

Effect of yoga on pulmonary function in COPD patients

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Abstract

Background: To improve muscle function and exercise capacity in patients with COPD, pulmonary rehabilitation is currently accepted as evidence-based intervention strategy. Despite the benefits of physical activity and the existence of national recommendations, the majority of the patients remain insufficiently active. **Objective:** To find the effect of yoga on pulmonary parameters. **Methodology:** It is an experimental involving 30 patients of COPD and pulmonary parameters were evaluated before and after yoga exercises. The mean values were evaluated and compared at the subsequent follow ups. Majority of the patients were between 51-60 years age group i.e. 13 (43.3%). 70% were males and 30% were females. The difference in the mean values between pre and post intervention was found to be statistically significant (<0.05). The difference in the mean values of FEV between pre and post intervention was found to be statistically significant (<0.05). **Conclusion:** Yoga improves the pulmonary functions in COPD

Key Words: Yoga, COPD, pulmonary function

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Received Date: 13/10/2019 Revised Date: 18/11/2019

Accepted Date: 03/12/2019

DOI: <https://doi.org/10.26611/1031231>

Access this article online

Quick Response Code:



Website:

www.medpulse.in

Accessed Date:

08 December 2019

INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is an important cause of morbidity and mortality and poses a major public health problem. By 2020, COPD is predicted to rank as the third leading cause of death worldwide, whereas its social burden will rank fifth.^{1,2,3} COPD is characterized by irreversible airflow obstruction, a gradual decline in lung function, loss of lung tissue, reduced quality of life, and high rates of mortality. The Global Initiative for Chronic Obstructive Lung Disease (GOLD) management includes a reduction in symptoms, complications, and exacerbations, improved exercise tolerance, improved health status, and reduced mortality.² Recent evidence-based clinical practice

guidelines and statements have shown that pulmonary rehabilitation is widely accepted as the most effective non-pharmacotherapy in the management of COPD.⁴ To improve muscle function and exercise capacity in patients with COPD, pulmonary rehabilitation is currently accepted as evidence-based intervention strategy.⁵ The health benefits of adequate physical activity are well-recognized.⁶ Recommendations for physical activity have evolved to the current ones of physical activity of at least a moderate intensity for 30 minutes on all or most days of the week.⁷ Despite the benefits of physical activity and the existence of national recommendations, the majority of the patients remain insufficiently active. The five principles of yoga are relaxation, exercise (asanas), pranayama (breathing control), nourishing diet, and positive thinking and meditation, Pranayama are yogic breathing techniques that increase the capacity of lungs.^{8,9} 27²⁹ help to strengthen the internal organs, improve mental control and deepen your ability to relax.¹⁰ According to yogic belief, life expectancy is linked to the frequency of respiration if we can learn to slow down our breathing, we can add years to our lives. Yogic breathing or pranayama is part of all yogas and is one of the practices of kundalini yoga. It is the art of controlling the breathing. When patients with COPD were non-

specifically trained the strength of both the inspiratory and expiratory muscles was increased, with beneficial effects on exercise performance and quality of life. So, the present study was conducted to find the effect of yoga on pulmonary parameters.

METHODOLOGY

- Type of study: Experimental study
- Study duration: 8 weeks

Inclusion criteria: Diagnosed cases of COPD and willing to participate in study

Exclusion criteria: Those with systemic disorders like hypertension, diabetes, CHD

- Sampling technique: Random sampling method.
- Sample size: total 30 subjects.
- Study center: Medicine OPD at GMCH, Suryapet
- Study duration: June 2019 to July 2019
- Statistics used: SPSS software used for data analysis and unpaired t test was used to compare the mean values between two groups

RESULTS

Table 1: Distribution of study population according to age group

| | | Frequency | Percent |
|--------------------|--------------|-----------|--------------|
| Age group in years | 30-40 | 3 | 10.0 |
| | 41-50 | 6 | 20.0 |
| | 51-60 | 13 | 43.3 |
| | 61-70 | 8 | 26.7 |
| | Total | 30 | 100.0 |

Out of total 30 patients of COPD, majority were between 51-60 years age group i.e. 13 (43.3%) followed by 8 i.e. 26.7%, 6(20%) from 41-50 and 3(10%) from 30-40 years age group.

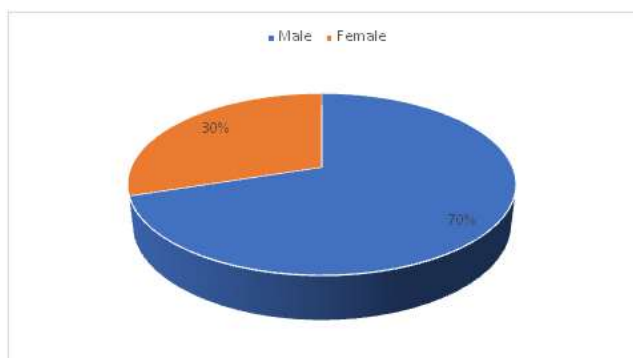


Fig. 1: Pie diagram showing gender wise distribution

Majority of the subjects in our study were males i.e. 70% and 30% were females.

Table 2: Comparison of FVC before and after intervention

| | Mean | SD | t | p | Inference |
|--------|------|-----|------|-------|-------------|
| Before | 2.14 | .07 | -6.1 | 0.034 | Significant |
| After | 3.33 | 0.2 | | | |

Mean FVC before intervention was 2.14±.07 and after intervention was 3.33±0.2. The difference in the mean values of FVC between pre and post intervention was found to be statistically significant (<0.05)

Table 3: Comparison of FEV before and after intervention

| | Mean | SD | t | p | Inference |
|--------|------|------|-------|------|-------------|
| Before | 1.16 | 0.6 | -5.22 | 0.02 | Significant |
| After | 2.13 | 0.73 | | | |

Mean FEV before intervention Was 1.16±.6 and after intervention was 2.13±0.73. The difference in the mean values of FEV between pre and post intervention was found to be statistically significant (<0.05)

DISCUSSION

Yoga therapy readjusts the autonomic imbalance¹¹, controls the rate of breathing and relaxes the voluntary inspiratory and expiratory muscles.^{12,13,14} Yoga helps to improve the respiratory function by exercising respiratory muscles and also by its influence on the respiratory centres. The elasticity of lung tissue as well as flexibility of surrounding muscles can be increased by yoga practice which may increase lung capacity and pulmonary blood circulation. The yogic practices like kapalabati and pranayama are very useful in strengthening respiratory muscles.

CONCLUSION

Yoga improves the pulmonary functions in COPD

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Source of Support: None Declared
Conflict of Interest: None Declared

