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Biography

LI Ho Long , has completed his BSc in Physiotherapy at the University of Birmingham and MSc in Stroke and Clinical Science at the Chinese University of Hong Kong. He is a dedicated Resident Physiotherapist at Shatin Hospital, Hospital Authority Hong Kong. With specialized expertise in pulmonary rehabilitation, he leads innovative initiatives in dyspnoea management for patients with chronic conditions. He is currently the project lead of a project that integrates Virtual Reality technology to enhance dyspnoea management and rehabilitation outcomes, aiming to improve symptom control and quality of life in pulmonary patients through immersive, non-pharmacological interventions."

Breathing Beyond Boundaries: When Immersive Virtual Reality Physiotherapy Training Meets Dyspnea in Next-Gen Cardiopulmonary Rehabilitation

Abstract:

Aims: Virtual Reality (VR) creates an immersive audio-visual environment that supports focused relaxation breathing, a crucial non-pharmacological strategy for alleviating dyspnea. VR offers an engaging, technology-assisted alternative to conventional rehabilitation for patients seeking enhanced symptom control. This pilot study evaluated the effectiveness and feasibility of integrating VR-guided breathing exercises with physical task training for dyspnea management in inpatient cardiopulmonary rehabilitation.

Methods: Twenty-five clinically stable patients admitted to designated Medical and Geriatrics medical wards in Shatin Hospital in July 2025 to March 2026, diagnosed with Chronic Obstructive Pulmonary Disease (COPD), heart failure, chest infection, or presenting with dyspnea which limited physical ability, were recruited. Participants received an average of 5.28 VR-guided relaxation breathing sessions, delivered both at rest and during physical tasks such as sit-to-stand, stepping, and standing tolerance training. Each session lasted for 10 minutes. Pre- and post-intervention assessments included the Chinese version of the Dyspnea-12 questionnaire, Modified Functional Ambulation Category (MFAC), Elderly Mobility Scale (EMS), Six-Minute Walk Test (6MWT), and the Rating of Perceived Exertion (RPE). Data were analyzed using the Paired Sample t-Test.

Results: All outcome measures showed normality in the Kolmogorov-Smirnov test. Statistically significant improvements were observed across all outcome measures following the intervention($p<0.05$) for Dyspnea-12 total score, MFAC, EMS, 6MWT distance, and RPE.

Conclusion: Immersive VR-based interventions may represent a valuable adjunctive tool in modern cardiopulmonary rehabilitation, particularly for patients who experience motivational or adherence challenges with standard breathing exercises