

Sleep-Disordered Breathing (SDB), Upper Airway Resistance Syndrome (UARS) & Obstructive Sleep Apnea Syndrome (OSAS)

Tags: [Sleep-Disordered Breathing](#), [SDB](#), [Upper Airway Resistance Syndrome](#), [UARS](#), [Obstructive Sleep Apnea Syndrome](#), [OSAS](#), [rancorous snoring](#), [sexual impotence](#), [hypertension](#), [obesity](#), [diabetes](#), [heart failure](#), [atrial fibrillation](#), [heart attack](#), [stroke](#), [asthma](#), [gastroesophageal reflux disease](#), [GERD](#), [apnea](#), [hypopnea](#), [apnea/hypopnea index](#), [AHI](#), [depression](#), [lack of sexual desire](#), [heart disease](#), [PharyngOroFacial](#), [large tongue](#), [small jaw](#), [narrow dental arches](#), [dental crowding](#), [Raynaud's phenomenon](#), [sinus headaches or infections](#), [migraine](#), [tension headaches](#), [TMJ disease](#) , [weight gain during pregnancy](#) ,

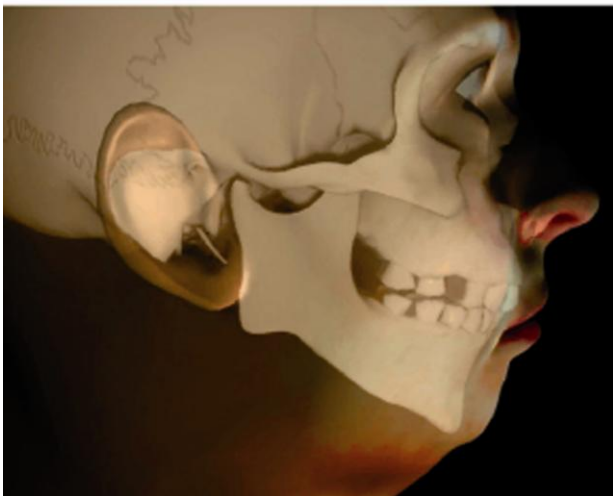
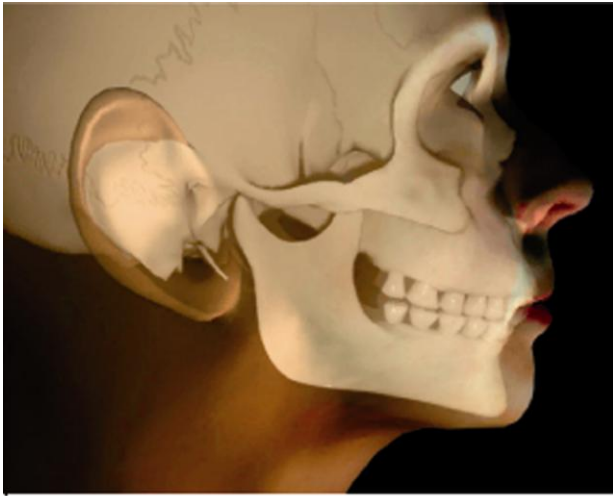
By the late twentieth century, the medical community recognized that snoring and daytime sleepiness were signs of **sleep-disordered breathing (SDB)** especially **obstructive sleep apnea syndrome (OSAS)** and **upper airway resistance syndrome (UARS)**. SDB is associated with a 7-fold increase in the incidence of motor vehicle accidents; linked to accidents at work and home; and implicated in failures at job and education as well as failed personal relationships and the general bedroom disharmony caused by rancorous snoring and sexual impotence. The co-morbidities of SDB are hypertension, obesity, diabetes, heart failure, atrial fibrillation, heart attack, stroke, asthma, and gastroesophageal reflux disease(GERD)

UARS was first described by researchers at Stanford University in 1993. They described a group of young women and men who complained of chronic fatigue and excessive daytime sleepiness. They all also underwent a formal sleep study and all were found not to meet the official criteria for obstructive sleep apnea. However, by treating them as if they had obstructive sleep apnea

(wearing CPAP mask at bed time), most improved significantly. To understand how upper airway resistance syndrome is unique or different from sleep apnea, you have to first understand what obstructive sleep apnea is.

OSAS is a well-known sleep related breathing disorder characterized by repetitive breathing cessations during sleep, although with multifactorial etiology, mostly affected by the discrepancies in the patient's **PharyngOroFacial**TM (airway, mouth, face) system.

Schellhas and colleagues showed that degenerative remodeling of the mandibular condyle and facial deformity occurs most often as a consequence of TMJ soft-tissue derangement. At the initial clinical and radiographic examinations they found externally visible chin displacement backward and/or laterally toward the smaller and more deranged joint. They also found a relatively high association between TMJ internal derangement and mandibular facial deformities and bite alterations. Early onset of these structural deformities may impact the anteroposterior and vertical growth of the facial skeleton, including the upper jaw structures.



Top: Normal facial skeletal and occlusal relationship. *Bottom:* Adaptive facial skeletal and occlusal changes in response to condylar remodeling.

MRI studies performed by Tallents and colleagues on symptomatic female patients with a history of childhood bilateral degenerative joint disease showed that these patients had a moderate reduction of the anteroposterior (front to back) dimension of the upper and lower jaw structures, with a more pronounced overjet. Due to these disharmonies, the related airway components may narrow, including retropalatal (behind the palate), the retroglossal (behind the tongue) and hypoglossal (behind and below the tongue) areas. This constriction may

contribute to the development of upper airway restriction during sleep and cause OSA or UARS. Studies of OSA patients treated orthodontically found that the older the patient, the greater the retroposition (back position) of the mandible and the risk for developing severe OSA.

In OSA the cessation of breathing can happen anywhere from a few times every hour to over 100 times every hour. By definition then, **apnea** is defined as a total cessation of breathing for 10 seconds or more. And **hypopnea** is restricted breathing with greater than 30% chest wall movement decrease and blood oxygen drop of more than 4% for 10 seconds or more. The total combinations of apneas and hypopneas for the entire night divided by the total number of hours one sleeps gives us the **apnea/hypopnea index** or the **AHI**. This is the most commonly used measure to diagnose sleep apnea. Untreated, sleep apnea can lead to hypertension, diabetes, obesity, depression, lack of sexual desire, heart disease, heart attack or even stroke.

Unlike sleep apnea where you have obstruction, apnea, then arousal (waking up to lighter part of sleep), UARS patients typically have mostly obstructions and then arousals. As mentioned previously, all UARS patients have some form of fatigue, almost all state that they are “light sleepers,” and almost invariably, they don’t like to sleep on their backs. In some cases, they actually can’t. Some people attribute their poor quality sleep to insomnia, stress or working too much. Due to repetitive arousals at night, especially during the deeper levels of sleep, one is unable to get the required deep, restorative sleep that one needs to feel refreshed in the morning. **In most cases, the anatomic reason for this collapse is the large tongue or small jaws with narrow dental arches causing crowding of the teeth which retract even the normal size tongue back to the airway.**

In deeper levels of sleep, especially during REM sleep, the normal protective layers of muscle tone that keeps your airway open during inspiration diminishes. So, if your airway is normal to begin with and you take a deep breath in, a vacuum-like pressure is set up and the back of your tongue can fall back completely. In many cases, when examined this narrowed airway with the patient lying flat on his or her back, all can see is a 1-2 mm slit between the back of the tongue and the throat.

When awake, you're fine, but once you start to fall asleep, the tongue falls back or pushed back by constricted and crowded teeth and you wake up, either fully or subconsciously. This is why so many people can't fall asleep on their backs and therefore, have unconsciously trained themselves to roll over to their side or their stomach where the tongue collapse is less likely, although it can still happen. This can happen 10, 20 or 30 times every hour preventing you from sustaining deep sleep. You may realize that you are waking up sometimes, but the vast majority of arousals are subconscious. If this happens for a few nights in a row and you return to your normal sleep habits, you're fine. But if it occurs continuously for months or years, then certain events can happen.

Due to repetitive arousals, your body goes into almost a chronic state of low-grade stress. Think of what would happen if somebody poked you with their finger every few minutes while you tried to sleep for 6 months straight. Think about how you would feel the next morning. Think about how you would feel after months or years of inefficient sleep. You would feel tired, groggy with no motivation to do anything, have focus or concentration problems, or, you could feel depressed.

Physiologically, these multiple arousals also affect what is called the autonomic nervous system, or the ANS. The ANS is the internal nervous system that regulates your internal body

functions such as digestion, breathing, heart rate, blood pressure, etc. It's divided into two parts: the sympathetic and the parasympathetic parts. When you're frightened or running away from a bull, your heart rate and blood pressure goes up, your vision and hearing are very sensitive, and all your blood flow and energy are mobilized around a fight. These functions are activated by the sympathetic nervous system. In contrast, after a good meal, your digestive organs kick in and begin to break down your food and you feel sleepy. This is your parasympathetic nervous system working.

Your autonomic nervous system is in a constant state of relative balance between the two, depending on what you're doing. Imagine if you're stressed because you keep waking up at night for years. Your sympathetic nervous system becomes overly activated and stays active even when awake. A number of events can occur. Your hands or feet can become cold or numb, in general, activated by cold temperatures or stress. Some people have to wear mittens or socks all year round. This condition is called **Raynaud's phenomenon**. There are many theories as to why so many people have this condition but there is no definitive cure. Since you're under stress, your body thinks that it is under attack and it shunts blood from your peripheries to the more central muscles and to the heart, so that you can run or fight more effectively. This might actually validate the saying "cold hands, warm heart."

Similarly, since you don't need to digest food when you're fighting, blood gets shunted away from your entire gastrointestinal system to the heart muscles, leading to chronic diarrhea, constipation, indigestion, acid reflux or bloating. Remember the last time you were stressed? How well were you able to eat, or digest food if you had just eaten? We already know that stress can aggravate acid production in the stomach. In addition to chronic gastrointestinal problems, many people with UARS also have

LPRD, or laryngopharyngeal (throat and voice box) reflux. It's somewhat different than GERD, or gastroesophageal reflux disease. In most cases, you won't feel any heartburn or the classic symptoms associated with GERD.

The common complaints of LPRD include one or many of the following: chronic throat clearing, postnasal drip, hoarseness, cough, and throat or ear pain, lump in the throat, difficulty swallowing, tightness or pain with swallowing. You don't have to feel any heartburn, either. Studies have shown that once acid reaches the throat, it can also go into the lungs, causing or aggravating asthma or bronchitis and even into the nose and ears causing more aggravating nasal congestion, sinus or ear infections.

Pepsin, one of the stomach's digestive enzymes and even *H. pylori*, a bacteria that can cause stomach infections have been found in the lungs, ears and the nasal cavity in people with infections. Any degree of swelling or irritation blocking the very narrow ear or sinus openings can cause pressure build-up or infections.

Another study showed that in about 23% of people with UARS have low-blood pressure, sometimes dangerously low. In addition, these people frequently are dizzy or lightheaded, aggravated by standing up too soon. This is called orthostatic intolerance. Even if the blood pressure is normal, one may still be prone to episodes of dizziness or lightheadedness.

Recurring periods of stress may confuse your autonomic nervous system, so it doesn't respond to the changes in blood flow and head position appropriately or quickly enough. People can also have chronic or recurrent sinus pain or pressure or infections, which can be debilitating. Frequently, patients are seen multiple times for recurrent sinus infections, given antibiotics (which only

help temporarily), and in many cases, migraines can also masquerade as a sinus headache without the classic symptoms.

Your nose is also regulated by the two opposing parts of the autonomic nervous system. Studies have shown that there is an imbalance between the two parts of the ANS in the nose in people with acid reflux or sleep apnea. Thus, many people with either sleep apnea or UARS have chronic runny or stuffy noses with postnasal drip and are prone to sinus headaches or infections. This process, in addition to the acid exposure described earlier is a very good reason for chronic nasal or sinus problems.

Classic migraine and tension headaches are also frequent in UARS along with TMJ problems, due to grinding and clenching of the teeth secondary to sleep arousals initiated by UARS. Prolonged untreated chronic UARS or obstructive sleep apnea by causing grinding and clenching of the teeth along with compressing the temporomandibular joints can damage the condyles of the TM joints. The shortening of the condyles at each side of the lower jaw especially in growing population or even in adult patients can cause receding of the lower jaw back. This process can ultimately cause further constriction of the airway and worsening the UASR condition or lead to development of obstructive sleep apnea.

Damage to the TM joints as result of prolonged untreated or mistreated chronic TMJ disease (just pain management with no permanent treatment) can also by causing the receding of the lower jaw back, contribute to the development of UARS or obstructive sleep apnea. Regardless of what comes first, the chicken or the egg, one probably aggravates the other, leading to a vicious circle that can aggravate each other and cause significant health issues for the susceptible patients.

UARS is also associated with depression, anxiety or attention deficit problems. For obvious reasons, sleep deprivation, especially deep sleep deprivation with multiple arousals, can lead to many of these conditions. In addition, if you don't sleep deeply, it's been shown that your body produces increased levels of cortisol. And as we all know, cortisol is what makes you gain weight and eat more. It also lowers your immune system's ability to fight infections and aggravate insulin resistance, leading to diabetes.

Many people also state that they have crazy or vivid dreams or sometimes no dreams at all. This is because when you wake up while you're dreaming in REM sleep; you've remembered your dreams vividly. By definition, all dreams are wild and vivid. Only because you tend to wake up more frequently when you are dreaming, do you remember your dreams more vividly. Some people wake up as they begin to enter the dreaming stage, so they never dream at all.

Family history is also very important. This is one way that it can be gauged what the patient might look like in 20-40 years. And in many cases, patients with UARS or sleep apnea have one or more parents that snore severely with one or many of the cardiovascular consequences such as obesity, diabetes, high blood pressure or heart disease. If one parent is noted to have had a heart attack or stroke in their 40's or 50's, the patient's condition should be analyzed more seriously.

The natural course of UARS is highly variable with some patients remaining unchanged for years or decades, where others are slowly progressing into sleep apnea. Some older, overweight women in their 50's or 60's with sleep apnea present that when they were in their 20's, they were very thin and had cold hands, low blood pressure, chronic diarrhea, and dizziness, and now they don't have any of these conditions except that now they have high

blood pressure, snoring and severe fatigue as byproducts of progression into sleep apnea.

What seems to aggravated UARS symptoms most however is a relative change in their weight! So a relative weight gain, even 5 or 10 pounds, can aggravate the symptoms which go away once the weight has stabilized and as the body adjust and accommodates to the new weight. Weight gain during pregnancy is another situation where this occurs.

A bad cold or infection can also aggravate these symptoms, since it causes swelling, which narrows the upper airway. UARS people who are already living on the edge tend to have more prolonged or severe colds as airway swelling causes more narrowing and anatomic collapse, which further aggravates throat acid reflux, which causes more swelling, perpetuating the vicious cycle. At a certain point, the body can't adjust and the vicious cycle is self-perpetuating. Poor sleep can also aggravate weight gain for reasons described before, previously. Weight gain narrows the throat even more, causing more obstruction and arousals. Stress is also a big factor, whether it is emotional, psychological or physical. Whether the stress is internal or external, the body behaves the same way.

Evaluation for UARS and OSAS

Tags: [Epworth Sleepiness Scale](#) , [sleep hygiene](#),

Epworth Sleepiness Scale

Use this tool to measure the sleepiness which can be caused by insomnia, sleep deprivation or sleep disordered breathing problems like UARS and OSA.

The Epworth Sleepiness Scale (below) was developed by researchers in Australia and is widely used by sleep professionals around the world to measure individuals' level of sleepiness.

How likely are you to doze off or fall asleep in the following situations, in contrast to feeling just tired? This refers to your usual way of life in recent times. If you have not done some of these things recently, think about how they have affected you in the past.

The Epworth Sleepiness Scale is used to determine the level of daytime sleepiness. A score of 10 or more is considered sleepy. A score of 18 or more is very sleepy. If you score 10 or more on this test, you should consider whether you are obtaining adequate sleep, need to improve your **sleep hygiene** and/or need to see a sleep specialist for evaluation and treatment for UARS or OSA. These issues should be also discussed with your personal physician for proper referral to sleep specialist. Use the following scale to choose the most appropriate number for each situation:

0 = would **never** doze or sleep.

1 = **slight** chance of dozing or sleeping

2 = **moderate** chance of dozing or sleeping

3 = **high** chance of dozing or sleeping

Print out this test, fill in your answers and see where you stand.

It can be helpful if you bring the printout of your test score to your exam appointment with Dr. Yousefian.

Situation	Chance of Dozing or Sleeping
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Sitting and reading

Situation	Chance of Dozing or Sleeping
Watching TV	_____
Sitting inactive in a public place	_____
Being a passenger in a motor vehicle for an hour or more	_____
Lying down in the afternoon	_____
Sitting and talking to someone	_____
Sitting quietly after lunch (no alcohol)	_____
Stopped for a few minutes in traffic while driving	_____
Total score (add the scores up) (This is your Epworth score)	_____

Diagnose of UARS and OSAS?

Tags: [deviated septum](#) , [nasal congestion](#) , [allergies](#) , [endoscopic evaluation](#) , [pharyngoscopy](#) , [sleep medicine specialist](#) , [polysomnogram](#) , [small jaw](#) , [retruded chin](#) , [crowded teeth](#) , [narrow dental arches](#) , [extraction of four bicuspids for orthodontic purposes](#) ,

Based on an extensive series of questionnaires, your physical examination, your past family history and the endoscopic evaluation, the sleep medicine specialist can determine whether or not you need a sleep study (Polysomnogram). So if you undergo a sleep study and you are found to have sleep apnea, then it is treated like normal sleep apnea. But if you don't officially meet the criteria for sleep apnea—meaning that your apnea/hypopnea index is less than 5 but you do have evidence of multiple arousals, then we can say that you may have UARS. If the sleep specialist concludes that you suffer from UARS or OSA then he or she will recommend use of CPAP as temporary means of treating your condition. Based on your request and if you do not want to or cannot use the CPAP, sleep specialist also refers you for further evaluation to determine the underline causing factor or factors and the remedy for the associated problems.

The first step is to undergo a complete ear, nose and throat evaluation. In most cases, the exam is normal. Sometimes what can be seen is a deviated septum or nasal congestion due to allergies but more commonly what when look in the mouth, the back of the throat is very narrow and patient has a very large tongue that sits very high up, covering up the uvula, the little thing that hangs down in the middle of your throat.

Most often patient has relatively small jaw with retruded chin or crowded teeth and narrow dental arches which cause the tongue position further back in the pharyngeal airway. Sometimes this is caused by previous extraction of four bicuspids for orthodontic purposes (***Yousefian Z. J., Trimble D., Folkman G.: A new look at the treatment of Class II Division 2 Malocclusion. American Journal of Orthodontics & Dentofacial Orthopedics. Vol. 130, No. 6, December 2006***) or teeth lost due to poor dental care and caused the collapse of the dental arches.

The next step is to undergo an endoscopic (pharyngoscopy) evaluation, meaning that a small, tiny camera is placed through your nose and the airway is visualized. Normally, when look at the airway, the vocal cords can be seen behind the voice box but in people with UARS or obstructive sleep apnea, the tongue fits further back, so most of the voice box is covered up. Especially if the person lies down, the tongue falls back even more, leaving a 1-2mm slit. When patient is awake, they can breathe through this slit. But as you fall asleep, the muscles relax as they get deeper into sleep. Then, when patient reach deeper levels of sleep, or REM sleep (when dreaming), the muscles have to relax completely and that's when starting to obstruct. Then, once obstruct, stop breathing and they get aroused, going to light sleep and the cycle happens over and over again.

Treatment of OSA & UARS

Tags: [nasal breathing optimization](#), [snore appliances](#), [CPAP](#), [dental device](#) , [permanent change of the patient's bite](#) , [development of TMJ problems](#) , [headaches](#) , [surgery](#) , [Orthodontic Treatment](#) , [Telegnathic surgery](#)

You may be wondering, I just gave you a good explanation for UARS, but what can you DO about it? In general, UARS is treated like sleep apnea. The options are nasal breathing optimization, dental appliances, CPAP, or surgery, as a last resort. Nasal optimization means if you have any degree of nasal congestion or obstruction, that's dealt with, whether medically or surgically. So, for most people, allergies are a very common reason that can be treated properly with medications or avoidance measures or even allergy shots. If you have a deviated septum, then that can be dealt with surgically if the medical options don't work.

CPAP, or **Continuous Positive Airway Pressure**, is actually the gold standard treatment for sleep apnea as a safe but temporary

solution. In the original article that described UARS, CPAP was used successfully in many of these patients. The way CPAP works is that a small mask is placed tightly over your nose and a small amount of positive air pressure is gently blown in through your nose, stenting your airway open while you are sleeping at night. If you have tried and failed these conservative options, then there are surgical options as well.

Dental devices or snore appliances, One of the ways that UARS is treated is using a dental device that pulls the lower jaw forward, which is similar to what is used for snorers and mild sleep apnea patients. These appliances had some side effects including the permanent change of the patient's bite and development of TMJ problems as well as headaches which requires further orthodontic treatment or even jaw surgery to correct the bite changes (***Orofacial complications associated with forward repositioning of the mandible in snore guard users. Yousefian J, Moghadam B, General Dentistry Vol. 51 No. 6, November-December 2003.***)

Studies have confirmed that weight reduction can improve UARS and OSA. The weight loss must be considered before any significant surgeries are recommended for treatment of these conditions. Obese patients should be encouraged to lose weight, but UARS and OSA must be controlled while the weight loss is underway.

Orthodontic Treatment. Proper orthodontic treatment by improving the PharyngOroFacial abnormalities which cause airway complications can prevent and eradicate UARS and OSA in growing and non-growing patients. This includes orthopedic expansion of the narrow palate along with nasal cavity in growing patients and proper development of maxillary/mandibular dental

arches to encourage the forward position of tongue and enhance the patency of airway.

Treating growing patients can successfully manage the space in the mouth to promote proper eruption of the permanent teeth. This treatment modality by correcting the crowding can eliminate the need for extraction of the teeth as one of the promoting factors for retraction and entrapment of the tongue in retroglossal and hypoglossal airway.^{119,120} Early orthodontic correction encourages the proper development of PharyngOroFacial skeletal growth to provide healthy, functional jaws and airway while the patient is young, thus preventing future problems like TMJ, snoring or obstructive sleep apnea.

Telegnathic surgery, the term used for orthognathic surgery to treat sleep apnea. Traditionally the purpose of combining orthognathic surgery and orthodontic therapy has been the correction of dentoskeletal deformities that can-not be corrected with orthodontic treatment alone.

Ideally, the combination of telegnathic surgery and orthodontics should be directed toward maximizing the transverse, sagital and vertical movement of the jaws for proper correction of the masticatory and airway dysfunction and for optimal aesthetics.

Before we finish this discussion, let me just bring up an interesting case example which will illustrate my point. I had a patient, a young woman in her 30s, who came to see me for TMJ problems with recurrent throat infections and was also found to be extremely tired and had depression, on anti-depressants. She also had severe cold hands and feet, low blood pressure with frequent lightheadedness and dizziness, recurrent sinus infections, migraines and chronic diarrhea. She was severely distraught because her overall health had deteriorated to the point where she couldn't function normally at her job. A sleep study

showed that she had mild sleep apnea, at 14 events every hour. She tried CPAP but couldn't tolerate the mask. Finally, after a long discussion we decided just correct her narrow dental arches during orthodontic treatment originally planned for permanent correction of her TMJ problems and see how much it can improve the airway condition.

We did a conservative orthodontic treatment which helped to expand her narrow dental arches significant enough to bring her tongue forward and improve her pharyngeal airway patency during sleep. Six months later on a follow-up sleep study; her apnea/hypopnea index had dropped to 5, which is basically cured. But, more surprisingly, she noted that her cold hands and feet were gone, her diarrhea was much better and even her sinus headaches and migraines were gone. On her last doctor's exam, she noted also that her blood pressure had normalized and she wasn't lightheaded or dizzy anymore. She was completely off her anti-depressants and reported a "life-changing experience."

This woman had classic UARS but because she also met the criteria for sleep apnea, was able to undergo definitive treatment. My guess is that, untreated for many years, she would have gained more weight eventually. Many of her UARS symptoms would have disappeared as the onset of sleep apnea signs and symptoms began to appear.

One interesting study many years ago looked at UARS and its possible association with the somatic syndromes and these include a wide-ranging list of medical conditions like **chronic fatigue syndrome**, **fibromyalgia**, **hypothyroidism**, **irritable bowel syndrome** and more. Obviously, not all patients with the above conditions have UARS but based on this paradigm, I think it's safe to say that a significant number of people with these conditions actually have UARS instead. People with these somatic syndromes all have in common some form of chronic fatigue, as well as an inability to sleep well. Obviously, more study is needed in this area.

As you can see, UARS can potentially explain many symptoms. Typically, these patients see multiple doctors for various complaints without ever finding complete relief. In the end, some even lose faith in Western or allopathic medicine and look elsewhere in alternative or complimentary forms of treatment. UARS as well as obstructive sleep apnea is a treatable condition. The first step is a thorough evaluation by someone who knows what to look for.

ADHD & Sleep Apnea: The Controversial Connection

Tags: [Attention Deficit Hyperactivity Disorder](#) , [ADHD](#) , [Sleep Apnea](#)



As the new school year begins, it's only natural that there's more awareness about learning and behavior issues. One of the most controversial topics that came up frequently is **ADHD**, or **Attention Deficit Hyperactivity Disorder**. It's thought that 2-4% of children have this condition, and a shocking 50% of children with this condition are on some form of prescription medication. Not only is it seen in children, but adults can have it as well. Symptoms include inability to focus or pay attention, being easily distracted, and various behavioral problems in the classroom.

There are a number of proposed explanations for why ADHD occurs, including brain biochemical imbalances, environmental and dietary toxins, and allergic conditions. One possible explanation that never receives very much attention is from lack of deep quality sleep.

Poor Sleep Can Ruin Your Child's Brain Health

It may be coincidence, but it's estimated that about 2-4% of all children have obstructive sleep apnea. And we know from numerous studies that poor sleep, whether not enough sleep, or poor quality sleep, can adversely affect the brain in a number of different ways.

For one thing, lack of oxygen to the brain has been shown to cause lowered blood flow and metabolism in critical areas of the brain, including parts that involve memory and executive function.

There's no doubt that hypoxia can cause significant alterations in the levels of neurotransmitters that regulate memory, focus, concentration, and other cognitive skills. If you pick any one out of dozens or hundreds of biochemical markers, you'll find that there will be a deficiency or an elevation. Whether it's dopamine, acetylcholine, or serotonin, if you look for abnormalities, you'll find it. Not too surprisingly, the same can be said for depression, anxiety, and other mood disorders.

Admittedly, ADHD is a multifaceted condition. Sometimes, it's mainly due to one condition, and in other cases, from a combination of different causes. Not breathing well at night while sleeping can present with the same clinical symptoms as toxic contamination such as lead poisoning. So it's important to have the pediatrician or other health care professional to look at all possibilities before considering psychotherapy or prescription medications. Only after every treatable condition has been ruled

out should the diagnosis of ADHD be given, since ultimately, it's a diagnosis of exclusion.

First Check For Sleep Apnea, Then ADHD

One recent study found that 28% of children scheduled to undergo routine tonsillectomy had official ADHD. Once their tonsils were removed, the rate of ADHD dropped by about 50%. Since these children were selected from a pool of patients that are already predisposed to sleep-breathing problem, it's only natural that sleep apnea is so common. In another contrasting study, there was no difference in the rate of obstructive sleep apnea between controls and children with ADHD.

One thing that's for certain, many children with ADHD, even if they don't officially have sleep apnea, will have major sleep breathing or sleep hygiene issues. This situation is similar to patients who don't have obstructive sleep apnea but have upper airway resistance syndrome, where they still stop breathing multiple times during the night.

During the initial evaluation process, one of the first things to always consider is the possibility of a sleep-breathing problem. Snoring or breathing problems at night are always a good thing to look for, but you don't have to snore to have significant obstructive sleep apnea. If your child has very large tonsils, or has frequent throat infections, then consider seeing an ENT surgeon. Chronic nasal congestion or a runny nose can suggest a problem with the upper breathing passageways as well. If one or both parents snore, then even more reason to suspect a possible sleep-breathing problem.

But before you take your child to see a sleep doctor or an ENT surgeon, first try these simple steps to improve their sleep quality.

1. Take care of any allergies, whether food related or environmental. Allergies can cause inflammation of the upper air passageways that can cause swelling and further narrowing, leading to more obstructions and arousals. If conservative options fail, then see an allergist.
2. Don't eat or snack within 3-4 hours of bedtime. Eating close to bedtime allows more stomach juices to be suctioned up into the throat when you stop breathing.
3. Deal with any nasal congestion. Having a stuffy nose for any reason causes a vacuum effect that allows your tongue to fall back easier when in deep sleep.
4. Set a regular bedtime routine, with no media (TV, computers or phones) within one hour of going to bed.
5. Make sure the bedroom is completely dark. Many bedroom appliances, clocks or other devices have exceptionally bright LED bulbs that can prevent proper sleep onset.

If you suspect that your child may have ADHD, the first thing to consider is to consider poor sleep quality as a major aggravator, if not the cause. Yes, you still need to address all the other issues that can aggravate ADHD, such as diet, stimulus control or allergies, but sleep should never be excluded from the list. Even if sleeping better doesn't help with the ADHD, it can definitely help with various other health issues, such as obesity prevention, or lower incidence of asthma, depression, and anxiety. It could even help your child raise his or her test scores.

Orthodontic and PharyngOroFacial™ orthopedic treatment for correction of OSA, URRS and ADHD

Proper orthodontic treatment combined with orthopedic expansion of the jaws can permanently correct UARS and OSA even in most severe cases in adults as well as adolescents. This treatment modality significantly improves or in some cases definitively treats the ADHD if it is associated to UARS or OSA.