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Respiratory training effects in Long COVID-19 patients: a systematic review and meta-analysis

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Abstract

Introduction: To date, it is unknown whether respiratory training interventions can benefit Long COVID-19 patients. The main objective was to analyze the effects of respiratory training on patients with Long COVID-19, concretely on respiratory muscle strength, lung function, dyspnea, and functional capacity. Methods: We performed a systematic review following PRISMA statement using PubMed, Scopus, and PEDro (last search November 2023). The risk of bias was assessed using the Cochrane tool. We included randomized controlled trials testing the effect of respiratory training interventions in Long COVID-19 patients versus no intervention, control, or placebo intervention. The data was pooled, and a meta-analysis was complete. Results: We selected 7 studies, which included 572 patients. Meta-analysis results show significant differences in favor of respiratory training in respiratory muscle strength (MD = 13.71; 95% CI = 5.41; 22; p = 0.001), dyspnea (SDM = 1.39; 95% CI = 0.33; 2.46; p = 0.01) and functional capacity (SDM = 0.90; 95% CI = 0.37; 1.43; p = 0.0009), but not in lung function (MD = 0.28; 95%CI = -0.27; 0.83; p = 0.32). Conclusion: The results of this systematic review with meta-analysis suggest that respiratory training improves respiratory muscle strength and functional capacity in Long COVID-19 patients, as well as dyspnea if combined with therapeutic exercise. However, respiratory training does not improve lung function in these patients. Review registration PROSPERO Identifier: CRD42022371820. © 2024 Informa UK Limited, trading as Taylor & Francis Group.

Author Keywords

Dyspnea; functional capacity; Long COVID-19; lung function; respiratory muscle strength; respiratory training

Index Keywords

adult, breathing muscle, dyspnea, female, functional status, human, long COVID, lung function, male, Medline, meta analysis, middle aged, muscle strength, PEDro, Preferred Reporting Items for Systematic Reviews and Meta-Analyses, pulmonary rehabilitation, randomized controlled trial (topic), respiratory training, Review, Scopus, systematic review, breathing exercise, coronavirus disease 2019, dyspnea, long COVID, pathophysiology, Severe acute respiratory syndrome coronavirus 2; Breathing Exercises, COVID-19, Dyspnea, Humans, Muscle Strength, Post-Acute COVID-19 Syndrome, Randomized Controlled Trials as Topic, Respiratory Muscles, SARS-CoV-2

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