samadhi (state of trance/meditative consciousness). Pranayama includes various techniques by altering rhythm, rate, phase duration, depth; and by consciously <sup>[4]</sup>.

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The focus of this research paper is to evaluate independent effects of the yogic breathing exercise, alternate nostril breathing (ANB) on human physiological and cognitive functions. Currently, there is developing interest in using alternative and complementary therapies to manage chronic ailments and debilitating disease. Among alternative and compulsory therapies, yoga is widely to improve quality of life. The yoga sutras compiled by Indian philosopher Maharshi Patanjali includes Ashtanga yoga which has eight limbs/components: Yama (from of moral imperatives), Niyama (virtuous habits and behaviour), Asana (postures), Pranayama (control of breath), Pratyahara (withdrawal of sense), Dharana (concentration and introspective focus) [5].

The study of yoga developed over innumerable age, during the old occasions of the rishis, in a time before the appearance of the proper religions, this article surveys later logical examinations that help give some believability to this antiquated information as a science. The attention here is on a subset of yogic "pranayama" or breathing systems. These methods incorporates explicit reliable varieties of specific left or right nostril breathing examples, or mixes in succession [6].

Breathing through one nostril or exchange nostrils impacts the sensory system and it has been contemplated the correct nostril yoga breathing offices the action of the contra parallel (left) cerebral half of the globe. Thinking about, the lacks in the data which is accessible on the programmed capacity in yoga and to comprehend the degree to which the programmed reflexes experience changes through this old yogic act of pranayama/Alternate nostril relaxing. The present investigation was planned for evaluating the impacts of Alternative nostril breathing on the parasympathetic

sensory system [7, 8].

The increased demand on the present modern lifestyle has induced a lot of stress and stress-related disorders in all age groups. Hypertension in one condition prevalent worldwide, increasing the risk of cardiovascular mortalities, and morbidities such as myocardial infarction, heart failure, and stroke. 95% of cases of the hypertension come under essential hypertension through it is said that the cause is unknown, it is attributed to environmental and genetic factors [9, 10].

**Methodology**

The study was conducted during a period of (20-04-2019 to 27-04-2019) at saveetha medical college and hospital. Thandalam, Kanchipuram district. Formal permission was obtained from the HOD of medicine department. After obtaining the permission the investigator select the sample by using inclusion criteria. 50 samples were selected by using non probability purposive sampling technique. In medicine ward 25 experimental sample were selected and the surgical ward 25 control group were selected. After the sample selection informed consent was obtained from each sample and after the general instruction the investigator collects the demographic data by structured interview schedule. The investigator assessed the pre level of blood pressure to the control and experimental group. Then the experimental group was given alternate nostril breathing exercise for 7 days. Everyday 20 minutes twice day. The investigator assessed the post test level of Systolic and Diastolic Blood pressure. The data were analysed by using descriptive and inferential statistics.

**Table 1:** Frequency and percentage distribution for post-test level of blood pressure in experimental and control group

Level of blood pressure	Experimental group		Control group	
	Frequency	Percentage	Frequency	Percentage
Mild	4	16%	6	24%
Moderate	-	-	10	40%
Severe	-	-	4	16%
Normal	21	84%	5	20%

The above table reveals that, in experimental group 4(16%) of sample were come under mild blood pressure, 21(84%) of sample were come under normal blood pressure. (Table 1)

**Table 2:** Effectiveness of alternate nostril breathing exercise on systolic blood pressure among hypertensive patients in experimental group and control group.

	Experimental group		Control group	
	Pre systolic	Post systolic	Pre systolic	Post systolic
Mean	151.60	127.60	155.20	154.40
Standard deviation	15.73	10.52	17.82	17.58
Paired 't' test	13.1453(S)		1.000(NS)	

S-significant

The above table is reveals that mean score of pre systolic pressure in the experimental group was 151.60±15.73 and post systolic score was 127.60±10.52 was decreased after giving the alternate nostril breathing exercise for hypertensive patients. The calculated paired 't' value is

13.1453, it was statistically significant at  $p < 0.0001$ . Pre systolic pressure in control group was 155.20±17.82 and post systolic is 154.40±17.58. The calculated paired 't' value is 1.000 it was statistically not significant. Table 2.

**Table 3:** Effectiveness of alternate nostril breathing exercise on diastolic blood pressure among hypertensive patients in experimental and control group.

	Experimental group		Control group	
	Pre diastolic	Post diastolic	Pre diastolic	Post diastolic
Mean	92.76	77.20	9.04	37.60
Standard deviation	9.38	7.92	9.78	9.26
Paired 't' test	10.9654(S)		2.2811(NS)	

S-significant

The above table is reveals that mean score of pre diastolic pressure in the experimental group was  $92.76 \pm 9.38$  and post diastolic pressure was  $77.20 \pm 7.92$ . was decreased after giving the alternate nostril breathing exercise foe hypertensive patients. The calculated paired 't' value is

10.9654, it was statistically significant at  $p < 0.0001$ . The pre diastolic pressure in the control group was  $9.04 \pm 9.78$  and the post diastolic pressure was  $37.60 \pm 9.26$ . The calculated paired 't' value is 2.2811, it was statistically not significant. (Table 3)

**Table 4:** Effectiveness of alternate nostril breathing exercise on post systolic and post diastolic blood pressure on control group and experimental group.

	Control group		Experimental group	
	Post systolic	Post diastolic	Post systolic	Post diastolic
Mean	154.40	87.60	127.60	77.20
Standard deviation;	17.58	9.26	10.52	7.92
Unpaired 't' test	6.5411(NS)		4.2646(NS)	

Not-significant

The above table is reveals that the mean score of pre systolic pressure was in the control group  $154.40 \pm 17.58$  and the post diastolic pressure was  $86.60 \pm 9.26$ . The calculated unpaired 't' value is 6.5411, it was statistically not significant. The post systolic pressure was in the experimental group  $127.60 \pm 10.52$  and the post diastolic pressure was  $77.20 \pm 7.92$ . (Table 4)

### Discussion

The aim of the present study was to evaluate the effectiveness of alternate breathing exercise in reducing blood pressure among hypertensive patients. The present study results according to table 3 shows that 30 min of alternate nostril breathing exercise significantly reduces the Blood pressure. pre diastolic pressure in the experimental group was  $92.76 \pm 9.38$  and post diastolic pressure was  $77.20 \pm 7.92$  was decreased after giving the alternate nostril breathing exercise foe hypertensive patients. The calculated paired 't' value is 10.9654, it was statistically significant at  $p < 0.0001$ . The pre diastolic pressure in the control group was  $9.04 \pm 9.78$  and the post diastolic pressure was  $37.60 \pm 9.26$ . The calculated paired 't' value is 2.2811, it was statistically not significant. The Alternative breathing Exercises were effective in the Experimental control group.

### Conclusion

The main conclusion drawn from the present study was the most of the hypertensive patients had high level of blood pressure. After receiving breathing exercise there was a significant reduction in the level of blood pressure samples became familiar and themselves comfortable and also expressed satisfaction. It is concluded that the breathing exercise is effective and a simple strategy to reduce the blood pressure.

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