

## TMJ/Orofacial Pain & Dental Sleep Medicine

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Providing Solutions to Complex Dental Problems

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Dear Colleague:

As always, we wish to thank you for your trust and the wonderful patients referred to our office during the past year. All the best to you and your staff for a happy and healthy New Year filled with peace and prosperity.

Regards,

*Dr. James Metz*



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### Effect of an Adjustable Mandibular Advancement Appliance on Sleep Bruxism

Landry-Schönbeck A, de Grandmont P, et al.  
*Int J Prosthodont.* 2009 May-Jun;22(3):251-9

The objective of this study was to assess the efficacy and safety of a reinforced adjustable mandibular advancement appliance (MAA) on sleep bruxism (SB) activity compared to baseline and to a mandibular occlusal splint (MOS) in order to offer an alternative to patients with both tooth grinding and respiratory disorders during sleep. Twelve subjects (mean age: 26.0) with frequent SB participated in a short-term (three blocks of 2 weeks each) randomized study. Both brain and muscle activities were quantified based on polygraphic and audio/video recordings made over 5 nights in a sleep laboratory. After habituation and baseline nights, 3 more nights were spent with an MAA in either a slight (25%) or pronounced (75%) mandibular protrusion position or with an MOS (control).

Results showed that the mean number of SB episodes per hour was reduced by 39% and 47% from baseline with the MAA at a protrusion of 25% and 75%, respectively. No difference between the two MAA positions was noted. The MOS slightly reduced the number of SB episodes per hour without reaching statistical significance (34%). None of the SB subjects experienced any MAA breakage. *The authors concluded that short-term use of an MAA is associated with a significant reduction in SB motor activity without any appliance breakage. A reinforced MAA design may be an alternative for patients with concomitant tooth grinding and snoring or apnea during sleep.*

### Effects on Blood Pressure after Treatment of Obstructive Sleep Apnea with a Mandibular Advancement Appliance

Andrén A, Sjöquist M, et al.  
*J Oral Rehabil.* 2009 Oct;36(10):719-25

Obstructive sleep apnoea (OSA) is a highly prevalent sleep disorder; it affects 4% of males and 2% of females. Hypertension has been shown to occur in 28-57% of OSA patients. There is a steady increase in evidence linking OSA to long-term cardiovascular morbidity including hypertension. The purpose of this study was to investigate whether mandibular advancement oral appliance (OA) treatment of OSA affects the patient's blood pressure (BP) in a 3-month and a 3-year perspective. Twenty-nine consecutive patients, with verified OSA defined as apnoea index (AI) >5 per hour and/or apnoea/hypopnoea index (AHI) > or =10 per hour, received an OA as treatment. BP was measured on three occasions; before treatment, after 3 months of treatment, and after 3 years of treatment. BP was measured with an electronic blood pressure monitor.

The treatment effect of OA was measured after 3 months by repeated somnographic registration while the patient was wearing the OA. A treatment response was defined as AHI < 10; this was achieved in 25 of 29 patients (86%) at the 3-month evaluation. Significant reductions in blood pressure were attained between baseline and the 3-month evaluation and these changes remained at the 3-year follow-up in both systolic BP of -15.4 +/- 18.7 mm Hg and diastolic BP of -10.3 +/- 10.0 mm Hg. *OA therapy significantly reduced blood pressure in both a 3-month and a 3-year perspective in patients with OSA.*

## Effects of Oropharyngeal Exercises on Patients with Moderate Obstructive Sleep Apnea Syndrome

Guimarães KC, Drager LF, et al.  
*Am J Respir Crit Care Med.* 2009 May 15;179(10):962-6

**U**pper airway muscle function plays a major role in maintenance of the upper airway patency and contributes to the genesis of obstructive sleep apnea syndrome (OSAS). Preliminary results suggested that oropharyngeal exercises derived from speech therapy may be an effective treatment option for patients with moderate OSAS. The purpose of this study was to determine the impact of oropharyngeal exercises in patients with moderate OSAS. Thirty-one patients with moderate OSAS were randomized to 3 months of daily (approximately 30 min) sham therapy (n = 15, control) or a set of oropharyngeal exercises (n = 16), consisting of exercises involving the tongue, soft palate, and lateral pharyngeal wall. Anthropometric measurements, snoring frequency (range 0-4), intensity (1-3), Epworth daytime sleepiness (0-24) and Pittsburgh sleep quality (0-21) questionnaires, and full polysomnography were performed at baseline and at study conclusion.

Body mass index and abdominal circumference of the entire group were 30.3 kg/m<sup>2</sup> and 101.4 cm, respectively, and did not change significantly over the study period. No significant change occurred in the control group in all variables. In contrast, patients randomized to oropharyngeal exercises had a significant decrease in neck circumference (39.6 vs. 38.5 cm), snoring frequency (4 [4-4] vs. 3 [1.5-3.5]), snoring intensity (3 [3-4] vs. 1 [1-2]), daytime sleepiness (14 +/- 5 vs. 8 +/- 6), sleep quality score (10.2 vs. 6.9), and OSAS severity (apnea-hypopnea index, 22.4 vs. 13.7 events/h). Changes in neck circumference correlated inversely with changes in apnea-hypopnea index. *The authors concluded from the results of their study that oropharyngeal exercises significantly reduce OSAS severity and symptoms and represent a promising treatment for moderate OSAS.*

## The Effects of Manual Therapy and Exercise Directed at the Cervical Spine on Pain and Pressure Pain Sensitivity in Patients with Myofascial Temporomandibular Disorders

LA Touche R, Fernández-DE-Las-Peñas C, et al.  
*J Oral Rehabil.* 2009 Jul 14

**N**o studies have investigated the effects of the treatments directed at the cervical spine in patients with temporomandibular disorders (TMD). The authors purpose in this study was to investigate the effects of joint mobilization and exercise directed at the cervical

spine on pain intensity and pressure pain sensitivity in the muscles of mastication in patients with TMD. Nineteen patients (14 females), aged 19-57 years, with myofascial TMD were included. All patients received a total of 10 treatment session over a 5-week period (twice per week). Treatment included manual therapy techniques and exercise directed at the cervical spine. Outcome measures included bilateral pressure pain threshold (PPT) levels over the masseter and temporalis muscles, active pain-free mouth opening (mm) and pain (Visual Analogue Scale) and were all assessed pre-intervention, 48 h after the last treatment (post-intervention) and at 12-week follow-up period. Appropriate statistical analysis was used to examine the effects of the intervention on each outcome measure. Within-group effect sizes were calculated in order to assess clinical effect. Results revealed significant effect for time but not for side for changes in PPT over the masseter muscle and over the temporalis muscle.

Results revealed significant differences between pre-intervention and both post-intervention and follow-up periods but not between post-intervention and follow-up period for both muscles. Within-group effect sizes were large for both follow-up periods in both muscles. Results also showed a significant effect for time for changes in pain intensity and active pain-free mouth opening. Significant differences were found between pre-intervention and both post-intervention and follow-up periods but not between the post-intervention and follow-up period. Within-group effect sizes were large for both post-intervention and follow-up periods. *The authors concluded that the application of treatment directed at the cervical spine is beneficial in decreasing pain intensity, increasing PPTs over the masticatory muscles and an increasing pain-free mouth opening in patients with myofascial TMD.*

### Why Screen for Sleep Apnea?

- Despite the risks associated with OSA, up to 90% of sufferers go undiagnosed
- Drowsy drivers cause more fatalities per accident than drunk drivers
- Untreated sleep apnea can reduce average lifespan by 18 years
- Sleep apnea exacerbates Diabetes, High Blood Pressure and stress on the heart by repeated apneas throughout the night
- Sleep apnea causes the hormone leptin (fullness) to fall and ghrelin (hunger) to rise, affecting a patient's ability to control weight
- Hypertensive patients on multiple medications for their condition have an 80% or greater chance of testing positive for sleep apnea
- Sleep deprivation elevates Cortisol