8.02 A Phase 1 study of a wearable in-phase chest wall vibration device to relieve dyspnoea in COPD

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Background: Dyspnoea adversely affects quality of life in COPD. Despite existing treatments, disabling symptoms persist for many patients. Early studies suggest In-Phase Chest Wall Vibration (IPCWV) may relieve dyspnoea in COPD, but it has not yet been developed into a viable therapy (1). We report on the safety and efficacy of a custom-built, prototype wearable IPCWV device during exercise.

Methods: 20 patients with COPD were randomised in crossover trial to a submaximal cycle ergometer test (75% peak-work rate) wearing the active or inactive device. Breath-by-breath analysis of oxygen uptake, carbon dioxide production, and ventilation was performed. mBorg scores were recorded every 2 minutes. Adverse Events (AEs) were recorded at 72 hours.

Results: Endurance time and mBorg scores were significantly improved at isotime using the active device (17% increase and 0.7 units reduction, respectively). 6 AEs were observed: 4 possibly device-related; 2 unrelated. No Serious AEs occurred. **Conclusions:** Our prototype wearable IPCWV device appears safe and effective, reducing dyspnoea and improving exercise tolerance in COPD. Larger studies are warranted to confirm these findings and optimise the device for clinical use.

Keywords: dyspnoea, COPD, non-pharmacological, chest wall vibration, CPET.

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References:

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