

BREATHE Well,



SLEEP Well,

and

SMILE!



Why Airway Aware Orthodontics Plays a
Crucial Role in
your Child's Health and Peak Performance.



AN INTRODUCTION TO AIRWAY ORTHODONTICS FOR ALL PARENTS

Congratulations! By taking the time to read this important information, you have taken the first step in helping your child reach their best potential and peak performance. The orthodontic choices you make for your child can improve their chances of experiencing unobstructed breathing, a good night's sleep, healthy development and a better quality of life.

The philosophy of "AIRWAY AWARE ORTHODONTICS" means not just looking to straighten a child's teeth, but we are also looking at WHY the teeth became "crooked" in the first place. Our AIRWAY AWARE ORTHODONTIC APPROACH means we are looking at WHOLE BODY HEALTH AND WELLNESS; because we know that "crooked teeth" are just a PART of a much larger health issue. The way your child's teeth and jaws are developing and what they "look like" are often a "**warning signal**" that more important health issues may be lurking underneath, putting your child's health at risk **now**, if not addressed, and in the **future**.

As PEDIATRIC and ORTHODONTIC DENTISTS, our **dental and orthodontic training focuses on the growth and development of the child – from birth through adolescence**. When we identify poor facial growth and habits EARLY, often even before obvious malocclusions occur, we can help your child's growth pattern get back on a healthy track, undo the poor habits and help re-establish proper nasal breathing, all of which can lead to your child sleeping better and enjoying better over- all health – and, YES. **The teeth come in straight too.**



AIRWAY AWARE

ORTHODONTICS FOR ALL

PARENTS

To understand how the **vicious cycle** of poor facial growth and airway development, malocclusion, mouth-breathing and poor health outcomes all directly affect each other, a basic anatomic and physiologic concept must be understood.

BONE FORMATION IS GUIDED BY THE FORCES AND TENSION OF THE MUSCLES.

Over half a century ago Dr. Melvin Moss, an Anatomy Professor and Orthodontist from Columbia University introduced us to the “Functional Matrix Theory”. His research taught us that facial bones develop in response to the forces of the facial muscles.

“FORM FOLLOWS FUNCTION”

GOOD FACIAL FORM RESULTS FROM GOOD FACIAL FUNCTION.

To have “good facial form” with straight teeth, proper jaw growth and healthy airway development, the “proper function” of nasal breathing with the lips together at rest, the tongue postured in the roof of the mouth and a correct swallow pattern must be present.

The opposite is true as well, that poor facial form results from poor facial function.

Poor muscle habits like a low tongue posture, an incorrect swallowing pattern and mouth breathing can begin around birth or soon after. As the pattern of poor oral habits and incorrect growth and development of the face continue, airway development becomes compromised and breathing obstructions can occur. Mouth-breathing then often becomes a “way of life” as the body adapts to poor growth and smaller and obstructed airways.

Much research, including that of Dr. Christian Guilleminault, a Researcher and Physician at Stanford University, who is the “Father of Sleep Medicine”, is demonstrating that mouth-breathing and poor facial development is leading to the many health issues that our children are facing; including poor and fragmented sleep patterns, ADHD and behavioral issues, enlarged tonsils and adenoids, increased severity of asthma, frequent sinus and ear infections and high blood pressure just to name a few.

Not addressing this vicious cycle in the growing child not only has adverse effects on their development and quality of life during their most crucial growth and development years, but later in life it can put many of our children at high risk for developing obstructive sleep apnea and other health conditions that have serious and deadly consequences as adults.

We want your children to experience not only beautiful smiles, well balanced faces and stable long-lasting results, but to develop both physically and emotionally to their best genetic potential for **PEAK PERFORMANCE, GOOD HEALTH AND HAPPINESS.**

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The Way Your Child Breathes Can Determine How the Face Grows

Breath is life. Breathing is such a natural part of life that most people don't even think about it. For instance, do you know whether your child breathes through their nose or their mouth? Most parents don't know the answer, nor do they have any idea of the many consequences mouth-breathing can have on a child's life.

Mouth-breathing can affect your child's immune system, their posture, their ability to pay attention, their mood and how well they sleep. And, yes, mouth-breathing can even affect how your child's face grows. Mouth-breathing can change how your child's whole body develops, as well as the condition of their health for the rest of their life.

When the mouth is left open to breathe, the muscles in the cheeks become tight. These tight cheek muscles apply an external force to the upper and lower jaws, which creates a narrowing effect on the dental arches and face.

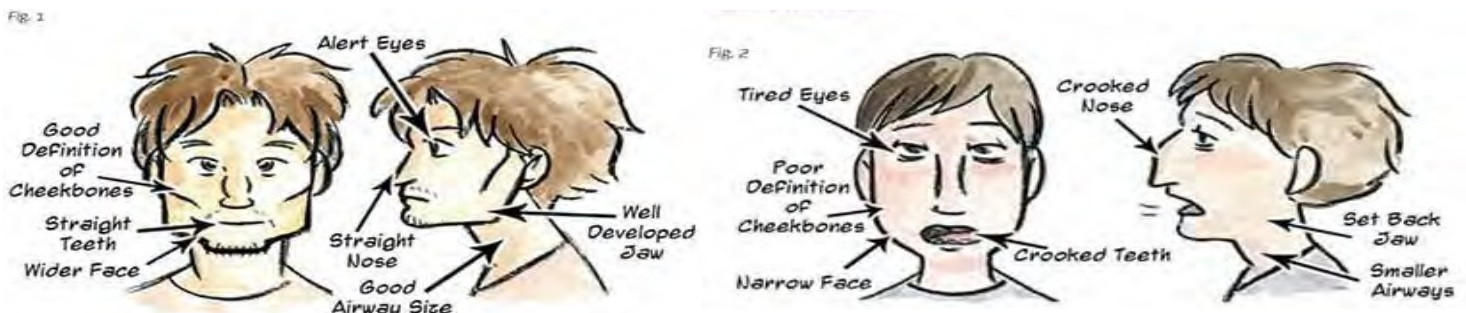
Mouth-breathing also affects the position of the tongue in the mouth. The tongue is the strongest muscle in the body for its size and is meant to naturally rest at the roof of the mouth. The tongue is considered "nature's retainer" when it is in the proper position, because it supports the upper arch, allowing enough room for all the teeth to come in.

When one breathes through their mouth, the tongue hangs low. The upper arch is no longer "supported" by the tongue and the lateral forces of the cheek muscles cause the upper arch and palate to narrow and "collapse under the pressure."

It is important to know that bone of the roof of the mouth is the same bone as the floor of the nose; therefore, the nasal cavity's size can be affected as the palate narrows. This can make it even harder to breathe properly through the nose.

Additionally, when the tongue is in the proper position, it applies outward pressures that help the mid-face grow properly in an "**outward and forward direction**". Low tongue and mouth-breathing contribute to the development of a mid-face deficiency because the tongue is not pushing on the facial bones. As a result, facial growth gets off track and turns into a "**downward and backward**" pattern; this growth pattern is a known risk factor for obstructive sleep apnea, in addition to dental malocclusion.

The vicious poor health and growth cycle just feeds on itself unless intervention occurs while the child is still growing.



The Way Your Child Breathes Can Determine How Healthy They Are

Several things go wrong with mouth-breathing. Mouth-breathers are shallow breathers and tend to hyperventilate. This causes less oxygen to be delivered to the brain, the muscles and all the cells of the body, therefore the body functions less than optimally.

THE NOSE IS MEANT FOR BREATHING.

THE MOUTH IS NOT

The role of the nose is to *FILTER, HUMIDIFY, WARM and PREPARE* the air we take into our bodies for the lungs.

Mouth-breathing causes the mouth to dry out and the pH of the saliva to drop, leading to **increased tooth decay.**

NITRIC OXIDE is an enzyme that is released **ONLY when air PASSES THROUGH THE NOSE.** Nitric Oxide serves several important purposes:

- 1) It helps **KILL BACTERIA AND VIRUSES** before they enter our mouth and lungs.
- 2) Nitric Oxide is a **VASODILATOR**, which means it opens up our blood vessels allowing for **MORE OXYGEN** to reach the **CELLS OF OUR BODY.**
- 3) It works as a **DECONGESTANT** making breathing through our nose easier and keeping our nasal passages clear, open and less inflamed.

When the air enters the body through the mouth (instead of the nose), **IT IS UNFILTERED, DRY AND COOL.** The tonsils and adenoids can become irritated and enlarged as a result.

ENLARGED TONSILS AND ADENOIDS can create even more serious breathing issues as they can become so large that they can **OBSTRUCT** the airway.

Unfiltered air entering the mouth and lungs also increases the risk for **UPPER AIRWAY INFECTIONS, SINUSITIS AND EAR INFECTIONS.**

Lower levels of carbon dioxide in the body as a result of mouth-breathing causes smooth muscle spasms and is associated with **GASTRIC REFLUX, ASTHMA AND BED WETTING.**



The Way Your Child Breathes Can Determine How Well They Sleep

SLEEP DISORDERED BREATHING (SDB) is a condition that describes the entire spectrum of sleep breathing abnormalities – from mild breathing difficulties, caused by things like a chronically stuffy nose, to more severe conditions like snoring and sleep apnea. **SLEEP DISORDERED BREATHING IS A VERY COMMON DISORDER AMONG MOUTH-BREATHERS.**

“**Sleep Disordered Breathing**” can be better described as “*Breathing Disordered Sleep*”. As one struggles to get enough oxygen into their body while they sleep, often the brain causes the body to “**WAKE-UP**” enough to either change position and open the airway or to “**GASP**” and take a breath in.

SDB results in **FRAGMENTED SLEEP PATTERNS** because the body needs to remain in a state of “**HIGH ALERT**” all night long to make sure breathing does not stop.

Sleep is supposed to be a time of rest, recovery and recharge for all the body’s systems

When you suffer SDB, your body is in a constant state of “**FIGHT OR FLIGHT**” and is certainly not relaxed.

Instead of having a restful night’s sleep, your body’s **heart rate increases** as **oxygenation decreases**, you toss and turn, change body and head positions to open the airway and have

MICRO-AROUSALS IN ORDER TO WAKE UP ENOUGH TO TAKE A BREATH.

Only when you reach all the stages of sleep do you release important chemicals that keep the body in harmony, (like growth hormone), allow your brain to “sort and store” information from the day, and allow your heart rate to decrease.

Poor sleep patterns lead to INFLAMMATORY PROCESSES in the body that are associated with the biggest killers in the Western world including: **HIGH BLOOD PRESSURE, STROKE, CANCER, HEART DISEASE, ALZHEIMER’S, DIABETES AND EVEN DEPRESSION.** When breathing and sleep is disturbed, so is the essential repair work our bodies do each night to keep us happy, sharp and disease free.



The Way Your Child Breathes Can Determine How They Learn, Behave and Perform Intellectually and Physically

We all know how much **KIDS NEED SLEEP**.

Children, like adults, need to breathe well while asleep for their sleep to be restorative.

Even more importantly, kids need the deep restorative sleep that promotes optimal brain development.

A CHILD'S BRAIN CAN ONLY DEVELOP TO ITS MAXIMUM POTENTIAL IF THE CHILD IS ABLE TO BREATHE WELL WHILE SLEEPING.

HAVING DIFFICULTY BREATHING DURING SLEEP MAKES THE BRAIN THINK THAT THE BODY IS THREATENED.

When the brain feels like the next breath may never come, it turns on all the body's survival instincts, like an **increased heart rate and release of adrenaline**, also known as the "flight or fight" response.

This causes the body's immune responses to run wild and creates **inflammation** throughout the whole body.

For children, this chronic state of ALERT AND ALARM on the body and brain- along with lack of oxygen and occurrence of sleep fragmentation – can lead to symptoms of **ADHD, learning disabilities, anxiety, depression, lack of social coping skills and peer related problems.**

They are often suffering from **SLEEP DEPRIVATION**.

In fact, **recent research**, namely from Karen A. Bonuck, PhD of Albert Einstein University, has shown that **kids that suffer from poor and fragmented sleep due to SDB and mouth-breathing, often present with ADHD -like symptoms and suffer from behavioral and learning issues.**

Dr. Bonuck's research suggests that it is **VITAL TO ADDRESS THE POOR BREATHING HABITS THAT LEAD TO POOR SLEEP WHEN DIAGNOSING AND ADDRESSING THESE COMMON ISSUES IN OUR CHILDREN.**

Before we label our children and reach for a prescription, we may want to examine how well our children are breathing and sleeping first.



What Signs Should You Be Looking For in Your Child?

If you spot any of the following issues or behaviors in your child, you should speak with your child's pediatrician and strongly consider consulting a Pediatric or Orthodontic dentist who understands and understands in Airway Aware Orthodontics.

- * Family History of Sleep Apnea
- * Mouth-breathing
- * Snoring, heavy or noisy breathing while sleeping
- * Restless sleep-waking up in a different position on the bed or "bed clothes" are a mess
- * Falling asleep at school or when riding in the car
- * Chronic runny or stuffy nose
- * Sinusitis
- * Dark circles under the eyes or "allergic shiners"
- * Night terrors
- * Bed wetting
- * Hard to wake up/tired in the morning
- * Dry mouth at night and in the morning
- * "Crooked" teeth/malocclusion
- * Chronic ear infections
- * Hyperactive behavior



Airway Orthodontics Can Drastically Improve Your Child's Life in Many Ways

Conventional orthodontic wisdom has recommended that a child first have an orthodontic evaluation at age 7 but WAIT to treat until age 12. **THAT IS TOO LATE!**

60% OF FACIAL GROWTH TAKES PLACE DURING THE FIRST 4 YEARS OF LIFE AND IS 90% COMPLETE BY THE AGE OF 12!

Research is showing that some of the **neurological and physical effects of mouth-breathing are NOT REVERSIBLE.**

GIVING YOUR CHILD THE BEST CHANCE TO GROW TO HIS/HER BEST GENETIC POTENTIAL AND BECOME A PEAK PERFORMER IN LIFE



EARLY TREATMENT

BETTER FACES

MINIMAL BRACES

HEALTHY JAW DEVELOPMENT

GOOD FACIAL GROWTH

OPEN AIRWAYS

**BEAUTIFUL SMILES THAT
LAST A LIFETIME**

HERE IS THE FORMULA FOR BOTH YOUNG AND OLD:

1. Breathe gently through the nose
2. Keep lips together when not talking or eating
3. Keep the tongue on the palate/roof of the mouth at rest
4. Swallow without using the facial muscles with the tongue on the roof of the mouth
5. Have good posture – sit and stand straight
6. Eat to nourish your body – work to minimize processed foods and sugar in your diet
7. Have rejuvenating sleep

THERE ARE NO PILLS, NO SHOTS, NO COMPLIANCE-FREE APPLIANCES AND NO SHORT-CUTS!

Following this formula is not easy; as in life the payoff usually results from the amount of work and dedication you put into something. Is there anything more important to you than the health of your child?



SOME FINAL THOUGHTS

Airway Aware Orthodontics is not just about the teeth. It is about helping the jaws and face grow to their full genetic potential and allowing airway spaces to open to full size and function at their best.

It is about starting treatment when you DISCOVER poor oral habits and ADDRESSING THE POOR HABITS, not just the teeth.

We need to **stop accepting** that just because many of the health issues that our children are facing in the modern era are COMMONLY SEEN, that it is NORMAL for so many of our children to be “sick” and struggling.

We need to stop turning to medication as an automatic solution for kids. Instead, we need to ask ourselves WHY kids are getting sick, growing poorly, sleeping poorly and performing poorly.

Our treatment approaches should be to ADDRESS THE CAUSES OF THE DISEASE, not just to address the symptoms.

The Dentist and Physician must work together in a collaborative way to help our mutual patients achieve optimum health.

We want our children to have every opportunity to be PEAK PERFORMERS in life, whatever that might mean for them in whatever areas they choose. We all want them to experience good health and success in their lives.

IT TAKES A TEAM APPROACH! Parents, Grandparents, Teachers, Mentors and Coaches.

It also takes a TEAM HEALTH APPROACH. As Pediatric and Orthodontic Dentists we are PART OF THAT TEAM. As children’s dentists we are trained to recognize early development problems and focus our care on kids from birth to age 21.

We strive to work as part of your child’s larger team of great physicians, caring therapists and INCREDIBLE PARENTS!

References:

Yarmosky Pediatric Dentistry
Breath, James Nestor