

Study Of Nadishodhana, Bhramari Pranayama And Omkar Chanting On Autonomic Functions And Its Reflection On Performance Amongst Preclinical Medical Students.

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Citation

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Abstract

Vastness of the medical curriculum poses medical student under stress, mental fatigue and performance deficits. Stress relaxation techniques of yogic exercise might prove beneficial. Nadishodhan Pranayama, Bhramari and Omkar recitation are used to evaluate the effect of these yogic exercises on autonomic functions and performance of future medical professionals. Preclinical Knowledge Score was 14% in cases and 10% in control group. Modulation of sympathetic and parasympathetic activity thereby improving autonomic functions of body and thereby improved performance output was the outcome of the study.

INTRODUCTION

The integrated teaching and learning methodology where assessment forms important signpost, inclusion of stress relaxation techniques in modern education system is the need of hour¹. Vastness of the medical curriculum poses young medical student under stress, mental fatigue and performance deficits². Nadishodhan Pranayama, Bhramari and Omkar recitation are important yogic practices³. Nadishodhana Pranayama causes modulation of sympathetic and parasympathetic activity thereby improving autonomic functions of body^{4,5}. The vibrations produced due to Bhramari, Omkar recitation increases the receptive capacity of individual. The study was intended to evaluate the collective effect of Nadishodhana Pranayama, Bhramari and Omkar chanting on autonomic functions and performance output amongst preclinical medical students

METHODOLOGY

The present study was carried out at in Clinical Physiology laboratory of the Yoga Unit of Chhattisgarh Institute of Medical Sciences, Bilaspur, CG. The study was carried out over 40 preclinical medical student after informed consent. Those students who were not practicing yogic exercises were included in the study. The subjects were categorized in two groups, Group I (n =20) which performed, Nadishodhana, Bhramari Pranayama and Omkar chanting for seven days daily and Group II (n =20) without this maneuver. Control

and cases were matched for age and sex. As all of them joined medical stream after clearing same premedical examination they were matched for their preclinical skills. All the students were assessed for the vital parameters like pulse, blood pressure and for nostril breathing before and after the study. After initial warm up exercise for two minutes Group I performed Nadishodhana Pranayama starting from left nostril for five minutes, Bhramari Pranayama for 10 times followed by low pitched Omkar chanting for 10 times. Omkar chanting was having shorter AU part and longer 'M' part. Group II was given only warm up exercise for two minutes.

A questionnaire prepared by medical team involving medical educationist was used for the study. All the students were trained for two hours on practical aspects of Packed Cell Volume and Erythrocyte Sedimentation Rate in Haematology laboratory of Physiology department. The questionnaire was prepared on same topic. After training they were assessed on the basis of the questionnaire. Assessment was based on no. of attempted questions and correctness of the answer.

OBSERVATIONS AND RESULT

We observed increased attention span during training in Group I as compared to Group II. The mean pulse rate for Group I was (Before 78 bpm, after 70 bpm) and for Group II it was (before 76 bpm, after 80 bpm). The mean blood

pressure in Group I was (before 110/74 mmHg, after 100/72 mmHg and of that of Group II was before (106/72 mmHg, 110/72 mmHg). We observed left nostril breathing in 40% of the subjects in Group I and 30% in Group II before study. The nostril breathing pattern remained unaltered in both groups after the study. On analysis of the results of questionnaire we observed that 100% of the Group I attempted all questions and 60% of Group II attempted all questions. Correctness of the answer also varied question wise in both the groups. Preclinical Knowledge Score (PKS) was 14% for Group I and 10% for Group II. In Group I there were 20% (n = 2) subjects who scored 100% marks, while in Group II none was able to score 100%. Maximum marks obtained by Group II was 60%. The paired 't' test exhibited statistically significant differences ($p < 0.05$) in Group I for before and after reading for both blood pressure and pulse. On the contrary we observed increasing trends in both pulse and blood pressure in Group II for before and after warm up exercise, the difference was statistically insignificant ($p > 0.05$). This might be due to increased sympathetic activity after exercise⁴.

About Yoga Research Unit CIMS, Bilaspur.

Figure 1



Dr. MB Rathore
MBBS MS FCGP

Dr. Atul M Deshkar,
MBBD MD FCGP MSCIT,

Figure 2

Dr Rathore teaching sukshma vyayam.



Figure 3

Dr Deshkar explaining theoretical aspects of yoga



Figure 4

Preclinical medical students doing omkar chanting



Figure 5

Mr Swarnakar explaining the meditation.



Nadi Shodhana Pranayama:

Nadi means channel and shodhana means purification. When the breathing exercise Nadishodhana Pranayam is done there is purification of energy channels in the body. It comprise of breathing from left nostril and then right nostril breathing in the stipulated format. It synchronise the cerebral hemisphere by balancing the energy channel.

Bhramari Pranayama:

It is one of the calming breathing yogic exercise in which humming sound is produced during expiration, while thumbs are used to close the ears, index finger over forehead and remaining fingers closes the eyes. The act is performed in sitting position.

Omkar chanting:

A sound of Om is said to be source of energy. Omkar chanting cleanses the mind and controls the emotions.

DISCUSSION

We observed increased parasympathetic activity in Group I as compared to Group II which exhibited increased sympathetic activity. Nadishodhana, Bhramari Pranayama and Omkar chanting results in feeling of calmness and freshness and improves attention span⁵. Decreased blood pressure and pulse in Group I might be due to increased stimulation of cardiac vagal center in the pontomedullary region⁴. Increased vestibulocochlear conduction which by virtue of its connection to the cerebellum⁴ and other extrapyramidal tract improves the performance output as proved by more PKS amongst Group I than in Group II. In Bhramari Pranayama there is humming sound produced during exhalation by keeping fingers on ears and eyes⁶. The vibrations and sound produced during this exercise causes increased conduction of impulses in vestibulocochlear nerve. This eventually by virtue of its connection to the cerebellum and other extrapyramidal tract improves the performance output. During Omkar recitation, the first pronunciation A creates the vibrations, which affect on the spinal cord to increase it's efficiency^{3,5}, affecting intermediolateral grey column⁴. The second pronunciation U creates the vibrations in the throat and affects the Thyroid Glands, while the last pronunciation M, brings the vibrations to the brain, thereby activating the brain centres as a result of which, the efficiency of a brain increases³. As our study is concerned with performance output we decided to have longer M part as it is going to affect the brain activity^{3,5}.

We can conclude from our study that collective impact of Nadishodhana, Bhramari Pranayama and Omkar chanting modulate the sympathetic and parasympathetic activity thereby resulting in relaxed and efficient future physicians of our community. We recommend similar types of studies involving medical education and assessment tools integrated with yogic exercise should be carried out at larger level.

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