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Effect of Meditation on Respiratory System

Dr. R. Hara Gopal[1], Dr. B. Rajini[2]

[1]Professor and HOD, Department of Physiology, Kakatiya Medical College, Warangal-506002, Telangana

[2]Assistant Professor, Department of Physiology, Kakatiya Medical College, Warangal-506002, Telangana

Abstract: ***In this study respiratory functions of those practicing Raja Yoga Meditation (Short and Long term meditation) were compared with those of nonmeditators. Vital capacity, tidal volume, breath holding capacity and expiratory pressure were significantly higher in short and Long term meditators thabnonmeditators more over long term meditators had significantly higher vital capacity and expiratory pressure than short term meditators. This shows that Raja Yoga meditation provides significant improvement in Respiratory functions.***

Keywords: Meditation Raja Yoga vital capacity Tidal volume, Breathholding capacity Expiratory Pressure

1. Introduction

Meditation is the method of extending our ordinary consciousness and there by discovering more about ourselves.

Meditation is the technique of turning down the subtle sources of energy can be precieved within.

The present study is aimed at determing the effectof Raja Yoga meditation on Respiratory functions.

The study was performed on subjects who did not differ significantly in age.

Sex distribution and physical activity.

2. Materials and Methods

The present study was conducted in department of physiology kakatiya medical college.
The study was undertaken to study the effect of Anapanasati meditation on Respiratory parameters among short term and long term meditators and to compare with that of non-meditators.

Inclusion criteria

- Health males and females in the age group 40 to 45 years.
- Short term meditators were those who had been practicing meditation from 6 moths to 5 years
- Long term meditators were those who had been practicing meditation for than5 years.
- Age and sex matched health individuals not exposed to any meditation or relaxation techniques were included as controls.
- Age below 40 years and above 45 years
- Presence of obesity, hypertension, diabetes mellitus, ischemic heart disease congestive heart failure.
- Asthma, COPD, gross vertebral column or thoracic cage anomalies.

Method

Present study was conducted on 75 healthy subjects of either sex in the age group of 40-45 years. This group was divided into 25 short term meditators, 25 long term meditators and long term meditators, meditators practice meditation in the meditation center regularly for 1 hr. every day between 6AM to 7AM.

3. Results

Table 1: Comparision of TV, VC, BHC, Exp, Pr, in Non – Meditators STM, LTM

Variable	Non Meditators	Short Term Meditators	Long term Meditators
Tidal volume (ml) Mean ± SD	417.6 ± 81	590 ± 64	672 ± 41.8 0.0001
Vital Capacity (ml) Mean ± SD	2784 ± 212	3764 ± 731	4512 ± 398 0.000
Breath holding Capacity(Scc) Median(Min, Max)	18 (10.25)	33 (30.39)	45 (40, 50) 0.000
Expiratory pr. (mmHg) Mean ± SD	63.6 ± 9.3	88.2 ± 5.5	101.2 ± 9.1 0.000

TV- Tidal volume
VC- Vital capacity
BHC – breath holding capacity
Exp.Pr – Expiratory pressure
STM – Short term meditators
LTM – Long term meditators

The results were expressed as mean + standard deviation for continuous data and number and percentage for discrete data. One way ANOVA was used for stimulations multiple group comparison followed by post – hoc turkey's test for group wise comparison. Categorical data was analyzed by chi- square test SPSS version b16 software was used for all the analysis.

1) P value > 0.05 is taken as not significant
2) P value < 0.05 is taken as significant
3) P value > 0.001 is taken as highly significant

The table shows that tidal volume vital capacity breath holding capacity and expiratory pressure are significantly higher in short and long term meditators as compared to non- meditators.

4. Discussion

Yoga has demonstrated an improvement in respiratory function. The mechanisms by which changes in respiratory functions occur are grater by relaxation of respiratory muscles induced by supra spinal mechanisms which increase the expiratory reserve volume contributing to a rise in vital capacity Long inflation physiological stimulus for release of surfactant and prostaglandins into alveolar spaces

The increased breath holding time caused by grater control of respiratory musculature and normal physiological stimuli of respiratory centers.

The wakeful hypo-metabolic state as characterized by decreased were production and decreased Oz consumption can also help to hold the breath for longer time [3, 4]

Long breath holding was associated with a 19% decrease in oxygen consumption during the practice where as short breath holding was associated with 56% increase in the oxygen consume these results show that manipulating the breath can influence metabolism [5]

Long inflation to near total long capacity is a major physiological stimulus for release of surfactant and prostaglandins into alveolar spaces, this causes increase in long compliance and a decrease in bronchiolar smooth muscle tone [6.7]

5. Conclusion

Non – pharmacological methods like yoga meditations and life style modification should be encouraged to control modifiable risk factors.

The respiratory muscles are strengthened and there by the respiratory parameters are improved in individuals practicing yoga regularly in combination with pranayama it can be thus concluded that these results and their explanations would justify the incorporation of yoga as part of our life style in prevention of age related complications

“In a tension filled society, yoga pranayama meditation alone will bring solace from all problems and hence the are the essence of life “

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