

Dental Treatment of Snoring and Sleep Apnoea

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Quite often it is a source of amusement and quite often it is hushed up: **SNORING!** One third of the population snores and knows the problems in everyday life resulting from snoring. However, what a lot of people do not know is that snoring can be the indicator of a serious health problem called **obstructive sleep apnoea (OSA)**. This is the reason why more than **80%** of the people with sleep apnoea go undiagnosed.

Two to four per cent of the population suffer from sleep apnoea. They experience recurrent episodes while sleeping when their throats close and they cannot draw air into their lungs (apnoea). This happens because the muscles that normally hold the throat open during waking hours relax during sleep and allow it to narrow. Breathing through this narrow airway leads to a strong vibration of the soft tissue and this causes snoring. When the throat is partially closed and the muscles relax too much, trying to inhale closes the throat completely and air cannot pass through at all. A cessation of breathing must last 10 seconds or more to be called apnoea. These episodes can last as long as two minutes and are associated with a reduction in the level of oxygen in the blood. The apnoea is terminated and the sleeper's life saved by waking up. This arousal increases the activity of the muscles of the tongue and throat that enlarge the airway. The sleeper will be able to breathe and to once again fill the lungs with life-giving oxygen. This cycle may be repeated hundreds of times a night while the sufferer has no idea it is happening.

When we consider the consequences are cardiovascular risks, such as high blood pressure, heart attack and stroke, obstructive sleep apnoea is a potentially life-threatening condition. In addition, waking up hundreds of times a night disturbs the physiological sleep pattern and the sleeper wakes up unrefreshed in the morning. He runs the risk of falling asleep while driving, causing accidents at work as well as endangering his personal relationships. Left untreated OSA tends to worsen progressively and will result in disability and death.

People with loud snoring, fatigue and drowsiness during the day and whose family members report apnoea-like behaviour have a high likelihood of suffering from OSA and should contact their physician. He should refer the patient for a diagnostic sleep study either in their home (home monitoring) or in a sleep disorder center (polysomnography). The gold standard of sleep apnoea treatment is continuous positive airway pressure (CPAP). Every night the patient wears a nasal mask and the CPAP machine delivers air pressure, which acts as a "pneumatic splint" and keeps the throat open to allow normal breathing without apnoeas. Sleep becomes restorative again and for the patients, CPAP therapy dramatically improves their daytime functioning as well as their general health. The problem with CPAP is compliance. As it is very cumbersome some patients cannot tolerate this pneumatic splint therapy right from the beginning and long-term compliance decreases to under 70%.





This results in a large number of patients remaining untreated. Additionally our increased ability to diagnose OSA evaluates more and more patients who are not obese and do not suffer from excessive daytime sleepiness, but are at risk of cardiovascular complications. Finding more tolerable and successful treatment options for OSA, however, has not kept pace with such diagnostic advances. What now?

Oral Appliance

As such a challenging new interdisciplinary field opens to dentists all over the world. Oral appliances (mandibular advancement devices) manage to hold the mandible in a forward position during sleep to prevent the soft tissue of the throat and the tongue from collapsing into the airway. It remains open thus alleviating snoring and apnoea. Dentists from the United States and Canada have been involved in the therapy of sleep disordered breathing for more than 15 years. Successful teams consist of physicians who have a basic knowledge of oral appliance therapy and dentists with a basic knowledge of sleep disordered breathing and a broad expertise in design and management of various types of oral appliances. First of all a sleep physician diagnoses the patient and in case he prescribes an oral appliance, the sleep disorder dentist decides on the type of mandibular advancement device (there are over 60 types) taking into account the patient's dental and myofunctional status. Only a trained dentist should take the impressions, the bite registration and fit the appliance. Today, modern individually manufactured titratable double splints, covering the upper and lower teeth allow controlled protrusion to open the airway to the optimum while offering maximal comfort. The patient should be informed in detail on how to reach the optimal protrusion of the mandible as to achieve an unrestricted airway. Additionally follow-ups are necessary every six months to ascertain the treatment's success, to watch out for potential side effects and to be prepared to manage them should they occur.

Dental Sleep Medicine Societies

Dental Sleep Medicine has become increasingly involved and integrated into the proliferating science of sleep medicine. In 1991 the Academy of Dental Sleep Medicine was founded to act as a North American platform for dental sleep medicine and to foster professional exchanges for dentists in this new field. It also seeks to spread information about the practical use of oral appliances in the treatment of sleep disordered breathing. Since its foundation in 2000, the network of the German Society of Dental Sleep Medicine has been open for dentists who have specialized in oral appliance therapy and who collaborate in an interdisciplinary manner with sleep physicians.

The new European platform started in 2004: The European Dental Sleep Medicine Academy. EDESA promotes and extends the knowledge of evidence based dental sleep medicine in European countries and unites experts from all over Europe who value quality dental sleep medicine to share, to teach and to practice the best treatment methods. EDESA creates a network of colleagues who intend to work as a part of the interdisciplinary team with expertise in the field of oral appliance therapy.

The demand from sleep physicians and patients for qualified sleep disorder dentists in this new, non-invasive field of dental sleep medicine is sure to increase in the future.

INFO

**European Dental Sleep
Medicine Academy**
www.edesa.org

**Academy of Dental
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www.dentalsleepmed.org

**German Society of
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www.dgsz.de