

Children's Sleep Disordered Breathing

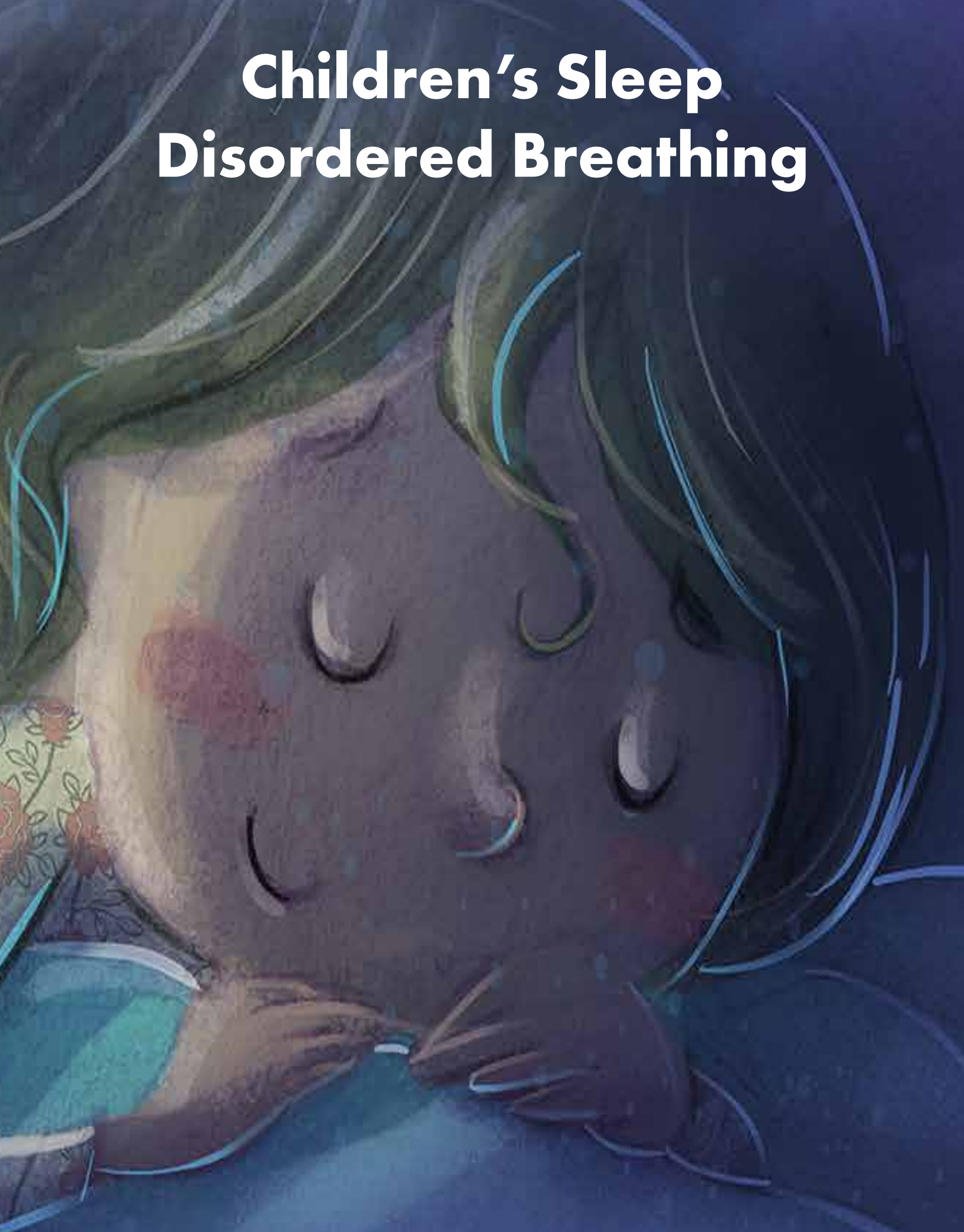


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Welcome

While childhood Sleep Disordered Breathing (SDB) is, at this time, an often-overlooked diagnosis, doctors, dentists and therapy professionals across the country are working together to bring this debilitating disease into the spotlight.

How a child grows and develops is directly related to the quality of their sleep. Quality of sleep is affected by how much oxygen is available to a child at night, which is related to the upper and lower jaws growing to their full potential.

Poor sleep can result in a myriad of symptoms that children and parents struggle with daily. Until now our society has been focused on treating the symptoms.

Together, let's change your child's life.

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Children's Health Epidemic

What is happening to kids these days? It seems like more and more of them have behavior problems, allergies, ADHD or something. It seems like kids are taking medications every day.

The scary thing is, it's true.

A growing number of children have one or more of the problems shown on the next page.

Does your child have any of these problems? Take heart!

Recent research has discovered that many of these problems may only be symptoms of a very correctable deformity and malfunction in the child's oral and facial structure.

Common Problems in Today's Kids



**Bed
Wetting**



**ADD
ADHD**



**Delayed
Speech**



**Overweight
Obesity**



**Learning
Difficulties**



**Vertigo
Clumsiness**



**Restless
Legs**



**Aggression
Defiance**



**Teeth
Grinding**



**Daytime
Sleepiness**



**Nightmares
Night Terrors**



**Allergies
Asthma**



**Teasing
Bullying**



**Anxiety
Attacks**



**Frequent
Illnesses**



**Stunted
Growth**



Why Treat SDB?

Parents, teachers, counselors and doctors may be diligently trying to treat a child's problem that doesn't exist. In many cases, the child would have been diagnosed differently after a sleep study.

Those children may have "imposter" conditions, which actually originate from their SDB.

That could make treatments intended to "fix" these imposter symptoms, in reality, unnecessary.

The SDB "Burglar"

The SDB burglar prevents children from getting good, restorative and nurturing sleep by stealing away children's oxygen at night.

Because their brains and bodies are robbed of oxygen, things go wrong.

The oral and facial deformities mentioned earlier make up the disease known as Children's Sleep-Related Breathing Disorder or "SDB".

Over the child's **first 7 years**, that chronic oxygen starvation may produce behavioral problems like ADHD, Anxiety, Bed Wetting, Bullying and Learning Difficulties.

The low oxygen levels suffered during sleep may also give rise to physical problems like Delayed Speech, Crowded Teeth, Chronic Fatigue and Sleep Apnea.

Thankfully, SDB is treatable and early treatment may significantly lessen or even reverse these symptoms.

Some of these treatments may include:

Psychiatric Testing

Psychotropic Drugs

Tooth Extractions

Various Surgeries

Special Education

Amphetamines

Counseling/Therapy

ADHD Medication

Allergy Pills

HGH Injections

Behavior Programs



For many children, these treatments are just long-term band aids that "manage" their symptoms but don't do alot to address the root cause of those symptoms.



The Root Cause of SDB is the Child's Tongue

Only recently have researchers discovered that what the tongue does behind the scenes in the first years of a child's life could mean the difference between that child going through life happy and healthy or living a life of misery.

Remember the list of symptoms related to SDB that we presented a few pages ago? It turns out that the child's tongue can be implicated in all of those conditions.

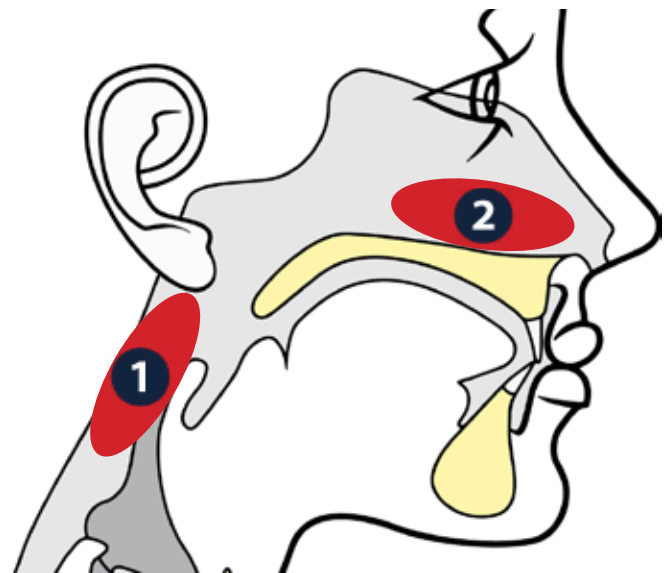
I know what you're thinking. "What could the tongue possibly have to do with bed wetting, obesity or ADHD?"

If the tongue doesn't do its job in the early formative years, the child's face and jaw may not develop properly.

This, in turn, blocks or shrinks the child's main airways and air doesn't flow freely to the lungs. And that means oxygen doesn't flow freely to the brain and body.

Normal children have oxygen levels of 95% to 98% when they are sleeping.

Children with SDB have oxygen levels well below that. In fact, oxygen levels in kids with SDB can drop to 80% and cause permanent damage to the child's brain.



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Two Types of SDB

Type-1 SDB® affects the airway in the throat.

Type-2 SDB® affects the airway in the nose.

These are the two primary areas in the structure of the face and mouth that become blocked because of the tongue's influence on growth and/or development.

Let's Look at Type-1 SDB

“Workout” Food for the Mouth

In the 1950's, the availability of quick, easy and nutritious pre-packaged baby food helped moms get into the workforce. But now we know that soft baby foods actually weaken a child's tongue and jawbone.

Traditionally, foods that needed active chewing were introduced while breastfeeding continued for 2-3 years. These tough foods (e.g., raw vegetables, thick bread crusts and chicken drumsticks) made the tongue, oral muscles and lower jawbone work.

Why is that so important? Well...

When a child breaks a leg, the leg is casted. Soon the bones and muscles begin to shrink.

The leg can't move so it's fooled into “thinking” that it's not needed and it begins to atrophy.



To counteract this, doctors soon put the leg into a walking cast. This stresses the leg bones and muscles and they respond by growing stronger.



Stunted Jaw and Tongue

Soft baby foods like mashed potatoes, apple sauce and, strained peas are “pre-chewed” and the tongue simply swallows the food.

Little pressure is put on the jawbone so, like the boy's casted leg, it doesn't grow. And because the tongue doesn't have much to do, it becomes weak and lazy as well.

The jaw and tongue don't grow and may, in fact, even shrink. The rest of the head keeps growing and developing normally.

The child develops a stunted chin.



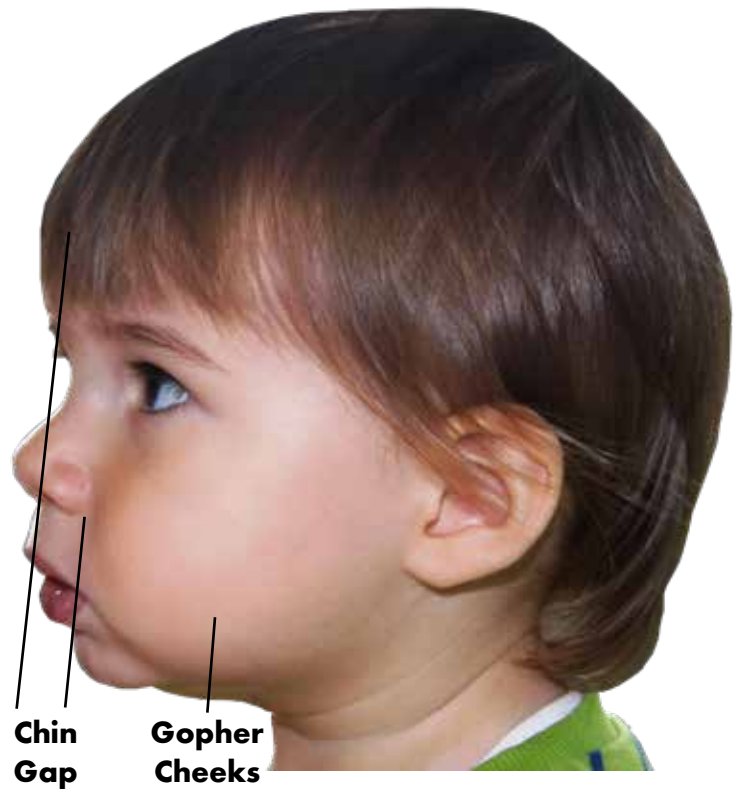
“What Qualifies as a Stunted Chin?”

There is a simple test that you can do at home to evaluate your child’s chin.

Take a profile photo of your child. Lay a ruler down on it so the edge goes from your child’s forehead down through the point where the upper lip meets the bottom of the nose.

If your child’s chin is touching the edge of the ruler, that’s good. Is there a large gap? You need to have your child professionally evaluated.

Not sure? Another indicator is that the child’s cheeks sometimes look too big for their chin size. They may look like they have “gopher cheeks.”



“My Child Has a Stunted Chin!”

People may argue that whether or not a child will have a “receding” chin is purely due to the parents’ chin shapes, but there is no concrete evidence of that.

In this photo, dad has a normally developed chin and the boy’s chin is stunted as you can see from the gap shown.



“All Kids Have Stunted Chins!”

Other people may claim it’s just a part of childhood and kids’ll grow out of it eventually. “And they’re so cute when they look like that.”

In fact, only about 8% -10% of children have a stunted chin. Both this little girl and her mom have perfectly normal chins.



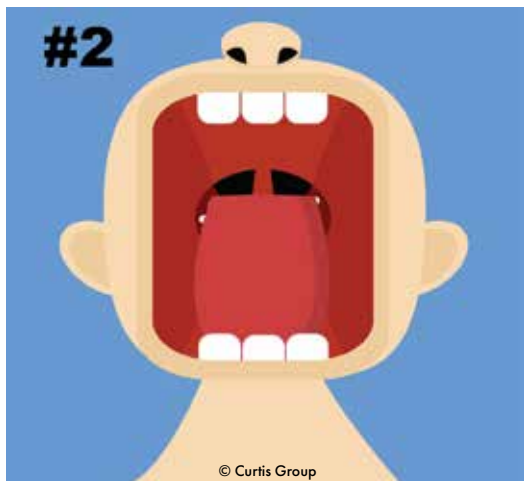


“My Child Has a Stunted Chin. Now What?”

In our society, we refer to chins as “strong”, “weak”, “noble”, “masculine” or “feminine”. The problem is that these are all words related to a chin’s appearance as we “feel” about it.

But in this book we are talking about chins that did not develop properly and are **STUNTED**. A stunted chin indicates that the child’s tongue and lower jaw failed to grow forward and are now constricting the airway in the throat.

You may wonder, “How severely obstructed is my child’s airway?” Well, let’s find out.



At-Home Airway Assessment

To the left are four diagrams showing a child’s throat and the severity of the constricted airway in the throat.



This is actually a quick and simple test used in hospitals every day. If you’ve ever had surgery, the anesthesiologist probably asked you to open your mouth and say “Aaaaah”.

He or she was checking to see how difficult it would be to place a breathing tube in your airway if needed. You can do the same test on your child at home.



Have your child face you straight on and look you in the eyes. Then have them place the tip of their tongue on the tip of their lower front teeth (just like in the diagrams). Ask them to “Open Wide.”

Compare your child’s airway to these diagrams and choose the one that matches your child. If you choose #2, #3 or #4, you should be concerned and speak with an airway professional.

Fixing Type 1 Sleep Disordered Breathing

Narrow Airway in the Throat

Remember, even if the jawbone and tongue stop growing, the rest of the head and face keep growing around them. This closes the child's airway in the throat.

Also remember that soft baby food has made the tongue weak, so it may be falling backward into the throat during sleep and causing sleep apnea episodes.

What does Type 1 SDB feel like?

With your thumb and forefinger, push your chin in and down into your neck as far as you can without causing pain. Now breathe through your mouth. Fun, isn't it?

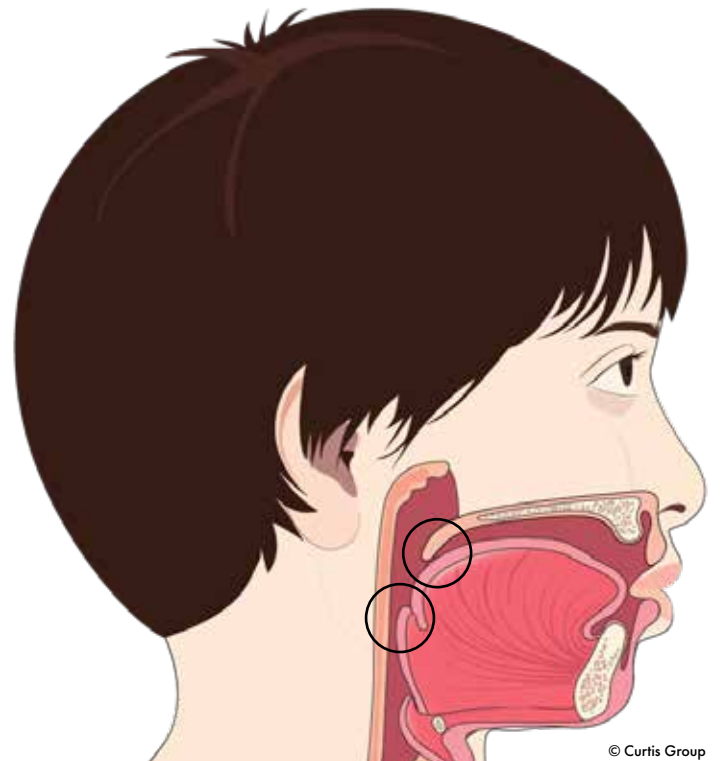
Guided Growth

Fortunately, the airway professional who offers this book also offers a guided growth program that can diminish or even reverse the effects of irregular facial development.

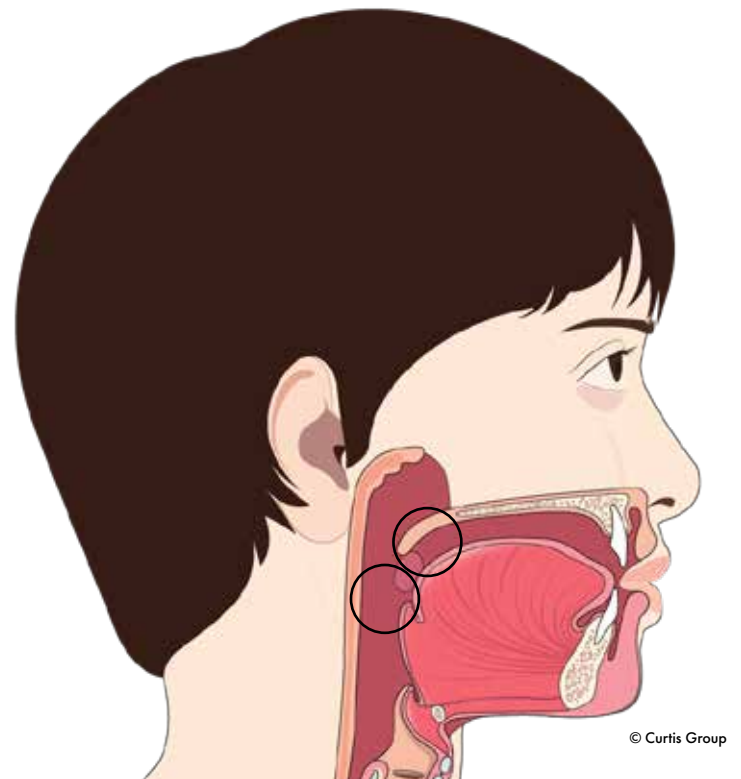
With this program, children, from newborns to pre-teens, can be successfully treated for a narrowed airway. The child's facial structure, lower jaw and tongue are gently returned to a normal development track.

In addition, therapists will work on:

- Training the tongue
- Promoting proper swallowing
- Improving speaking skills
- Eliminating thumb sucking
- Eliminating tongue thrusting



Stunted chin at 8-Years of Age
Before Guided Growth



Normal facial structure at 13-Years of Age
After Guided Growth

Let's Look at Type-2 Children's SDB

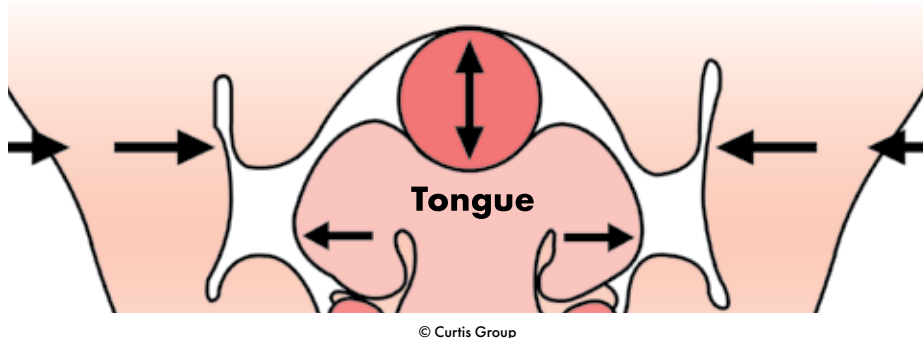
The Daily Damage of Sucking on Objects

In the 1950's, the economy was booming and women were needed in the workforce. And with the arrival of some new products called pacifiers and baby bottles, women were freed to respond, which they did in droves.

In fact, some say that pacifiers and bottles were a key factor in creating the two-income family. The added income improved the nutrition, education and health of babies everywhere.

However, unbeknownst to doctors, scientists and parents, these items also began to change the structure of children's mouths.

Pacifiers and bottles are still with us because of their value to families, but we need to be aware of some of their downfalls.



Imagine the red circle above is a thumb, pacifier or bottle nipple. When the child sucks on it, the cheeks and lips are drawn in, forcing the upper gums inward.

The tongue also pushes the object into the roof of the mouth which pushes up against the nasal airways above.

Meanwhile, the sides of the tongue are also being forced outward against the lower gums and pushing them apart.

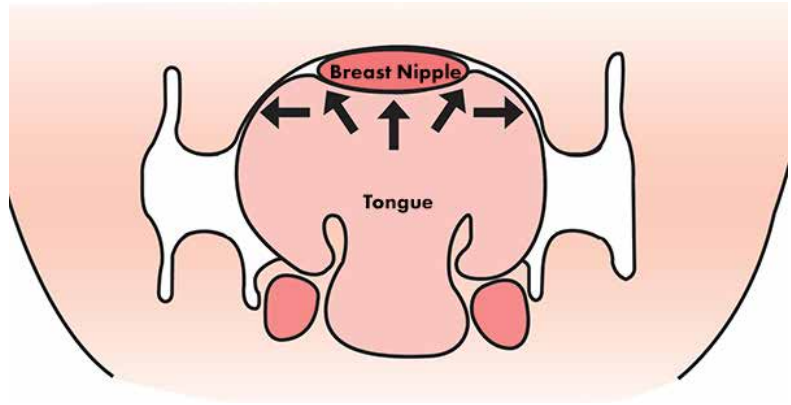
It's been estimated that 18-month old babies spend as much as 85% of their waking hours sucking on something.



“But, Isn’t Breastfeeding Sucking As Well?”

Actually, it’s not. Yes, the tongue does push the breast nipple up against the roof of the mouth causing the mother’s milk to be pressed out rather than sucked out.

However, as the baby continues to apply upward pressure over and over, the tongue also pushes outwards. This repetitive motion, means that the tongue counteracts the inward pressure of the child’s cheeks and lips to **protect the nasal airways.**



“Protect the Nasal Airways?”

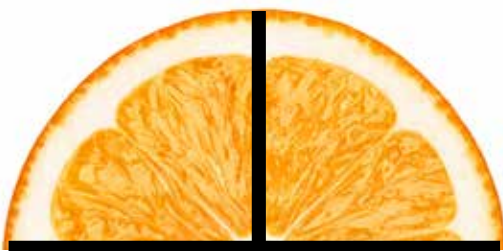
The roof of the child’s mouth (upper palate) sits right underneath the airways coming in through the nose and leading down into the lungs. If the roof of the mouth gets pushed up, it will get **pushed up into the nasal airways.** When that happens, the nasal airways get squeezed and it becomes more and more difficult to breathe through the nose.

“Pushed Up Into the Nasal Airways?”

The cheeks and lips are powerful muscles and they constantly squeeze inward on the upper gums. Sucking on objects adds just enough extra pressure each day to raise the roof, so to speak.

The vertical black lines below are the same height. The two horizontal lines are the same width. As you can see, squeezing the orange makes it taller and narrower.

The tongue **fight**s that inward pressure by **swallowing** 1,300 to 1,600 times a day, including while the child sleeps.



Swallowing?

When the child swallows, the tongue presses to the roof of the mouth and starts a wave motion that moves whatever is in the mouth backwards and down the throat. As it does this, it pushes out on the sides of the upper palate to form a seal. Pushing against the sides of the upper palate counteracts the inward squeezing of the cheeks.



The Absentee Tongue

Normally, the child's tongue is up in the roof of the mouth. There, it pushes outward each time the cheeks and lips squeeze in. In fact, every time the child swallows, it pushes a little harder so that as the child's head grows, the upper palate expands outward.

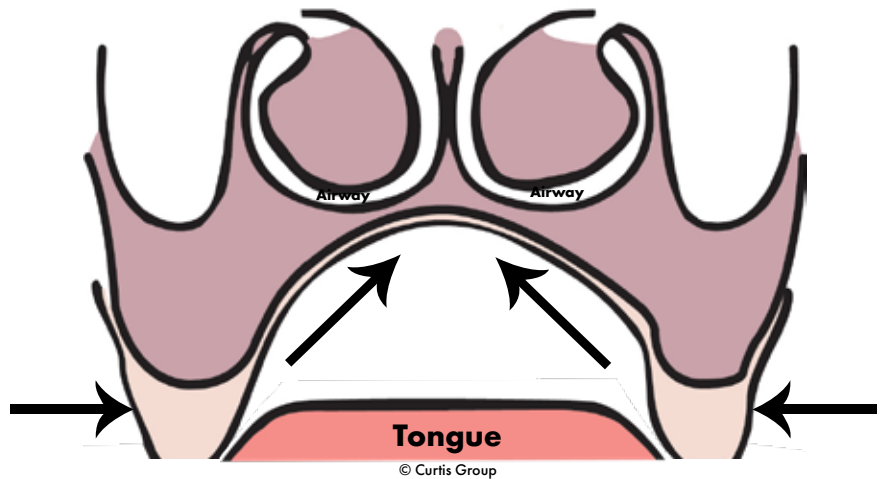
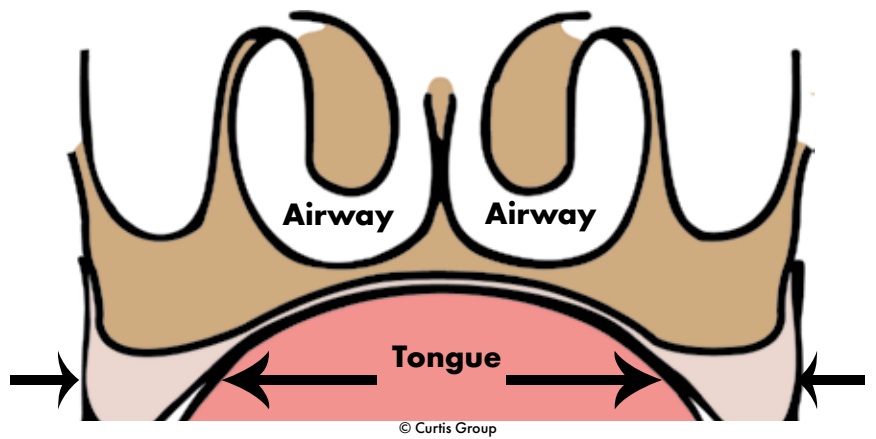
If the tongue is not up against the roof of the mouth, the child develops a "tongue thrust" swallowing motion and this adaptive motion isn't very effective at countering the cheek and lip muscles' constant squeezing.

"Why Wouldn't the Tongue Be in the Roof of the Mouth?"

Reason #1: It's too small or weak.

Remember earlier when we learned that soft foods make the tongue and lower jaw shrink and become weak?

The child's growing tongue and lower jaw need a good workout every day. If not, the jaw hangs down, the mouth drops open and the tongue lies on the floor of the mouth.



How To Build a Strong Tongue That is the Envy of All Who Look Upon It

Serve "Hero" Foods

- Raw Veggies
- Raw Fruits
- Bread Crusts
- Chicken Drumsticks
- Granola Bars

Not "Zero" Foods

- Boiled Veggies
- Pureed Baby Food
- Soft White Bread
- Bologna Slices
- Smoothies



Reason #2: The Stuffy Nose Cycle

A child catches a cold. Before the child can recover from that virus, another one hits. After that, here comes a sinus infection. The child has a stuffy nose for months and adopts a mouth breathing sleeping style.

Normally, children sleep with their mouths closed and they breathe through their noses. The nasal airways were especially designed to warm, moisten and filter incoming air.

The Tongue Gets Trained

Children's tongues should rest in the roof of the mouth but because the child is mouth breathing, the tongue must lay low to stay out of the way of incoming air and oxygen.

Eating becomes difficult as well because food blocks the airflow. The child must stop eating to gasp for air. Gasping while sucking on a bottle often sends milk spraying down into the lungs; a place that milk is not supposed to be. Pacifiers don't stay in.



24/7 Mouth Breathing

Eventually, the child "forgets" to breathe through the nose. The mouth droops open throughout the day. The tongue stays on the floor of the mouth to keep the air flowing.

But the tongue is supposed to be in the roof of the mouth so now things go wrong.

Without the tongue's muscle power in the roof of the mouth, the upper lip and facial muscles start to squeeze the upper palate, pushing it up into the nasal airways.



The “Ride” Doesn’t End, Unless...

Life isn’t very fun for many children who have Sleep-Related Disordered Breathing. They’re on the ride with other kids but each time it goes around, it seems they hit another setback.

If airway intervention is not offered to them, life becomes one illness after another, with each new one a little more serious than the last. As adults they will be more likely to have heart disease, sleep apnea and COPD.



The Consequences Begin

Because bacteria, viruses and allergens aren’t getting filtered in the nasal passages, they head down into the lungs unchallenged.

The child begins to develop chronic illnesses like sinus infections, ear infections and even environmental allergies. He or she may become chronically fatigued, begin bed wetting and develop learning challenges and social delays.



The Nasal Airways Keep Shrinking

The constricted nasal airways now **require** the child to mouth breathe. The tongue stays down, the upper palate gets squeezed and the nasal airways shrink further.

At this stage, the child may continually complain about a sore throat; especially in the morning. The incoming air isn’t being warmed and moistened so the tonsils and throat become dry and irritated.



Reason #3: The Tongue is Being Held Down

A tethered tongue (ankyloglossia) is a condition present at birth that restricts the tongue's range of motion. A band of tissue "tethers" the bottom of the tongue to the floor of the mouth. A tethered tongue can affect the way a child eats, speaks and swallows, so it may interfere with breastfeeding. A tethered tongue is just one of many possible examples of tethered oral tissues. There can also be tethered tissue problems with the lips (upper and/or lower) and the inside of the cheeks.

A tethered tongue is usually discovered when a baby has trouble breastfeeding. Breastfeeding requires babies' tongues to extend over their lower lip while latching on to the nipple. If the tongue can't do that, the baby might chew on the nipple, have the mother's milk dribble out of the mouth or get air into the stomach.

This can interfere with a baby's ability to easily drink the mother's milk. Unsuccessful breastfeeding can cause poor nutrition and, in severe cases, the baby could fail to thrive.

Talk with a clinician if:

- Your baby or young child has signs of a tethered tongue or trouble breastfeeding.
- A speech pathologist says your child's speech is affected by a tethered tongue.
- An older child tells you that his or her tongue gets in the way of eating or speaking.
- You think that YOU may have symptoms of a tethered tongue or other tethered tissues.

And, since a tethered tongue can't live in the roof of the mouth, the child may develop a narrow, high-arched upper palate. That can lead to constricted nasal airways. Which, as you've learned, can lead to multiple physical, behavioral and psychological problems.

If you suspect that your child has a tethered tongue, you should know that the condition is highly treatable. Bear in mind, however, that contrary to what family and friends may tell you, sometimes the tongue will not need to be released or there may be therapy necessary before a release is done.



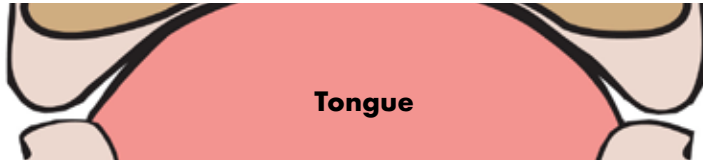
Finally, a tethered tongue can make certain sounds almost impossible for the child to say clearly. The most common are:

- "T" as in "Toy"
- "D" as in "Da-Da"
- "N" as in "Nana"
- "S" as in "Sister"
- "Th" as in "That"
- "R" as in "Truck"
- and "L" as in "Love".

A speech language pathologist may be able to correct the problem but may also advise you to consult with a clinician.

More Consequences of an Absentee Tongue

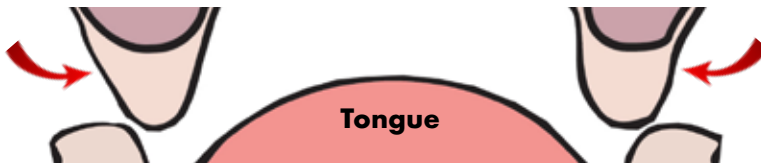
When the tongue is not living in the roof of the mouth as we've discussed, the upper jaw gets squeezed together. It would be bad enough if it only raised the palate and constricted the nasal airways. But, NO! It also squeezes the upper gums inward which doesn't leave enough room for the adult teeth to eventually emerge creating what some mean kids in school will call "vampire teeth".



Normal Upper Palate



"Vampire Teeth"



Squeezed Upper Palate

Fixing Type-2 Sleep Disordered Breathing

Guided Growth techniques are used for Type-2 SDB to reshape the roof of the mouth and open the nasal airways. Tongue exercises will strengthen it and get it into the roof of the mouth.

The upper jaw will be expanded so that adequate space will be available for the upper adult teeth to come in and so the upper and lower teeth mesh together in a solid, functional bite.



Shondra had just started kindergarten and was having some troubles in school. She was a mouth breather, snored and sometimes choked during sleep. After being treated with a Guided Growth program, Shondra's lower face and jaw began to fill out and she found it easier to breathe through her nose. She began getting the restorative and rejuvenating sleep that her energetic body demanded.

Indicators of SDB

You may ask, "How would I know if a child has SDB?"

Here are some physical indicators and characteristics that you should watch for.



Snoring/Sleep Apnea

Snoring, and especially sleep apnea (when breathing during sleep stops for 10 seconds or more), is an immediate red flag.

Crowded Upper Teeth

Crowded upper teeth could mean a narrowing upper palate is leaving little space for emerging adult teeth and narrowing the nasal airways.



Stunted Chin

A stunted chin could mean that the child's jaw did not keep up with overall facial growth and is now blocking the airway in the throat.

Dark Circles

If children's eyes have dark circles under them, and there's an overall look of exhaustion, it's probably because they aren't getting good restorative sleep.



Mouth Breathing Eating

Does the child chew on one side so he or she can breathe on the other side? Or do they chew with closed lips but stop to breathe through the mouth?

Dry and Swollen Tonsils

24/7 mouthbreathing means children breathe unfiltered, unwarmed and dry air through the mouth making the tonsils dry and irritated.



Where Do We Go From Here?

The good news is that whether a child is just beginning to show signs of Sleep Disordered Breathing or has done so for years, we can help.

In fact, in cases where the development of a compromised airway is caught early enough your airway clinician can most likely fix the problem and can oftentimes reverse the damage and restore the child's ability to breathe freely through the night.

As for you, from now on, you'll always see children differently. Everywhere you go, you'll be aware of tired children standing in the background with dark circles under their eyes, stunted chins and crowded and/or crooked upper teeth.

Please share with others what you know about Sleep Disordered Breathing.

You might change a child's life.

Dark Circles **Looks Tired** **Not Participating** **Stunted Chin**



A Personal Note to Parents...



It's going to be okay!

Take a deep breath.

When parents find out that their child has SDB, and especially when they find out what effects it may have on their future, it can be overwhelming.

While there is no quick fix for Sleep Disordered Breathing, there are many available programs, tools and techniques available to ensure a positive outcome.

Rest assured that better days are just ahead.

**You can't change your child's past,
however,
together, we can transform your child's future!**

