EARLY INTERVENTION

FOR JAW DEVELOPMENT &

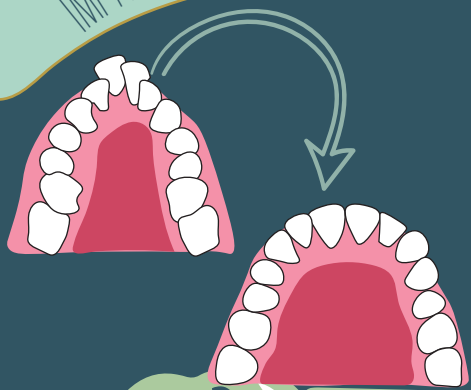
SLEEP DISORDERED BREATHING

Shut Your Mouth

AVOID BRACES

IMPROVE SLEEP QUALITY

Healthier Teeth



mint DENTAL CARE

Contents

THE AMERICAN DENTAL ASSOCIATION has encouraged dentists to be screening their patients for sleep apnea, and that they should be the professionals who make oral appliances. You probably haven't heard this yet because only **5% OF DENTISTS** are doing it, and lucky for you, yours is one of them.

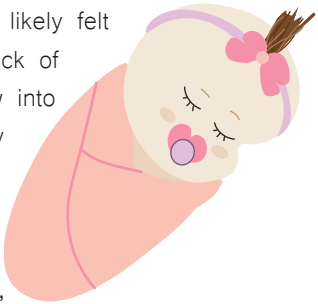
"As a father and dentist, I am passionate about saving children's teeth and smiles! I cannot tolerate treating symptoms only, and not addressing the root causes of these issues I see daily. With the resources we are implementing at Mint Dental Care, I am confident we won't need to pull teeth to "make room" for adult teeth. I believe in expanding the mouth to make room for those teeth that were always meant to be there, and make sure the foundation is right. I strive to discover the transformative impact of addressing root causes of the underdeveloped jaws due to poor breathing. I also believe one of the greatest things we can do for our children's health and longevity is to make sure they are getting good, quality sleep."

-Dr. Chase Funk

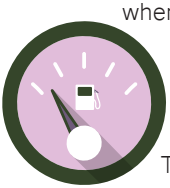
Sleep apnea is not a fat old man's disease.

The Basics

If you are a parent reading this, you can probably recall what it felt like **YEARS AGO** to be head over heels with your newborn baby, but also in a somewhat fragile state due to **SLEEP DEPRIVATION**. Your brain most likely felt foggy and you probably weren't at your best. This lack of good sleep that you experienced is just a small window into what your child is experiencing daily, if they have any form or level of sleep disordered breathing. Sleep disordered breathing refers to a spectrum of sleep-related conditions in which a child's breathing is affected due to improper jaw growth, inefficient tongues, and many other issues that affect the majority of children today.



A child **CANNOT REPAIR** emotionally and physically when they stop breathing multiple times per hour during the night. A child who has sleep disordered breathing goes to bed with their tank on empty, fights for their life all night, and finally wakes up with their tank **STILL ON EMPTY**. They are then expected to handle whatever challenges are handed them that day with a sleep deprived, less than ideal functioning brain and body. No wonder so many **ROOT CAUSES** can be traced back to their sleep or lack of it!

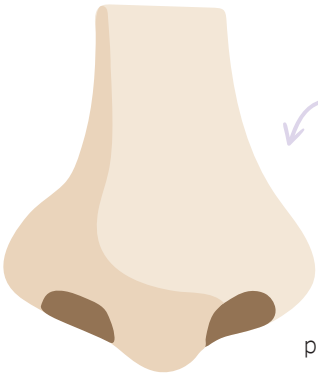


This saddens us and when we found out there is an influx of forward thinking people finding solutions to truly help these adorable children, we knew we wanted in as soon as possible to offer treatment to our wonderful patients.

There is a lot to take in and we hope you will read and learn with an open mind. We are seeing amazing results in our office and we truly feel called to spread the word to get the current and future generations of children the best shot at good health and sleep. Lets cover "The Basics".

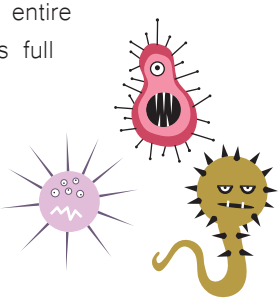
To understand our obsession about why children **MUST BE NASAL BREATHING** and how that can affect jaw growth and development and their quality of sleep, first we need to understand the basic anatomy and functions of the nose.

THE 3 FUNCTIONS OF THE NOSE



1. Filter
2. Humidfy
3. Warm

How extraordinary is it that our noses actually kill off pathogens that our bodies are constantly exposed to when we properly nasal breathe? When a child is mouth breathing, their body skips that entire process and the air they breathe is full of **BACTERIA** and **VIRUSES**.

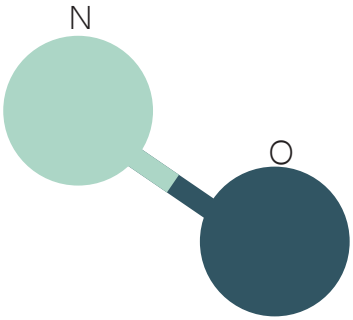


The first thing that dirty air hits is the back of the throat, tonsils, adenoids, and the lungs. Unfortunately, all of these organs can get inflamed because they are being forced to try to do the job the nose was supposed to do. They become the first line of defense (instead of the nose) for the immune system and it can cause numerous issues.

The nose contains tiny hair-like structures called cilia, which act as a filter. This filtration system removes dust, bacteria/viruses, allergy causing substances, and other dirty particles from the air. This system helps prevent congestion, infections, and disease.

Did you know?

40% Of today's population suffers from chronic nasal obstruction, and around half of us are habitual mouth breathers."
James Nestor "Breath"



NITRIC OXIDE: THE MIRACLE MOLECULE

Nitric oxide is a molecule that plays an important role in many of the body's functions. When nasal breathing, your nose releases nitric oxide. Nitric oxide in the nasal airways is one of the first lines of defense against infections. It is known to be antifungal, antiviral, and antibacterial, helping filter out pathogens before they enter our bodies. Nitric oxide helps widen blood vessels and can help improve oxygen circulation in the body, and decreases plaque growth and blood clotting.

Low levels of nitric oxide have been linked to many diseases such as high blood pressure, heart attack, heart disease, stroke, Irritable bowel syndrome, Alzheimer's, and others.

Benefits of Nitric Oxide

Improves blood flow to organs

Prevents blood clotting & obstruction in arteries

Supports healthy blood pressure levels

Enhances memory and learning

Promotes a healthy digestive tract

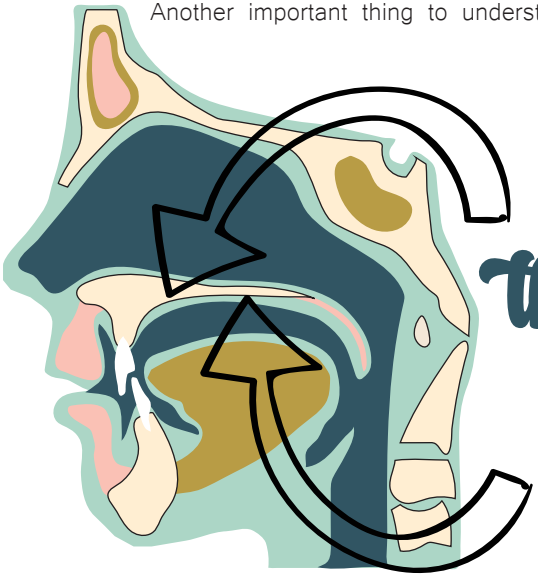
Immune defense

One of the easiest ways we can increase and optimize our levels of **NITRIC OXIDE** in our blood and airways is by breathing through the nose.

Try it!

Studies show that humming significantly increases the amount of nitric oxide and can help clear out the sinuses. Try it and see if you notice the difference in your sinuses!

Another important thing to understand about the anatomy of the nose is:

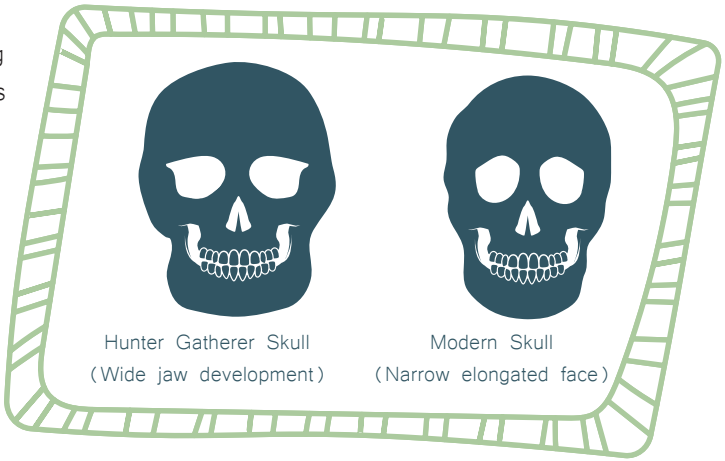


The roof of the mouth is the floor of the nose.

Read that again. This means that when the roof of the mouth doesn't grow wide and large like it should, the nasal space decreases. A child literally has less space inside the nose to breathe in air that can be filtered, humidified, and warmed. So what do children often do when that space is small and less than ideal? They **COMPENSATE** by opening their mouths to get in the amount of air their body is telling them they need.

In contrast, a well developed jaw provides ample space for your child's tongue and encourages proper tongue posture (tip of tongue right behind the front teeth, with the rest of the tongue being gently suctioned to the roof of the mouth). This tongue placement plays a crucial role in shaping the roof of the mouth (in addition to the nasal passages). A well positioned jaw not only supports healthy teeth alignment, but also contributes to optimal airflow through the nose.

You may be wondering why our children's jaws aren't growing big and wide like they "used to"? Isn't this just another fad? Actually, it's not and the research has been around for over 100 years, so let's talk about it.



Hunter Gatherer Skull
(Wide jaw development)

Modern Skull
(Narrow elongated face)

CAVEMEN DIDN'T NEED BRACES, SO WHAT HAPPENED?

Four hundred years ago, our jaws began getting smaller. Compared to our ancestors, our current population has a much smaller jaw size, more dental crowding, and less people have room for their third molars. It is estimated that 50-70% of US children will wear braces before adulthood.

CHANGES IN FEEDING FROM BIRTH TO ADULTHOOD

Bottles, pacifiers, and a soft early diet can very much contribute to small, narrow jaw growth. The agricultural revolution introduced more soft foods and have become a predominant part of our diet. From child to adult foods we see much more soft and processed food options that don't require as much chewing. Chewing helps grow muscle tissue which stimulates jaw growth. Going back even further, another shift in jaw size was noted when utensils began being commonly used, eliminating the need for gnawing and chewing.

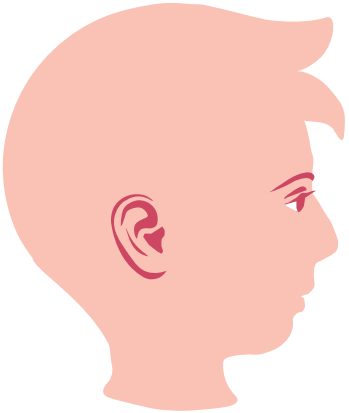
TETHERED ORAL TISSUES

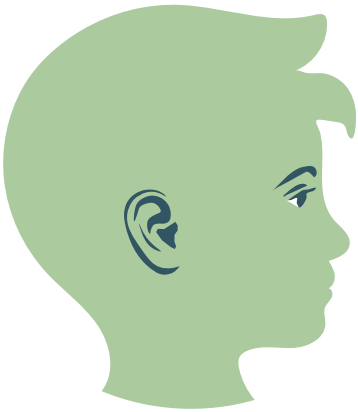
Higher rates of tongue ties are being diagnosed, and although there are hypotheses like the MTHFR gene prevalence and folic acid supplementation in our foods, the reason isn't completely known. Tongue ties lead to low tongue posture which will have the same effects as mouth breathing on facial development.

INDOOR LIVING, ALLERGIES, & MOUTH BREATHING

It has been noted that indoor air can be up to 100 times more polluted than outdoor air, and Americans spend 90% of their time indoors. With a shift to indoor living, an increase in allergy rates and severity has been seen as well. When people have allergies, they tend to breathe through their mouths. Mouth breathing means low tongue and open mouth postures, which alters facial development leading to a more narrow face and jaw.

VISUAL DIFFERENCES IN MOUTH BREATHERS VS. NASAL BREATHERS





MOUTH BREATHER

Poor definition in cheekbones

Crooked and crowded teeth

Recessed, undefined jaw

Narrow face

Sunken eyes

Dark circles under eyes

Bigger, crooked nose

Gummy Smile

Smaller airway

NASAL BREATHER

Good definition in cheekbones

Straight teeth

Well-developed jaw

Wider face

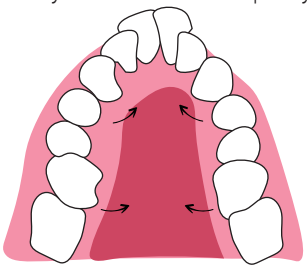
Bright, rested eyes

Open airway

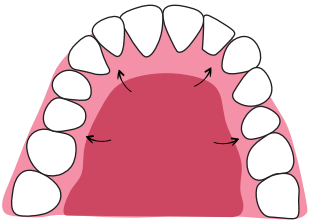
WE NEED TO STOP PULLING HEALTHY TEETH!

If toddlers and children have adult teeth that are growing in crowded, this means their jaws are underdeveloped! Most people don't know that there is much to be done to encourage proper jaw and dental development and it is finally gaining traction in the dental community. When we encourage wide arches and big mouths, we don't give the teeth much opportunity to come in crooked! Oftentimes patients are told to "wait and see" what happens as their teeth come in. Why wait to transform your child's smile based on societal expectations like "waiting" for braces when we can address it now with extremely high rates of success?

The approach taken by many practitioners to pull out teeth to "make room" is a very outdated approach and can actually cause issues further down the road. We are so grateful to be able to offer you options that will save your child's teeth, improve overall health, and address the aesthetics that most people are sold on when they consider traditional orthodontics. Expanding the palate helps us avoid unnecessary extractions, and goes way beyond the world of aesthetics because we are focusing primarily on function. A pretty, straight smile is just an added bonus!



Narrow Arch-V Shaped
(Crowded teeth, mouth breather)



Healthy Wide Arch-U Shaped
(No crowding, nasal breather)

The "wait and see" approach to orthodontics is outdated.

Did you know?

Early intervention is not a new idea, and orthodontists and doctors have been advocating for it for over 100 years. In 1912, an orthodontist named E.A. Bogue was the first to publish articles advocating for the treatment in children before the age of 6 to widen the dental arches, and above all, eliminate mouth breathing. He also campaigned against the extraction of teeth to make space, as he was aware of how important having adequate space in the mouth for the tongue to rest is.

EARLY INTERVENTION AND EXPANSION

Early palatal expansion is a dental procedure which involves widening the upper jaw in order to create more space for permanent teeth to emerge properly. Expanding the palate widens the nasal cavity increasing the nasal volume and size of the sinus.

Early intervention encourages the upper jaw to grow forward and upward which can prevent issues like bite problems and jaw pain. When the palate is expanded, it provides more room for teeth to properly align, reducing the risk of crowding and gum recession.

By expanding the palate during childhood (beginning as early as age three), potential overcrowding of the teeth can be prevented, leading to a straighter and more aligned smile **WITHOUT THE NEED FOR BRACES**.

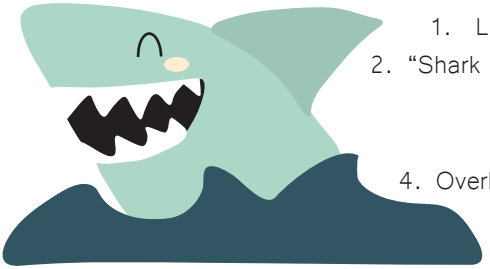
Did you know?

60% Of a child's facial development is completed by age 6 and 90% of a child's facial development is completed by age 12!

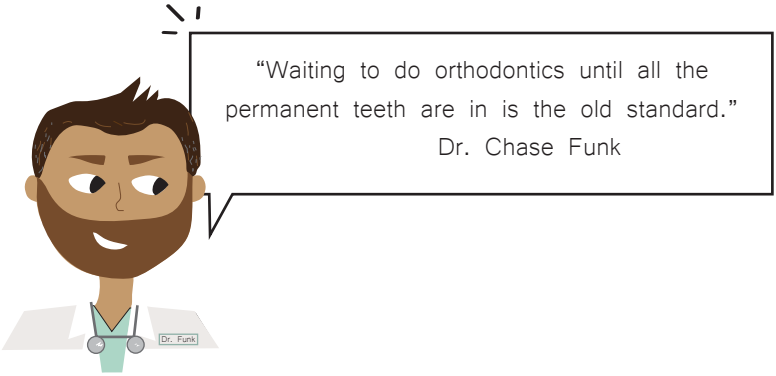
To be truly successful in treating underdeveloped jaws, we believe the upper **AND** lower jaws must be addressed. Traditional orthodontics does not treat or expand the lower jaw. Because the upper jaw sits **OVER** the bottom jaw, if the bottom jaw isn't expanded, the upper jaw will shrink to fit whatever the lower jaw is doing. We believe that by treating both the upper and lower jaws, your child will have a much higher rate of success

Early expansion allows ALL adult teeth to emerge properly, and there may even be enough space for wisdom teeth!

4 SIGNS THAT JAW DEVELOPMENT IS OFF TRACK

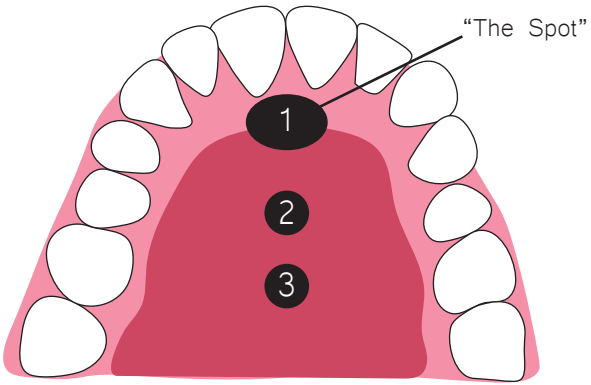


1. Little to no spacing in baby teeth
2. "Shark Teeth" or crowding of newly erupting permanent teeth
3. High narrow palate
4. Overbite, underbite, crossbite, open bite



THE POWER OF TONGUE POSTURE

When the tongue rests on the roof of the mouth, it provides internal support and guidance for palatal development. This means that the constant pressure from the tongue resting on the palate encourages forward and lateral growth! If the tongue is restricted or tethered to the floor of the mouth, the palate will not develop appropriately. We tend to see restricted and vertical growth patterns which leads to a narrow, vaulted palate.



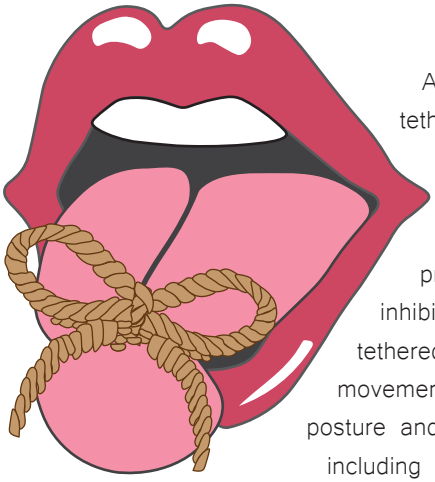
Your tongue should rest on these three points on the roof of your mouth

Try it!

If your tongue rests correctly on your palate, it is impossible to mouth breathe!

Did you know?

If you have a deviated septum (not caused by an injury), it is a sign your face did not fully develop. Having a "deviated septum" means that the cartilage and bone separating the right and left sides of your nose (inside) is off center or leaning to one side. In the absence of trauma, a deviated septum is due to the lack of growth of your face caused by a weak and/or restricted tongue.



TONGUE TIES

A tongue tie is a short, tight band of tissue that tethers the tongue's tip to the floor of the mouth. In utero, babies have tongue ties and lip ties and oftentimes dissolve enough to allow function and movement before birth. If they don't dissolve, proper seal and suction for breastfeeding can be inhibited leading to early developmental issues. These tethered oral tissues then inhibit proper lip seal, tongue movement, and tongue placement leading to open mouth posture and mouth breathing. These cause long term effects including sleep disordered breathing, altered craniofacial development and body posture, and other health concerns.

TONGUE TIE SYMPTOMS

- -Strong gag reflex
- -Issues with speech
- -Dysfunctional swallow
- -Chronic chapped lips
- -Sleeping with mouth open
- -Eating issues
- -Frequent bloating
- -Bad breath
- -Food stuck in teeth often
- -Trouble swallowing pills
- -Forward head posture
- -Needing liquids with meals
- -Double chin
- -Dark eye circles
- -Poor sleep quality
- -White coated tongue

In addition to tongue ties, your child could be experiencing similar symptoms from a lip tie (tight tissue connecting the gums to under the upper lip) or a buccal tie (tight tissue connecting the gums to the inside of the cheeks).

Did you know?

The tongue is one part of a large chain of fascia (or connective tissue) that stretches from the tongue to the toes. Restriction of the tongue can also manifest as tension throughout the whole body.

DOES IT REALLY MATTER IF I CAN LICK AN ICE CREAM CONE EASILY?

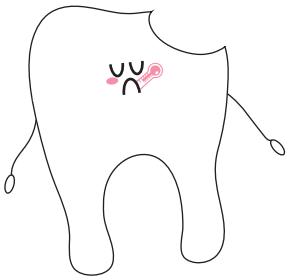
Actually, it doesn't! People often assume that just because they can stick out their tongue, they wouldn't benefit from a tongue tie release, but this isn't true!

Tongue Tie Facts

- Many tongue ties go undiagnosed and can cause an array of problems through the lifetime.
- Tongue ties can cause chronic neck, shoulder, and body tension.
- Tongue ties can contribute to reflux, bloating, and other digestion issues.
- Teeth clenching, grinding, and TMJ can be contributed to the fascial strain from the tongue tie and the muscle compensations from a tongue with limited function.
- A tongue tie causes low tongue posture and encourages the tongue to sit further back in the airway, especially during sleep. This is why a tongue tie is often seen along with mouth breathing and poor sleep quality.

In the past, the only tethered oral tissues that were released were the visibly severe ones.

Now we know that a **FUNCTIONAL** evaluation is far more productive than the appearance of these tethered oral tissues in your child.



TRUE OR FALSE: CANDY IS THE MAIN CAUSE OF CAVITIES.

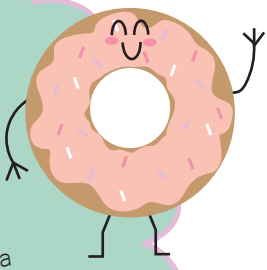
False!

We have to first address mouth breathing BEFORE ANY OTHER CAUSE when we are determining where a child's cavities originate from.

A child's saliva has many important jobs. One of those jobs is to coat and neutralize the acid on the teeth which actually protects them from getting cavities. When a child is mouth breathing, their mouth becomes dried out and they lose that buffering, protective effect on the teeth and end up with more cavities than they would otherwise. Dental hygiene practices like brushing, flossing, and scraping the tongue play a secondary role in cavity growth. Nutrition is also an important part of a child's oral health, but we now know there are many parts to the puzzle that should be considered when determining oral health.

9 Causes of Cavities You Haven't Heard About

1. Mouth Breathing
2. Poor chewing, swallowing, and food clearing
3. Acid Reflux
4. Dry Mouth
5. Oral microbiome with high levels of harmful bacteria
6. Malocclusion & Crowding
7. High carb diet
8. Eating or drinking too frequently
9. Highly acidic diet

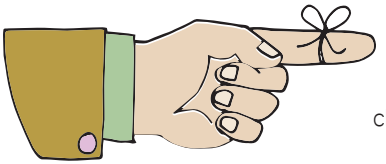


"I want to get to the root cause of your cavities. I believe it is a very outdated approach to only suggest more flossing, more brushing, and more fluoride to my patients that struggle with persistent and recurring cavities."

Dr. Chase Funk

Warning Signs

Now that you understand the basics of our breathing anatomy and **WHY** the growth and development of the jaw has evolved over the years, let's look at some of the **WARNING SIGNS** we see in children who aren't sleeping well.



Remember, just because some of these issues are common, it does not mean they are normal! Our children's bodies are telling us something is off and we need to listen!

Mouth breathing signals to the body that something is wrong.

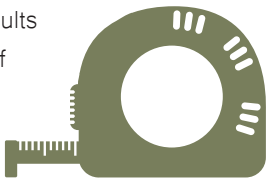
BED WETTING

Have you been told your child will "grow out of" wetting the bed? Adults who wet the bed as a child and still wake to use the restroom at night, have not grown out of it or discovered the root cause. They have learned to manage the symptom by getting up to use the restroom, but their rest is still disrupted and their bodies are responding to a bladder that is filling way too fast!

Children who are breathing poorly (or mouth breathing) at night, are not getting rejuvenating rest because their nervous systems are engaged, keeping them in fight or flight. Their heart rate and blood pressure spikes as the body recognizes that the body is under stress. If a child is getting good sleep, their body stops producing as much urine so that they can sleep through the night. In contrast, if a child has a constant stress on their nervous system because of their body's last ditch effort to get air (mouth breathing), the bladder continues to fill with urine when it should be resting. Their body thinks they need to get rid of the volume in the circulatory system because the body is wanting to use all its energy to keep the body alive. The brain doesn't know if it's being chased by a tiger or if it's heightened because of a scary movie! All it knows is it isn't wasting energy on less important functions like holding urine so it adapts by urinating, or the child will wake to use the restroom when they should be in a solid sleep.

GROWTH HORMONE PROBLEMS

Mouth breathing and sleep apnea could be "Silent Thieves" of your child's growth. This is because growth hormone is released during stage three of deep sleep. Sleep disordered breathing affects the sleep architecture and results in reduced deep sleep. This causes reduced secretion of growth hormone in individuals with airway obstruction.



REDUCED GROWTH HORMONE ITSELF CAN CAUSE:

- Cognitive impairments
- Short stature
- Delayed puberty
- Increased body fat
- Decreased muscle mass

SUCKING HABITS

Thumb sucking, hair twirling, clothing sucking, finger sucking, prolonged pacifier use, blanket sucking, bottles, sippy cups, tongue sucking, and more are harmful to your child's oral growth and development.

Exploring the world by curiously testing out objects in the mouth is normal as an infant. After 12 months, this urge should be greatly reduced. By 15 months, the urge should be reduced even more. If sucking persists past this time, it may be an indicator of underlying issues. If sucking persists by the age of three, your child should definitely be evaluated.

We are not suggesting babies shouldn't use pacifiers and bottles! This is just not feasible for many parents. Simply being aware of how they affect a child's development can greatly improve a child's airway health. Now the parent can take steps necessary to seek treatment as early as possible.

The pressure on the roof of the mouth, especially on "the spot" (the papilla where nerves and vessels come through the bone) stimulates the release of dopamine, serotonin, and endorphins. These all make your child feel calmer and happier and gives them a "feel good response".

The tongue is supposed to rest with the tip on "the spot" and the rest of the tongue suctioned to the roof of the mouth. If the tongue is out of position, the stimulation on the palate and "the spot" isn't there and the thumb or fingers can be used to fill that void.

When the tongue is resting low, it sits way back farther into the airway than it should. Those with sucking habits may have other airway disturbances as well. The sucking brings the tongue down and forward, and brings the mandible forward opening the airway.

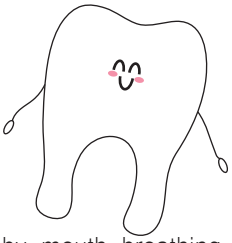
Did you know?

Babies and toddlers LOVE pacifiers and there is a reason for it. When they suck on a pacifier, it puts pressure on "the spot" which stimulates the release of dopamine, serotonin, and endorphins. No wonder parents have to go to such extremes to get rid of them!

Another issue with sucking habits is that the pressure from the thumb, fingers, or pacifier alters dental and facial development. This typically displays as a narrow, vaulted palate, and an overjet or open bite. This anatomy can worsen oral function and breathing habits as time goes on unaddressed. A vaulted, narrow palate means a narrow airway, as it leaves less room for the sinuses and the airway space behind the tongue is more narrow. The vault and lack of space in the palate leads to continued low tongue posture. The open bite or overjet can make it very difficult or impossible for your child to close their lips.

Prolonged thumb sucking can lead to:
Underdeveloped jaw and high palate, speech problems, low tongue posture, narrow airway, malocclusion, improper swallowing patterns, incorrect breathing (encourages mouth breathing rather than nasal breathing).

DENTAL ISSUES



Some dental issues we could potentially see in your child are crowded teeth and malocclusion (abnormal alignment of the upper and lower teeth), attrition (wear on the teeth), high plaque levels, and a high cavity rate. Childhood cavities are primarily caused by mouth breathing, with dental hygiene practices and nutrition having secondary roles. When a child is mouth breathing, their mouths dry out and lose the buffering effect of the saliva, opposed to when a child nasal breathes. There will be a lot more saliva flow and saliva will stay on their teeth during nasal breathing, which neutralizes the acid that is sitting on their teeth and actually protects them from getting cavities. If a child is mouth breathing and is getting recurrences of cavities, it is very likely that the absence of nasal breathing is the culprit, not because they are eating "too much sugar" or not brushing enough.

ODD SLEEPING POSITIONS

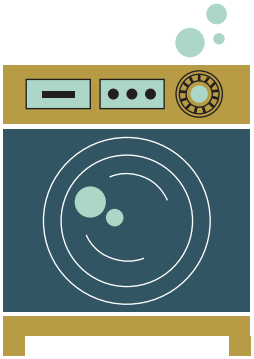
A child's body is good at adapting if it isn't getting adequate oxygen. Oftentimes, a child will tilt the head back to compensate to open the airway (much like when CPR is performed to give rescue breaths and we lift the chin). It is also important to note if your child sleeps in contorted positions or frequently changes positions during the night.

Does your child...

Wake up in the morning with their comforter on the floor or sheets in a mangled mess? When kids get good, quality sleep, they aren't shifting around much during the night. If your child tosses, turns, and flails during the night, they could have some level of sleep disordered breathing.

ADHD SYMPTOMS

The symptoms of poor breathing and sleep quality can closely mimic ADHD symptoms. Some of the symptoms we watch for in your child are hyperactivity, difficulty focusing, learning difficulties, irritability, and anxiety.

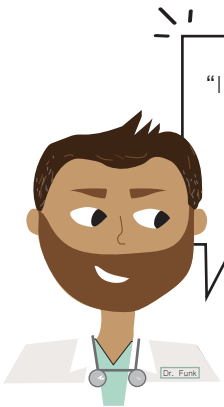


Did you know that deep sleep is the brain's "washing machine cycle"? It's during this crucial phase that your child's glial cells shrink, allowing a rush of blood to clean out and enhance brain development, setting them up for a fresh, rested brain the next day.

Unfortunately, some children miss out on this vital stage due to poor sleep. The brain changes the focus from resetting and cleaning for the next day, to attempting to correct the poor breathing. Children who are sleep disordered breathing at night are a coin toss away from being diagnosed with ADHD. They aren't getting the activity of the brain to help them get cleaned and reset for the next day. Kids with sleep disordered breathing are 60% more likely to be diagnosed with ADHD. If our children aren't getting good quality sleep, their IQs could be dropping instead of increasing like they should be during these formative years.

Did you know?

73% Of children who mouth breathe exhibit inattentiveness (difficulty paying close attention at school) and 66% of mouth breathing children exhibit hyperactive symptoms (difficulty waiting their turn).



"I believe we must address and assess a child's sleep BEFORE we consider putting them on very strong mood-altering, brain-altering chemicals."

Dr. Chase Funk

SWOLLEN TONSILS AND ADENOIDS

The airway is like a straw, the space in which you breathe, and the tonsils and adenoids are a part of this airway. When a child begins to mouth breathe, it is the mouth breathing that causes the irritation of the tonsil and adenoid tissue that causes its overgrowth and partially blocks the "straw". When this tissue gets bigger, it makes the breathing worse. Swollen tonsils and adenoids are a symptom of the poor breathing. Oftentimes practitioners will remove these organs without determining why they were inflamed or swollen in the first place. When we start treating and start restoring nasal breathing, a child has the opportunity to shrink their tonsils and adenoids and possibly avoid a tonsillectomy.

Did you know?

Tonsils are part of the body's immune system and help protect against infection by trapping germs that enter through the mouth or nose. At times it is necessary to remove them, but if we determine the root cause, we can often save them. They are important!

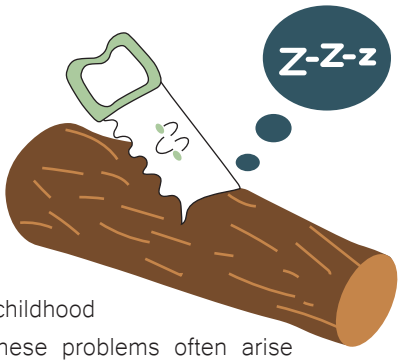
CHRONIC ALLERGIES &ASTHMA

When we breathe through our nose our air is filtered, warmed, and humidified. It mixes with our sinuses and secretes nitric oxide which kills off bacteria and viruses. If a child is breathing through their mouth, they are skipping that entire process and the air is full of pathogens. A child will be more predisposed to asthma and allergies, and the lungs will get aggravated because the tonsils and adenoids have to do the job the nose didn't do and try to filter the air. Unfortunately, they get more inflamed because they are being forced to work more than they should, blocking the airway.

EAR INFECTIONS

Is your child constantly getting ear infections and you don't know why? The Eustachian tube is a tube that runs from the middle ear, to the back of the nose and throat. The purpose of these tubes is to drain fluid from the middle ear and to balance pressure on either side of the eardrum. These tubes need to open and close so they can properly drain and function. What causes the tubes to open and close? We all have palatini muscles that are activated when the tongue hits the soft palate (which is the back 2/3's of the palate). When a child does not have proper tongue posture and has an incorrect swallowing pattern, the middle and back of the tongue are not being used, meaning it never touches the soft palate! With the palatini muscles not being activated, the Eustachian tubes have trouble draining, leading to a middle ear infection. Some things that could contribute to an improper swallow pattern are pacifiers, bottles, sippy cups, thumb sucking, or a tongue tie.

SNORING



Is your child sawing logs? Snoring is primarily caused by airway obstruction resulting in audible vibrations as air struggles to pass through restricted spaces in the soft palate and tongue. These vibrations of the soft palate or tongue produce the characteristic sound associated with snoring. Did you know many physicians confuse childhood snoring with tonsil, adenoid, and allergy issues? These problems often arise from poor growth and development of the mouth and jaw.

If your child is snoring, there is definitely an airway obstruction of some sort. Snoring is common, but not normal!

ROOT CAUSES OF A SNORING CHILD

Enlarged adenoids and tonsils

Poor tongue posture

An anatomical issue with the nose

Nasal mucosal problems such as those seen in allergies

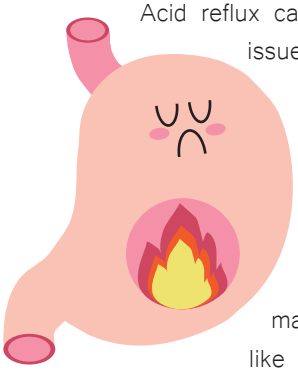
Snoring is a sign of an obstruction of the airway.

CLENCHING OR GRINDING TEETH

If you have been told that your child is clenching or grinding because they are "stressed out", this is not true! Clenching and grinding is unhealthy at any age. Your child's body has an airway protective mechanism built in to make sure they don't drop too low in oxygen. If your child is breathing through their mouth, this mechanism helps the air get in better, but not healthily or ideally. When the nose doesn't get air in very well, the mouth will open to allow some air in, but that doesn't improve how the body is oxygenated. The body then snaps the jaw shut and grinds and clenches around to try to reposition the jaws (or really reposition the tongue). If the body clenches and grinds enough that the lower jaw moves enough and the tongue moves enough, the air will get by better. If the air gets by the tongue better, the body is happy about this and stops the process. Children often go through cycles of mouth closed with nose breathing, mouth breathing, and finally clenching and grinding during the night as the body recognizes it doesn't like how the air is flowing.

If you have been told that your child will "grow out of" grinding their teeth or snoring, this isn't true. If children actually did grow out of it, we wouldn't have snoring, grinding, clenching adults.

ACID REFLUX



Acid reflux can also be a sign of an airway issue. When a child stops breathing, they get a gasp of air (a negative pressure in their stomach), which brings acid up the throat and can erode the teeth. They are gasping for air because their body stops breathing for a few seconds while they are sleeping poorly, and then tries to make up for it by taking in a whole bunch at one time (much like you do when you hold your breath to go under water for a few seconds and then come up needing a big breath). A lot of times this is happening at night when you might be unaware it is happening.

Why we DON'T recommend nightguards

Nightguards are sold as a solution to clenching and grinding. Nightguards don't stop the act of clenching, they only protect the teeth. While tooth protection is important, wearing a nightguard can potentially create more problems.

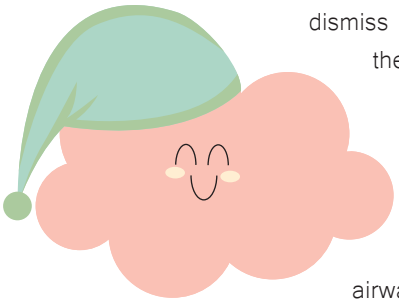
In the way a nightguard is designed, it actually creates less space for the tongue, pushing it farther back into the airway space. This is one reason why some people will report sleeping worse or clenching or grinding more when wearing a nightguard.

UNDER EYE CIRCLES

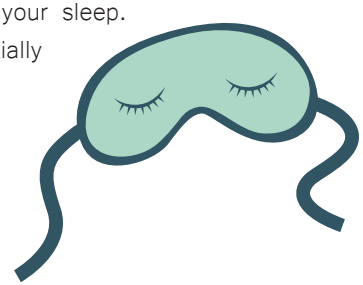
Dark circles under the eyes are sometimes referred to as “allergic shiners” because of a histamine response which dilates blood vessels in the eyes. We know that allergies are a major reason for dark circles under the eyes, but did you know that chronic mouth breathing worsens allergy symptoms? Under-ventilation of the nose increases accumulation of inflammatory cells in the nose. This worsens congestion and is part of a vicious cycle. Mouth breathing also leads to improper balance of gases in your blood. This poor oxygenation can cause the blood vessels to constrict, appearing more blue and contributing to the appearance of dark circles. Chronic mouth breathing during developmental stages can lead to narrowing and downward growth of the maxilla (the bone that forms the upper jaw and includes the roof of the mouth, the floor of the nose, and surrounds part of the eyes). This altered growth leads to a lack of bony support from the cheek bones and this appears like hollows under the eyes. Mouth breathing also dries out your mouth and body. This dehydration can make the skin thinner and more translucent, allowing the underlying blood vessels to become more visible, creating the appearance of dark circles.

SLEEP WALKING, SLEEP TALKING & NIGHT TERRORS

Although these are common symptoms in children and adults, they are not NORMAL! In fact, many providers are uninformed about these issues and will often dismiss them because they don’t know how to address them or are unaware that they are actually a sign of something serious going on. Sleep walking, sleep talking, and night terrors are an REM stage disorder. Typically in REM sleep your body is supposed to be paralyzed so you don’t act out the crazy dreams you are having! If there is an airway problem and the body is trying to wake itself up in order to breathe, the body doesn’t always do it in the proper manner. Sometimes it can lead to your brain staying in the REM cycle, but your body is not and that can lead to walking and talking in your sleep.



Night terrors happen when a child is partially awake. Things that disturb sleep, such as sleep disordered breathing, can make them more likely. Not getting enough sleep also compounds this problem.



LIP DRYNESS & DEHYDRATION

If you are wondering why your child's lips are dry all the time, there is a reason! First of all, this is a huge indicator of mouth breathing. Air is not meant to pass actively over our lips, so when it does this delicate skin dries out. Additionally, when mouth breathing we increase moisture loss from our bodies, compounding this problem even more!

Did you know?

The optimal PH of saliva is 7 which keeps teeth in a state of remineralization as opposed to demineralization.

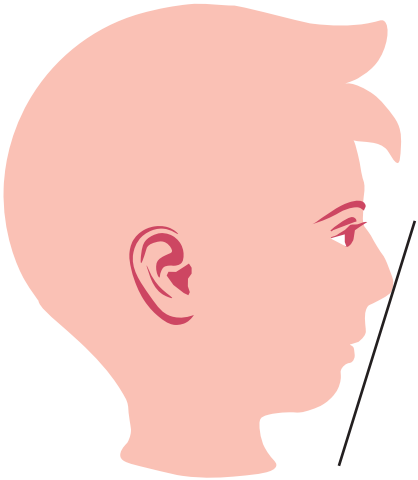
Saliva is important for oral health. It keeps the gums and tongue moist, the teeth healthy, dissolves food, and is important for swallowing. Saliva is made up of electrolytes, mucus, enzymes, proteins, water, and other substances. We use saliva to break down food, fight pathogens, protect teeth and oral mucosa, and lubricate the mouth. When our mouths have the optimal PH level of seven and we have an adequate amount of saliva, remineralization occurs. This means minerals are being put back into the enamel of the tooth, filling in cavities that bacteria have started to form. Demineralization can occur if saliva is too acidic and creates an environment where bad bacteria can grow, resulting in cavities.

Mouth breathing can also lead to dehydration as the body loses moisture through evaporation. The nose is designed to capture moisture and those who breathe through an open mouth have a **42% GREATER MOISTURE LOSS!** Dry mouth that occurs at night or upon waking may be a sign of sleeping with the mouth open.

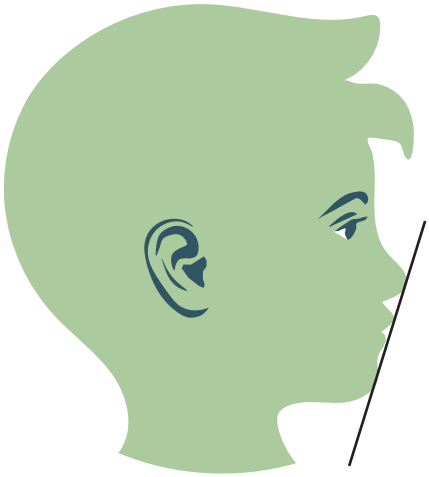
More moisture loss=more dehydration=more fatigue

JAW AND FACIAL DEVELOPMENT PROBLEMS

Oftentimes, it is easy to pinpoint a child with breathing issues because it manifests in the shape of their face, jaw, and neck. Some visual signs we look for in a child that might have an underdeveloped jaw and mouth are poor definition in their cheekbones, crooked and crowded teeth, narrow face, sunken eyes, dark circles under the eyes, a bigger crooked nose, and a gummy smile. We also look at the angle of the face and look for the "lips to lead the face". This means if we drew a straight line from the nose to the chin, the lips should be on that line or extend past it. You can see in the example below of the child that is a mouth breather, that he has those visual signs and how his lips are not "leading the face".



MOUTH BREATHER



NASAL BREATHER

MOUTH BREATHING

When your child breathes through their mouth, they can become dehydrated, stay in fight or flight mode, and inadequately utilize nitric oxide. The air they breathe in isn't humidified or filtered like it is when it is breathed in through the nose. If your child isn't breathing quietly and through the nose, they should be evaluated.

Breathing should be silent.

OBSTRUCTIVE SLEEP APNEA

Obstructive sleep apnea is a sleeping disorder that causes a child to stop breathing momentarily. It is a condition in which the muscles at the back of the throat intermittently relax too much, partially, or completely blocking the airway. This means the child's breathing may be starting and stopping during sleep. These breathing interruptions, which typically last 10-20 seconds, may happen anywhere from five to more than thirty times in one hour.

Try it!

Hold your breath for 10 seconds a few times in a row and see how you feel.

Every time your child stops breathing, even briefly, the brain awakens slightly. Consequently, their quality of sleep is extremely poor which can affect so many parts of the body.

Did you know?

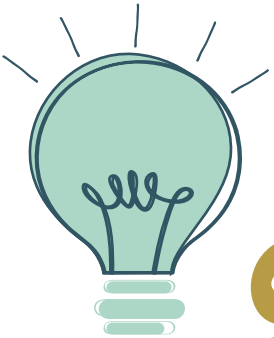
Thirty years ago, approximately 90% of tonsillectomies in children were done for recurrent tonsillitis infections. That has changed dramatically! Today, just 20% of these surgeries are done for infections, with 80% performed as treatment for pediatric obstructive sleep apnea.

WHAT ABOUT THE HEART?

The heart's main job is to pump blood and oxygen to all the cells and organs in the body. When you are sleeping, your heart should not be exercising. When you stop breathing, the heart is the organ that is most taxed immediately. When you stop breathing, the heart cannot deliver oxygen to the rest of the body. Damage can actually be done to the heart when sleep disordered breathing is not addressed. It is well established in the medical community that sleep disordered breathing is highly associated with cardiovascular morbidity and mortality. We want to help address this with your child now before they have had years of stress on their heart.

Did you know?

Most of us sleep for about one-third of our lives. Even if we are only breathing poorly at night, that is one-third of our lives that the heart is being taxed and stressed more than it was ever meant to.



Treatment

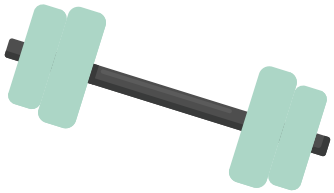
Now that we have got your attention about why nasal breathing is **CRUCIAL** to your child's health, lets talk about the options we can offer you.

After your child is evaluated in our office, we can provide a customized plan that may include myofunctional therapy, getting tethered oral tissues released, fixed expanders for upper and lower jaw, wearing one of our guidance appliances like Toothpillow, and/or adding nasal hygiene to your daily routine.

We also offer take home sleep tests to evaluate the quality of sleep your child gets. The patient wears a ring on the finger during sleep that tracks data. We then interpret and go over this with you in our office, and develop a treatment plan. These tests also determine how often your child stops breathing during sleep, heart rate, oxygen levels, and sleep cycles. Your provider will determine if this is something that will benefit your child in establishing treatment.

Common does not mean normal.

WHAT IS MYOFUNCTIONAL THERAPY?



Myofunctional therapy (MFT) is targeted exercises for the muscles of the face, neck, and mouth. This is used to optimize oral function, breathing habits, and overall health. MFT retrains functional tongue habits to alleviate the issues of mouth breathing and impaired facial and oral development. Breath work is integrated in MFT to focus on optimal nose breathing. When the tongue is resting correctly on the roof of the mouth, it supports and stabilizes the jaw. If the tongue isn't functioning properly (for example a tongue thrust), it is not helping stabilize the jaw and it relies on other muscles to help do its job. This over activates muscles of the face and neck and can cause issues with TMJ. Optimizing tongue function helps alleviate those issues. MFT is an integral part of tongue tie releases in which you will meet weekly/every other week virtually (or in person) with one of our highly trained myofunctional therapists. Exercises will be adapted weekly at every appointment to meet your needs.

Did you know?

A tongue thrust can actually shift teeth. The tongue is made of eight different muscles and is a powerful tool that can help us move the teeth where they should be.

5 GOALS OF MYOFUNCTIONAL THERAPY

1. Constant lip seal
2. Correct tongue posture
3. Constant nasal breathing
4. Correct swallow pattern
5. Doing all of these without muscle compensations

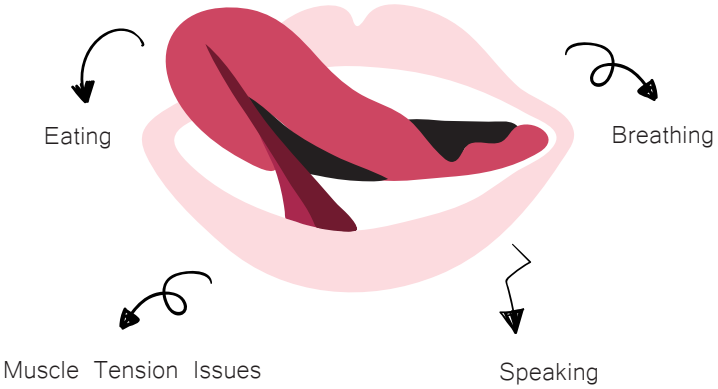
Did you know?

Myofunctional therapy also strengthens the muscles of the throat! This helps clear the fluid of the middle ears and avoids the need for grommets (tiny ventilation tubes put inside the eardrum to prevent a build up of fluid).

TONGUE TIE AND OTHER TETHERED ORAL TISSUE RELEASES

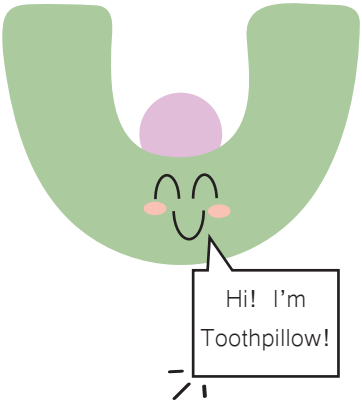
If you are a candidate for a tongue tie release, you will begin with a few weeks of myofunctional therapy before the date of the procedure. When it is time for the release, you will be thoroughly numbed in the area needing addressed. The removal of the tethered tissues will be done with a high-tech laser that is virtually painless. You will then receive stitches to close up the wound. You should plan on resting as much as possible that day and expect to be sore. Many patients explain this soreness as “a sore throat”. After you have begun healing, you will resume your myofunctional exercises with one of our therapists. It will take some time to retrain that tongue that has all kinds of gorgeous mobility now! Your therapist and dentist will determine how long you need to continue your therapy. As a reminder, below are some problems we see with patients who need a tongue tie release.

RESTRICTED TONGUE MOBILITY PROBLEMS



POST OP CHANGES

-May feel immediate increase of airflow
-Voice may sound different
-Scratchy throat (1-3 days)
-May immediately stop snoring or may reduce snoring
-Decreased tonsil size
-Decreased uvula size
-Decreased tongue grooves/size
-May feel more relaxed in tongue, neck, and shoulders



WHAT IS A TOOTH PILLOW APPLIANCE?

To the untrained eye, one might assume it is just a basic football mouth guard! A Toothpillow is a passive fit myofunctional guidance appliance worn at night that encourages a child's jaw to grow and develop appropriately. It gets the muscles off the teeth, encourages proper tongue position and nasal breathing. Toothpillow also forces the tongue up, brings the jaw slightly forward, opens the bite a bit, and helps the back part of the airway. It is sized to be a bit bigger than your child's mouth (so no need to be custom made!) They are very uniquely designed to resolve issues like overjet, overbite, underbite, and crossbite. The Toothpillow is meant to be worn every night and one hour during the day. If your child is a candidate, we recommend starting at age three based on compliance up to around age twelve. Your child will go through a series of sizes depending on when they begin treatment.

Earlier intervention is best.

The appliance is successful when a child completes myofunctional therapy and nasal hygiene in addition to being compliant with wearing it nightly and one hour when awake.

"Palatal expansion is not a treatment to do "until they get braces". We plan to keep your child out of braces, addressing root causes now, and give your child the best support for their current and future breathing."

Dr. Chase Funk

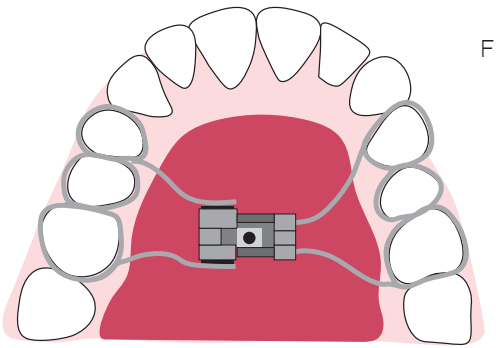
We suggest having your child begin wearing it while they are doing something more sedentary like watching a movie, reading, or coloring. This can help train them and get them used to the sensations they experience while wearing it. It is common for a child to find they have taken it out during the night and it may take a few weeks to successfully keep it in all night. We suggest lots of positive reinforcement until they can get used to it. Most children learn to really like wearing it and becomes very comfortable for them over time. Even when a child is wearing it minimally, we have still seen positive changes!

If we have treated your child with our appliances and their jaws are developing correctly, they may need some minor adjustments to teeth that are a bit out of alignment. Teeth are easily moved when the jaw is in the proper position. We recommend clear aligners to adjust teeth and offer this to you at a discounted rate if you decide to move forward with this treatment.

WHAT IF MY CHILD IS TOO OLD FOR TOOTHPILLOW?

Don't worry! Although it is best to start treatment as early as possible, so much can be done to address growth and development issues in your child even if they are older.

Fixed expanders or removable expanders for upper AND bottom jaw are what we use to widen the dental arches in older children. Traditional orthodontics does not treat or expand the lower jaw. Because the upper jaw sits OVER the bottom jaw, if the bottom jaw isn't expanded, the upper jaw will shrink to fit whatever the lower jaw is doing. We believe that by treating both the upper and lower jaws, your child will have a much higher rate of success with their growth and development, pretty straight smiles, and healthy breathing and sleep.



Fixed expanders are worn for 6-12 months. A small key will be used at home to twist and expand the device, which will slowly expand the upper and lower arch. Your provider will determine how often to twist, and the duration in which the device will be worn.

Did you know?

If we don't expand the mandible (the lower jaw bone) in conjunction with the maxilla (the upper jaw bone), we are much more likely to get relapse and improper occlusion. Of course braces can tip the teeth facially and lingually to line them up for a bite, but the airway is the biggest concern.
Achieving a nice, open airway should be our goal!

WHAT IS A MYO MUNCHEE?

Saliva is nature's elixir! The volume and PH of our saliva determines our oral health. The action of chewing increases our saliva production and alkalinity. The Myo Munchee is a chewing device that increases saliva production and PH. The Myo Munchee also supports optimal oral tone and function, by helping to strengthen the muscles of the lips, face, jaws, and tongue. Chewing the device for a few minutes each day encourages tongue and saliva control, by training the muscles of mastication and swallow. Chewing the device also stimulates and integrates cranial nerves. These nerves contribute to sensory and motor control of the tongue. Additionally, the prongs on the device gently rub the gums and teeth providing an additional cleaning action. You can begin using a Myo Munchee as early as six months!

SHORT HISTORY OF MYO MUNCHEE

In the 1970s, Japanese researchers performed a clinical trial examining chewing for oral health in children. They found that 'The Chewer' (an oral device used to increase and exercise the jaw by chewing), was extremely effective for addressing plaque and gum health in young children.

In the 1980s, researchers noticed positive changes in bone growth, facial shape, and occlusion.

Today, Myo Munchee has a clear mission to raise the next generation of "chewers"!

What about babies?

Myo Munchee promotes natural oral development by encouraging baby's tongue and jaw muscles to work together. It helps build a strong foundation for speech and feeding skills. Unlike pacifiers, Myo Munchee's innovative design offers dual benefits! Not only does it soothe those sore gums during teething, but it also aids in stimulating oral motor skills, providing developmental benefits.

NASAL HYGIENE

Nasal hygiene is the practice of keeping your sinuses clean, clear, and moisturized to ensure your nose is at its peak performance. Nasal hygiene refers to keeping your nose functioning instead of waiting for symptoms to flare up and can be integrated into your daily wellness routine. It should especially be done if you suffer from chronic sinus issues like allergies, a stuffy nose, or sinus infections.

Nasal hygiene allows for good nasal breathing.

EXAMPLES OF NASAL HYGIENE

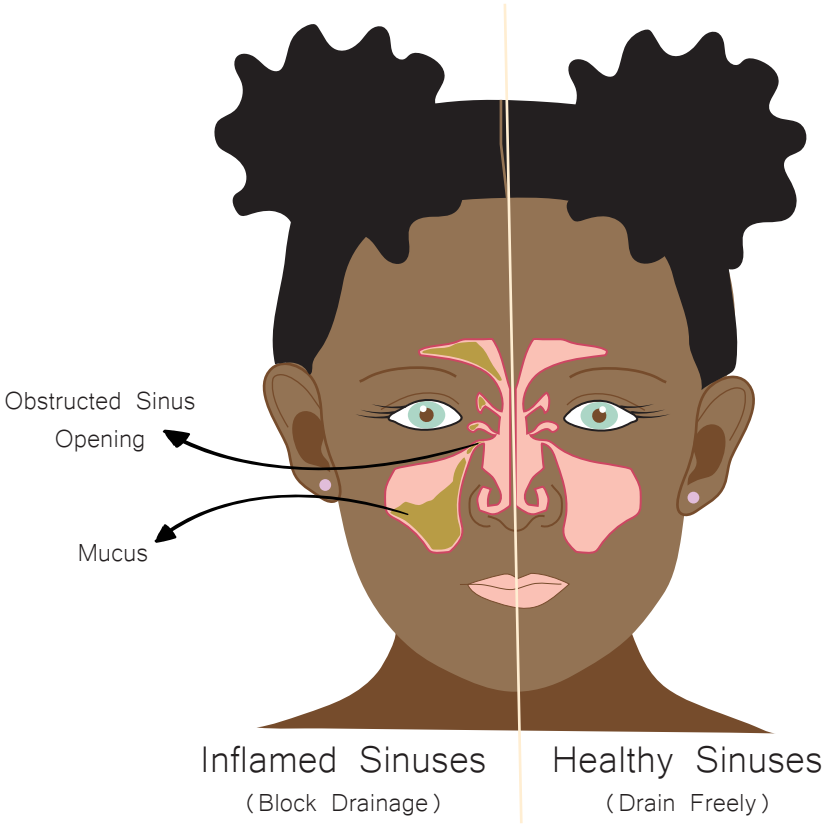
- Sinus rinse (like Neilmed or Neti-Pot, using distilled water and salt)
- Nasal Spray (like Xlear with xylitol)
- Nasal breathing exercises
- Cleaning/blowing insides of nostrils with a tissue

Tip

Incorporating nasal hygiene into your bedtime or morning routine is easy. Just add it in after a habit you already do like brushing your teeth!

Did you know?

If you get sinus infections you're likely a mouth breather? When we nasal breathe, we create nitric oxide in our sinuses. Nitric oxide has an anti microbial effect which helps sanitize the sinus cavity and therefore prevents overgrowth of bacteria that leads to sinus infections.



BENEFITS OF NASAL RINSING

Helps to remove dust, pollen, other allergens and debris

Loosens up thick mucus

Increases flow of mucus, thus allowing sinus passages to be clear

Prevents growth of bacteria in the sinus cavity

Improved nasal breathing

Reduces sinus inflammation

Always rinse with distilled water!

Before and After

This transformation is amazing! If you look at the roof of the mouth, you can see how much wider and U-shaped it is. The teeth naturally have less crowding with a U-shaped palate, opposed to a narrow V-shaped palate like in the first photo.

This patient has been wearing guides for three years. Look at the change in his jaw structure! This works every time when patients are compliant and wear the devices.

Courtesy of Dr. Kalli Hale

This patient is three years old and has been wearing a guide (Toothpillow) for seven months. His under bite is fixed and now he is on the right track for proper growth and development.

Straighter teeth, expanded palate, bigger mouth, bigger airway, better sleep!

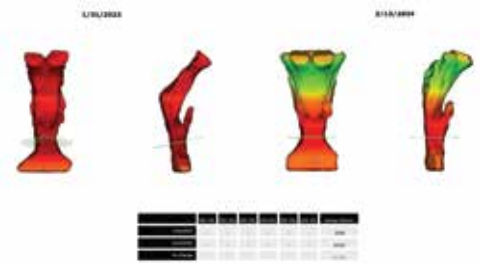
Not only does this patient's smile and teeth look straighter, but look at the size difference in her mouth!

Treatment for this patient included expanders and guide therapy. Notice how wide the back part of the mouth is in the second picture compared to the first. A lot more of the teeth are visible and you can see that the back teeth fan out from this angle, compared to almost stacking one behind the next in the first photo.

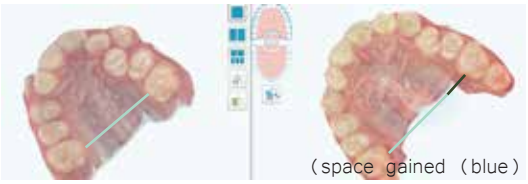
Beautiful transformation! Notice the size of her mouth and how different it looks now that she has been expanded.

Courtesy of Dr. Kalli Hale

Notice the profile and forward position of the head in the first photo. It almost looks as if there is a u shape in the back of his neck, compared to the second photo after he has been treated. Notice the more recessed chin, and parted lips in the first photo as well.



This is a before and after of a patient's airway, much of which is unable to be seen with the naked eye. The improvement in this 3D imaging is extremely rewarding to see. Look at how much more space we can see on the right with all of the green and yellow space that isn't visible at the starting point on the left (solid red). This eleven year old girl has a 97.2% increase in volumetric airway after expanders and guide therapy!



This is a before and progress photo of a disabled child. Look at the space created in the palate and is obviously on the way to straighter teeth. This patient was saved from two tooth extractions.

Courtesy of Dr. Kalli Hale

We love this before and after! Bigger mouth, straighter teeth, better sleep!

Wrapping It Up

Treating our patients with these procedures, appliances, and tools is a very different philosophy than you are probably used to hearing about. If you have made it this far, we applaud you! Arthur Schopenhauer, a German Philosopher once said, "All truth passes through three stages. First it is ridiculed. Second, it is violently opposed. Third, it is accepted as being self-evident". Treating airway has been around for over 100 years and has gone through many phases of ridicule.

We believe we are in the second stage with all of this information, but are on the cusp of the third where it will be accepted as truth. We will do all we can to educate and treat as many of our patients as we can to positively impact this generation's breathing, sleep, and health.

Once I learned and understood all of this, I couldn't unsee it. Now all I see are generations of kids and adults around me with small mouths, mouth breathers, and poor sleepers. I know that when we know better, we do better and that is why I am choosing to treat these issues in the best way I know. We are already seeing amazing results in our clinic. I am extremely optimistic that we can help many children on their way to better jaw development, straighter teeth, and above all, good quality sleep.

Dr. Chase Funk

"The doctor of the future will give no medicine, but will interest his patient in the care of the human frame, in diet and in the cause and prevention of disease".

Thomas Edison

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