

Should the dentist independently assess and treat sleep-disordered breathing?

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Sleep-disordered breathing is a chronic problem of the inappropriate mechanical collapse of the upper airway. Symptoms range from mild occasional snoring to severe obstructive sleep apnea. The standard of care for the diagnosis and treatment of sleep-disordered breathing by sleep medicine has been the use of the polysomnogram and continuous positive airway pressure. This approach is burdensome, costly, and ineffective due to lack of compliance with or rejection of treatment. Oral appliances are highly effective in managing the mild snorer to the moderate sleep apneic and are approaching the efficacy of continuous positive airway pressure with the severe apneic. The dentist can and should manage these patients. However, the dental practitioner must acquire sufficient training and knowledge to appropriately treat these patients.

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Effect of two types of mandibular advancement splints on snoring and obstructive sleep apnoea.

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Snoring and obstructive sleep apnoea (OSA) both seem at least to be associated with narrowing of the upper airway and sleep-induced loss of muscle-tone. Mandibular advancement splints (MAS) have been proposed as a relatively simple method to increase oro- and hypo-pharyngeal dimensions thereby increasing the size of the airway. However, data on their effectiveness are conflicting and there are no clear indications as to which design is most effective or when they should be used. The effects of two designs of splint (types A and B) have been evaluated in 14 and nine subjects, respectively, using the Epworth Sleepiness Score (ESS) and domiciliary sleep monitoring on separate nights. Both splints reduced the median ESS (type A from 12 to 4.5; $P = 0.003$, type B from 7 to 4; $P = 0.005$). The apnoea-hypopnoea index was not affected by type A, but was reduced from 7.1 to 0.8; $P = 0.005$ by type B splints.

There was evidence of a small improvement in overnight oxygen saturation for type B splints ($P = 0.02$). *TORal Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontics* 1998;85(4):388-92.

Obstructive sleep apnea: oral appliance therapy and severity of condition.

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OBJECTIVE: The purpose of this study was to determine whether an oral appliance can effectively treat severe obstructive sleep apnea. **DESIGN:** The study was conducted at a tertiary care military facility with an accredited sleep laboratory. Results of the treatment of the first 25 patients with obstructive sleep apnea referred for oral appliance therapy were retrospectively analyzed. Each patient received a mandibular advancement appliance and underwent polysomnography 2 weeks after delivery of the appliance. Patients were divided into two groups: those with slight-to-mild obstructive sleep apnea who had a respiratory disturbance index less than 21, and those with more severe disease. Treatment was considered to be successful if the posttreatment respiratory disturbance index was less than 5. **RESULTS:** Nine (90%) of the 10 patients with slight-to-moderate disease were successfully managed with the oral appliance. Of the 15 patients in the moderate-to-severe group, 9 (60%) were successfully managed. **CONCLUSION:** Oral appliances have commonly been recommended only for mild obstructive sleep apnea. This study indicates that they may also have a role to play in selected cases in which the condition is more severe. There is a paucity of information about long-term success. This short-term (2-week) study should be followed by others evaluating the effect over longer periods.

he splints were well tolerated and continued to be used nightly by 18 subjects. Mandibular advancement splints may offer a simple and effective alternative for the treatment of snoring and mild OSA in selected patients. Splint design may have considerable bearing on efficacy.

Mandibular advancement devices for the control of snoring.

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Patients presenting with the complaint of antisocial snoring have very few options available to them of proven efficiency. Mandibular advancement devices worn intra-orally at night, have recently been shown in controlled trials to help mild to moderate obstructive sleep apnoea. However, there are no properly controlled studies with objective measurements on the use of such appliances for the management of antisocial snoring. Fifteen patients, already established on mandibular advancement devices for the control of snoring, were asked to participate in this study. They were studied over two nights, using a portable sleep monitoring device at home, both with and without their mandibular advancement devices in place (in randomized order). Snoring was measured using a surface throat microphone. In addition oxygen saturation and indirect beat to beat blood pressure were measured. The latter (using pulse transit time) provided an index of autonomic "arousals" and a measure of inspiratory effort. In nearly all of these highly selected patients the mandibular advancement devices reduced significantly the amount of snoring from a median of 193 to 20 snores $\times h^{-1}$ ($p < 0.0001$). In addition there was a reduction in respiratory effort, implying enlargement of the upper airway whilst wearing the appliance. These patients only represent those who were able to tolerate the appliance. With such clear evidence of their potential efficacy, and no suggestion from other studies of any harm, it would seem reasonable to introduce this approach into the management of antisocial snoring.

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The effect of a mandibular advancement device on apneas and sleep in patients with obstructive sleep apnea.

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OBJECTIVE: To evaluate the effects of a mandibular advancement device on apneas and sleep in mild, moderate, and severe obstructive sleep apnea. **DESIGN:** Prospective study. **SUBJECTS:** Forty-four of 47 patients included. **INTERVENTION:** Individually adjusted mandibular advancement devices. **MEASUREMENTS:** Polysomnographic sleep recordings for 1 night without the device and 1 night with it, with a median of 1 day and no changes in weight, medication, or sleep position between the recordings. **RESULTS:** The device reduced the median obstructive apnea-hypopnea index from 11 (range, 7 to 19) to 5 (range, 0 to 17) ($p < 0.001$) in 21 patients with mild sleep apnea, from 27 (range, 20 to 38) to 7 (range, 1 to 19) ($p < 0.001$) in 15 patients with moderate sleep apnea, and from 53 (range, 44 to 66) to 14 (range, 2 to 32) ($p < 0.05$) in 8 patients with severe sleep apnea. The arousal index decreased and the sleep stage patterns improved in all severity groups. Twenty-eight of 44 patients were successfully treated with an obstructive apnea-hypopnea index of below 10 and a subjective reduction in snoring. Nine of 16 patients with treatment failure still reported a reduction in snoring. The success rate correlated inversely to the disease severity ($r = -0.41$; $p < 0.01$). **CONCLUSIONS:** A mandibular advancement device reduces apneas and improves sleep quality in patients with obstructive sleep apnea, especially in those with mild and moderate disease. A follow-up sleep recording during treatment is necessary because of the risk of silent obstructive apneas without subjective snoring with the device.