



Positive Effects of Nasal Breathing

We have long been involved in sleep disordered breathing in dentistry, and in this office specifically, because so many of the signs associated with breakdown of the breathing system show up in the oral cavity. Because of that, dentists who pay attention often discover the patients at risk before the physician can. It is a part of our concept of Wellness Integration to make these observations and serve our patients in a positive manner expanding the beneficial reach of your visit to the dentist. This information will serve you well and should be shared with your physician.

Whether you've been diagnosed with a sleep disorder or not, you've shown some signs or shared some symptoms that are related to a breathing problem that has historically been diagnosed as a sleep disorder. Today some of that thinking has shifted. Rather than having a problem at night when you sleep, you likely have a problem 24 hours a day –one that is exaggerated at night. Today it is more appropriate to identify this as an airway disorder. The key source of this problem—at night or during the day—is over-breathing which blows off too much CO₂ and negatively impacts the transfer of oxygen in our blood to the tissues where it is needed. There is a pH shift from 7.45 to 7.35 that is largely responsible for oxygen release. This is known as the Bohr Effect and the prime agent in this process is CO₂.

When we do not achieve this shift our tissues lack the oxygen they need and we, resultantly, breathe faster solve the problem. This shifts our body's sympathetic/parasympathetic ratio toward an inappropriate sympathetic dominance. Unfortunately, that is a cycle that only makes matters worse. Then, at night, when the body detects we have blown off too much CO₂ it responds with a breath hold to build up CO₂. At night that results in a collapsed airway, a decrease in the oxygenation of the blood and an apnea occurs. The subsequent gasp of air over-shoots these O₂ and CO₂ levels and we repeat the process in what is known as cycling.

This is where the change of oral versus nasal breathing becomes clarified. Mouth breathing moves more air than nose breathing but has NOTHING to do with 'getting more oxygen'. Mouth breathing blows off too much CO₂ resulting in over-breathing which is a form of hyperventilating. While we breathe at a faster rate with mouth breathing, our tissues don't actually get the oxygen they need. Every time we inspire, the hemoglobin in our blood binds roughly 5% of the oxygen available in the air (O₂ is about 20-21% of our air) -leaving around 16% oxygen in exhaled breath (that is how we can save lives doing mouth-to-mouth). So, oxygen transfer to our tissues isn't about not getting enough air, it's about getting rid of the correct amount of CO₂ so that is how the Bohr Effect occurs.

Apart from the heart beating, we breathe more times per day than any other body function. Doing that properly will have a huge impact on your overall wellness. The definition of functional breathing at rest includes : 8-10 breaths per minute ; 4-5 liters of air per minute ; diaphragmatically driven with no involvement of secondary breathing muscles ; silent and nasal route only .

The beneficial outcomes we will experience with nasal breathing include:

1. Efficient filtration of the inhaled air through the nasal process.
2. Improved oxygen release through the Bohr effect –achieved by proper CO₂ control .
3. Effective vasodilation through the presence of CO₂ and Nitric Oxide (NO) .
4. Humidification and temperature control of inspired air via sinuses and turbinates .
5. Improved control over virus and bacterial infection of the upper respiratory tract through activity of the lysozyme enzyme in the mucus & the NO produced in the paranasal sinuses.
6. Final micro-filtration using adenoids and tonsils.

Coincidental to daytime nasal breathing is ensuring you breathe through your nose when you sleep. Nasal breathing is compromised by nasal congestion. Oddly enough, we can't breathe through our noses because we don't breathe through our noses! Nasal breathing reduces the inflammation and congestion through many mechanisms. One powerful mechanism is the production of Nitric Oxide (NO). NO is only produced by our body when breathing through the nose. The action of NO is as a vasodilator—opening up the entire process. Nasal breathing can be a daunting process, but after only a few minutes the NO pops open the nasal airway and we're capable of slow, controlled nasal inspiration. Consistent nasal breathing also reduces the inflammation of the mucosa as well as the size of our tonsils and adenoids. Over time it becomes easier and easier to breathe nasally because of the larger nasal airway that develops as the inflammation of the mucosa shrinks along with the tonsils and adenoids.

As noted above the benefits of nasal breathing are numerous. This includes a better control of CO₂ expiration and a reduction in over-breathing through proper balance of the sympathetic-parasympathetic ratios. Nitric Oxide is produced only through nasal breathing resulting in vasodilatation of the cardiovascular system. Nasal breathing increases diaphragmatic breathing that effectively pumps our lymphatic system helping to filter toxins throughout the body. Nasal breathing will reduce and can eliminate snoring when daytime over-breathing is corrected. Ultimately, nasal breathing improves your sleep pattern and should eliminate waking during the night as well as decreasing daytime tiredness by keeping you in the deeper reparative and regenerative levels of sleep. That alone is why all this is so beneficial to us—waking with energy, feeling well rested, less irritable and ready to address the day that faces us.

Regardless of what treatment methods are necessary to open the nasal passage, ensuring usage of the nasal airway rather than the oral airway during sleep is imperative. What can you do to ensure you breathe appropriately through your nose at night when you're asleep? Answer:

