



EFFECT OF CHANDRA BHEDANA PRACTICE ON SELECTED CARDIOVASCULAR VARIABLES

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ABSTRACT

Purpose of the present study was effect of chadra bhedana practice on selected cardiovascular variables. Eighty undergraduate sedentary male subjects were randomly selected for this study from the Nagrik P.G. College, Janghai, Jaunpur (UP). The age ranged of the subject was 19 – 24 years. Further, Subjects were divided into two groups each group had forty subjects, Group A (Experimental) and Group B (Control). Group A (Experimental) of the students were involved into the chandra Bedhan practices, five days in a week for total eight weeks. Moreover, Group B (control) had not given any type of treatment. Descriptive statistics and 'F' test was applied on the data. Table 4 shown the F-ratio was 2.861 greater to the table value (2, 38) 2.861. Table 5 revealed the 'F' ratio was 0.943 was lower to the table value (2, 38) 2.861. The control group B was not involved into the Chandra Bedhan practices. Eight weeks of chandra bedhan practices were significantly affected the resting heart rate, vital capacity, resting respiratory rate and maximum breath holding capacity of experimental group in compared to the control group.

KEYWORDS: Chandra bhedana, cardiovascular variables.

INTRODUCTION

Cardiovascular functions are controlled by neural factors as well as others such as temperature, hormones, etc., Of these, neural factors primarily concern the autonomic nervous system (ANS), which plays a major role in maintaining and regulating cardiac functions, e.g., systolic blood pressure (SBP), diastolic blood pressure (DBP) and heart rate (HR). Imbalances in these lead to cardiovascular disorders such as hypertension, ischemia, infarction, etc., numerous studies indicate a strong association between compromised ANS (e.g., decreased vagal activity or increased sympathetic activity) and sudden and non-sudden cardiac death (**Muralikrishnan K. et al, 2012**). Pranayama, the fourth limb of classical ashtanga yoga is an essential part of yogabhyasa and is increasingly being used as a tool of yoga chikitsa or the application of yoga as a therapy. There are a multitude of pranayama techniques and it is traditionally taught that each of them has different psycho-physiological benefits (**Swami, Gitananda 2008**). Pranayama is an important and integral part of Yoga sadhana. The practice of Pranayama is emphasized almost all the traditional scripture. According to Yogic terminology a systematic process by which one gains control over Prana is referred as Pranayama. Pranayama constitutes fourth step of eight fold of Yoga described in the Patanjaliyogasutra and occupies second place in Hathapradipika and fifth place in Gherandasamhita. Pranayama is consists of three

process i.e. Puraka, kumbhaka and Rechaka Puraka (Complete inhale) is just as a man sucks in water through the stem of a lotus so should breath be drawn in. Kumbhaka (Complete hold of breath) is to keep still without breathing in or breaking out, nor move any limb. Rechaka. (Complete exhale) is consists in giving out, through the nostrils, the impure air from the lungs (**Saraswati S. 2008**).

Pranayama is a systematic exercise of respiration which makes the lungs stronger, improves blood circulation, and makes the individual healthier. If this exercise of respiratory system is done regularly and efficiently, it leads to increase in respiratory stamina, relax the chest muscles, expand the lungs, raise energy levels, calm the body and also cause marked improvement in lung functions.

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MATERIALS AND METHODS**Selection of the subjects**

Eighty undergraduate sedentary male subjects were randomly selected for this study from the Nagrik P.G.

College, Janghai, Jaunpur (UP). The age ranged of the subject was 19 – 24 years. Further, Subjects were divided into two groups each group had forty subjects, Group A (Experimental) and Group B (Control).

Criterion Measures**Table 1: Measurement of the Selected Cardiovascular Variables.**

Physiological Variables	Test/ Instrument	Unit
Resting Heart Rate	Radial Artery	Number of heart beats per minute
Vital Capacity	Spirometer	Liter
Resting Respiratory Rate	Inhale and exhale count for one minute during rest	Count in numbers
Maximum Breathe holding Time	Hold the breath after inhalation	Record to the nearest second

Procedure

Group A (Experimental) of the students were involved into the chandra Bedhan practices, five days in a week for total eight weeks. Moreover, Group B (control) had not given any type of treatment. Before start of chnadra bedhan practices warming up session for ten minute and then experimental group subjects gone under the chandra bedhan practice, each session was two rounds, each round had 10 times chnadra bedhan pranayama.

Statistical Technique

The obtained data were analysed by applying 'F' test in order to comparison of pre- and Post – test results of the experimental and control groups. The level of significant was set at 0.05.

RESULT

Results were presented in the form of table as follows.

Table 2: Descriptive Statistics of Pre and Post – Test of Selected Cardiovascular Variables of Experimental (Group A).

Physiological Variables	Pre – Test		Post – Test	
	Mean	SD	Mean	SD
Resting Heart Rate	68.82	5.23	61.24	3.96
Vital Capacity	2.64	1.35	2.85	1.12
Resting Respiratory Rate	20.53	3.84	17.86	2.75
Maximum Breathe Holding Capacity	48.67	5.21	56.53	5.73

Table 3: Descriptive Statistics of Pre and Post – Test of Selected Cardiovascular Variable of Control (Group B).

Physiological Variables	Pre – Test		Post – Test	
	Mean	SD	Mean	SD
Resting Heart Rate	66.34	6.54	67.62	5.88
Vital Capacity	2.88	0.98	2.74	0.75
Resting Respiratory Rate	21.12	4.88	22.53	3.84
Maximum Breathe Holding Capacity	49.74	6.12	52.81	5.14

Table 4: ANOVA Table for Experimental Group.

Source of variance	SS	Df	MS	F ratio
Between Sample	1873.27	2	936.64	2.861*
Within Sample	767.89	38	20.21	
Total	2,641.16	40	956.85	

Table value (2, 38) = 2.619

Table 5: ANOVA Table for Control Group.

Source of variance	SS	Df	MS	F ratio
Between Sample	1789.64	2	894.82	0.943
Within Sample	863.74	38	22.73	
Total	2,641.16	40	956.85	

Table value (2, 38) = 2.619

Table 4 shown the f ratio was 2.861 greater to the table value (2, 38) 2.861. Chandra Bhedana practices significantly affected on resting heart rate, vital capacity, resting respiratory rate and maximum breath holding capacity. Table 5 revealed the 'F' ratio was 0.943 was lower to the table value (2, 38) 2.861. The control group B was not involved into the Chandra Bhedana practices.

DISCUSSION ON FINDING

Results shown the eight weeks chandra bhedana practices were significantly affected on selected physiological variable that were resting heart rate, vital capacity, resting respiratory rate and maximum breath holding capacity. Therefore, Chandra Bhedana practice was might be beneficial cardiovascular efficiency. A good cardiovascular capacity might be reduced the heart and lungs problem and improve to their aerobic efficiency.

The immediate decrease in all cardiovascular parameters in our patients can be explained by changes in the autonomic balance as it has been previously reported that sympathetic activity is lower during left nostril breathing (Mohan S. M., 1996). Bhavanani, A.B (2014) studied shown the significant changes in resting heart rate, vital capacity, resting respiratory rate and maximum breath holding capacity after three months of uninostril and alternate nostril pranayama.

Interestingly, there chandra bhedana pranayama practices was significantly affected on resting heart rate, vital capacity, resting respiratory rate and maximum breath holding capacity chandra bhedana pranayama practices (Telles S. et al (1994), Telles S et al. (1996), Raghuraj P. et al. (2003), Raghuraj P. et al. (2008).

CONCLUSION

This was the concluded on the basis of results that eight weeks chandra bedhan pranayama significantly affected on resting heart rate, vital capacity, resting respiratory rate and maximum breath holding capacity. All these cardiovascular variables efficiency were improved. Hear rate and resting respiratory rates were significantly decreased during rest. Moreover, vital capacity was enhanced by the chandra bedhan pranayama. Bhavanani A. B., (2007) concluded this finding is in tune with the traditional swara yoga concept that air flow through right nostril (SN and pingala swara) is activatory in nature, whereas the flow through left nostril (chandra nadi and ida swara) is relaxatory.

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