Dental Treatment of Snoring and Sleep Apnea

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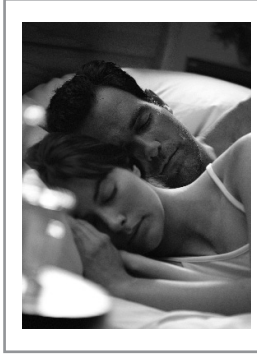
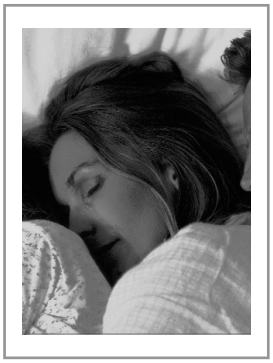
Quite often it is a source of amusement and quite often it is hushed up: SNORING! One third of the population snores and knows the problems in everyday life resulting from snoring. However, what a lot of people do not know is that snoring can be the indicator of a serious health problem called obstructive sleep apnea (OSA). This is the reason why more than 90% of the people with sleep apnea go undiagnosed.

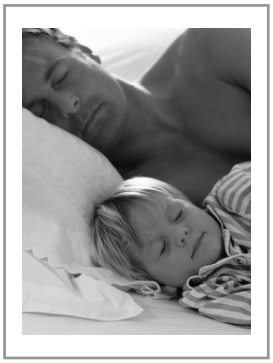
Two to four per cent of the population suffer from sleep apnea. They experience recurrent episodes while sleeping when their throats close and they cannot draw air into their lungs (apnea). This happens because the muscles that normally hold the throat open during waking hours relax during sleep and allow it to narrow. Breathing through this narrow airway leads to strong vibrations 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 apnea. These episodes can last as long as two minutes and are associated with a reduction of the blood oxygen level. The apnea 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 of OSA, such as high blood pressure, heart attack and stroke, OSA is a potentially life-threatening disease. In addition, waking up hundreds of times a night disturbs the physiological sleep pattern and the sleeper wakes up unrefreshed in the morning. Because of excessive daytime sleepiness he runs the risk of falling asleep while driving or causing accidents at work.

People with loud snoring, daytime sleepiness and whose family members report apneas during sleep 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 apnea 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 apneas. 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 Therapy

As such a challenging new interdisciplinary field opens to dentists all over the world. Oral appliances (mandibular advancement devices MAD) 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 apnea. 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 according to international guidelines [1) 2)] he prescribes an oral appliance. The sleep disorder dentist decides on the type of MAD taking into account the patient´s dental and myofunctional status. After taking impressions and the bite registration, he fits the appliance. Today, modern custom-made titratable double splints, covering the upper and lower teeth allow controlled protrusion to achieve an unrestricted airway while offering maximal comfort. Long-term follow-ups are necessary to ascertain the treatment´s success, to watch out for potential side effects and 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 American Academy of Dental Sleep Medicine was founded to act as a platform for dental sleep medicine and to foster professional exchanges for dentists in this new field. Since its foundation in 2000, the network of the German Society of Dental Sleep Medicine DGZS is open to dentists who have specialized in oral appliance therapy and who collaborate with sleep physicians as a part of the multidisciplinary team.

A 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 the best standard of care.

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 Sleep Medicine
www.dentalsleepmed.org

German Society of Dental Sleep Medicine
www.dgzs.de

Literature:

1) An American Academy of Sleep Medicine Report: Practice Parameters for the Treatment of Snoring and Obstructive Sleep Apnea with Oral Appliances: An Update for 2005. Sleep (2006) 29: 240-243.

2) Schwarting et al.: Position paper on the use of madibular advancement devices in adults with sleep-related breathing disorders. A position paper of the German Society of Dental Sleep Medicine DGZS. Sleep Breath (2007) 11: 125-126.

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