

SLEEP

WRITTEN BY ROGER E. RILEY, D.D.S.

SNORING

A social nuisance or a warning sign of oxygen starvation?

PEOPLE WHO SNORE are frequently the brunt of jokes and friendly, or not so friendly, jibes at their noisy breathing—sometimes at social functions; a pillow thrown at them during the night and banishment to another tent site during a campout or spending the night on the couch.

The truth is, that when there is a snorer in the room, the non snorer suffers. The amount of sleep and depth of sleep is diminished leaving the snorer's victim tired in the morning, frequently cranky and less productive as the day progresses.

Simple snoring is a result of the airway narrowing when we fall asleep. The more crowded the airway when awake, the more crowded it becomes when sleep occurs. The problem is frequently more than just the noise. As the airway collapses, so does the ability of the lungs to get enough oxygen to replenish the needs of the blood, the tissues and the brain. The human body is very clever, it continually protects our need for oxygen. Instead of allowing us to strangle, our brain will briefly awaken us and restore the muscle activity to our airway that is necessary to keep it from collapsing. This fragmentation of sleep, bouncing back and forth from unremembered arousals, returning to sleep, leaves us less rested in the morning and increasingly tired as the day goes along, risking nodding off inappropriately and thinking fuzzily. This condition of daytime sleepiness due to inadequate breathing during sleep is called Obstructive Sleep Apnea/Hypopnea Syndrome. Sleep apnea refers to complete occlusion of the airway, while hypopnea means partial collapse.

Life Magazine estimates that 70 million Americans have sleep disorders. They report two thirds of workers claim that lack of sleep affects their work. The estimate of loss of productivity is \$ 70 billion. Dr. William Dement, the Stanford University sleep researcher, "estimates that 38,000 people die each year from consequences of sleep apnea. Another 24,000 die in accidents caused by sleepiness."

The Department of Transportation requires drivers of commercial vehicles to be screened for sleep apnea and excessive daytime sleepiness at the time of their semi-annual physical examination, but until recently the examining physician had no practical way to adequately do this. Most commercial drivers are not tested for sleep apnea. There was a recent claim against a garbage truck driver who fell asleep and had an accident. The judgment against the employer was \$40 million. The tragic accidents last year of bus loads of people on Church outings or returning from Las Vegas were directly related to drivers falling asleep.



Daytime sleepiness and cognitive impairment are only part of the problem. Not only is deep sleep affected, the rest of the body's support systems are placed in jeopardy when they are oxygen starved. Research continues to find physical ailments linked to oxygen impairment. These include high blood pressure, with increased risk of heart disease and stroke. Excessive tooth grinding, acid reflux disorder [GERDs] and fibromyalgia have been reported to be exacerbated by those suffering from sleep hypopnea and apnea.


THE BAD NEWS

The bad news for snorers: Snoring is almost always present in persons with sleep hypopnea and sleep apnea. The skeletally deficient airway is the culprit as it further becomes crowded in sleep, shutting down the oxygen supply

The Mayo Clinic Health Letter reported OSA (obstructive sleep apnea) "as one of the world's most prevalent, undiagnosed diseases. Due to associated morbidity OSA has been identified as a major health concern." Recent research has linked diseases such as diabetes, thyroid disorders and sexual dysfunction to sleep disorders. The research shows that the human system replenishes our essential hormones during deep sleep. When there is insufficient deep sleep, our essential hormone needs are challenged. Current research is investigating the links of oxygen starvation (apnea) to learning disorders and to Alzheimer's disease.

THE GOOD NEWS

Snoring, Hypopnea, Sleep Fragmentation and Sleep Apnea are treatable diseases. In my next article I will present the accepted treatment options—their advantages and disadvantages. I will also discuss how you may evaluate your potential for sleep disorders with in home testing and professionally supervised testing. Should you wish to know more about this subject please consult my web site www.endsnoring.com or call 949 448-7667.

Dr. Riley is credentialed by the American Academy of Dental Sleep Disorders and specializes in treating sleep and TMJ disorders. He is a frequent lecturer to continuing education groups and is currently involved in research for a new home testing device. 



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PART II

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A social nuisance or a warning sign of oxygen starvation?

IN LAST MONTH'S Orange County Health I presented the relationship of snoring to significant medical disease. You may recall the quote from Mayo Clinic Health Letter: "OSA [obstructive sleep apnea] has recently gained recognition as one of the world's most prevalent undiagnosed diseases." In this article the methods for diagnosis and the accepted treatments for snoring and its progression toward sleep apnea will be presented.

Diagnosis

Most diagnosis begins with the patient becoming aware of fatigue, daytime sleepiness and diminished cognitive function. They begin by asking questions, searching the internet and/or consulting with their physicians. These patients are frequently referred to a sleep lab for a polysomnograph; a multi channelled test measuring snoring, muscle restlessness, brain waves, heart rhythms and oxygen saturation of their blood. In most cases, a facial mask delivering low pressure room air is applied to determine if a collapsed airway is responsible for the recorded dysfunctional sleep. Along with the polysomnograph, a questionnaire is given for the patient to provide information regarding their daytime sleepiness patterns. Other information gathering systems are available. They include over night home monitored polysomnographs. The data collected is similar to that collected at the sleep lab, but with fewer channels of study.

Data from these tests are gathered and a diagnosis is made as to the severity of the observed oxygen deprivation events. Measuring of the oxygen level within the blood stream is central to all testing. More recent testing devices include overnight pulse oxymetry [a device taped to your finger that senses, and records, the pulse rate and oxygen levels.] There is current research being done with a device that attaches to your forehead, like a miner's lamp, recording oxygen level, body movement, heart rate and even records the snoring level. You may recall the statistics in my previous article regarding the huge risks of sleepy drivers. There is considerable encouragement that simple tests like these will aid early detection of sleep apnea.

Early treatment may easily make our roads and highways safer for us to travel. The bottom line; whether it be a questionnaire, a night in the sleep lab or a computer hooked up to your forehead or finger, the level of oxygen and the reoccurring restless, shallow, sleep is essential for diagnosis. Diagnosis can tell the level of involvement thus guiding you to appropriate treatment. Once treated, post testing is essential, in order to assess the level of restoration of the airway and normal sleep.



Treatment

In times past, the preferred treatment for severe life threatening sleep apnea was a tracheotomy, a surgical opening in the lower throat, permitting air to pass directly to the lungs. Today severe cases are treated with a CPAP [continuous positive airway pressure]. This is a device resembling a gas mask or divers mask placed over the mouth and nose. The mask is connected by a hose to an air pump. This pump delivers low pressure air to the oral and nasal airway splinting it from collapsing as the patient progresses in sleep.

Another treatment, recommended frequently, is surgical intervention. Surgeries that are done in the nasal airway, to improve air flow, consist of septum straightening and turbinate reduction. Other surgeries are performed on the soft palate and uvula to lessen their blockage of the airway and to reduce the rattle of snoring. An additional type of surgery is radio frequency ablation to reduce the size and collapsibility of the airway. At one time there was great hope for these surgical treatments, however the majority, have been proven unsuccessful three to five years post treatment and are now being done less frequently.

Mandibular Repositioning Devices

As Dentists have become more informed and the Mandibular Repositioning Devices [that they fabricate] have become more advanced, these dental experts are currently the physicians' alternative to CPAP. These devices fit on the teeth similar to an orthodontic retainer and prevent the jaw from falling backward. The muscles of the oropharynx are kept in slight tension preventing the airway from collapsing—similar to the goals of the CPAP machine.

There are several devices available, some less customized and more flimsy; others highly individualized and longer lasting. Since these devices will be worn each night for an extended period of time, it is important that they be comfortable to wear, be sturdy and long lasting, be kind to the teeth and jaw joints and are adjustable as the needs of the wearer change. I have had the privilege of treating many patients where previous treatments have failed and I am continually encouraged by the simplicity and comfort of oral appliances and their ability to resolve collapsed airways.