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The effects of pursed lip breathing plus diaphragmatic breathing on pulmonary function and exercise capacity in patients with COPD: A systematic review and meta-analysis

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Purpose: Pursed lip breathing (PLB) and diaphragmatic breathing (DB) are breathing techniques frequently adopted by patients with COPD. We conducted this systematic review to investigate the effects of PLB plus DB exercise on pulmonary function and exercise capacity in COPD patients.

Methods: A comprehensive literature review was conducted by collecting all relevant studies published before November 30, 2017 in English and Chinese, through PubMed, EMBASE, the Cochrane Library, China National Knowledge Infrastructure (CNKI), Wanfang database, and VIP database. Mean difference (MD) or standardized mean difference (SMD) with 95% confidence interval (CI) was calculated after data combination. Heterogeneity between the studies was assessed by Cochran's Q test and I² statistics.

Results: A total of 15 RCTs involving 1098 participants (570 in treatment groups and 528 in control groups) were included. Significant improvements were found in forced expiratory volume in one second (FEV1) (SMD=0.47, 95% CI: 0.27-0.67, P<0.0001), forced vital capacity (FVC) (SMD=0.87, 95% CI: 0.59-1.15, P<0.0001), FEV1 as a proportion of FVC (FEV1/FVC) (MD=8.30, 95% CI: 1.17-15.43, P=0.02), and 6-minute walk test (6MWT) distance (MD=29.09, 95% CI: 19.35-38.83, P<0.0001).

Conclusion: PLB combined with DB exercise effectively promotes pulmonary function and exercise capacity in patients with COPD, which might be useful for self-management and pulmonary rehabilitation in COPD.

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