

Obstructive Sleep Apnea

Obstructive sleep apnea is a potentially serious sleep disorder and medical condition. It causes breathing to repeatedly stop and start during sleep. This type of apnea occurs when your throat muscles intermittently relax and block your airway during sleep. A noticeable sign of obstructive sleep apnea is snoring.

Complications

- **Daytime fatigue and sleepiness.** People with obstructive sleep apnea often experience severe daytime drowsiness, fatigue and irritability. They may have difficulty concentrating and find themselves falling asleep at work, while watching TV or even when driving.
- **Cardiovascular problems.** Sudden drops in blood oxygen levels that occur during obstructive sleep apnea increase blood pressure and strain the cardiovascular system. Many people with obstructive sleep apnea develop high blood pressure (hypertension), which can increase the risk of heart disease. The more severe the obstructive sleep apnea, the greater the risk of coronary artery disease, heart attack, heart failure and stroke. Men with obstructive sleep apnea appear to be at risk of heart failure, while women with obstructive sleep apnea don't. Obstructive sleep apnea increases the risk of abnormal heart rhythms (arrhythmias). These abnormal rhythms can lower blood oxygen levels. If there's underlying heart disease, these repeated multiple episodes of low blood oxygen could lead to sudden death from a cardiac event.
- **Complications with medications and surgery.** Obstructive sleep apnea also is a concern with certain medications and general anesthesia. These medications, such as sedatives, narcotic analgesics and general anesthetics, relax your upper airway and may worsen your obstructive sleep apnea. If you have obstructive sleep apnea, you may experience worse breathing problems after major surgery, especially after being sedated and lying on your back. People with obstructive sleep apnea may be more prone to complications after surgery. Before you have surgery, tell your doctor if you have obstructive sleep apnea or symptoms related to obstructive sleep apnea. If you have obstructive sleep apnea symptoms, your doctor may test you for obstructive sleep apnea prior to surgery.
- **Eye problems.** Some research has found a connection between obstructive sleep apnea and certain eye conditions, such as glaucoma. Eye complications can usually be treated. People with obstructive sleep apnea may also complain of memory problems, morning headaches, mood swings or feelings of depression, and a need to urinate frequently at night (nocturia).

DIAGNOSIS

Evaluation of sleep apnea may involve overnight monitoring of your breathing and other body functions as you sleep.

Polysomnography. During this sleep study, you're hooked up to equipment that monitors your heart, lung and brain activity, breathing patterns, arm and leg movements, and blood oxygen levels while you sleep. You may have a full-night study, in which you're monitored all night, or a split-night sleep study. In a split-night sleep study, you'll be monitored during the first half of the night. If you're

diagnosed with obstructive sleep apnea, staff may wake you and give you continuous positive airway pressure for the second half of the night. This test can help your doctor diagnose obstructive sleep apnea and adjust positive airway pressure therapy, if appropriate. This sleep study can also help rule out other sleep disorders, such as periodic limb movements of sleep or narcolepsy, which also can cause excessive daytime sleepiness, but require different treatment.

Home sleep apnea testing. Under certain circumstances, your doctor may provide you with an at-home version of polysomnography to diagnose obstructive sleep apnea. This test usually involves measurement of airflow, breathing patterns and blood oxygen levels, and possibly limb movements and snoring intensity.

TREATMENT

Lifestyle changes

For milder cases of obstructive sleep apnea, your doctor may recommend lifestyle changes:

- Lose weight if you're overweight.
- Exercise regularly.
- Drink alcohol moderately, if at all, and don't drink several hours before bedtime.
- Quit smoking.
- Use a nasal decongestant or allergy medications.
- Don't sleep on your back.

If these measures don't improve your sleep or if your apnea is moderate to severe, then your doctor may recommend other treatments. Certain devices can help open up a blocked airway. In other cases, surgery may be necessary.

Therapies

- **Positive airway pressure.** If you have obstructive sleep apnea, you may benefit from positive airway pressure. In this treatment, a machine delivers air pressure through a piece that fits into your nose or is placed over your nose and mouth while you sleep. Positive airway pressure reduces the number of respiratory events that occur as you sleep, reduces daytime sleepiness and improves your quality of life. The most common type is called continuous positive airway pressure, or CPAP (SEE-pap). With this treatment, the pressure of the air breathed is continuous, constant and somewhat greater than that of the surrounding air, which is just enough to keep your upper airway passages open. This air pressure prevents obstructive sleep apnea and snoring. Although CPAP is the most consistently successful and most commonly used method of treating obstructive sleep apnea, some people find the mask cumbersome, uncomfortable or loud. However, newer machines are smaller and less noisy than older machines. Also, with some practice, most people learn to adjust the mask to obtain a comfortable and secure fit. You may need to try different types to find a suitable mask. Several options are available, such as nasal masks, nasal pillows or face masks. If you're having particular difficulties tolerating pressure, some machines have special adaptive pressure functions to improve comfort. You also may benefit from using a humidifier along with your CPAP system. CPAP may be given at a continuous (fixed) pressure or varied (autotitrating) pressure. In fixed CPAP, the pressure stays constant. In autotitrating CPAP, the levels of pressure are adjusted if the device senses increased airway resistance. Bilevel positive airway pressure (BiPAP), another type of positive airway pressure, delivers a preset amount of pressure when you breathe in and a different amount of pressure when you breathe out. CPAP is more commonly used because it's been well-studied for obstructive sleep apnea and has been shown to effectively treat obstructive sleep apnea. However, for people who have difficulty tolerating fixed CPAP, BiPAP or autotitrating CPAP may be worth a try. Don't

stop using your positive airway pressure machine if you have problems. Check with your doctor to see what adjustments you can make to improve its comfort. In addition, contact your doctor if you still snore despite treatment, if you begin snoring again or if your weight changes.

- **Mouthpiece (oral device).** Though positive airway pressure is often an effective treatment, oral appliances are an alternative for some people with mild or moderate obstructive sleep apnea. These devices may reduce your sleepiness and improve your quality of life. These devices are designed to keep your throat open. Some devices keep your airway open by bringing your jaw forward, which can sometimes relieve snoring and obstructive sleep apnea. Other devices hold your tongue in a different position. If you and your doctor decide to explore this option, you'll need to see a dentist experienced in dental sleep medicine appliances for the fitting and follow-up therapy. A number of devices are available. Close follow-up is needed to ensure successful treatment.

Surgery or other procedures

Surgery is usually considered only if other therapies haven't been effective or haven't been appropriate options for you. Surgical options may include:

- **Surgical removal of tissue.** Uvulopalatopharyngoplasty (UPPP) is a procedure in which your doctor removes tissue from the back of your mouth and top of your throat. Your tonsils and adenoids may be removed as well. UPPP usually is performed in a hospital and requires a general anesthetic. Doctors sometimes remove tissue from the back of the throat with a laser (laser-assisted uvulopalatoplasty) or with radiofrequency energy (radiofrequency ablation) to treat snoring. These procedures don't treat obstructive sleep apnea, but they may reduce snoring.

Other types of surgery may help reduce snoring and sleep apnea by clearing or enlarging air passages, including:

- Nasal surgery to remove polyps or straighten a crooked partition between your nostrils (deviated septum)
- Surgery to remove enlarged tonsils or adenoids