

# ★ Discover Sleep

## Dear Colleague:

Welcome to the updated Sleep HealthCenters Newsletter, now called Discover Sleep. The look is different but our aim is the same, to bring you the most up to date information on sleep medicine and sleep science in order to assist you in identifying and managing patients in your practice with sleep problems.

The topic addressed in this issue is how to approach a very common complaint, snoring. Once thought to be just irritating to the partner and embarrassing to the snorer, snoring is now recognized as a possible marker for more serious sleep disorders. But how do you sort through the noise to the real significance of the problem? We are fortunate to have Meir Kryger, MD, one of the leading researchers and teachers in sleep medicine, explain the pathophysiology, evaluation and treatment of snoring.

In future issues we will keep you abreast of changes in the understanding of sleep disorders, as well as the impact of the changes in the healthcare environment on the practice of sleep medicine.

If you have any questions or areas you would like to hear about, please contact me or the staff at Sleep HealthCenters.



Lawrence J. Epstein, MD  
Chief Medical Officer  
Sleep HealthCenters

## Snoring

Meir Kryger, MD. FRCPC

### Discussion

**Definition:** Until the past two decades, snoring was thought to be simply an acoustic annoyance. We now understand that snoring and obstructive sleep apnea are part of a continuum of sleep-disordered breathing<sup>1</sup>. We also recognize that some non-apneic snorers have frequent respiratory arousals and sleep fragmentation, and the term Upper Airways Resistance Syndrome (UARS) was introduced to describe these patients.

Snoring is a sound produced by vibration of structures of the upper airway. It is not caused by a single, localized abnormality within the airway. Any soft tissue in the upper airway, including the soft palate, uvula, faucial pillars or pharyngeal walls may vibrate<sup>2</sup>. The diffuse structures that can cause snoring have made successful therapy of snoring difficult, since many treatments address only a single anatomical structure.

**Epidemiology:** Snoring is common, occurring in about 40% of the adult population. It is more common in males, in the obese, and its prevalence increases with aging. There is often a genetic component with a positive family history.

**Comorbidity:** Research has addressed the question whether excessive daytime sleepiness and cardiovascular disease are possible adverse health consequences of snoring. Most studies evaluating the health effects of snoring did not exclude obstructive sleep apnea or upper airways resistance syndrome with polysomnography, and thus it is difficult to ascertain how much of the health risk is attributable to the snoring. There is no convincing data showing that snoring in the absence of apnea or sleep fragmentation in UARS are associated with any co-morbidity.

### Clinical Assessment

**Clinical History:** The history should be obtained in the presence of the bed partner. In addition to a routine history the following require specific attention:

- 1. Severity of the snoring:** What is the loudness and frequency of the snoring, and is it positional? What was the age of onset of the snoring, and can this be correlated with the development of risk factors, such as weight gain, or starting a certain medication? What is the effect of the snoring on the bed partner's sleep, especially if this is the reason for evaluation. The bed partner's distress will often determine the patient's motivation to be treated.
- 2. Risk factors:** Relationship to weight gain should be explored. Alcohol and sedative use and timing should be quantified, including the usual time of ingestion. The clinician should explore symptoms of nasal congestion and discharge, and whether there is a history of nasal trauma or surgery.
- 3. Is obstructive sleep apnea present?** Much of the assessment is directed towards determining the probability of obstructive sleep apnea or upper airways resistance syndrome. One should enquire about night time symptoms of obstructive sleep apnea including: frequent awakenings, restless sleep, witnessed breathing pauses, choking and gasping, sweating, and nocturia. Daytime symptoms to be assessed include: excessive daytime sleepiness, poor concentration and memory, and mood symptoms such as irritability and depression. Daytime sleepiness can be quantified using the Epworth Sleepiness Scale. Finally, the history should document medical comorbidities associated with obstructive sleep apnea, such as hypertension and cardiovascular disease.

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**Physical Examination:** The physical exam helps to identify potential sites for intervention.

The general physical examination should include measurement of blood pressure. Obesity may be assessed with the body mass index (BMI) and neck collar size. A collar size greater than 17 inches is frequently seen in patients with sleep apnea.

The nose should be inspected for evidence of rhinitis, nasal polyps or a deviated nasal septum. Is there retrognathia or micrognathia? Is there obstruction from tonsillar enlargement, or is the tongue large? Scalloping of the tongue may indicate that the tongue is too large for the jaw. The Mallampati score describes the tongue size and position relative to the soft palate.

**Sleep testing:** This is recommended, especially if surgical intervention is being contemplated. In the absence of any features of or comorbidities of OSA an overnight sleep study is not indicated.

## Treatment

### Lifestyle Modification

**Weight Loss:** Weight loss improves and may cure snoring. It is also difficult to predict the amount of weight loss required to improve snoring in a given patient, but sometimes only a few pounds leads to improvement.

**Avoidance of Alcohol and Sedatives:** The negative effect of alcohol on breathing during sleep is related to the timing of alcohol ingestion, the amount ingested, and the individual's metabolism. Snorers should be advised to avoid drinking alcohol with-

in 2 to 5 hours of bedtime. Similarly, sedatives such as benzodiazepines should also be avoided.

**Positional Training:** Snoring is usually worse in the supine position<sup>3</sup>. Many home-made devices and commercially available products have been developed to maintain the lateral position during sleep including: a tennis ball sewn into a pocket over the back of a pajama top, and the use of backpacks, vests, and specialized pillows and sleepwear. There are no studies demonstrating long term efficacy of these devices in non-apneic snorers.

### Partner Interventions

In some cases, it may be best to recommend the snorer's partner simply sleep in a separate room or wear ear plugs.

### Treating Nasal Congestion

**Pharmacologic Treatments:** Tissue lubricants are available, but, the long-term safety of nightly use of such preparations and their efficacy has not been established and thus are not recommended.

Intranasal corticosteroids might be reasonable to evaluate over 2 to 4 weeks in patients who also have symptoms of chronic rhinitis.

### Nasal Dilators

Overall, it appears that nasal dilators may have a modest effect on non-apneic snoring, and given their innocuous nature, a trial of therapy could be of benefit in some patients.

### Oral Appliances

Most studies of mandibular advancement devices suggest that snoring improves with their use.

### Continuous Positive Airway Pressure (CPAP)

CPAP therapy is usually for obstructive sleep apnea. Snoring can be eliminated with CPAP use in most patients. Whether an individual with non-apneic snoring will use CPAP, however, depends on motivation. Those patients whose partners' sleep is very disrupted by the snoring may have sufficient motivation for a CPAP trial.

### Surgery

Many patients want a "quick fix" and may be under the impression that surgery is always curative. However, results of surgical treatment for snoring not associated with discrete upper airway pathology have been disappointing.

**Nasal Surgery:** There is little supporting evidence that treating nasal obstruction surgically with septoplasty or turbinate reduction improves snoring in non-apneic snorers<sup>4</sup>.

**Pharyngeal Surgery:** Uvulopalatopharyngoplasty (UPPP). Many studies report impressive short-term improvement in subjective snoring. However, polysomnographic data confirming long term improvement in snoring is lacking<sup>5</sup>. Airway assessment, during wakefulness and even during sleep, is unfortunately a poor predictor of surgical success. UPPP surgery is generally quite painful, and long-term side effects include velopharyngeal insufficiency, dry throat, and difficulty swallowing<sup>6</sup>.

**Laser-Assisted Uvuloplasty (LAUP):** The main reason for selecting this procedure is to avoid the administration of a general anesthetic. The Standards of Practice Committee of the American Academy of Sleep Medicine (AASM)<sup>7</sup> has concluded that "the long-term effectiveness of LAUP on treatment of snoring has not been convincingly established." Based on the available evidence, LAUP cannot be generally recommended to treat snoring.

**Injection Snoreplasty:** This outpatient procedure, which involves injection of a sclerotherapy agent into the submucosa of the soft palate, induces scarring and may serve to stiffen and shorten the palate, thereby reducing snoring. Complications include transient palatal swelling, mucosal breakdown, and palatal fistulas. Because of the lack of clinical trials at this time, one cannot recommend this procedure.



### Meir Kryger, MD, FRCPC

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Dr. Kryger is the chief editor of the main textbook used in sleep medicine, *The Principles and Practice of Sleep Medicine*, now in its fourth edition, and is the author of *A Woman's Guide to Sleep Disorders*. He has been president of both the Canadian Sleep Society and the American Academy of Sleep Medicine. He is immediate past Chairman of the Board of Directors of the National Sleep Foundation in Washington, DC, and has served as chairman of its Education Committee. He was the 1996 recipient of the William C. Dement Award for Academic Achievement in sleep medicine. His research has spanned the areas of sleep-related breathing disorders, neurological disorders affecting sleep of both adults and children and sleep problems in women.

**Radiofrequency Ablation:** In radiofrequency ablation (RFA) radiofrequency energy is applied to upper airway tissues – palate, tonsils, uvula, and base of tongue. This leads to stiffening of the upper airway, making the walls less susceptible to vibration and collapse. Again, there are insufficient large clinical trials to recommend routine use of this procedure.

**Palatal Implants:** Palatal implants cause inflammation and granulomatous tissue formation with the expectation that the soft palate is stiffer and thus less likely to vibrate. The usual procedure is to insert three implants, near the midline of the soft palate. Although side effects are minimal, at this time there is insufficient objective evidence to recommend this procedure.

## Case Study

David, a 48-year-old computer engineer, was referred by an ENT to a Sleep Disorders Center because of a lifelong history of loud disruptive snoring. Surgery was being contemplated to treat the snoring. He was accompanied by his wife. On interview, the patient indicated that he had never heard himself snore, and did not think he had a problem. He was only there at the insistence of his wife. There was no history of excessive daytime sleepiness. The patient's wife sat quietly during the interview, with dark bags under her eyes, and indicated that her husband did not stop breathing during sleep. Family history was strongly positive with the patient's father having a snoring history as well as two of the patient's sons, ages 10 and 13. The patient had a body mass index of 34, a neck collar size of 16.5 inches, and blood pressure of 128/80. Except for modest retrognathia, the physical exam was unremarkable. After the physical examination ended, his wife indicated that if the snoring was not treated, she would leave her husband. The overnight sleep study was entirely normal and revealed an apnea-hypopnea index of 3. On follow-up, surgical treatment was not recommended. Instead it was recommended that the patient consider an oral appliance. The importance of weight loss and alcohol avoidance was stressed. It was suggested that the two snoring children be assessed by an orthodontist. The patient and his wife both agreed to follow up on the recommendations.

## Conclusion

Although snoring may be disruptive to the bed partner's sleep, there is little evidence that, in the absence of sleep apnea, it is associated with adverse health outcomes. Treatment of snoring includes lifestyle modification (weight loss, avoidance of alcohol and hypnotics, sleeping in separate bedrooms), sleep position training, oral appliances, and rarely nasal CPAP. Surgery should only be considered when the above is not acceptable or not efficacious and the patient should be provided with a realistic expectation of outcome.

## Endnotes

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2. Fajdigaal. Snoring imaging: could Bernoulli explain it all? *Chest*. 2005 Aug;128(2):896-901.

3. Nakano H, Ikeda T, Hayashi M, et al: Effects of body position on snoring in apneic and nonapneic snorers. *Sleep* 2003;26: 169-172.

4. Virkkula P, Bachour A, Hytönen M, Salmi T, Malmberg H, Hurmerinta K, Maasilta P. Snoring is not relieved by nasal surgery despite improvement in nasal resistance. *Chest*. 2006 Jan;129(1):81-7.

5. Hicklin LA, Tostevin P, Dasan S. Retrospective survey of long-term results and patient satisfaction with uvulopalatopharyngoplasty for snoring. *J Laryngol Otol*. 2000 Sep;114(9):675-81.

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7. Littner M, Kushida CA, Hartse K, et al: Practice parameters for the use of laser-assisted uvulopalatoplasty: An update for 2000. *Sleep* 2001;24:603-608.

## CEO Corner

Earlier this spring, Sleep HealthCenters sponsored the 2010 North East Sleep Society's (NESS) 24th Annual Conference titled "Promoting Wakeful-NESS". Speakers at the two-day event included Murray Johns, MD, creator of the Epworth Sleepiness Scale (ESS), which assesses the daytime sleepiness of patients, and Meir Kryger, MD, Director of Sleep Medicine Research and Education at Gaylord Hospital in Wallingford, Connecticut. Nancy A. Collop, MD, Medical Director of the Johns Hopkins Sleep Disorders Center, presented the keynote address, "Challenges to the Current Practice of Sleep Medicine".

In March, I spoke to HealthLeaders Media about our partnership with Milton Hospital along with Cynthia Page, PT, MHP and vice president of Milton's clinical and support services. We discussed the role of sleep in co-morbidities such as obesity, cardiovascular disease, diabetes and stroke and how providers are paying closer attention to improving patients' sleep, which in turn, can positively affect their well-being.

Also, our own Claudia M. Toth, PsyD, appeared on Good Morning America to talk about insomnia with Dr. Richard Besser, ABC's Medical Editor. Two Sleep HealthCenters patients shared their stories of how Cognitive Behavioral Therapy has helped them overcome their insomnia without medication.

The first annual Sleep Apnea & Trucking Conference was held in Baltimore MD on May 11-12th



**Paul S. Valentine**  
President and  
Chief Executive  
Officer

2010. The event was organized by the American Sleep Apnea Association and co-sponsored by the Federal Motor Carrier Safety Administration and the American Trucking Association. Our Regional Medical Director in Arizona, Dr. Rochelle Goldberg, was the chairperson for the event and our Chief Medical Officer, Dr. Lawrence Epstein, presented "Sleep Apnea 101" to experts from the trucking, regulatory, medical and liability insurance fields.

During the conference, The FMCSA reiterated that there is currently no date scheduled for the much anticipated change in Department of Transportation sleep apnea guidelines, regulations, and FAQs, although the administration is working diligently on the issue. However, they reminded the audience that DOT examiners still have the wherewithal to identify drivers with sleep apnea and may require those drivers to be appropriately treated in order to obtain their CDL license.

We are happy to continue to provide sleep medicine services to your patients. Please do not hesitate to contact us if you have any questions.



## The Importance of Research

Sleep HealthCenters and Gaylord Sleep Medicine are both widely recognized for their roles in clinical research.

Clinical research is the cornerstone for advances in medicine and many of our doctors have made important contributions to research that directly affect available treatments for sleep disorders and the quality and effectiveness of care.

Participating in research projects or encouraging your patients to participate in research projects can be fulfilling and lead to improvements in care for countless people.

We invite you to look on our website at the current list of available projects and hope you will consider participating.

[www.sleephealth.com](http://www.sleephealth.com)  
[www.gaylordsleep.com](http://www.gaylordsleep.com)

Sleep HealthCenters is a network of sleep medicine centers staffed by experts in the field of sleep medicine. Our integrated care system provides all the services needed to diagnose and treat patients with the entire array of sleep disorders including obstructive sleep apnea, insomnia, narcolepsy, and restless legs syndrome.

**Massachusetts Affiliations:** Beth Israel Deaconess Medical Center, Brigham and Women's Hospital, Faulkner Hospital, Hallmark Health, Marlborough Hospital, Massachusetts Eye and Ear Infirmary, McLean Hospital, Milton Hospital, New England Sinai Hospital, Southcoast Hospitals Group; **Connecticut Affiliations:** Gaylord Sleep Medicine; **New York Affiliations:** Beth Israel Medical Center

**Massachusetts Locations:** Bedford, Beverly, Boston, Brighton, Framingham, Jamaica Plain, Marlborough, Medford, Milton, North Dartmouth, Stoughton, Weymouth, Worcester; **Arizona Locations:** Mesa, Phoenix, Scottsdale, Tucson; **Connecticut Locations:** Hartford, Glastonbury, Guilford, North Haven, Trumbull, Bridgeport; **New York Locations:** Manhattan; **Rhode Island Locations:** Cumberland.

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- Segment on Good Morning America
- American Sleep Apnea and Trucking Conference update

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