

Inspiratory Muscle Training in Patients With a Chronic Respiratory Disease: An Overview of Systematic Reviews

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Background: Recently, there has been a growing interest in inspiratory muscle training (IMT) for chronic respiratory diseases (CRDs). However, there has been some controversy regarding the effectiveness of training the respiratory muscles to improve exercise tolerance, lung function, or symptoms. Our objective was to determine the effectiveness of IMT in different CRDs. **Methods:** We performed an overview of systematic reviews (SRs) that included intervention SRs, with or without meta-analysis, that have considered primary studies with a randomised (RCTs) design of adults with CRDs that performed IMT. We reviewed Embase, PubMed/MEDLINE, Web of Science, Cochrane Central Register of Controlled Trials (CENTRAL), and Epistemonikos from their inception to January 15, 2023. Two investigators reviewed the titles, abstracts, and full texts, extracted the data, and assessed the methodological quality. We choose the "best" SRs to report any analysed outcome. **Results:** Twenty-two SRs were included. In chronic obstructive pulmonary disease (COPD), IMT improved exercise tolerance in 34.3 m (95%CI 29.4, 39.1), forced expiratory volume in the first second (FEV₁) in 0.08% (95%CI 0.02, 0.13), and maximal inspiratory pressure (MIP) in 10.9 cmH₂O (95%CI 8.0, 13.9). In asthma, IMT improved FEV₁ in 3.3% (95%CI 1.4, 5.1), forced vital capacity (FVC) in 4.1% (95%CI 1.0, 7.3), MIP in 21.9 cmH₂O (95%CI 15.0, 28.8), and dyspnea was reduced (SMD -0.8, 95%CI -1.3, -0.2). In obstructive sleep apnoea (OSA), IMT improved MIP in 29.6 cmH₂O (95%CI 6.0, 53.1) and FEV₁ in SMD 0.7 (95%CI 0.2, 1.3). In pulmonary hypertension (PH), IMT improved exercise tolerance in 39.0 (95%CI 20.7, 57.4) m, MIP in 21.2 cmH₂O (95%CI 11.3, 31.1), maximal expiratory pressure (MEP) in 14.4 cmH₂O (95%CI 6.9, 21.9), and dyspnea was reduced in 0.5 (95%CI 0.1, 0.9) points in mMRC scale. In lung resection, IMT improved exercise tolerance in 28.9 (95%CI 0.3, 57.6) m, MIP in 8.1 cmH₂O (95%CI 1.3, 14.9), and dyspnea was reduced in 0.8 SD (95%CI 0.2, 1.3). In bronchiectasis, IMT improved MIP in 6.1 cmH₂O (95%CI 1.4, 10.8). **Conclusion:** The IMT improves MIP in Asthma and OSA. Additionally, IMT may improve MIP in COPD, PH, LR and bronchiectasis, exercise tolerance in COPD, PH and lung resection, lung function in asthma and sleep apnoea, dyspnea in COPD, and asthma, and quality of life in COPD.

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