

Sleep Apnea

The word "apnea" is a medical term referring to a pause in breathing. Many people who snore regularly will have a few apneas, or breathing pauses throughout the night. However, the disorder of sleep apnea occurs when repetitive and recurrent apneas happen during sleep. Most people with sleep apnea stop breathing 10 to 60 times or more every hour. These breathing pauses usually last 10 to 20 seconds at a time before breathing resumes.

Causes of Sleep Apnea

Muscles in the back of our throat cause the air passage to close when we swallow. When we breathe, other muscles tighten up and prevent the air passage from closing. During sleep, all of the muscles in the back of the throat relax and the air passage becomes smaller than when we are awake. For those with a smaller air passage due to anatomical factors such as enlarged tonsils, a big tongue, excessive fat tissue, or a short or small jaw, the air passage may become narrowed and relaxed enough during sleep that it will actually collapse shut when the person takes a breath. This collapse of the air passage causes obstructive apnea, the most common form of sleep apnea. Even though the person's chest and diaphragm muscles are still working to breathe, no air can flow through the closed air passage.

Whenever the air passage closes, powerful 'alarm systems' are activated in the brain, causing it to shift from sleep to waking very briefly. This shift is sufficient for waking muscle tone to return to the air passage and the airway opens up again. As soon as the air starts to flow the brain goes immediately back to sleep. This cycle repeats itself throughout the night. The awakening episodes are so brief that the sleeping person is usually unaware of them. However, if this cycle repeats itself frequently throughout the night, it can cause enough disruption to sleep that the person may experience sleepiness during the day. Daytime sleepiness is a common symptom of sleep apnea.

A much less common form of sleep apnea is called central apnea. During normal sleep, the brain sends a regular, repeating signal to all of the breathing muscles to take a breath. In central apnea, the brain's signal to breathe pauses and as a result the sleeping person's breathing also pauses. Central apnea is most commonly seen in people taking medications that suppress the brain's signal (narcotics, high doses of sleeping pills or sedatives, overdoses of some medications), in people with disorders causing significant muscle weakness or in people with congestive heart failure.

Symptoms

Individuals suffering from sleep apnea may be completely unaware that they have this problem because their apneas may not fully wake them up and/or the arousals are too brief to be remembered. Family members and often bed partners are often the ones who recognize the problem, because they witness the episodes of loud snoring separated by silence due to breathing pauses.

Common symptoms of sleep apnea:

- Loud snoring with snorts or gasps
- Periods of not breathing (apneas) in sleep
- Significant daytime sleepiness, drowsiness or pervasive fatigue despite sufficient time spent sleeping
- Awakening feeling poorly rested in the morning
- Morning headaches
- Memory problems
- Attention problems
- Mood irritability

In children, symptoms of sleep apnea can be quite different and may include:

- Hyperactivity
- Poor school performance
- Tendency to sleep with the head and neck bent towards the back
- "Hard breathing" in sleep

Who is at risk for sleep apnea

In adults, certain physical features or body types can make a person more likely to have sleep apnea. Those with a small lower jaw, prominent overbite, obesity, significant weight gain in recent years, a short, large neck (over 18 inches in men and over 16 inches in women), nasal breathing obstruction and/or very crowded teeth often have a smaller air passage in the back of the throat.

In children, large tonsils and prominent nasal allergies are the most common risk factor for sleep apnea. Obesity increases the risk for sleep apnea in children as well.

People with Down Syndrome, facial deformities causing a small face or air passage, or disorders causing muscular weakness have an increased risk for both obstructive and central sleep apnea.

Diagnosis

If you think you might have sleep apnea, begin by discussing the possibility of sleep apnea with your doctor. Your doctor should gather information about your sleep patterns, sleep quality, family history of sleep apnea, weight gain and daytime sleepiness. An exam should be performed to determine features of the neck, nose, and throat that may indicate a narrowing of the air passage. An overnight sleep is usually necessary to make a diagnosis of sleep apnea.

Treatment

The goal of treatment for obstructive sleep apnea is to keep the air passage open during sleep.

Anything that causes muscles to be more relaxed during sleep or make it difficult to awaken can worsen sleep apnea. For that reason, anyone with sleep apnea should avoid alcohol, sleeping pills, sedatives or narcotics for several hours before bedtime.

In many cases, individuals who are overweight and have sleep apnea can see improvement through weight loss.

Surgery on the throat to remove excessive tissue (uvulopalatoplasty), tonsils and adenoids is not often performed in adults because the success rate for treating sleep apnea with surgery is not very high. In children, however, removal of the tonsils and adenoids is more effective and is the most common treatment for sleep apnea.

Consistent and effective treatment of nasal allergies is also necessary when treating apnea in children or adults.

An oral appliance or a type of "mouthpiece" is sometimes worn during sleep to hold the lower jaw and tongue forward and away from the back of the throat to enlarge the air passage. The success of this treatment is unpredictable and people using oral appliances for apnea need to be re-tested periodically to determine the effectiveness of the therapy.

CPAP (constant positive airway pressure) is the most common and the most effective way to control sleep apnea in the vast majority of people who suffer from it. A CPAP device is essentially a small air pump. During sleep, the person wears a small mask or nostril piece connected to the CPAP machine by thin, flexible tubing. A gentle flow of air is sent from the machine through the nose to the back of the throat. This air acts like an 'air stent' to hold the air passage open during sleep. This device is usually very effective in preventing snoring as well as controlling apnea in most people who use it.

Other types of positive airway pressure (PAP) machines include auto-PAP, bilevel PAP and ASV (adaptive servoventilation) machines. These are used in a small percentage of patients with sleep apnea for very specific reasons. A sleep specialist can determine what type of PAP machine is best.

Health risks of untreated sleep apnea

Research has shown that untreated sleep apnea is associated with a higher risk of serious health problems. For instance, people with untreated sleep apnea are more likely to develop high blood pressure. Several studies have shown that people with moderate to severe sleep apnea have about a 2 -to 3-fold increased risk of heart attacks and strokes.

Mood problems such as depression and irritability are also more common in people with untreated sleep apnea. In men, untreated sleep apnea can be associated with erectile dysfunction. Research indicates that the disrupted sleep caused by sleep apnea may have negative effects on the immune system as well. Core systems of sleep apnea such as disrupted sleep, fatigue and sleepiness will also continue or worsen if apnea is not treated.

The good news is that many of these health risks are reduced with regular use of CPAP therapy.