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KEY WORDS: Pranayama, Yogic asanas, Medical Students, Vital metabolic parameters

EFFECT OF YOGIC ASANAS AND BHASTRIKA PRANAYAMA OVER VITAL METABOLIC PARAMETERS ON YOUNG OBESE MEDICAL STUDENTS

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ABSTRACT

obesity is defined as a chronic medical condition morphologically characterized by excessive accumulation of fat in various parts of body leading to generalized increment in total body mass, contributing significantly as a health risk factor for various metabolic syndromes.Controlling adolescent obesity is important for quality of life and adult health especially in students.The purpose of the present research was to study the effect of twelve weeks practice of bhastrika Pranayama and yogic asanas over vital metabolic parameters such as lipid profile and fasting sugar on young obese medical students.

Summary -The regular practice of bhastrika Pranayama and yogic asanas for such a long continuous period decreases the body weight and body massindex and on other hand increases basal metabolic rate which in turn maintains a healthy metabolic state of body in medical students.

INTRODUCTION

obesity is a chronic storage of excess energy,and physical inactivity is the leading most factor in itsdevelopment.[1,2]There has been a rapid rise inincidence of obesity in adolescents in past several years.[3]Itis one of the significant global health riskfactor and has been associated with an increased incidence of cardiovascular diseases likecoronary artery disease, diabetes mellitus and dyslipidemia.[4,5]

Obesity has always been related to what you eat andhow you eat forexample eating while watching television or cell phones or laptops/computers is a common habitamong medical students which is assume to contribute to obesity and is accredited to increased consumption of highdensity food.[6]

The main cause of obesity is an imbalance of energy between calories consumed and expended. Increase intake of dense energy foods, lack of physical activity due to the increasingly sedentary life style, dietary changes which are often associated with surrounding environment of family and society.[7,8] By default, healthcare providers and facilitators present themselves as advocatesand ambassadors of healthy lifestyle for the general population. However, studies suggestotherwise.

Increased intake of high calorie food stuffs added by a sedentary life style had tripled the rate of obesity among the young adults of the developing countries. Several studiesamong different university students in multiple developing countries suggested a high prevalence of obesity.[9]

The word yoga derived from ourancient language Sanskrit which itself means 'for union', aiming to harmonize mind, body and spirit.It is one of the best means of self-improvement and gaining full potential of one's body, mind & soul. It has been proved beyond doubt that pranayama and yogicasanas are an important means of preventing and curing various ailments. Yogasana and Pranayama have beneficial effect on different system of body thereby increasing longevity, bringing equipoise between psychic and somatic aspect of functions of body.Yoga represents a body of practices which is seemingly gaining popularity in many countries around the globe, consisting of various postures (Asana), breathing and meditation techniques (Pranayama).[10] Yoga is reported to improve autonomic functions by affecting neuro-hormonal mechanisms by the suppressing sympathetic activity.[11]

Potential therapeutic approach for treating obesity are hospitalization,dietary modification, medication therapy andbariatric surgery however, pharmacological agents formanaging obesity are not worthy in adolescents.[12] Yoga training helps obese students to achieve their recommended levels of physical activity and in fact it is anattractive alternative exercise training programs as it increases heart rate and muscle strength with limited harmful side effects and requires virtually no equipment.[13,14]

Limited information is available regarding the impact of yogic asana and Pranayama training on vital metabolic parameters in young obese medical students. This research is an effort to incorporate yoga as a routine addition thus empowering healthy life stylein them.

AIMS & OBJECTIVE:

The aim of present research was to study the effect of twelve weeks practice of bhastrika Pranayama and yogic asanas over vital metabolic parameters such as lipid profile and fasting sugar on young obese medical students.

MATERIALS &METHOD:

STUDY DESIGN: Interventional Cross Sectional Study.

PLACE OF RESEARCH: Department of Physiology ay Shyam Shah Medical College, Rewa (M.P.)

STUDY PERIOD: January to March 2020.Three months

STUDY SUBJECTS: Fifty young obese medical students of median age group 18 to 24.

INCLUSION CRITERIA: All fifty young obese medical students of median age group 18 to 24who are apparently healthy with no history of any metabolic diseases/syndrome.

EXCLUSION CRITERIA: obese medical students who are any known case of dyslipidemia, diabetes, hypertension, thyroid disorders.

METHODOLOGY: The present study was conducted onfifty

young obese medical students studying in our medical college.Thesestudentsunderwent thorough clinical examination and a proper history is taken with special emphasis on history related to any metabolic derangement or disorders. Afterwards the basal recording of vital metabolic parameters was done which includes lipid profiling assessment comprising of levels of total cholesterol, triglycerides, high as well as low density lipoprotein and fasting sugar status.After accounting basalvital metabolic parameters of all the subjects, they were underwent yogic asana and bhastrika Pranayama for 30 minutes daily for the duration of twelve weeks, prior to this they weretrained under the guidance of a certified "yoga" teacher.Comparing before and after the yogic training period the basal vital metabolic parameters comprising TC, TG, HDL, LDL and FBS were found to be significantly reduced statistically by using student "t test.

The data was collected and compiled and presented in form of Table.

RESULTS

A total of fifty young obese medical students were included in the study.These students practiced yogic asana and bhastrika Pranayama regularly thirty minutes daily for twelve weeks.The statistical analysis was carried out using student "t test. It was observed that the meanTotal Cholesterol, Triglyceride level, High density lipoprotein as well as low density lipoprotein level and fasting sugar levelshows statistically significant lowering after practicing yogic asana and bhastrika Pranayama and meditation for twelve weeks period.

S. N.	Vital Metabolic Parameters	Before Start of Study (Mean value with S.D.)	After twelve weeks of yogic asanas and bhastrika pranayama (Mean with SD)	P value
1.	Mean TC (mg/dL)	226.3 ± 5.67	119.1 ± 5.69	p<0.000
2.	Mean TG (mg/dL)	125.9 ± 2.63	115.4 ± 3.03	p<0.000
3.	Mean HDL (mg/dL)	57.4 ± 4.12	65.53 ± 3.83	p<0.000
4.	Mean LDL (mg/dL)	104.9 ± 8.63	87.67 ± 9.7	p<0.000
5.	Mean FBS (mg/dL)	92.83 ± 9.68	80.9 ± 6.19	p<0.000

DISCUSSION:

The present study was sketched to determine the impact of twelve weeks of yogic asanas and Bhastrika pranayama practice on vital metabolic parameters comprising of lipid profile and fasting blood sugar in young obese medical students. These students are far away from greater impact of yoga in life and most of them have never explored the health care benefits of yoga in maintaining healthy life style.

In the present study, we observe a loss of body weight in students which is due to decrease in fat mass which was similar to the findings of Benson[16], McGuigan[16] and Benavides[17].

A clear positive correlation between yoga and improvement in lipid profile including lowering of TC, LDL and increase in HDL is seen in our study which was with the findings of Levine[18] Mahajan[19] Manchanda[20] and Bijlani[21]. Obese medical students who are involved in regular physical exercises which are an integral part of yogic asanas and pranayama shows decreased plasma glucose concentrations as depicted in our research study and similar to the results of Damodaran[22]and Balagopal[23]. Long term practice of yogic asanas and pranayama shown to yoga have beneficial effect on blood sugar level which is corelated with the results of Sahay[24] and Savita Singh[25].Various yoga-asanas may be directly reincarnating pancreatic cellswhich resultsin increase in utilization and metabolism of glucose in the peripheral tissues, liver and adipose tissues.[26]

CONCLUSION:

This study describes an effect of yogic asana and bhastrika Pranayama on vital metabolic parameters in young obese medical students.We concluded that yogic asana and bhastrika Pranayama were beneficial for improving the status of lipid profile and fasting blood sugar in obese students.The findings of our present research indicate that yoga decreases insulin resistance, improves insulin sensitivity, decreases body weight, improves basal metabolic rate and thus decreases overall BMI which is ultimately helpful in preventing the upcoming risk of metabolic syndrome and various cardiovascular diseases and provide a healthy life style thus increasing longevity of life.

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