

# Efficacy of Pursed Lip Breathing and Expiratory Muscle Training to Relieve Exertional Dyspnea among Patients with COPD



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### Abstract

Chronic obstructive pulmonary disease (COPD) is the fourth leading cause of death. In COPD, dyspnea may be severe and may interfere with person's daily activities. The present study was conducted to compare the efficacy of pursed lip breathing and expiratory muscle training to relieve exertional dyspnea among patients with COPD. Patients with exertional dyspnea were assessed by modified Borg scale with the help of 6 minute walk test and peak flow meter. A total of 30 samples were randomly assigned into Group I, Group II & Group III through lottery method. After the pre-test, group I was assigned for pursed lip breathing and group II for expiratory muscle training for one month duration for twice a day for 5 minutes in first week, twice a day for 10 minutes in 2nd week, twice a day for 15 minutes in the third week, and twice a day for 20 minutes in the fourth week. In Group III (control group) regular follow up was advised. Consent for the participation was taken from the participants and confidentiality was maintained throughout the study. Findings of the study revealed that 15 (50%) samples had moderate exertional dyspnea, 9(30%) had somewhat severe exertional dyspnea and 6(20%) had severe exertional dyspnea. There was significant association found between the selected demographic variables like sex and area of living at the level  $p = 0.05$ . There was significant reduction of exertional dyspnea in pursed lip breathing group (group I) at  $t_9 = 7.479$  at the level  $p = 0.001$  and in expiratory muscle training group (group II) at  $t_9 = 15.18$  at the level  $p = 0.001$ . Additionally there was significant improvement in the 6 minute walk distance and peak expiratory flow rate in both experimental groups. Comparison among pursed lip breathing group and expiratory muscle training group, in terms of reducing the exertional dyspnea score revealed that there was no statistically significant difference in exertional dyspnea in both groups. It indicated that both of the exercises are equally effective in reducing exertional dyspnea among COPD patients.

**Keywords:** Pursed lip breathing (PLB), expiratory muscle training, Exertional dyspnea, Modified Borg scale, 6 minute walk test, Peak flow meter, Chronic obstructive pulmonary disease (COPD).

### Background

COPD is a major cause of chronic morbidity and mortality throughout the world; many people suffer from this disease for years and die prematurely from it or its complications globally. The COPD burden is projected to increase in coming decades because of continued exposure to risk factors associated with this disease and aging of the population. (Lopez.AD. et al 2006)<sup>1</sup>

Tobacco smoking is the most important risk factor for developing COPD. The development of COPD usually takes several decades, but most of the longitudinal

studies of COPD only span 510 years. (A.Lokke.et al.2006)<sup>2</sup>

In COPD, dyspnea may be severe and may interfere with patient's daily activities. Weight loss is common because dyspnea interferes with eating, and the work of breathing is energy depleting. Often the patient cannot participate in even mild exercise because of dyspnea; as COPD progresses, dyspnea occurs even at rest. As the work of breathing increases over time, the accessory muscles are recruited in an effort to breathe. The patient with COPD is at risk for respiratory infections, which in turn increases

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