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RESEARCH ARTICLE

IMMEDIATE EFFECT OF PRACTISING BHRAMARI PRANAYAMAON CARDIOVASCULAR PARAMETERS OF HEALTHY INDIVIDUALS

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ABSTRACT

Yoga is a traditional Indian science that defines a way of life. It is practiced by practitioners using a variety of techniques, including asanas, pranayama, meditation, etc. The type and length of pranayama practices have a significant impact on the physiological reactions that are produced by various pranayama techniques..There is an intimate connection between the breath, nerve currents, and the control of the inner prana, or vital force. Methods: This study was conducted at Sree Ramakrishna Medical College of Naturopathy and Yogic Sciences. 30 students have been selected for this research. The aim of the research was explained, and verbal consent was obtained. Result: The SPSS programme version 16.0 was used for the data analysis. It is evident that performing Bhramari pranayama for 10 minutes reduced systolic blood pressure (t9.185, sig 2tailed.000) and diastolic blood pressure (t7.350, sig 2tailed.000), but that the pulse rate increased (t-12.348, sig 2tailed.000) after completing the practice. Conclusion: It can be concluded that pranayama has a beneficial effect on cardiovascular functions and cardiac autonomic activity if practiced for a longer duration. This significant result proved that practice of Bhramari pranayama gives good results in maintaining blood pressure and also reduces the stress levels that we experience in our day to day lives.

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INTRODUCTION

Yoga is an ancient Indian science that defines way of life with its various practices .It is practiced in the form of asanas (posture), pranayama (breathing manipulation), meditation (concentration technique) etc by practitioners in a range of methods and style.(1) 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 (2).

Different types of pranayama produces specific physiological responses and it greatly depend on type and duration of practices.(3)There is an intimate connection between the breath, nerve currents and control of the inner prana or vital force(4). The present study was designed to determine the immediate effects of 10 minutes continuous practice of bhrahmari pranayama on blood pressure and pulse rate.

METHODOLOGY

This study was conducted at Sree Ramakrishna Medical College of Naturopathy and Yogic Sciences. 40 Naturopathy and yoga students of the same college were selected based on simple random sampling among 420 students. Out of these 40 students, 10 students didn't complete their studies; the rest 30 students completed the study. The aim of the research was explained, and verbal consent was obtained. The study was conducted in the sree Ramakrishna medical college hospital yoga hall. Pulse rate was noted and the blood pressure was recorded by using a Sphygmomanometer following a 5 minute rest . Bhramari pranayama technique was demonstrated to them by a qualified yoga instructor. After the arrival of individual samples, they sat in a comfortable meditative posture with their hands resting on their knees in chin mudra followed by they closed the eyes and relax the whole body. Bring the hands up to the ears while raising the arms laterally

and bending the elbows. The ears can be covered using the index finger. Bring attention to the ajna chakra, which is in the middle of the skull. Then the subjects are instructed to inhale through both nostrils slowly up to the maximum for about 5secs .Then the subjects are instructed to exhale slowly up to the maximum through both the nostrils for about 15 secs. Exhale slowly and in a controlled manner while making a deep, steady humming sound like that of a black bee.

The humming sound should be smooth, and continuous for the duration of the exhalation .The sound should be soft , making the front of the skull reverberate. Following these actions ends a cycle of Bhramari pranayama. The hands can either be held steady or brought back to the knee and elevated for the subsequent round.

Descriptive analysis

Table 1. Paired samples statistics

	Paired Differences					t	df	Sig(2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence interval of the difference				
				Lower	Upper			
Pair 1 presys- postsys	6.800	4.055	740	5.286	8.314	9.185	29	.000
Pair 2 predia-postdia	4.867	3.627	.662	3.512	6.221	7.350	29	.000
Pair 3 prepr-postpr	-4.267	1.893	.346	-4.973	-3.560	-12.348	29	.000

Table 2. T-test

	mean	N	Std .Deviation	Std. Error Mean
Pair1 presystole postsystole	112.53 105.73	30 30	8.943 7.732	1.633 1.412
Pair 2 pre diastole Postdiastole	75.27 70.40	30 30	6.486 6.201	1.184 1.132
Pair 3 prepr Postpr	71.53 75.80	30 30	6.699 6.666	1.223 1.217

After 10 mins of this pranayama, the pulse rate and blood pressure are recorded again on the same instrument. After the completion of 10 mins of practice, they were asked about their feelings.

RESULTS

The data analysis was done by SPSS software version 16.0. We applied a paired t –test to find results of pre and post-intervention comparisons are given in table 1 and 2.It clearly indicates that after practicing 10 minutes of Bhramari pranayama reduced the systolic blood pressure (t9.185, sig 2tailed.000) and diastolic blood pressure had reduced (t7.350, sig 2 tailed.000) but the pulse rate got elevated (t-12.348,sig 2 tailed.000)after practice of Bhramari pranayama for 10 minutes.

DISCUSSION

The Sanskrit word brahmar means wasp. In this pranayama, the humming sound of a flying wasp is mimicked. That slow pace, pranayama, influences the heart rate and blood pressure through Parasympathetic dominance (5) .As earlier studies also reported, Bhramari pranayama produced a gamma wave indicating parasympathetic dominance (6). During Bhramari pranayama, pulmonary stretch receptors are stimulated which lead to withdrawal of sympathetic tone in skeletal muscle, causing vasodilatation with decreased peripheral resistance .During prolonged voluntary expiration, intra thoracic pressure increases and blood from the lungs is squeezed into the heart, leading to an increase in stroke volume. Baroreceptors in the carotid sinus experience more pressure and discharge more. The increase in baroreceptor's discharge inhibits the tonic discharge of the vasoconstrictor nerve and excites vagus innervations of the heart producing vasodilation, a drop in blood pressure (7). According to Mary's law, the pulse rate (which represents heart rate) is inversely proportional to blood pressure. Baroreceptors induce Mary's reflex only during resting conditions (8). This study clearly indicates that decreased blood pressure with slightly increased heart rate, which is a correlation with Marey's law. At the end of the pranayama, the volunteers got a sense of well being, felt calm and sleepy. This shows the effect of pranayama on blood pressure through parasympathetic stimulation. Bhramari pranayama shows a strong tendency to improve or balance the autonomic nervous system through enhanced activation of the parasympathetic system and thus can be practiced for mental relaxation and reduction of stress in our daily life.

CONCLUSION

It can be concluded that pranayama has beneficial effects on cardiovascular functions and cardiac autonomic activity if practiced for a longer duration (9). This significant result proved that practice of Bhramari pranayama gives good results, reduces blood pressure and also reduces the stress levels that we get in our day to day life. Pranayama by continuous practice reduces the dead space ventilation and decreases the work of breathing. During Bhramari pranayama the entire lung is ventilated in contrast to the shallow breathing which only refreshes the base lung (10).

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