

FAQ's

What is Sleep Disordered Breathing (SDB)?

Sleep Disordered Breathing (SDB) is a term that describes a spectrum of conditions that have to do with upper airway collapsibility. An important function of sleep is to allow our body to rest and repair itself, this includes our muscles. The muscles of the upper airway (throat and base of tongue) are basically a flexible tube that relaxes when we sleep, this occurs in everyone. Problems arise when our airways collapse more than they should making it difficult to breath. In some instances the airway collapses completely cutting off our oxygen, this is called apnea (Latin for without breath) and leads to a host of problems including the life threatening condition we call sleep apnea. Or in most situations the airway is only partially collapsed this is known as a hypopnea.

Narrowing of the airway partial or complete during sleep becomes problematic because we need the same volume or amount of air when we sleep as when awake. This narrowing can occur from the tip of your nose to your vocal cords and sometimes at multiple sites. It is important that we find out where and why the collapse is occurring before you begin treatment. Snoring is a symptom of sleep disordered breathing although you do not have to snore to have it.

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What is snoring and why do we do it?

Snoring occurs in an attempt to compensate for the smaller airway opening, (how do you get the same amount of air through a smaller opening?...you increase the velocity or speed of the air in order to get the same volume) this is known as the Venturi effect. The increased speed of the air through this now collapsed floppy tube causes the tissues in the upper airway (throat, palate and base of tongue) to vibrate which creates the sound we call snoring. I consider snoring the alarm in the alarm clock, if you snore on a consistent basis it means you are working too hard to breath while you sleep and are at risk for sleep disordered breathing. It is important to note however that you do not have to snore to have SDB, women especially may not snore but have many of same complaints particularly chronic fatigue as do sleep apnea patients a condition we call Upper Airway Resistance Syndrome.

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Why am I so tired?

One of the cardinal symptoms and signs of SDB is excessive daytime sleepiness. We often blame our being tired on the quantity of sleep we get and this although important may be secondary to the quality of sleep we have. SDB impacts the quality of our sleep by disrupting our sleep architecture. Normal sleep involves rhythm and reason, we sleep in

stages and cycle through these stages several times through out the night. We begin in the lighter or early stages and then travel into the deeper stages of sleep or REM sleep (rapid eye movement sleep) we believe that most dreaming occurs during REM (most SDB patients are REM deprived) there is even a condition we call REM related SDB where the collapsible episodes occur almost exclusively in REM.

The problem is that the deeper we get into sleep the more relaxed or collapsible our airways become. This creates a quandary for our brain which instead of being able to sleep is now required to monitor our airway. Basically the deeper we get into sleep the harder it becomes to breath, our brain must choose between us dreaming or breathing thankfully it chooses breathing by keeping us in the lighter stages of sleep where our muscle tone is more awake and thus easier to breath. The result is very fragmented sleep caused by the arousals (inappropriate stage shifts) necessary to keep our airways less collapsible this can occur hundreds of times a night and although we may appear to be sleeping to the rest of the world we awaken unrefreshed and often feeling worst than when we went to sleep.

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Why is it important to treat SDB?

Many patients seek treatment at the urging of bed partners in order to eliminate the snoring that disrupts the sleep of both the snorer and those that live with them. Although important and easily remedied (we stop snoring in 95% of the patients we treat) this is probably the least important reason to seek treatment.

Medical science has made the connection between SDB and a host of medical conditions. It is estimated that 38,000 cardiovascular deaths and 5000 motor vehicle deaths a year are directly attributable to SDB. Three of the greatest man made disasters of our time, Exxon Valdez, Challenger shuttle and Bhopal India when analyzed all found that sleep disorders played a pivotal role. Government studies show that sleep disorders cost us billions and billions of dollars each year due to lost productivity and avoidable healthcare costs.

Recent scientific studies show patients with SDB are more likely to suffer from heart attack, high blood pressure, stroke, impotence, headaches, heartburn, chronic fatigue, work and driving related accidents, weight gain, diabetes, asthma, memory loss, personality changes, muscle and joint pain, bedwetting, learning and behavioral problems in children, preeclampsia during pregnancy, chronic nasal and sinus conditions and kidney disease may all have a basis in sleep.

If these relationships exist then we have the opportunity to practice preventive medicine and impact not only the quality but the quantity of our lives. I believe you are what you eat and how you sleep! We need three things to survive: good nutrition, sleep and oxygen. It seems logical, that SDB which compromises the quantity if not the quality of both sleep and oxygen should have such an impact on our overall well being.

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How do you diagnose Sleep Disordered Breathing?

It is generally agreed that you cannot determine if someone has SDB by listening or watching them sleep, although gasping, choking and loud snoring with pauses are strong indicators. The definitive objective test is known as polysomnography or a sleep study. This is a non painful non invasive test that is most often accomplished in a sleep center or laboratory. This test measures your physiology or what your body does while you sleep and can involve monitoring your oxygen levels (oximetry) heart rate and rhythm (EKG), Sleep stages or sleep architecture (EEG), breathing effort, airflow, movement during sleep (eyes and legs), snoring, and other parameters that allow us to quantify the quality and quantity of your sleep. This study will tell us how many times your airway collapses resulting in the disruption of your sleep architecture as evidenced by arousals and fluctuations in your oxygen levels, air flow and breathing effort.

Patients are most often referred for sleep studies by their primary care physician in part due to insurance issues, next by the various medical specialties, otolaryngology, neurology, pulmonology, dentistry, etc. depending on their symptoms or who is the first to suspect a sleep disorder.

In order to determine the best treatment options for you it is important that we find out what is causing or contributing to your SDB. There are many medical conditions that predispose a patient to SDB that is why a multidisciplinary approach to diagnosis and treatment is important. For example certain medications can increase airway collapsibility. Nasal polyps, enlarged tonsils and adenoids can also contribute making an upper airway evaluation by an ear nose and throat specialist a good idea.

If you suspect a SDB problem a medical check up is in order, complaints of snoring, pauses in breathing while you sleep and excessive daytime sleepiness should prompt your physician to recommend a sleep study. Should you require a recommendation for a sleep specialist and or center near you please call our office.

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How do you treat Sleep Disordered Breathing?

The treatment of SDB is dependent upon several factors but most importantly the results of the sleep study. Once it is determined that you have SDB then the various causes and contributing factors must be considered. There is no one treatment that is effective for everyone and the treatment must be tailored to meet the needs and desires of the patient. There are only two approaches that are considered cures they are extensive facial and jaw surgery and in a small percentage of cases weight loss.

Therapies are broken down into several categories: mechanical, behavioral, pharmacological, and surgical or any combination of these. The goal of all treatments is to decrease or prevent upper airway collapsibility.

Continuous positive airway pressure is considered the gold standard for treatment (CPAP), this treatment is usually performed in the sleep lab once a diagnosis of SDB is confirmed and can be performed the same night (known as a split night study) or on a separate night.

This device consists of a small blower that provides pressurized room air via a nasal mask or other respiratory interface which acts as a pneumatic splint, it blows your airway open in a manner similar to how a straw works in an ice cream soda until it gets clogged by the ice cream and collapses, you then blow through the straw to open it again!

I encourage everyone to try CPAP first, you never know who it will work for you until you try it. CPAP works best for severe cases of SDB, particularly if a patient's oxygen levels drop significantly while they sleep or if they have a heart condition. Additionally the amount of pressure used to open the airway tells us more about how collapsible your airway is. Most insurance companies prefer that you attempt CPAP first before allowing for other treatment modalities.

Weight loss as mentioned can in some cases be curative, two things happen to us as we age first we tend to gain weight and second we lose muscle tone these two factors explain why the older we get the more prevalent SDB becomes. Loss of muscle tone makes our airways more collapsible, unfortunately to date there are no exercises that allow you to improve muscle tone in your airway (singing may help!) As we gain weight and our neck size increases our airways get smaller (men with collar sizes greater than 17 and women 15 are more likely to develop SDB) and are more prone to collapse. The message regarding weight is simple maintain as ideal weight as possible it may not cure the problem but it will certainly help make it less severe.

Sleep position will also play a part, most SDB patients are restless sleepers who move around a lot in their sleep, bed partners will notice that snoring is worst when you are on your back, this is because your airway is most collapsible in that position. Gravity allows for your tongue and soft palate to fall back into your airway, that's why you are most likely to get an elbow or requested to roll over in order to stop the snoring. The message regarding healthiest position to sleep in is simple....anywhere but on your back. If this is a problem we can help positionally train you to stay off your back while you sleep.

Surgery in most situations should be considered a last resort it is no different in the treatment of SDB. There are numerous surgical procedures that have been developed to address SDB. To date the most successful surgeries are performed by Maxillofacial surgeons who correct anatomic causes by surgically repositioning upper and lower jaws. The correction of deviated septums, nasal obstructions such as polyps and turbinates can be of benefit but are seldom curative because the obstruction is most commonly caused by the collapse of the tongue into the airway. Trimming of the palate addresses the noisemaker and again may help in reducing snoring but is most successful when used in combination with other therapies.

Surgical intervention is sometimes necessary and needs to be addressed on a case by case basis. When indicated we will work with specialists to provide the best solution for you.

Medications are more likely to contribute to the problem than help it, to date we have not developed a pill or spray that will increase the muscle tone in the upper airway during sleep which is what they would need to do to help. Nasal sprays that clear your sinuses may provide symptomatic relief however they are not a solution. Many of the medications that are prescribed may interfere with your sleep by increasing airway collapsibility such as muscle relaxants or disrupting your sleep cycle by inhibiting or promoting certain stages of sleep. It is important to review any medications you are taking with all of your healthcare providers to insure that they are not contributing to the problem. Suffice it to say that there are no pills that effectively treat SDB.

Behavioral therapies (things to avoid or what not to do!) are everyday common sense strategies that will help minimize the occurrence of SDB some of these include avoiding alcohol, sedatives, narcotics and other central nervous system depressants which decrease respiratory drive, increase airway collapsibility and increase the arousal threshold prolonging apneic events. Avoiding things that promote nasal congestion such as pollen, mold and dust; even your cat or dog that you let sleep with you will help you breath easier at night.

I am a big fan of air cleaners, humidifiers and dust free environments, your bedroom should be cool, quiet and dark to help promote sleep. Our bodies like consistency so try and go to sleep at the same time each night. Smoking has been shown to independently cause SDB by virtue of the chronic inflammation and irritation it causes in the airway. Try not to eat or drink to late or before bed. Don't exercise at night or close to bed time.

Oral Appliance Therapy (OAT) oral appliances are mechanical devices that are worn only at night during sleep to compensate for the loss of muscle tone that occurs when we sleep. They work mainly by preventing the tongue, palate and throat from collapsing and obstructing the airway. Most appliances accomplish this by posturing your lower jaw a little down and forward using the same principle as CPR (cardiopulmonary resuscitation) to clear or stabilize the airway. To demonstrate this principle try breathing slowly through your mouth while protruding and opening your lower jaw you will feel the cool air hit the back of your throat.

No one appliance works for everyone, some people may clench or grind their teeth (bruxism) others may be mouth breathers or nasal breathers or both. Some appliances require that you have a certain number of healthy teeth in both the upper and lower jaw others do not, therefore you need to match the appliance with the patients dental and respiratory needs. All of the appliances we work with are custom made of the finest materials available to maximize comfort, durability and safety.

Oral Appliances are safe comfortable and convenient alternatives to other treatment modalities and can be used in combination with other treatments. They are extremely effective in eliminating snoring 95% of the time and are also effective in treating mild to moderate SDB 85-95% and severe cases 65-70% of the time (this percentage increases when they are used in combination).