

Sleep apnea

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Definition

Sleep apnea is a potentially serious sleep disorder in which breathing repeatedly stops and starts. You may have sleep apnea if you snore loudly and you feel tired even after a full night's sleep.

Sleep apnea occurs in two main types:

- **Obstructive sleep apnea**, the more common form that occurs when throat muscles relax
- **Central sleep apnea**, which occurs when your brain doesn't send proper signals to the muscles that control breathing

Additionally, some people have **complex sleep apnea**, which is a combination of both.

If you think you might have sleep apnea, see your doctor. Treatment is necessary to avoid heart problems and other complications.

Symptoms

The signs and symptoms of obstructive and central sleep apneas overlap, sometimes making the type of sleep apnea more difficult to determine. The most common signs and symptoms of obstructive and central sleep apneas include:

- Excessive daytime sleepiness (hypersomnia)
- Loud snoring, which is usually more prominent in obstructive sleep apnea
- Observed episodes of breathing cessation during sleep
- Abrupt awakenings accompanied by shortness of breath, which more likely indicates central sleep apnea
- Awakening with a dry mouth or sore throat
- Morning headache
- Difficulty staying asleep (insomnia)

When to see a doctor

Consult a medical professional if you experience, or if your partner observes, the following:

- Snoring loud enough to disturb the sleep of others or yourself
- Shortness of breath that awakens you from sleep
- Intermittent pauses in your breathing during sleep
- Excessive daytime drowsiness, which may cause you to fall asleep while you're working, watching television or even driving

Many people don't think of snoring as a sign of something potentially serious, and not everyone who has sleep apnea snores. But be sure to talk to your doctor if you experience loud snoring, especially snoring that's punctuated by periods of silence.

Ask your doctor about any sleep problem that leaves you chronically fatigued, sleepy and irritable. Excessive daytime drowsiness (hypersomnia) may be due to other disorders, such as narcolepsy.

Causes



Obstructive sleep apnea

Causes of obstructive sleep apnea

Obstructive sleep apnea occurs when the muscles in the back of your throat relax. These muscles support the soft palate, the triangular piece of tissue hanging from the soft palate (uvula), the tonsils and the tongue.

When the muscles relax, your airway narrows or closes as you breathe in, and breathing momentarily stops. This may lower the level of oxygen in your blood. Your brain senses this inability to breathe and briefly rouses you from sleep so you can reopen your airway. This awakening is usually so brief that you don't remember it.

You can awaken with a transient shortness of breath that corrects itself quickly, within one or two deep breaths, although this is rare. You may make a snorting, choking or gasping sound. This pattern can repeat itself five to 30 times or more each hour, all night long. These disruptions impair your ability to reach the desired deep, restful phases of sleep, and you'll probably feel sleepy during your waking hours. People with obstructive sleep apnea may not be aware that their sleep was interrupted. In fact, many people with this type of sleep apnea think they sleep well all night.

Risk factors

Sleep apnea may occur if you're young or old, male or female. Even children can have sleep apnea. But certain factors put you at increased risk:

Obstructive sleep apnea

- **Excess weight.** Fat deposits around your upper airway may obstruct your breathing. However, not everyone who has sleep apnea is overweight. Thin people develop the disorder, too.
- **Neck circumference.** A neck circumference greater than 17 inches (43 centimeters) is associated with an increased risk of obstructive sleep apnea. That's because a thick neck may narrow the airway and may be an indication of excess weight.
- **High blood pressure (hypertension).** Sleep apnea is more common in people with hypertension.
- **A narrowed airway.** You may have inherited a naturally narrow throat. Or, your tonsils or adenoids may become enlarged, which can block your airway.
- **Being male.** Men are twice as likely to have sleep apnea. However, women increase their risk if they're overweight, and the risk also appears to rise after menopause.
- **Being older.** Sleep apnea occurs two to three times more often in adults older than 65.
- **Family history.** If you have family members with sleep apnea, you may be at increased risk.
- **Use of alcohol, sedatives or tranquilizers.** These substances relax the muscles in your throat.
- **Smoking.** Smokers are three times more likely to have obstructive sleep apnea than are people who've never smoked. Smoking may increase the amount of inflammation and fluid retention in the upper airway. This risk likely drops after you quit smoking.

- **Prolonged sitting.** Studies suggest that long periods of daytime sitting can cause fluids to shift from your legs when you recline at night, narrowing airway passages and possibly increasing the risk of obstructive sleep apnea.

Complications

Sleep apnea is considered a serious medical condition. Complications may include:

- **Cardiovascular problems.** Sudden drops in blood oxygen levels that occur during sleep apnea increase blood pressure and strain the cardiovascular system. If you have obstructive sleep apnea, your risk of high blood pressure (hypertension) can be up to two to three times greater than if you don't. The more severe your sleep apnea, the greater the risk of high blood pressure. However, obstructive sleep apnea increases the risk of stroke, regardless of whether or not you have high blood pressure. If there's underlying heart disease, these multiple episodes of low blood oxygen (hypoxia or hypoxemia) can lead to sudden death from a cardiac event. Studies also show that obstructive sleep apnea is associated with increased risk of atrial fibrillation, congestive heart failure and other vascular diseases.

In contrast, central sleep apnea usually is the result, rather than the cause, of heart disease.

- **Daytime fatigue.** The repeated awakenings associated with sleep apnea make normal, restorative sleep impossible. People with sleep apnea often experience severe daytime drowsiness, fatigue and irritability. You may have difficulty concentrating and find yourself falling asleep at work, while watching TV or even when driving. You may also feel irritable, moody or depressed. Children and adolescents with sleep apnea may do poorly in school or have behavior problems.
- **Complications with medications and surgery.** Obstructive sleep apnea is also a concern with certain medications and general anesthesia. People with sleep apnea may be more likely to experience complications following major surgery because they're prone to breathing problems, especially when sedated and lying on their backs. Before you have surgery, tell your doctor that you have sleep apnea and how it's treated. Undiagnosed sleep apnea is especially risky in this situation.
- **Sleep-deprived partners.** Loud snoring can keep those around you from getting good rest and eventually disrupt your relationships. It's not uncommon for a partner to go to another room, or even on another floor of the house, to be able to sleep. Many bed partners of people who snore are sleep deprived as well.

People with sleep apnea may also complain of memory problems, morning headaches, mood swings or feelings of depression, a need to urinate frequently at night (nocturia), and impotence. Gastroesophageal reflux disease (GERD) may be more prevalent in people with sleep apnea. Children with untreated sleep apnea may be hyperactive and may be diagnosed with attention-deficit/hyperactivity disorder (ADHD).

Preparing for your appointment

If it's suspected that you have sleep apnea, you're likely to start by seeing your family doctor or a general practitioner. However, in some cases when you call to set up an appointment, you may be referred immediately to a sleep specialist.

Because appointments can be brief, and because there's often a lot of ground to cover, it's a good idea to be well prepared for your appointment.

What you can do in the meantime

- **Try to sleep on your side.** Most forms of sleep apnea are milder when you sleep on your side.
- **Avoid alcohol close to bedtime.** Alcohol worsens obstructive and complex sleep apnea.
- **If you're drowsy, avoid driving.** If you have sleep apnea you may be abnormally sleepy, which can put you at higher risk of motor vehicle accidents. At times, a close friend or family member might tell you that you appear sleepier than you feel. If this is true, try to avoid driving at all.

Tests and diagnosis

Your doctor may make an evaluation based on your signs and symptoms or may refer you to a sleep disorder center. There, a sleep specialist can help you decide on your need for further evaluation. Such an evaluation often involves overnight monitoring of your breathing and other body functions during sleep. Tests to detect sleep apnea may include:

- **Nocturnal polysomnography.** During this test, 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.
- **Portable monitoring devices.** Under certain circumstances, your doctor may provide you with simplified tests to be used at home to diagnose sleep apnea. These tests usually involve measuring your heart rate, blood oxygen level, airflow and breathing patterns. If you have sleep apnea, the test results will show drops in your oxygen level during apneas and subsequent rises with awakenings. If the results are abnormal, your doctor may be able to prescribe a therapy without further testing. Portable monitoring devices don't detect all cases of sleep apnea, so your doctor may still recommend a polysomnogram even if your initial results are normal.

If you have obstructive sleep apnea, your doctor may refer you to an ear, nose and throat doctor (otolaryngologist) to rule out any blockage in your nose or throat. An evaluation by a heart doctor (cardiologist) or a doctor who specializes in the nervous system (neurologist) may be necessary to look for causes of central sleep apnea.

Treatments and drugs



Continuous positive airway pressure (CPAP)

For milder cases of sleep apnea, your doctor may recommend lifestyle changes, such as losing weight or quitting smoking. If these measures don't improve your signs and symptoms or if your apnea is moderate to severe, a number of other treatments are available. Certain devices can help open up a blocked airway. In other cases, surgery may be necessary.

Treatments for obstructive sleep apnea may include:

Therapies

- **Continuous positive airway pressure (CPAP).** If you have moderate to severe sleep apnea, you may benefit from a machine that delivers air pressure through a mask placed over your nose while you sleep. With CPAP (SEE-pap), the air pressure is somewhat greater than that of the surrounding air, and is just enough to keep your upper airway passages open, preventing apnea and snoring.

Although CPAP is a preferred method of treating sleep apnea, some people find it cumbersome or uncomfortable. With some practice, most people learn to adjust the tension of the straps to obtain a comfortable and secure fit. You may need to try more than one type of mask to find one that's comfortable. Some people benefit from also using a humidifier along with their CPAP system.

Don't just stop using the CPAP machine if you experience problems. Check with your doctor to see what modifications can be made to make you more comfortable. Additionally, contact your doctor if you are still snoring despite treatment or begin snoring again. If your weight changes, the pressure settings may need to be adjusted.

- **Adjustable airway pressure devices.** If CPAP continues to be a problem for you, you may be able to use a different type of airway pressure device that automatically adjusts the pressure while you're sleeping. For example, units that supply bilevel positive airway pressure (BPAP) are available. These provide more pressure when you inhale and less when you exhale.
- **Oral appliances.** Another option is wearing an oral appliance designed to keep your throat open. CPAP is more effective than oral appliances, but oral appliances may be easier for you to use. Some are designed to open your throat by bringing your jaw forward, which can sometimes relieve snoring and mild obstructive sleep apnea.

A number of devices are available from your dentist. You may need to try different devices before finding one that works for you. Once you find the right fit, you'll still need to follow up with your dentist at least every six months during the first year and then at least once a year after that to ensure that the fit is still good and to reassess your signs and symptoms.

Surgery

The goal of surgery for sleep apnea is to remove excess tissue from your nose or throat that may be vibrating and causing you to snore, or that may be blocking your upper air passages and causing sleep apnea. Surgical options may include:

- **Uvulopalatopharyngoplasty (UPPP).** During this procedure, your doctor removes tissue from the rear of your mouth and top of your throat. Your tonsils and adenoids usually are removed as well. This type of surgery may be successful in stopping throat structures from vibrating and causing snoring. However, it may be less successful in treating sleep apnea because tissue farther down your throat may still block your air passage. UPPP usually is performed in a hospital and requires a general anesthetic.
- **Maxillomandibular advancement.** In this procedure, your jaw is moved forward from the remainder of your face bones. This enlarges the space behind the tongue and soft palate, making obstruction less likely. This procedure may require the cooperation of an oral surgeon and an orthodontist, and at times may be combined with another procedure to improve the likelihood of success.
- **Tracheostomy.** You may need this form of surgery if other treatments have failed and you have severe, life-threatening sleep apnea. In this procedure, your surgeon makes an opening in your neck and inserts a metal or plastic tube through which you breathe. You keep the opening covered during the day. But at night you uncover it to allow air to pass in and out of your lungs, bypassing the blocked air passage in your throat.

Removing tissues in the back of your throat with a laser (laser-assisted uvulopalatoplasty) or with radiofrequency energy (radiofrequency ablation) are procedures that doctors sometimes use to treat snoring. Although sometimes these procedures are combined with others, they aren't usually recommended as sole treatments for obstructive sleep apnea.

Other types of surgery may help reduce snoring and contribute to the treatment of sleep apnea by clearing or enlarging air passages:

- Nasal surgery to remove polyps or straighten a crooked partition between your nostrils (deviated nasal septum)

- Surgery to remove enlarged tonsils or adenoids

Lifestyle and home remedies

In many cases, self-care may be the most appropriate way for you to deal with obstructive sleep apnea and possibly central sleep apnea. Try these tips:

- **Lose excess weight.** Even a slight loss in excess weight may help relieve constriction of your throat. Sleep apnea may be cured in some cases by a return to a healthy weight. If you don't already have a weight-loss program, talk to your doctor about the best course of action for weight loss.
- **Avoid alcohol and certain medications such as tranquilizers and sleeping pills.** These relax the muscles in the back of your throat, interfering with breathing.
- **Sleep on your side or abdomen rather than on your back.** Sleeping on your back can cause your tongue and soft palate to rest against the back of your throat and block your airway. To prevent sleeping on your back, try sewing a tennis ball in the back of your pajama top.
- **Keep your nasal passages open at night.** Use a saline nasal spray to help keep your nasal passages open. Talk to your doctor about using any nasal decongestants or antihistamines because these medications are generally recommended only for short-term use.

Alternative medicine

Most alternative medicines for sleep apnea have not been well studied. Acupuncture has shown some benefit, but also needs more study. Although it may be used in conjunction with standard treatments, acupuncture should not replace them. Talk to your doctor about any alternative treatment approaches you're considering.

References

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