International Journal of Current Advanced Research
ISSN: O: 2319-6475, ISSN: P: 2319-6505, Impact Factor: SJIF: 5.995
Available Online at www.journalijcar.org
Volume 6; Issue 11; November 2017; Page No. 7229-7232
DOI: http://dx.doi.org/10.24327/ijcar.2017.7232.1105

Research Article

# EFFICACY OF FELDENKRAIS METHOD VS. RESPIRATORY GYMNASTICS FOR PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

**Monisha R and Yasmeen Imtiaz**

SRM College of Physiotherapy, SRM University

**A R T I C L E I N F O**

***Article History:***
Received 20th August, 2017
Received in revised form 29th September, 2017
Accepted 30th October, 2017
Published online 28th November, 2017

***Key words:***
Complementary therapy • Feldenkrais Method • respiratory gymnastics • COPD

**A B S T R A C T**

**Background:** The Feldenkrais Method (FM) is an alternative therapy used by patients with chronic obstructive pulmonary disease (COPD). However, evidence of the effectiveness of the FM and RMSG among persons with COPD is lacking.

**Objective** To investigate the impact of the FM in patients with COPD. And to investigate the Effects of Feldenkrais Method Vs. Respiratory Gymnastics for patients with chronic obstructive pulmonary disease

**Methods** An experimental study was conducted in 40 COPD patients. The FM and RMSG was administered for a period of 8 weeks. The 6-min walking test (6MWT) was used to measure functional capacity; expiratory flow rate was used to evaluate lung function, and the clinical COPD questionnaire was used to measure QoL before and after the intervention.

**Results** Paired *t*-tests showed significant improvements in 6MWT from baseline to 8 weeks Similarly, there was a significant improvement in the peak expiratory flow rate.

**Conclusion** The FM improve functional capacity and lung function among patients with COPD.



## INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a leading cause of morbidity and mortality, and reportedly kills nearly three million people annually[1,2]. COPD mortality rate is expected to rise by 50% over the next 15 years.[2] The condition of COPD also adversely affects QOL with the disease burden substantially adding to healthcare resource utilization and spending[1]. Chronic obstructive pulmonary disease is a chronic condition of which physical function, social function and general health are severely affected. Evidence from earlier studies suggests that anxiety and depression are also present among patients with COPD.

Pulmonary rehabilitation program (PRP) for chronic obstructive pulmonary disease (COPD) patients is well established[1,2] . It is a therapeutic means of facilitating the therapy to lessen symptoms and optimize function. Such programs have encouraged patients to become more independent in their daily activities, and become less dependent on health professionals and expensive medical resources.

**Corresponding author:* **Monisha R**
SRM College of Physiotherapy, SRM University

The Feldenkrais Method is becoming a popular treatment modality used by Physiotherapist to assess a range of dysfunctions[3]. It was originally developed to decrease the muscular effort that is needed to perform movement and is directed at those people who wish to improve their efficiency of movement, posture and breathing, muscular tension, flexibility and neuro motor functioning[5]. Chronic obstructive pulmonary disease (COPD) is a common disease in the elderly and its prevalence is increasing worldwide.

Although the Feldenkrais method of rehabilitating chronic obstructive pulmonary disease (COPD) patients have been suggested, its use among practitioners is not widespread owing to preference of the more familiar standard program presently available. Several advantageous of the Feldenkrais Method have been suggested which includes improving the efficiency of movement, posture and, breathing. However how this compares to the standard rehabilitation protocol or pulmonary rehabilitation program (PRP) have not been previously demonstrated. The present study was thus conducted to compare the effectiveness of the Feldenkrais Method to the Respiratory muscle stretch gymnastics using Borg score and 6 minute walked distance (6MWD) as outcome measurement tools[6].

Respiratory Gymnastic tends to relax and stretch the respiratory muscles to facilitate them to increase the functional capacity. RMSG was developed to alleviate the respiratory distress induced by strenuous exercise in patients with Cardio respiratory disorders[7,8,9].

## METHODOLOGY

***Study design***

Pre test and post test experimental study design

***Sample Size***

Total number of 80 patients were selected for the study. 40 of them were excluded for various reasons. Out of 40 patients 20 were assigned to each group.

***Treatment duration***

Exercise training was delivered Daily 30 minutes for 8 weeks and the values of the parameters selected were assessed.

***Selection Criteria***

***Inclusion criteria[5]***

- Male patients were included
- Patient who are willing to participate in the study

***Exclusion criteria***

- Female patients were excluded
- Patients with cognitive deficit
- Central or peripheral neurological sequelae
- With painful symptoms of undiagnosed cause
- Pacemaker patients
- Patients with local infection
- Patients with any recent surgical history.
- Patients with any post operative complications like- Prolonged drainage**,** increased body temperature**,** Respiratory tract infection.

***Assessment Parameters***

The following parameters were assessed for analysis of the outcome.

- CCQ- Clinical COPD Questionnaire
- 6 Minute Walk Test
- Peak expiratory flow rate

***Study protocol***

***Group A: (Experimental group)***

Feldenkrais Method

***Conventional Chest Physiotherapy (CCPT)***

- Deep Breathing Exercises
- Lung expansion exercises
- Secretion removal manoeuvres
- Assisted coughing

**Group B**

***Respiratory Muscle Stretch Gymnastics (RMSG)***

| | |
|---|---|
| RMSG 1 | Whole body relaxation |
| RMSG 2 | Bending the neck forward and side to sides |
| RMSG 3 | Shoulder rotation exercises |
| RMSG 4 | Stretching of shoulder girdle |
| RMSG 5 | Stretching of triceps and serratus anterior |

***Conventional Chest Physiotherapy (CCPT)***

- Deep Breathing Exercises
- Lung expansion exercises
- Secretion removal manoeuvres

***Data Analysis and Interpretation***

Independent "t" test was used to show the effectiveness of treatment between group A and group B. The "t" value was calculated using the formula,

| | | | |
|---|---|---|---|
| 1 | Introductory session to Feldenkrais exercises<br>• Sharing the principles of the Feldenkrais Method<br>• Orientation of the body in floor<br>• Cognitive awareness of the body and environmental contact | Weeks 1 and 2 | 30 min |
| 2 | Warm-up exercises<br>• Movement awareness and orientation of upper limb<br>• Movement awareness and orientation of lower limb<br>• Orientation of the body in floor<br>• Cognitive awareness of movements and the environmental contact | Weeks 2–8 | 20 min at second week, 5 min (other weeks) |
| 3 | Feldenkrais breathing exercises<br>• Movement awareness of inspiration<br>• Movement awareness of expiration<br>• Cognitive awareness of breath in and breath out and associated movements<br>• Perceiving the easiness in the breath | Weeks 3–8 | 15 min |
| 4 | Feldenkrais exercises to pelvis<br>• Rolling clockwise<br>• Rolling pelvis anticlockwise<br>• Pelvic side tilting<br>• Cognitive awareness and cueing for proprioception during the movements<br>• Structural and regional differentiation of movements together with breathing awareness | Weeks 4–8 | 15 min |
| 5 | Feldenkrais exercises for trunk<br>• Rolling to one side<br>• Rolling to another side<br>• Structural and regional differentiation of movements during side movement with breathing awareness<br>• Side to side movement with cognitive awareness and synchronized breathing | Weeks 5–8 | 15 min |
| 6 | Cool down movements<br>• Breathing exercises<br>• Orientation of the body in floor<br>• Cognitive awareness of the body contact with the environment/floor | Weeks 3–8 | 5 min |

$$S = \sqrt{\frac{\sum(x_1 - x_1^1)^2 + \sum(x_2 - x_2^1)^2}{n_1 + n_2 - 2}}$$

$$T = \frac{x_1^1 - x_2^1}{S} \sqrt{\frac{n_1 n_2}{n_1 + n_2}}$$

***Mean Difference Between***

***Group A and Group B***

| Parameters | Group | Mean | SD | 't' value |
|---|---|---|---|---|
| CCQ Score | Group A<br>Group B | 6.53<br>10.73 | 9.961 | 6.367 |
| 6 Minutes Walk Test Distance | Group A<br>Group B | -67.53<br>-37.47 | 27.083 | -5.830 |
| Peak Expiratory Flow Rate | Group A<br>Group B | -159.33<br>-134.00 | 35.166 | -1.333 |

## DISCUSSION

The purpose of the study is to determine "Efficacy of Feldenkrais Method Vs. Respiratory Gymnastics for patients with chronic obstructive pulmonary disease.The study was conducted out for a period of 8 weeks. Exercise intolerance has been pointed out as one of the chief concerns of patients with COPD. A widely accepted view is that exercise intolerance is known to restrict activities of daily living. In the present study, it was found that conventional chest physiotherapy including deep breathing exercise, lung expansion exercise, secreation removal manuevers,assisted coughing and Feldenkrais Method significantly exercise capacity and improved PEF rate, six minute walk test distance and CCQ score compared to a regime Respiratory muscle gymnastics application in patients with COPD. 6MWD was increased in experimental group compared to the control group.In our study PEF rate, 6MWT distance and CCQ Score measurement was performed at baseline and repeated on the 2nd week, 4th week and 8th week. The patients were encouraged to perform the deep breathing exercises. The frequency (3 sets of 10 breath) was chosen. In our study all patients in the experimental group found the breathing technique easy to perform following Feldenkrais Method and the patients experienced a subjective benefit of the exercises. In CCQ, 10 patients of them in group A had maximal improvements and the remaining 10 patients had a moderate improvement. The average value is 6.53. For group B, 5 patients had maximal improvement and 11 patients had minimal improvements and the remaining 4 patients had a moderate improvements.the average value is 10.73 and the standard deviation is 9.961 and the t value is6.367 at 0.05 level of significance.

In 6MWT, 5 patients of them in group A had maximal improvements and 2 patient had a minimal improvement and others had a moderate improvement.The average value is --67.53. For groupB, 10 patients had a moderate improvement and the remaining had a minimal improvement. The average value is -37.47and the standard deviation is 27.083 and t value is -5.830 at 0.05 level of significance. In PEFR, 9 patients of them in group A had maximal improvements and others had a moderate improvement. The average value is-159.33.For group B, 10 patients had a moderate improvement and the others had minimal improvement. The average value is --134.00 and the standard deviation is 35.166and t value is -1.333 at 0.05 level of significance. Hence group A showed better outcome than group B.

## CONCLUSION

The outcome of the data collection reveals that the application of Feldenkrais Method plays a vital role in the reduction of CCQ values in patients with COPD. The recordable change shows in six minute walk test and peak expiratory flow rate. There is significant difference between the effects of Feldenkrais and Respiratory Gymnastics on functional improvement in COPD patients

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**How to cite this article:**

Monisha R and Yasmeen Imtiaz (2017) ' Efficacy of feldenkrais method vs. Respiratory gymnastics for patients with chronic obstructive pulmonary disease ', *International Journal of Current Advanced Research,* 06(11), pp. 7229-7232.
DOI: http://dx.doi.org/10.24327/ijcar.2017.7232.1105

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