

Assessment and rehabilitation of tongue motor skills with myofunctional therapy in obstructive sleep apnea: a systematic review and meta-analysis

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Abstract

Study objectives: The first objective was to compare tongue motor skills between patients with obstructive sleep apnea (OSA) and healthy subjects. Secondly, the effect of oropharyngeal myofunctional therapy (MFT) on the tongue muscular qualities of patients with OSA was evaluated.

Methods: Searches were conducted in five electronic databases until July 2023. Risk of bias was assessed via the Joanna Briggs Institute appraisal checklist for cross-sectional studies (aim #1) and the PEDro scale for randomized controlled trials (aim #2). Pooled standardized mean differences (SMD) and 95% confidence intervals were calculated using a random-effects model.

Results: Thirteen studies including 520 adults and one study including 92 children addressed aim #1. Compared to healthy adults, individuals with OSA had no significant difference in tongue protrusion strength (9 studies, n=366, SMD [95%CI]: -0.00 [-0.45, 0.44]) or endurance (5 studies, n=125; 0.31 [-0.26, 0.88]) but presented a lower tongue elevation strength (6 studies, n=243; 1.00 [0.47, 1.53]) and elevation endurance (3 studies, n=98; 0.52 [0.11, 0.94]). In pediatric, tongue elevation strength was lower but elevation endurance was higher in children with OSA than healthy children. Two randomized controlled trials (28 adults, 54 children) addressed aim #2 and were of poor methodological quality. In these studies, MFT improved tongue motor skills in patients with OSA.

Conclusions: Tongue elevation motor skills are decreased in adults with OSA whereas tongue protrusion motor skills seem preserved. Very few data are available in children. There is also too little data about the impact of myofunctional therapy on tongue motor skills.

Systematic review registration: Prospero registration number: CRD42022307148.

Keywords: endurance; healthy subjects; obstructive sleep apnea; oropharyngeal myofunctional therapy; recovery; strength; tongue; upper airway muscles.

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