Using Myofunctional Therapy as an Adjunct Treatment Approach to Obstructive Sleep Apnea (OSA)

Dana Hockenbury
Certified Orofacial Myologist, Licensed Speech Pathologist, Myology Works.

*Corresponding author: Dana Hockenbury, MA, CCC-SLP, COM. Certified Orofacial Myologist, NYC Department of Education, New York, USA. Email: dkhnyc@aol.com Tel: 646-334-171

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Abstract: The purpose of this case study is to demonstrate improved nighttime breathing using Orofacial Myofunctional therapy as an adjunct treatment approach as a member of a dental team with patients who have been diagnosed with Obstructive Sleep Apnea (OSA).

Background: The field of Myofunctional Therapy, evaluating and treating Myofunctional Disorders, has historically focused on achieving oral rest postures of the tongue & lips along with eliminating a tongue thrust swallowing pattern with a saliva, liquid and solid bolus. This important work stabilizes the oral complex thus avoiding orthodontic relapse in children through adults3,4,5,7.

Current research describes the role of the orofacial myologist in the assessment and treatment of sleep-disordered breathing (SDB) regarding soft tissue concerns3,10 such as hypertrophied tonsils or adenoids. When the ability to breathe through the nose is interrupted due to various soft tissue obstructions, mouth breathing is encouraged; a sequela of related health issues will ensue3,6,10.

Further research has demonstrated oropharyngeal exercises given to adult patients diagnosed with mild to moderate OSA significantly reduces OSAS severity and symptoms1. In addition, by providing myofunctional therapy, AHI, snoring and sleepiness decreases as oxygen saturation rates increase 2. Therefore, Myofunctional therapy should be a part of a treatment approach to wellness for patients with OSA 1,8,9,10.

Subject: A 60yo white male was diagnosed with moderate OSA during a nocturnal polysomnography in a sleep lab. A night time oral appliance (SomnoMed) was then prescribed to advance his jaw forward, allowing increased breathing while sleeping. A second sleep study was conducted with the oral appliance in place. Night time breathing with snoring did not improve; AHI was recorded as 22.8 per hour, sleep architecture was fragmented and lowest desaturation was 89%. As a result, Continuous Positive Airway Pressure (CPAP) machine was recommended but couldn’t be tolerated. A previous ENT evaluation was unremarkable.

The patient was then referred for an orofacial myofunctional examination. The Epworth Sleepiness Scale, Berlin Questionnaire and the Pittsburg Sleep Quality Index were completed to obtain a subjective baseline. Pre-therapy intra-oral pictures were taken. Oropharyngeal exercises1 were taught and prescribed twice daily. Patient was highly compliant, executing the exercises as instructed. The patient attended all scheduled therapy sessions once a month for a total of 8 sessions (8 months).

Results: At the conclusion of the 8 sessions of myofunctional therapy, the Epworth Sleepiness Scale, Berlin Questionnaire and the Pittsburgh Sleep Quality Index were once again completed. Post-therapy intra-oral pictures were taken. Comparison of these pictures revealed Friedman’s Tongue Base changed from a Level 4 to a Level 1. Mallampatti score, which could not be determined at initial evaluation, was presented as Grade III post-therapy.

A follow up home sleep study using the Watch-Pat device was then conducted. The oral appliance was worn during the sleep study. The findings of the test were negative for Obstructive Sleep Apnea. The patient had an AHI of 4.4 events per hour which is considered normal (normal being <5, mild 5-14, moderate 15-30, severe >30). The mean SaO2 was 96%. Snoring did not occur.

Comparing the pre- and post-therapy subjective questionnaires A follow up home sleep study using the Watch-Pat device was then conducted. The oral appliance was worn during the sleep study. The findings of the test were negative for Obstructive Sleep Apnea. The patient had an AHI of 4.4 events per hour which is considered normal (normal being <5, mild 5-14, moderate 15-30, severe >30). The mean SaO2 was 96%. Snoring did not occur.

Comparing the pre- and post-therapy subjective questionnaires
indicated significant changes in sleep quality. The Epworth Sleepiness Scale indicated chances of dozing decreased from 2-3 to 0-1 a day. On the Berlin Questionnaire, no snoring was reported, patient noticed he quit breathing from nearly nightly to never and feeling fatigued decreased from daily to 3-4 times a week. The Pittsburgh Sleep Quality Index reported the ability to fall asleep faster, greater ability to breathe comfortably, overall sleep quality rating improved from ‘Fairly Badly’ to ‘Fairly Good’ and reduced need for sleep medicine (Melatonin) from >3/week to <once a week.

The patient continues to perform the exercises upon discharge.

**Conclusion:** Due to the significant changes demonstrated in objective and subjective measures, orofacial myofunctional therapy as an adjunct therapy has extreme value. Formal incorporation of assessment and treatment of sleep-disordered breathing into the practice of orofacial myology must become standardized. The ultimate goal of the Certified Orofacial Myologist is to be recognized as a valued member of the dental team whose task is to comprehensively co-manage the patient with sleep-disordered breathing.

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