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| **The examination of two tests measuring exertional dyspnea in COPD.** |
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| **Introduction/Aim:**  Exertional dyspnea (ED), which is reported as shortness of breath during exertional activities, is a leading symptom reported by Chronic Obstructive Pulmonary Disease (COPD) sufferers. Currently there is not a gold standard exercise test to measure ED (1). Two walking exercise tests, the 3-minute shuttle walk test (3MWST) and the 2-minute treadmill test, the Dyspnea challenge (2) have been designed to specifically assess ED, however the sensitivity of these tests to worsening disease severity remains unknown. The aim of the current study was to examine the sensitivity of these two tests by simulating worsening disease severity using chest wall binding in a group of moderate-severe COPD patients.  **Methods:**  COPD participants aged 61-84 years were recruited. Participants undertook a repeated measures study, with chest wall binding fitted to induce exertional dyspnea during the 3MSWT and the Dyspnea challenge in random order. With the chest wall binder in situ baseline spirometry was measured until a reduced Forced Vital Capacity (FVC) of ~30% was achieved. Primary outcome of the modified Borg (mBorg) to measure ED at end of each exercise test was used.  **Results:**  Ten COPD participants (six males) aged 61-84 (mean 72.1 ± SD 7.09) were studied. Without the chest wall binding applied there was no significant difference (p=0.45) in the ED recorded by the Dyspnea Challenge (3.2±1.2) and 3MWST (3.0±1.2). Chest wall binding induced a significant fall (p<0.01) in FVC (range:7-56%). With the chest wall binding applied both the 3MWST (3.7±1.8) and the Dyspnea Challenge (4.2±1.5) generated a similar (p=0.45) increase in ED. There was a significant increase (p<0.01) of 1.0±1.1 (from the without chest wall binding condition) for the Dyspnea Challenge and 0.8±1.3 for the 3MSWT. No significant difference between the two exercise tests with the chest wall binding fitted was observed (p= 0.48).  **Conclusion:**  Both tests are sensitive to detecting a change in exertional breathlessness as elicited by chest wall binding in COPD participants. Further studies into the responsiveness and effectiveness of both the 3MSWT and the Dyspnea Challenge in clinical practice for monitoring and outcome assessment of intervention on exertional dyspnea are required.  **References**   1. Palmer er al, Eur Resp Review, 2023. 32: 230016 2. Aitken et al, Resp Physiol and Neuro, 2022. 296: 103826 |