

## Sleep Apnea

Approximately 18 million people living in America have sleep apnea, a disorder that causes the person to cease breathing while asleep. Sleep apnea appears in various forms, including obstructive sleep apnea (OSA), and central sleep apnea (CSA). Loud snoring is generally associated with all types of sleep apnea.

OSA is the most common and is indicated by numerous cessations of breath during sleep, caused by the collapse of the trachea and accompanied by an abrupt awakening defined as an apnea event. Possible

obstructions of the windpipe include tongue, uvula, excessive fat around the throat region, and tonsils.

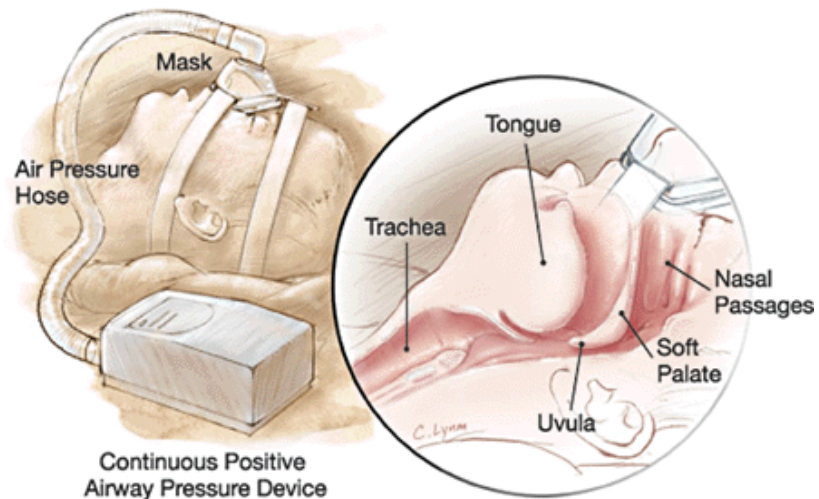


Figure 1

While people experience this, their respiratory systems are attempting to take in air but are unsuccessful due to an obstruction blocking the upper airway. This strains the muscles and forces the body to perform unnecessary work so they can breathe while asleep, resulting in many interruptions.

During an OSA episode, the uvula and the soft pallet gradually collapse backward on the wall of the upper airway, or throat. This then leads to the tongue collapsing backward as well over the soft pallet and uvula, forming a very tight blockage, and preventing air from entering the lungs.

The continuous efforts of the respiratory system, mainly the dilator muscles, are not beneficial to the person and only cause the seal to tighten.

The person is forced to wake up, loosening

the tongue, small pallet, and uvula to allow airflow to resume.

CSA is a neurological disorder very similar to OSA, however there is no obstruction of the airway; instead the brain does not send commands to the respiratory system, causing it to function incorrectly and resulting in an arousal.

Sleep apnea should be treated if the person experiences more than five episodes in one hour. In extremely rare cases, sleep apnea can be fatal, but it is highly unlikely; however, OSA is dangerous and

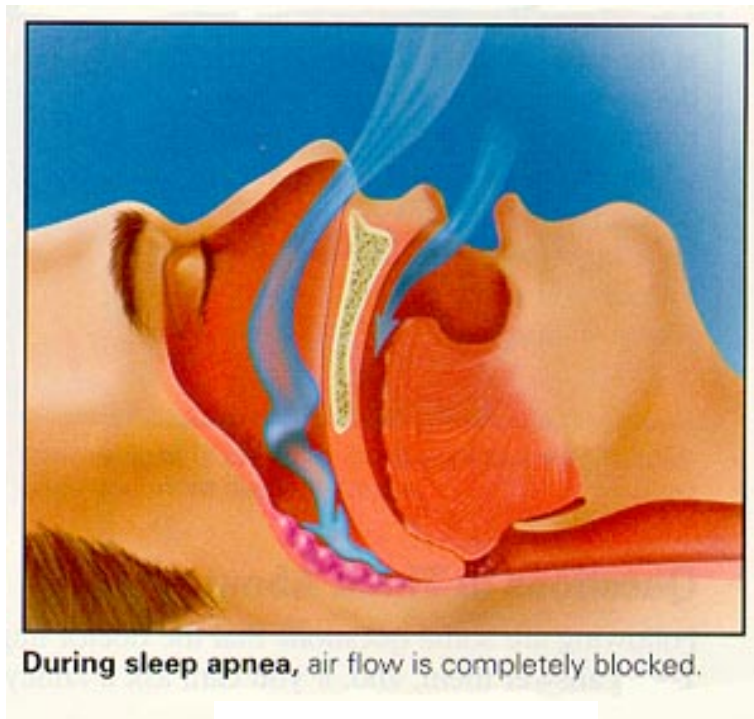


Figure 3

has been associated with high blood pressure and increased chances of heart disease or stroke. Additionally, mental and physical effects of OSA, such as irritability, excessive fatigue, depression, memory loss, or an overall low energy level, could be harmful to oneself or others.

There is no "cure" for sleep apnea, but multiple forms of treatment are offered consisting of breathing devices, weight loss, surgery, or dental appliances. Obesity is directly correspondent to the sleep apnea disorder, therefore as weight is lost, the subtler the apnea becomes.

There are several different continuous positive airway pressure (CPAP) therapy treatments, which assist the person in breathing while asleep. People who use these devices wear a mask that fits around the nose (and in

**Figure 60: CPAP**  
Constant positive airway pressure device for pediatric patients

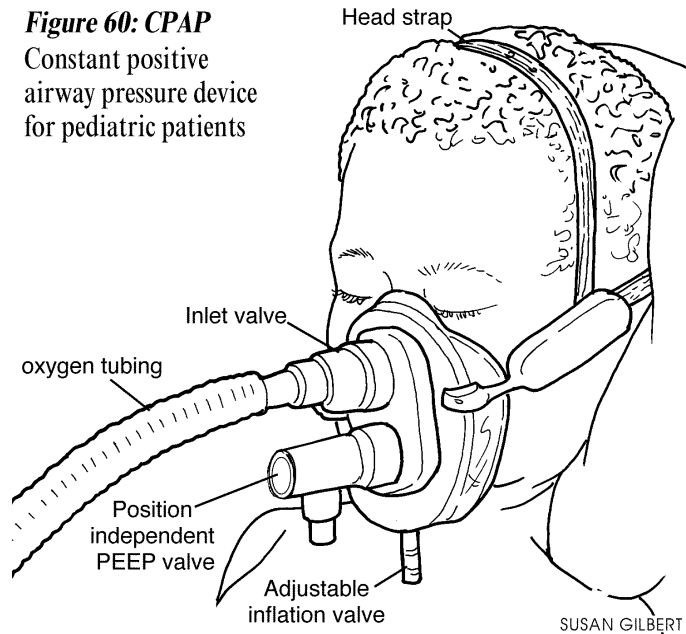


Figure 2

some cases the mouth) to ensure smooth breathing during sleep. The mask is connected to the CPAP device by an air pressure hose that ensures an even amount of airflow into the lungs. These machines do not breathe for the people but assist them in inhaling an ample

amount of air to keep their airways open and allow them to breathe effectively. These masks can be custom made to comfortably accommodate the patient wearing it to ensure a successful as well as a safe sleep. The amount of air intake can be adjusted with the inflation valve, which varies among users and the severity of their apnea conditions. If people are unable to wear their masks, an alternative surgery is offered as a solution.

For an individual to be diagnosed with sleep apnea, he/she must undergo a sleep test called a polysomnography. This test is conducted overnight to check for snoring, gasping, or oxygen level in the blood. This test is done at a hospital for observation and precise monitoring of breathing patterns abnormal snoring, or disruptions of sleep throughout the night.

The results of this test will provide the doctor with evidence needed to diagnose patients with the disorder while also categorizing the severity of their condition. This evidence can be used in deciding on treatment and which CPAP would be most effective.

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