



PATIENT EDUCATION

## *Obstructive Sleep Apnea*

learning **EDUCATION** EXCELLENCE  
**HEALTHY** CARING INTERACTION  
**LIVING**

BARBARA WOODWARD LIPS  
PATIENT EDUCATION CENTER



# Understanding Sleep Apnea

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The way you breathe during sleep is important to your health. When you briefly stop and then start breathing many times while you sleep, you may have sleep apnea. Sleep apnea makes it hard to get a deep, restful sleep. It can affect your daily life and cause health problems. For example, you may feel tired during the day and find it hard to focus.

Over time, sleep apnea also can increase your risk to have:

- Heart and blood vessel problems, such as high blood pressure, heartbeat that is not regular, stroke and heart failure.
- Type 2 diabetes.
- Sexual problems, such as less interest in sex.
- Car accidents because of driving while you feel tired and drowsy.

## Types of sleep apnea

You may have one of three types of sleep apnea:

- **Obstructive sleep apnea.** This is the most common type. It happens when your throat muscles relax and block your breathing while you sleep.
- **Central sleep apnea.** This type happens when your brain does not send proper signals to the muscles that control breathing.
- **Complex sleep apnea.** This type includes both obstructive and central sleep apneas. It also is called emergent central sleep apnea.

This information focuses on obstructive sleep apnea because it is the most common type.

# Causes of Obstructive Sleep Apnea

Obstructive sleep apnea happens when the muscles in the back of your throat relax too much. When that happens, they block your airway. And then you stop breathing for 10 seconds or longer. See Figure 1.

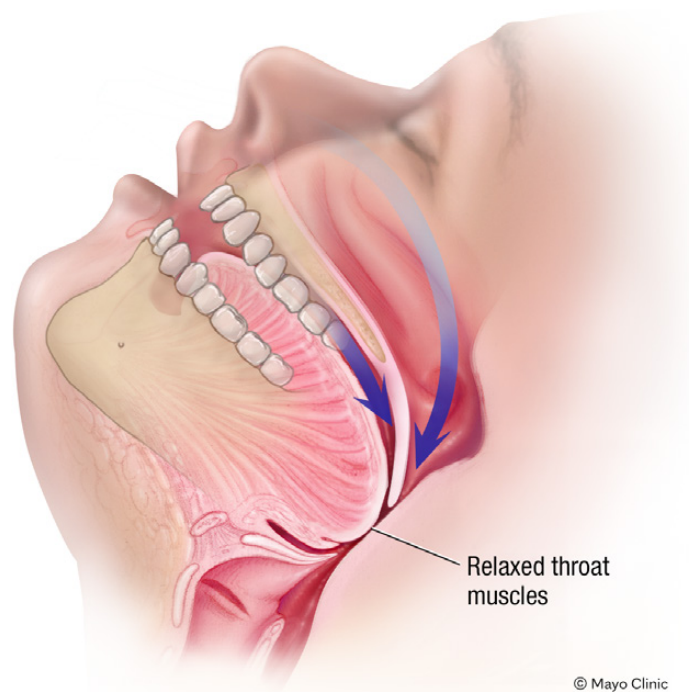


**Figure 1.** Blocked airway that causes sleep apnea

When you have sleep apnea and you stop breathing, the level of oxygen in your bloodstream falls. If it drops too low, your brain briefly wakes you up so your airway can open again. This keeps you from getting a good night's rest.

How severe your obstructive sleep apnea is depends on how many times your breathing pauses as you sleep.

- **Mild:** 5 to 14 pauses each hour.
- **Moderate:** 15 to 29 pauses each hour.
- **Severe:** 30 or more pauses each hour.

## **People who are at risk for obstructive sleep apnea**

Obstructive sleep apnea affects many people. It is more common in men than in women. It also is more likely to happen to women after menopause.

The following also may increase your risk for sleep apnea:

- Smoking and tobacco use.
- Use of alcohol or sedatives. Sedatives are medicines that relax your body. Examples include sleeping pills and anti-anxiety medicines, such as Xanax or Valium.
- Certain types of facial features, such as a short jaw.
- Narrow airway caused by a thick neck or large tonsils.
- A family history of sleep apnea.

Other conditions that can increase your risk include:

- Being overweight.
- Ongoing nasal congestion that happens at night.
- Certain medical conditions, such as diabetes.
- Previous stroke.

# Symptoms of Obstructive Sleep Apnea

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Symptoms are different for each person. The most common symptoms of sleep apnea include:

- Snoring or snorting.
- Pauses in breathing during sleep.
- Waking up and gasping for air.
- Feeling short of breath.
- Dry mouth and throat in the morning.
- Headache in the morning.
- Daytime sleepiness and tiredness that does not go away. At first this problem may be mild. For example, you may fall asleep while you read or watch television. If apneas happen more often, you may find it hard to stay awake even during activities, such as driving or working. Falling asleep at the wheel is one of the most common causes of car accidents.

## Snoring

Sleep apnea can cause you to snore. However, not everyone who snores has sleep apnea. If you do snore, it may be a sign that you have sleep apnea. It is one of the most common symptoms. Snoring also can keep you from getting a good night's rest even when you do not wake up completely.

As you fall asleep, the tissues in the roof of your mouth, tongue and throat relax. Snoring happens when air flows past these relaxed tissues. The tissues vibrate when you breathe. This creates noise and sometimes harsh sounds. Snoring loudly can mean that your airways get smaller while you sleep. A narrow or blocked airway can cause you to stop breathing for a brief time. See Figure 2.

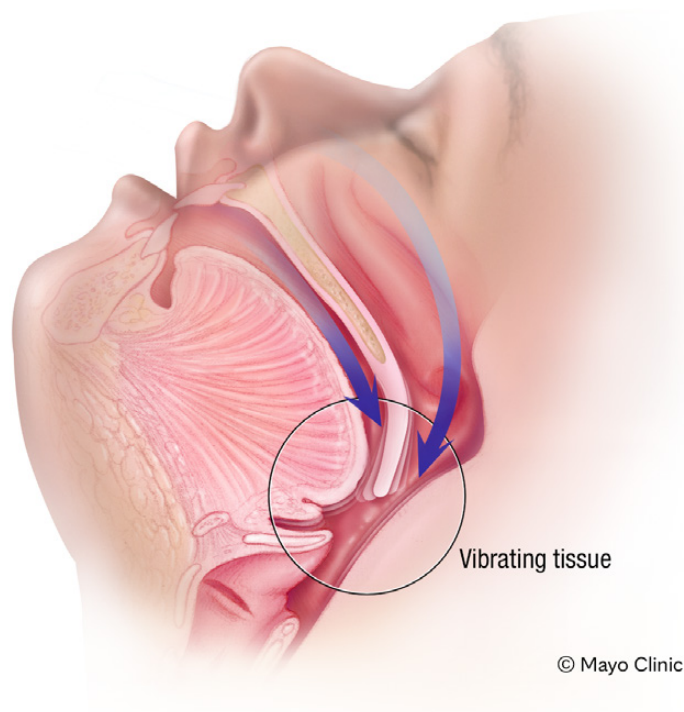


**Figure 2.** Relaxed tissue that causes snoring

# Diagnosing Obstructive Sleep Apnea

Talk with your health care provider if you snore or have other symptoms of sleep apnea. During an evaluation, your care provider asks you questions about your health. You also have a physical exam. Your provider may examine your nose, mouth, throat and neck.

Your provider also may ask you to do a sleep test. The test is a polysomnogram, called a PSG. Some people may stay overnight for this test at a sleep center. Others may be able to do a sleep test at home.

The PSG uses sensors to record your brain waves and the oxygen level in your blood. The test also records your heart rate, breathing and muscle activity during sleep. See Figure 3. And the PSG shows the number of times you stop breathing. It also shows how long you stop breathing. Your health care provider can see when your brain wakes you up after you stop breathing.



**Figure 3.** PSG sensors

## A polysomnogram at a sleep center

At a sleep center, a health care member places sensors on your head, face, chest and legs. They also place elastic bands around your chest and stomach. See Figure 4.



**Figure 4.** Placing your PSG sensors

A health care member in another room monitors the recordings from the equipment attached to your body. See Figure 5. Care members also can help you if you need to get up during the night.



**Figure 5.** Monitoring during your sleep test

At some point during your sleep test, your health care team may have you use a positive airway pressure machine. You also may hear it called PAP therapy. The machine delivers air pressure to keep your airway open. See Figure 6.



**Figure 6.** Using PAP therapy during your sleep test

After the sleep test, a sleep specialist meets with you to talk about your results and about treatment options.

# Treatment Options for Sleep Apnea

When you breathe better at night, you get more restful sleep. Treatment for sleep apnea can give you more energy during the day. It can help you stay healthy.

There are different ways to treat obstructive sleep apnea. Treatment depends on what causes your sleep apnea and how severe it is. Talk to your health care provider about treatment options that are right for you.

## Lifestyle changes

If you have mild obstructive sleep apnea, your health care provider may recommend that you:

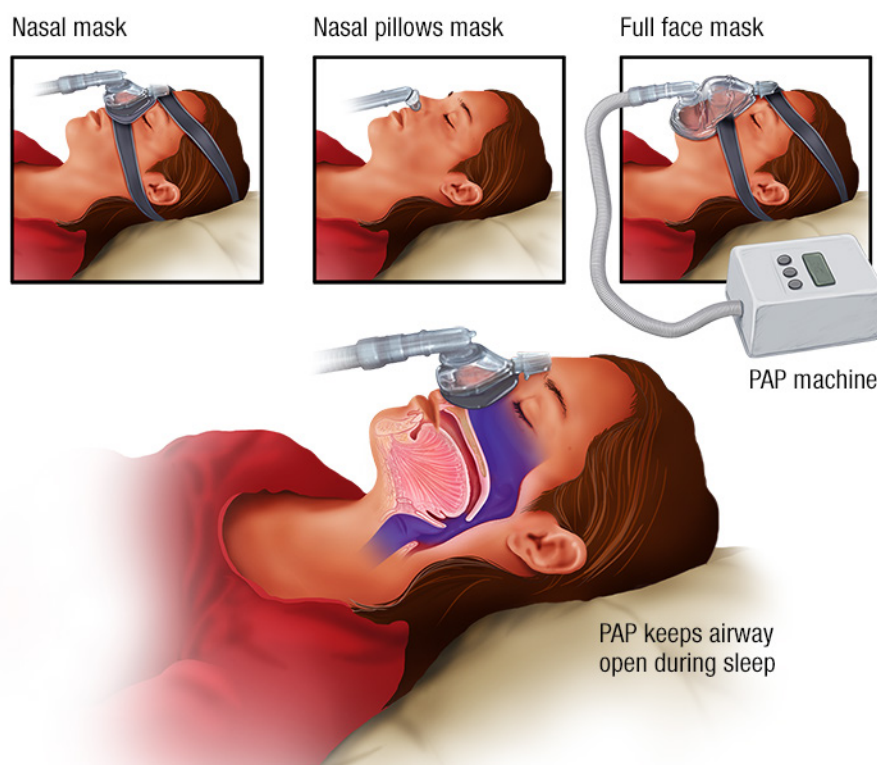
- **Limit or avoid alcohol.**
- **Sleep on your side or stomach instead of your back.** To sleep on your side, you can try to:
  - Hug a body pillow while you sleep.
  - Sew a tennis ball to the back of your pajama shirt. This may help keep you from rolling onto your back.
  - Use a special backpack. Ask your health care provider where to get a backpack that inflates. It can keep you from rolling onto your back.
- **Lose extra weight.** The tissues in the throat, chest and abdomen are smaller when you are at a healthy weight.
- **Open your nasal passages.** Ask your health care provider about nasal sprays or nasal strips that may help if you have nasal congestion.
- **Do not take certain medicines.** Some medicines, such as sleeping pills and anti-anxiety medicines, make obstructive sleep apnea worse.
- **Do not smoke or be around others who smoke.** Smoking may increase inflammation. It can cause fluid to build up in the upper airway. It can be hard to quit smoking. If you or a family member struggles with this, talk to your health care team. The team is here to help you. Many resources and specialists can help your home become smoke-free.

## Medical treatment

If you have moderate to severe obstructive sleep apnea, your health care provider may talk with you about one or more of the following medical treatments.

### PAP therapy

PAP is the short form for positive airway pressure. A PAP machine delivers air pressure to the nose and back of the throat through a mask you wear. The air pressure keeps the airway open during sleep. See Figure 7 for different types of masks you can wear with a PAP machine.



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**Figure 7.** Different types of PAP masks



Some PAP masks have magnets that can affect objects or medical devices implanted in your body. Examples include pacemakers, cerebral spinal shunts, cochlear implants or any type of object that has metal. If you have any of these do not use a PAP mask with a magnet. Also, do not wear a mask with a magnet when you sleep next to someone who has objects or medical devices implanted in their body.

Before you choose a mask, read the safety information that comes with it. Talk about mask options with your equipment supplier to help choose a mask that is best for you.

## Oral appliances for obstructive sleep apnea

If PAP therapy does not work for you, a mouth device may work. This device is called an oral appliance. It also may be called a mandibular repositioning appliance, also known as MRA.

There are different types of oral appliances. See Figure 8 for an example. Some move your lower jaw forward to keep your throat open. They can help with snoring and with obstructive sleep apnea that is not severe.

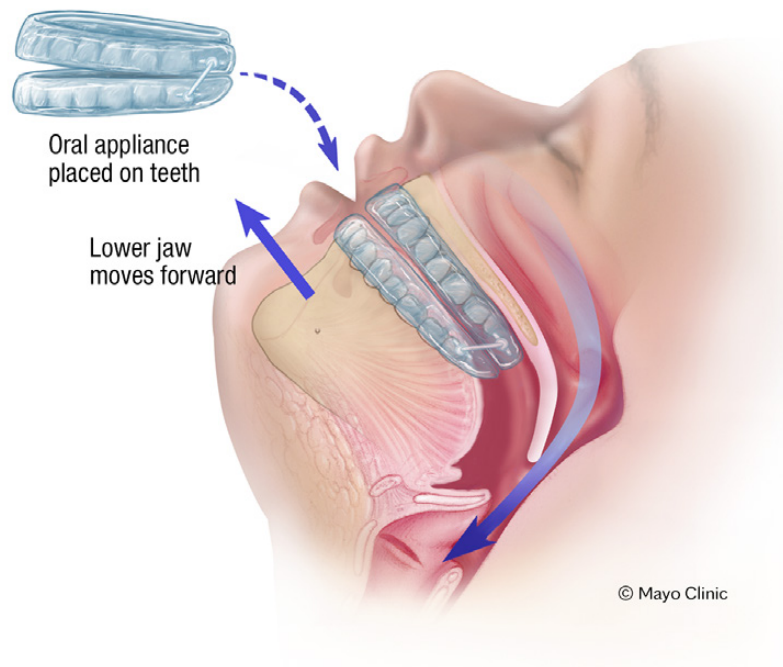


**Figure 8.** Example of oral appliance

## Surgery for obstructive sleep apnea

Some people may need one of these surgeries to treat their obstructive sleep apnea.

- **Tissue removal surgery.** Tissue removal surgery removes extra tissue that blocks the upper airway. The surgeon may remove tissue from the nose or throat. An example is surgery to remove the tonsils or adenoids.
- **Jaw surgery.** Surgery to move the upper and lower jaw forward may help to make the upper airway bigger.
- **Surgery to place a nerve stimulator.** Inserting a device in your chest can help you breathe while you sleep. The device monitors your sleep. It also can get your tongue to move forward when you stop breathing. This helps keep the airway open.
- **Weight-loss surgery.** Extra fat around the upper airway can make the airway smaller. Some people may need weight-loss surgery to help them breathe better.

It may take time to get used to your treatment plan. Work with your health care provider to make sure the plan works for you. Your health care team is here to support you. The team wants to answer any questions you may have.



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#### BARBARA WOODWARD LIPS PATIENT EDUCATION CENTER

Mrs. Lips, a resident of San Antonio, Texas, was a loyal Mayo Clinic patient of more than 40 years and a self-made business leader who significantly expanded her family's activities in oil, gas and ranching. Upon her death in 1995, Mrs. Lips paid the ultimate compliment by leaving her entire estate to Mayo Clinic. By naming the Barbara Woodward Lips Patient Education Center, Mayo honors her generosity, her love of learning, her belief in patient empowerment and her dedication to high-quality care.

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