



Posture, mobility and pulmonary function in COPD: An exploratory study

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Abstract

Altered postural alignment, joint mobility and muscle length of the upper quadrant have been associated with impaired pulmonary function in chronic respiratory diseases, such as cystic fibrosis. However, this has been scarcely studied in COPD. This study aimed to investigate whether postural alignment and mobility of the upper quadrant are related to pulmonary function in patients with COPD.

Fifteen patients with COPD (69.4 ± 10.2 yrs) participated. Pulmonary function (FEV_1 , FVC) was assessed with spirometry. Alignment and mobility of the head, thoracic spine and shoulder joint were assessed taking 6 photographs in the sagittal plane: neutral position; full head protraction/retraction, thoracic spine flexion/extension and shoulder flexion. Angles were calculated with a computer-assisted digitising software. Pectoralis minor muscle (PmM) resting length was assessed with a measuring tape. Stepwise multiple linear regression analyses were used to assess potential relationships between postural and mobility variables and pulmonary function.

Patients had a FEV_1 of 1.7 ± 0.5 L (66.0 ± 17.8 pp) and FVC of 2.6 ± 0.8 L (75.3 ± 17.8 pp). Full head protraction and non-dominant PmM resting length were significant predictors of FEV_1 absolute value ($p = .008$; $r^2_{adj} = .48$). These variables, together with full upper thoracic spine flexion and full thoracic spine extension, were significant predictors of FVC ($p < .001$; $r^2_{adj} = .82$).

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