Abstract

Background: Diaphragmatic breathing (DB) is widely used in pulmonary rehabilitation (PR) of patients with chronic obstructive pulmonary disease (COPD), however it has been little studied in the scientific literature. The Pilates breathing (PB) method has also been used in the rehabilitation area and has been little studied in the scientific literature and in COPD. Objectives: To compare ventilatory parameters during DB and PB in COPD patients and healthy adults. Method: Fifteen COPD patients (COPD group) and fifteen healthy patients (healthy group) performed three types of respiration: natural breathing (NB), DB, and PB, with the respiratory pattern being analyzed by respiratory inductive plethysmography. The parameters of time, volume, and thoracoabdominal coordination were evaluated. After the Shapiro-Wilk normality test, ANOVA was applied followed by Tukey’s test (intragroup analysis) and Student’s t-test (intergroup analysis; p<0.05). Results: DB promoted increase in respiratory volumes, times, and SpO2 as well as decrease in respiratory rate in both groups. PB increased respiratory volumes in healthy group, with no additional benefits of respiratory pattern in the COPD group. With respect to thoracoabdominal coordination, both groups presented higher asynchrony during DB, with a greater increase in the healthy group. Conclusions: DB showed positive effects such as increase in lung volumes, respiratory motion, and SpO2 and reduction in respiratory rate. Although there were no changes in volume and time measurements during PB in COPD, this breathing pattern increased volumes in the healthy subjects and increased oxygenation in both groups. In this context, the acute benefits of DB are emphasized as a supporting treatment in respiratory rehabilitation programs.

Keywords

physical therapy; COPD; plethysmography; breathing.