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Title: Acute effect of chest wall muscle stretching on chest wall volumes distribuition in chronic obstructive pulmonary disease: A randomized controlled trial

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Body: Inspiratory muscles function is compromised in COPD due to increased loads, reduced mechanical advantage, and increased ventilatory requirements. The hyperinflation of COPD reduces the flow and pressure-generating capacity of the diaphragm Aims: To analyze the acute effects of chest wall muscle stretching on chest wall volumes distribuition in subjects with COPD. Methods: It was a randomized controlled trial, involving 28 COPD patients divided into two groups: 14 subjects to treatment group (TG, mean age 61.79±8.31years) and 14 to control group (CG, 62.38±8.33years). TG was composed for patients that received a program of chest wall muscle stretching and patients allocated in CG remained at rest in the similar conditions as in GT. Respiratory variables were measured during quiet breathing by Opto-Electronic plethysmography (OEP) before and after one intervention. Statistical analysis was performed using independent samples t-test. Results: Tidal volume (Vt) presented a significant increase immediately after the chest wall muscle stretching in rib cage pulmonary compartment (Vt,rcp, p=0.02), in rib cage abdominal compartment (Vt,rca, p=0.04) and their percentages regarding thoracic wall, Vt,rcp%(p=0.04) and Vt,rca% (p=0.022). Thus, there was a reduction in respiratory rate(p=0.011) and minute ventilation(p=0.03), and a increase in a expiratory time p=0.026). Conclusions: The chest wall muscle stretching has beneficial acute effects on chest wall volume distribuition in patients with COPD. For reason, this technique should be considered to treat these patients. Supported by: CAPES-NF, CNPq, FACEPE.