COMPARISON OF EFFECTIVENESS OF DIAPHRAGMATIC BREATHING AND PURSED-LIP EXPIRATION EXERCISES IN IMPROVING THE FORCED EXPIRATORY FLOW RATE AND CHEST EXPANSION IN PATIENTS WITH BRONCHIAL ASTHMA


Setting the scene:
To compare between effectiveness of diaphragmatic breathing and pursed lip expiration exercises in improving the forced expiratory flow rate and chest expansion in patient with bronchial asthma,

What did they do?
Thirty patients both male and female aged between 20 and 40 years diagnosed with bronchial asthma by the physician were assigned in two groups. Group-1 patients were given diaphragmatic breathing exercises and group-2 patients were given pursed-lip expiration exercises. The patients were required to fulfil the following criteria to be included in the study: (i) mild (daytime symptoms more than once a week, (ii) nocturnal symptoms more than twice a month, peak expiratory flow rate/ force expiratory flow volume in one second (PEFR / FEV1 > 80%) and (iii) moderate (day time symptoms daily, nocturnal symptoms more than once a week, PEFR / FEV1: 60 – 80%) persistent bronchial asthma patients. Subjects were excluded from the study if they had the following problems: (i) non co-operative patients, (ii) status asthmatics patients and (iii) patients of asthma associated with other respiratory and cardiac diseases. Patients were given diaphragmatic breathing exercise for 6 weeks (5 days in a week, 2 times in a day for 20 minutes per session). The patient was asked to relax and positioned in a comfortable position so that his/her back and head are fully supported and his/her abdominal wall relaxed (fowler’s position). The researcher places his hands on the rectus abdominals just below the anterior costal margin. Patient was asked to breathe in slowly and deeply through the nose. Patient was instructed to keep the shoulders relaxed and upper chest quiet, following the abdomen to rise. Then the patient was asked to slowly let all the air out using controlled expiration with pursed-lip. This was applied for three or four times and then rest.
Patients were given only pursed-lip expiration exercise for 6 weeks (5 days in a week, 2 times per day for 20 minutes per session). The patient was asked to relax his or her shoulder muscles and asked to breathe in (inhale) slowly through his or her nose for two counts, keeping mouth closed. Then he/she was asked to pursue their lips as if they were going to whistle or gently flicker the flame of a candle. Finally breathe out (exhale) slowly and gently through pursed-lips while counting to four. Periodic assessment was taken every week by the physiotherapist to find out whether the patients were doing the exercise daily or not. Pre and post-test measures of forced expiratory flow rate were taken by peak expiratory flow meter and chest expansion was measured by inch tape.

**Takeaway message:**
The results of the study are in favour of diaphragmatic breathing exercise group as it has resulted significant improvement in FEFR and chest expansion. Thus it can be concluded that diaphragmatic breathing exercise plays a vital role in the rehabilitation of asthmatic patients to gain the functional improvement, independence and to reduce functional impairments and symptoms.