



Oral and maxillofacial surgeons.  
The experts in face, mouth and jaw surgery.

# Obstructive Sleep Apnea



One in five adults has at least mild sleep apnea and it also affects 1% to 3% of children. Yet, people who have obstructive sleep apnea (OSA) may not even be aware they have a problem.

If someone close to you has spoken of your loud snoring and has noticed that you often wake up abruptly, gasping for air, you should consult your oral and maxillofacial surgeon (OMS). The risks of untreated OSA include heart attack, stroke, irregular heartbeat, high blood pressure, heart disease and decreased libido. In addition, OSA causes daytime drowsiness that can result in accidents, lost productivity and relationship problems.

## What Is OSA?

During sleep, the upper airway can be obstructed by excess tissue in the back of the throat, large tonsils and/or a large tongue; the obstruction will cause the diaphragm and chest muscles to work harder. In some patients, malposition of the jaw, a thick neck, and narrow nasal passages can contribute to the problem. The suspension of breathing or the reduction of airflow (apnea), brought about by these factors initiate impulses from the brain to wake the person just enough to restart the breathing process.

Sleep apnea is generally defined as the presence of more than 30 apneas that decrease the delivery of oxygen to vital organs during a seven-hour sleep. In severe cases, periods of not breathing may last for as long as 60 to 90 seconds and may recur up to 500 times a night.

## Snoring Is Not Necessarily Sleep Apnea

It's estimated that approximately 30% to 50% of the US population snore at one time or another. Everyone has heard stories of men and women whose snoring can be heard rooms away from where they are sleeping. Snoring of this magnitude can cause several problems, including marital discord, sleep disturbances and waking episodes sometimes caused by one's own snoring. Chronic snoring does not always equal sleep apnea, but it can still require treatment, and there are several options available.

Some non-medical treatments that may reduce or eliminate snoring include:

- Weight loss, even as little as 10 pounds
- Change of sleeping position (because you tend to snore more when sleeping on your back than on your side)
- Avoiding alcohol, caffeine and heavy meals, especially within two hours of bedtime
- Avoiding sedatives, which can relax your throat muscles and increase the tendency for airway obstruction related to snoring

## OSA Symptoms

Those who have OSA are often unaware of their condition and think they sleep well. The symptoms that usually lead these individuals to seek help are daytime drowsiness or complaints of snoring and breathing problems observed by a bed partner. OSA symptoms may include:

- Snoring with pauses in breathing (apnea)
- Excessive daytime drowsiness
- Gasping or choking during sleep
- Restless sleep
- Problem with mental function
- Poor judgment/can't focus
- Memory loss
- Quick to anger
- High blood pressure
- Nighttime chest pain
- Depression
- Problem with excess weight
- Large neck (>17" around in men, >16" around in women)
- Airway crowding
- Morning headaches
- Reduced libido
- Frequent trips to the bathroom at night

## Diagnosing Sleep Apnea

If you exhibit several OSA symptoms, it's important you visit your oral and maxillofacial surgeon (OMS) for a complete examination and an accurate diagnosis.

At your first visit, your doctor will take a medical history and perform a head and neck examination looking for problems that might contribute to sleep-related breathing problems. An interview with your bed partner or other household members about your sleeping and waking behavior may be in order. If the doctor suspects a sleep disorder, you will be referred to a sleep clinic, where your nighttime sleep patterns will be monitored through a special test called polysomnography.

Polysomnography (PSG) is supervised by a trained technologist and will measure various body functions. Patients undergoing PSG sleep at the clinic overnight while a video camera monitors sleep patterns and gathers data measuring airflow, blood oxygen levels, breathing patterns, electrical activity of the brain, eye movements, heart rate and muscle activity. After the study is completed, the technologist will be able to grade the severity of sleep apnea. Often a "split night" study is done during which a C-PAP (continuous positive airway pressure) device is used to help open up the collapsed airways.

## Treatment of Sleep Apnea

If you are diagnosed with sleep apnea, your OMS will help you decide which treatment is best for you. Depending on whether your OSA is mild, moderate or severe, this can range from behavior modification to oral appliances to a C-PAP device.

### Lifestyle Modification

If you are diagnosed with mild sleep apnea, your doctor may suggest you employ the non-medical treatments recommended to reduce snoring described earlier. In mild cases, these practical interventions may improve or even cure snoring and sleep apnea.

### Oral Appliances

If you have mild to moderate sleep apnea, or are unable to use a C-PAP device, recent studies have shown that an oral appliance can be an effective first-line therapy. The oral appliance is a molded device that is placed in the mouth at night to position the lower jaw and bring the tongue forward, elevating the soft palate and keeping the tongue from falling back in the airway and blocking breathing. Although not as effective as C-PAP systems, oral appliances are beneficial for patients with mild to moderate OSA who prefer them, who do not respond to C-PAP, are not appropriate candidates for C-PAP, or who fail treatment attempts with C-PAP and lifestyle changes. Patients using an oral appliance should have regular follow-up office visits with their OMS to monitor compliance, to ensure the appliance is functioning correctly and to make sure their symptoms are not worsening.

### C-PAP (Continuous Positive Airway Pressure) and Bi-PAP (Bi-Level) Devices

A C-PAP device is an effective treatment for patients with moderate OSA and the first-line treatment for those diagnosed with severe sleep apnea. Through a specially fitted mask that fits over the patient's nose, the C-PAP's constant, prescribed flow of pressured air prevents the airway or throat from collapsing. In some cases a Bi-PAP device, which blows air at two different pressures, may be used. While C-PAP and Bi-PAP devices keep the throat open and prevent snoring and interruptions in breathing, they only treat your condition and do not cure it. If you stop using the C-PAP or Bi-PAP, your symptoms will return. Although C-PAP and Bi-PAP are often the first treatments of choice, they may be difficult for some patients to accept and use. If you find you are unable to use these devices, do not discontinue their use without talking to your doctor. Your OMS can suggest other effective treatments.

### Surgical Options

Surgery may be a viable alternative for some patients, but it's important to keep in mind that no surgical procedure is universally successful. Every patient has a differently shaped nose and throat, so before surgery is considered your OMS will measure the airway at several points and check for any abnormal flow of air from the nose to the lungs. An OMS has considerable experience and the necessary training and skill to perform the following surgical procedures:

## Maxillomandibular Advancement (MMA)

MMA is a procedure that surgically moves the upper and lower jaws forward. As the bones are surgically advanced, the soft tissues of the tongue and palate are also moved forward, again opening the upper airway. For some individuals, the MMA is the only technique that can create the necessary air passageway to resolve their OSA condition.

## Uvulopalatopharyngoplasty (UPPP)

If the airway collapses at the soft palate, a UPPP may be helpful. UPPP is usually performed on patients who are unable to tolerate the C-PAP. The UPPP procedure shortens and stiffens the soft palate by partially removing the uvula and reducing the edge of the soft palate.

## Hyoid Suspension:

If collapse occurs at the tongue base, a hyoid suspension may be indicated. The hyoid bone is a U-shaped bone in the neck located above the level of the thyroid cartilage (Adam's apple) that has attachments to the muscles of the tongue as well as other muscles and soft tissues around the throat. The procedure secures the hyoid bone to the thyroid cartilage and helps to stabilize this region of the airway.

## Genioglossus Advancement (GGA)

GGA was developed specifically to treat obstructive sleep apnea, and is designed to open the upper breathing passage. The procedure tightens the front tongue tendon, thereby keeping the tongue from falling back in the airway and blocking breathing. This operation is often performed in tandem with at least one other procedure such as the UPPP or hyoid suspension.

*The information provided here is not intended as a substitute for professional medical advice, diagnosis, or treatment. It is provided to help you communicate effectively with your oral and maxillofacial surgeon. Always seek the advice of your oral and maxillofacial surgeon regarding an oral health concern.*

*The American Association of Oral and Maxillofacial Surgeons (AAOMS), the professional organization representing more than 9,000 oral and maxillofacial surgeons in the United States, supports its members' ability to practice their specialty through education, research and advocacy. AAOMS members comply with rigorous continuing education requirements and submit to periodic office examinations, ensuring the public that all office procedures and personnel meet stringent national standards.*



American Association of Oral and Maxillofacial Surgeons  
9700 West Bryn Mawr Ave, Rosemont, Illinois 60018-5701  
P. 847.678.6200 or 800.822.6637 | F. 847.678.6286 | [www.myoms.org](http://www.myoms.org)