

MEDITATION: A STRESS RELIEVERGujjala Radhika¹, D. Aruna Kumari²**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: In this study, cardiovascular parameters and respiratory functions of those practicing meditation were compared with those of non-meditators. Stress is the greatest disorder of the modern society. Health is immensely influenced by one's mental state. Yoga and meditation have been extensively studied for their beneficial effects on human health. The present study is aimed at determining the effect of Raja-Yoga meditation on pulmonary functions and cardiovascular parameters. Here, Forced Vital capacity[FVC] and Forced Expiratory Volume in First second[FEV₁] are the pulmonary function tests done. The cardiovascular parameters are the Heart Rate and Blood pressure. Meditators had significant decrease in resting heart rate and diastolic blood pressure. Forced Vital Capacity and Forced Expiratory Volume (FEV) also significantly increased in Raja -Yoga meditation when compared to non-meditators. The study shows Raja-Yoga meditation confers significant benefits in respiratory functions and cardio vascular parameters.

KEYWORDS: Raja -Yoga Meditation, Stress, Pulmonary function, Cardio Vascular Parameters.

INTRODUCTION: Many of the physical and mental ailments are caused due to wrong programming of the mind. Mind can make the person sick or speed the healing process.¹ The negative effects are counteracted by evoking relaxation response.² Yoga and meditation have been studied for their beneficial effect on human health.^{3,4} In this study Relaxation technique of Raja- Yoga Meditation is studied to determine its effects on Respiratory functions and cardio vascular parameters. The study is conducted on meditators who were practicing meditation for more than six months and non-meditators who had never done any kind of meditation.

MATERIALS AND METHODS: This is a randomized, parallel group, comparative-controlled trial. A prospective comparative study was carried out in the Department of Physiology, Kurnool medical college, Kurnool during the period of January 2009- September 2009. The study was conducted on meditators (50 subjects) who were practicing Raja- Yoga for more than 6 months at Brahma Kumari Centre and Non-meditators (50 Subjects) who had never done any kind of meditation. The subjects were selected aged between 18-27 years and were of either sex. All of them were non-smokers.

The subjects were explained about the importance and procedure of the study. The observations were made between 8.30 AM -10 AM and the venue chosen was familiar to the subjects. The following parameters were measured. Weight, Height, Heart rate, Blood pressure, Forced Vital Capacity, Forced expiratory Volume in 1 second. Before recording the above parameters the subject was asked to relax for 15 minutes. Heart rate was counted for 1 minute. Blood Pressure was recorded using a mercury sphygmomanometer in supine position. Three readings were taken at an interval of 15 minutes and an average of 3 values was calculated.

The respiratory functions FVC, FEV₁ were assessed with Spirowin. Spirowin version 1.0 windows 95/98 based serial communication Spiro meter was used for the study. The Spirowin software permits visualization of curves and measurement results on the computer screen. Subject

ORIGINAL ARTICLE

ID, Address, Height, Weight, Age, Gender, Smoker and relevant data are input. Protocol FVC selected for the data. The maneuver is explained to the subject and he is asked to execute when the red button seen on the screen turns green. The test is repeated and the system automatically retains the best test.

Before starting the maneuver the lips are sealed around the mouth piece. After full lung inflation, subject delivers the blast without any delay. For the present study the parameters FVC, FEV₁ are considered. The Spirowin calculates the actual values, predicted values (Pre-programmed) and the % \pm predicted.

STATISTICS: (Analysis of Data)

Mean and standard deviation (\pm SD) of all observations were calculated and comparisons were done between the Non-meditator's values and those of Meditator group values by applying student 't'-test (paired). Analysis was tabulated with the help of 'Microsoft Excel' (Microsoft Office 2007). Statistical significance was assigned at $P < 0.05$.

RESULTS: The subjects in the two groups did not show significant differences in number, age sex and physical activity (Table I). None of the subjects were smokers or consumers of alcohol. All meditators were vegetarians where as 72% of Non-meditators were vegetarians and 28% were non-vegetarians. There was a highly significant reduction in heart rate in meditators (P value – 0.00004) Table II. Systolic Blood Pressure shows no significant difference between the two groups. Diastolic blood pressure was significantly less in meditators as compared to non-meditators. There was a significant increase in FVC in meditators as compared to non-meditators FEV₁, was significantly more in meditators as compared to non-meditators.

DISCUSSION: The decrease in heart rate and diastolic blood pressure indicates tilt in the autonomic balance towards parasympathetic dominance.^{3,4} Meditation by modifying the state of anxiety makes the subject undergo relaxation and thereby decreases the arterial tone and peripheral resistance^{5,6} lowering the diastolic blood pressure. A decrease in sympathetic discharge and better ability to overcome stress could be possible mechanism for this change. Improvements in the cardio vascular parameters seen in the meditators in my study are similar to other studies done on meditation.^{7,8,9,10}

The mechanism by which changes in respiratory function occur may be due to greater relaxation of respiratory muscles induced by supra spinal mechanisms which increase expiratory reserve volume contributing to a rise in vital capacity. The lung inflation to near total lung capacity as induced by relaxation during meditation may be a physiological stimulates for the release of surfactant and prostaglandins into alveolar space. This causes increase in lung compliance and a decrease in bronchiolar smooth muscle tone.¹¹ All these may thus lead to a better vital capacity.

Pranayama is said to be the main breathing exercise causing improvement in vital capacity due to increase in the development of respiratory musculature. The other possible mechanism for improved pulmonary function tests in meditation is calming effect on mind, which reduces the emotional stress, thereby withdrawing the bronco-constrictor effect. Improvements in respiratory parameter seen in meditators in my study are similar to other studies done on meditation and Yoga.^{12,13,14}

ORIGINAL ARTICLE

CONCLUSION: In the present study an attempt is made to study the effect of Brahma Kumaris Raja Yoga meditation on heart rate, systolic and Diastolic blood pressure, FVC and FEV₁.

The present study showed the meditations have significant decrease in resting heart rate and diastolic blood pressure. Pulmonary function tests FVC and FEV₁ were also significantly increased in Raja Yoga meditators when compared to non-meditators.

The stress in day to day life, hurry and worry of modern life, mental stress due to studies in the student age group, work related irritations can be partially relieved by practicing meditation. The body's natural relaxation response is a powerful antidote to stress. Meditation practice decreases sympathetic discharge and helps to achieve a stable autonomic balance. During the last few decades yoga has got incorporated into modern medicine.¹⁴ Yoga is one of the best lifestyle ever devised by mankind.¹⁴

RECOMMENDATION: The present study indicates that Raja-Yoga meditation confers significant benefits in respiratory functions and cardio vascular parameters. The results justify that incorporation of meditation as part of the life style for improvement in the quality of life.

My request to government is to introduce meditation in educational institutions as it is a simple, non-invasive relaxation technique to counter the stress, the students are facing. In this tension filled society, meditation brings some solace to all the problems and improves the quality of life. It can be considered as a soothing agent to many burning problems of the modern society.

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ORIGINAL ARTICLE

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Variables	Non-meditators n(%)	Meditators n(%)
Age (Years)		
18-22,	44(88%)	35(70%)
23-27	06(12%)	15(30%)
Sex		
Male	25 (50%)	30 (60%)
Female	25 (50%)	20(40%)
Diet		
Non-Veg	14 (28%)	---
Veg	36 (72%)	50 (100%)

Table 1: Distribution of demographic characteristics

None were smokers or consumers of alcohol.

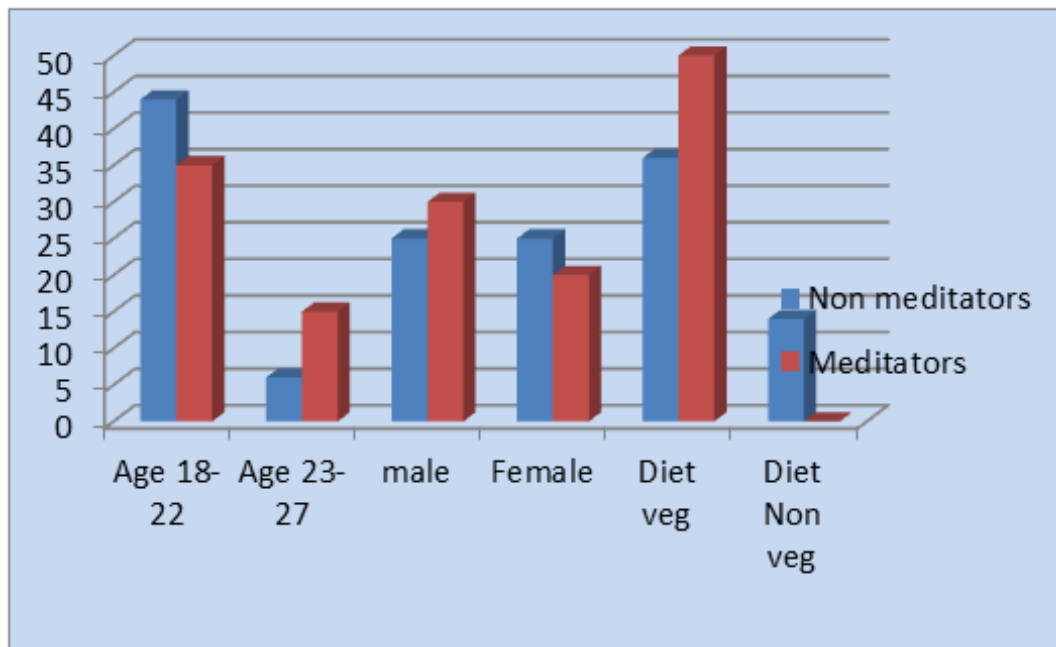


Fig. 1

ORIGINAL ARTICLE

Parameter	Non-Meditators	Meditators	P-Value
Heart Rate (Beats/min)	73±3.7	69.1±5.0	0.00004 (Highly significant)
Systolic BP (mm of Hg)	120.5±7.5	118.7±8.0	0.2309 Not significant
Diastolic BP (mm of Hg)	78.8±5.2	75.2±6.2	0.0028 Significant
FVC (Litres)	2.231±0.535	2.868±0.718	0.0000 Highly Significant
FEV1 (Litres)	1.938±0.453	2.553±0.601	0.00000 Highly Significant

Table No. 2: Cardiovascular and respiratory parameters in the two groups

All values expressed as mean ± S.D.

Analysis for all parameters done by paired 't' test.

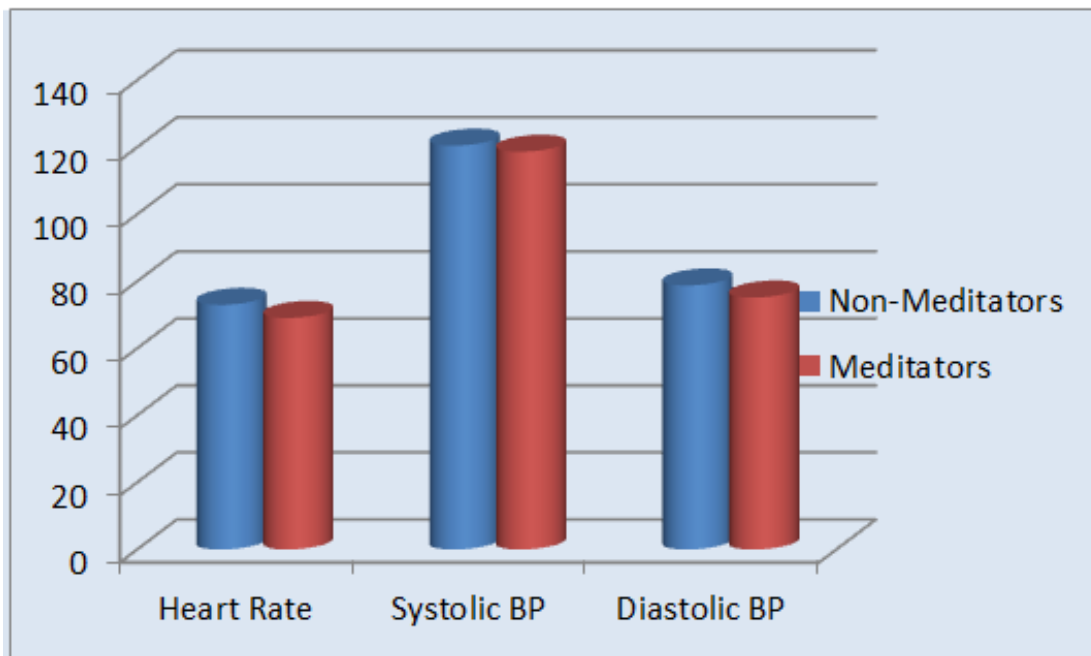


Fig. 2

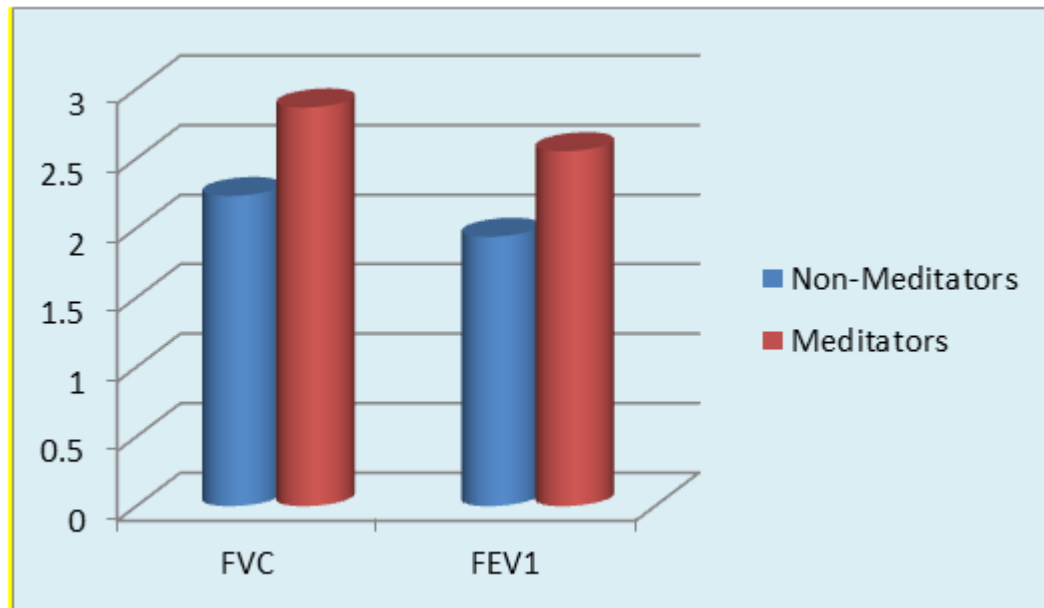


Fig. 3

AUTHORS:

1. Gujjala Radhika,
2. D. Aruna Kumari

PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of Physiology, Government Medical College, Anantapur.
2. Assistant Professor, Department of Physiology, Government Medical College, Anantapur.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

G. Radhika,
6-3-986, Maruthi Nagar,
Ananthapuramu - 515001,
Andhra Pradesh.
Email: radhika.gujjala@yahoo.com

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