

Research Question

Does orofacial myofunctional therapy (MT) improve obstructive sleep apnea (OSA)?

Abstract

Obstructive sleep apnea (OSA) is characterized by upper airway obstruction during sleep. This literature review aimed to determine if myofunctional therapy (MT) could be an effective treatment for OSA. The goal of MT is to induce changes in weak and dysfunctional upper airway muscles. The literature suggests that myofunctional therapy may reduce the symptoms of mild to moderate OSA.

Introduction

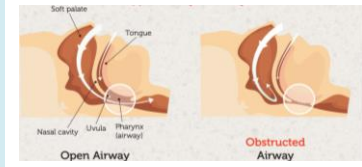
- Obstructive sleep apnea (OSA)
 - May affect as many as 22 million Americans¹
 - Characterized by recurrent episodes of upper airway obstruction
 - Causes sleep arousal and episodic oxygen drop²
- Dilatator muscles of the upper airway play a critical role in maintaining an open airway during sleep³
- Effects of OSA
 - Daytime hypersomnolence, neurocognitive dysfunction, cardiovascular disease, and metabolic dysfunction²
- Myofunctional therapy (MT)
 - Isotonic and isometric exercises that target oral and oropharyngeal structures
 - Benefits
 - Significant decrease of apnea-hypopnea index (AHI), reduce arousal index, improvement in subjective symptoms of daytime sleepiness, sleep quality and life quality.¹
 - MT Exercise Example:
 - Tongue slide: Press tip of the tongue against front teeth, slowly slide tongue backwards.⁶

Review of Literature

- 2015 Meta-analysis evaluated MT as treatment for OSA²
 - 9 studies and 120 patients included
 - Results: Apnea-hypopnea index decreased 50% in adults and 62% in children
- 2018 Systematic Review evaluated MT as treatment for OSA¹
 - 11 studies reviewed
 - Results: Concluded MT as an effective treatment for OSA
 - MT also:
 - Increased adherence to CPAP therapy, increased lowest SaO₂%, decreased O₂ hypo-saturation
- 2009 Clinical trial on effects of MT on OSA⁴
 - 31 patients underwent 3 months of daily MT
 - Results: Significant reduction in OSA

Discussion

- For therapy success, consistent exercise every day is necessary until the patient has corrected their improper muscle pattern^{4,5}
 - Treatment usually consists of a regular program of exercises over a 6 – 12-month period, although treatment length may vary.⁵
- Limitations**
- Limited research to date
- Future Research**
- Determine effectiveness of each MT exercise on OSA⁴
 - Validated tools that enable identifying, classifying, and grading changes in muscle and function status.¹



Open Airway vs. Obstructed Airway.⁶

MT effect on a pnea-hypopnea index¹

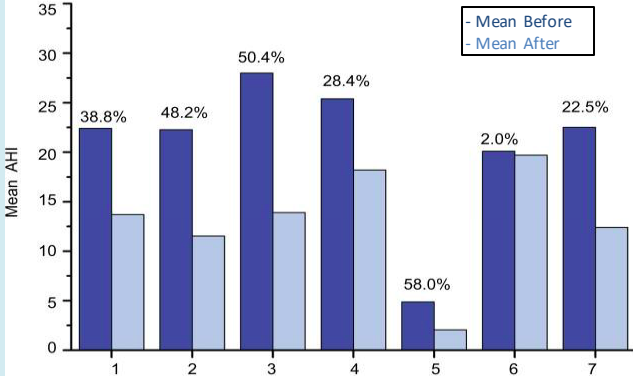


Figure 1: Average apnea-hypopnea index before and after MT showing decrease in a average with MT

Conclusion

Evidence suggests that MT improves OSA. Lowest oxygen saturations, snoring, and sleepiness outcomes have been improved in adults. When myofunctional therapy is used properly, the muscles of the tongue, throat, and face, can reduce obstruction to the airway. Myofunctional therapy can serve as an adjunct to other obstructive sleep apnea treatments.

References

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