

Dr Steven Lin – The Functional Dentist Snoring, Insomnia, Sleep Deprivation Effects & Low Melatonin



If you snore or suffer from insomnia the effects of sleep deprivation can be felt all over the body.

In my dental clinic I see the **effects of sleep deprivation** every day. Patients are exhausted and don't know how to get better sleep. A common diagnosis is sleep apnea, which is where the body literally pauses in 'apnea' events. These events are measured by a certain amount of pausing in sleep. The problem is that people show the effects of sleep deprivation long before a diagnosis of sleep apnea is made.

That's why it's important to spot the signs and effects of sleep deprivation *BEFORE* it becomes sleep apnea. In the last article we discussed the stages of sleep. Here we're going to build the link between breathing and sleep disorders, which often starts with snoring or teeth grinding. Then we'll explore the link between the effects of sleep deprivation, [melatonin problems](#), and skeletal effects.

Snoring & Sleep Deprivation Effects on the Brain

What does sleep deprivation do to the brain? Lack of sleep is now linked to many brain disorders, the reason being that the brain undertakes many important processes during sleep.

[Recent studies](#) show **sleep deprivation effects** include the accumulation of beta-amyloid plaques in the brain, which are associated with Alzheimer's disease. These plaques can appear after just one night of poor sleep. Nearly all of the sleep disorders such as

insomnia, sleep apnea, and upper airway resistance syndrome associate with neuro-degenerative disease.

In this article we'll look at the different types of sleep disorders and sleep deprivation effects, begin with the mouth and breathing.

Types of Sleep Disorders

Many people who report sleep disorders have developed poor sleeping habits. We aren't going to categorize all types of sleep dysfunction here; our aim is to outline the bodily processes that are most commonly underlying sleep issues.

There are a range of different sleep disorder types:

- [Insomnia disorders](#)
- Sleep-related breathing disorders
- Central disorders of hypersomnolence
- Circadian rhythm sleep-wake disorders ([melatonin imbalance](#))
- Sleep-related movement disorders
- Parasomnias
- Other sleep disorders

Insomnia Sleep Disorders

Around one in three people have at least mild insomnia, regularly finding it hard to fall or stay asleep. There may be trouble getting to sleep initially. Some experience not being able stay asleep for as long as they would like, while others may wake up during the night and be

unable to go back to sleep for a long time. A problem with insomnia diagnoses is that they may be due to an underlying breathing disorder.

Breathing Related Sleep Disorders

In all sleep disorders, I often see that there are breathing issues. However, some sleep disorders are specifically characterized as breathing conditions.

These include:

- Obstructive sleep apnea
- Central sleep apnea
- Upper airway resistance syndrome

Symptoms of breathing-related sleep disorders

Symptoms of sleep deprivation associated with breathing problems include:

- [Teeth grinding](#)
- [Mouth breathing](#)
- [Snoring](#)
- Restless leg syndrome
- [Bedwetting](#)
- Sleep walking
- [Anxiety and depression](#)
- Digestive disorders
- Cold hands and feet

These symptoms could all be signs that the brain isn't going through the stages of sleep correctly. Previously in my practice I have focussed on breathing, snoring, sleep apnea and upper airway resistance syndrome, however, I do come across patients who suffer certain degrees of these conditions as well as insomnia symptoms too.

I believe that the problem is that there is often a breathing disorder that goes undiagnosed and becomes insomnia. However, there may be other factors that contribute to insomnia.

Nasal Breathing, Blocked Sinuses, and Sleep Apnea

Breathing guides the brain to cycle through the normal [stages of sleep](#). You need to breathe deeply through the nose in order for the brain to complete its sleep cycles.

There can be many barriers to healthy nasal breathing, such as the soft tissues like the tongue, adenoids or tonsils, or the bony structures that support the teeth like a narrow maxilla or a retrusive (shifted backwards) lower jaw.

Today, very few people grow jaws that fit thirty-two teeth. Orthodontics uses braces to straighten teeth; however, they don't address the root cause of crooked teeth. Functional dentistry aims to find what the root-cause of a condition is. Crooked teeth happen because the jaw bones

don't grow enough to fit them, you can see the signs of this when you look inside the mouth.

Upper Airway Resistance and Crooked Teeth

The roof of the mouth forms the platform for the upper teeth, and it's also the base of the nasal sinuses, which reside in a bone called the maxilla. If you have a crooked smile, you will also have a cramped nasal sinus.

People who find nasal breathing difficult suffer a condition called upper airway resistance syndrome. It presents with poor sleep, depression, anxiety, digestive issues, and can progress to obstructive sleep apnea. The core problem is that the breathing pattern doesn't let them enter deep levels of REM sleep.

When you breathe with your mouth it delivers a poorer quality of air to your lungs than with nasal breathing. Nasal breathing helps to transfer oxygen around the body due to a substance called [nitric oxide](#).

Released in the nasal sinuses, nitric oxide mixes with air, helping blood perfuse in the lungs and carrying oxygen to cells.

Sleep apnea causes the brain to think it's choking, and can eventuate in breathing pauses while asleep that leave the brain dangerously lacking in oxygen. It also interrupts the critical flow of cerebrospinal fluid (CSF) into the brain during sleep.

Upper airway resistance syndrome is a milder form of sleep apnea. It likely precedes the pauses of breathing measured in OSA.

Let's look at some classic sleep deprivation effects on patients:

Ron, 58

Ron is overweight, a type-II diabetic, has been diagnosed with high cholesterol, and has gum disease. He snores heavily and was given a CPAP machine over five years ago.

While the machine helps a little, the problem is that none of Ron's chronic diseases are getting better and his gum disease is worsening. He's also been experiencing memory loss recently at work.

Ron's Diagnoses: [Obstructive sleep apnea](#).

Kelly, 31

Otherwise healthy, Kelly has had recent digestive symptoms, including irritable bowel syndrome, cold hands and feet, and insomnia. She feels anxious when going to sleep and often wakes up gasping. She went to the sleep specialist and had a polysomnography (PSG).

Results showed she does not have obstructive sleep apnea, but there is a presence of respiratory effort arousals (RERAs). Kelly is told she does not have sleep apnea. She is prescribed anti-depressants and sleeping tablets.

Kelly's Diagnoses: [Upper airway resistance syndrome](#).

Henry, 6

Henry has always woken up at night, but now he wakes up a few times every night. His parents are sleep deprived themselves, and just think Henry is a 'bad sleeper'. He doesn't like going to bed, and sometimes has night terrors. Henry doesn't concentrate well at school and has been told he has behavior issues.

Henry's Diagnoses: [ADHD & Upper airway resistance syndrome](#).

How Sleep Deprivation Affects the Brain

You can see that people experience sleep deprivation differently. If the underlying problem is breathing to the brain, our body adapts as it can. Depending on your age and other health conditions, you will manifest sleep issues differently to other people.

Diagnoses of sleep disorders are common, yet the problem is many people aren't finding the root cause of their issue.

In the next two articles we'll explore other symptoms that relate to sleep disorders: headaches, [TMJ pain](#), and [breathing issues](#).

Further Reading:

<https://www.sleephealthfoundation.org.au/pdfs/Insomnia.pdf>

