

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

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### Purpose

The purpose of this case study was to demonstrate improved sleep disordered breathing (SDB) with patients diagnosed with Obstructive Sleep Apnea (OSA) using Orofacial Myofunctional Therapy (OMT) as an adjunct treatment approach. Because of the significant improvement in night time breathing, orofacial myologists should be a member of a dental / sleep team when treating patients diagnosed with OSA.

### Background

The field of Orofacial Myofunctional Therapy evaluates and treats Orofacial Myofunctional Disorders (OMDs), with an emphasis on achieving and maintaining appropriate diurnal and nocturnal tongue and lip resting postures. Re-patterning a tongue thrust swallow with saliva, liquid and solid boluses and eliminating noxious oral habit are addressed when necessary. This important work stabilizes the oral complex, thus avoiding orthodontic relapse in children through adults [1-4]. In some cases, OMT may also assist in improving body posture, thereby contributing to overall health [5].

The role of the orofacial myologist has expanded into the assessment and referral of SDB regarding soft tissue concerns [1,6] such as hypertrophied tonsils and adenoids or ankyloglossia. When the ability to breathe through the nose is interrupted or compromised due these various soft tissue concerns, mouth breathing is encouraged; a sequela of related health issues will ensue [1,6,7]. Once these required surgical interventions related to SDB are conducted, traditional OMT can begin.

Current research has demonstrated when oropharyngeal exercises are prescribed to patients diagnosed with mild to moderate OSA, severity and symptoms are significantly reduced. Specifically, the research saw a decrease in snoring frequency and intensity, daytime sleepiness and OSA severity (AHI) [8]. An increase in overall sleep quality score was observed; sleepiness decreased as oxygen saturation rates increased [9]. Therefore, orofacial myofunctional therapy should be a part of a treatment approach to wellness for patients with OSA [6,8,10,11].

### Subject

A 60yo white male was diagnosed with moderate OSA during a nocturnal polysomnography in a sleep lab. A treatment plan was developed to include the use of a night time oral appliance (SomnoMed) to advance his jaw forward thus encouraging improved breathing while sleeping. A second sleep study was conducted with the prescribed 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, tried, but couldn't be tolerated. A previous ENT evaluation was unremarkable.

The patient was then referred for an orofacial myofunctional examination and conducted. The Epworth Sleepiness Scale, Berlin Questionnaire and the Pittsburg Sleep Quality Index were also completed to obtain a subjective baseline. Pre-therapy intra-oral pictures were taken to capture Mallampati Grade and Friedman's Tongue Position. Oropharyngeal exercises [1] were taught and prescribed twice daily.

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## Results

The patient attended all 8 scheduled monthly therapy sessions. He was highly compliant, executing the exercises as prescribed and instructed. Intraoral photos were taken at each session and shared with patient for a total of 8 photos. At the conclusion of treatment, the Epworth Sleepiness Scale, Berlin Questionnaire and the Pittsburgh Sleep Quality Index were once again completed for comparative purposes.



A follow-up home sleep study using the Watch-Pat device was then conducted. The same SomnoMed oral appliance was worn during the sleep study. The clinical findings of this test were negative for OSA; the patient had an AHI of 4.4 events per hour (normal < 5, mild 5 - 14, moderate 15 - 30, severe > 30). The mean SaO<sub>2</sub> was 96%. Snoring did not occur.

Comparing the three pre- and post-therapy subjective questionnaires indicated significant changes in reported sleep quality. The Epworth Sleepiness Scale indicated chances of dozing decreased from '2 - 3' to '0 - 1' a day. On the Berlin Questionnaire, feeling fatigued decreased from 'daily' to '3 - 4 times a week' and quit breathing 'nearly nightly' reduced to 'never'. The Pittsburgh Sleep Quality Index reported the ability to 'fall asleep faster' as well as 'greater ability to breathe comfortably'. On the same index, overall sleep quality rating improved from 'fairly badly' to 'fairly good' with reduced need for sleep medicine (Melatonin) from '> 3/week' to '< once a week' was reported.

Comparison of pre- and post-therapy pictures revealed Friedman's Tongue Position changed from Position IV to Position I. The Mallampati score, which could not be observed or determined during the initial evaluation, was presented as Grade III post-therapy.

The patient was then discharged; recommendation was made to execute the exercises 3x weekly.

## Conclusion

Since significant objective and subjective changes were demonstrated, 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 Myofunctional Therapy must become standardized. The ultimate goal of the Orofacial Myofunctional Therapist 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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