JORDON SMITH, DDS

5 MISTAKES YOUR CHILD IS MAKING THAT'S WRECKING THEIR SMILE AND INCREASING YOUR COSTS

I BET THEY DO #5 EVERY DAY

element
CHILDHOOD SMILE & FACIAL DEVELOPMENT

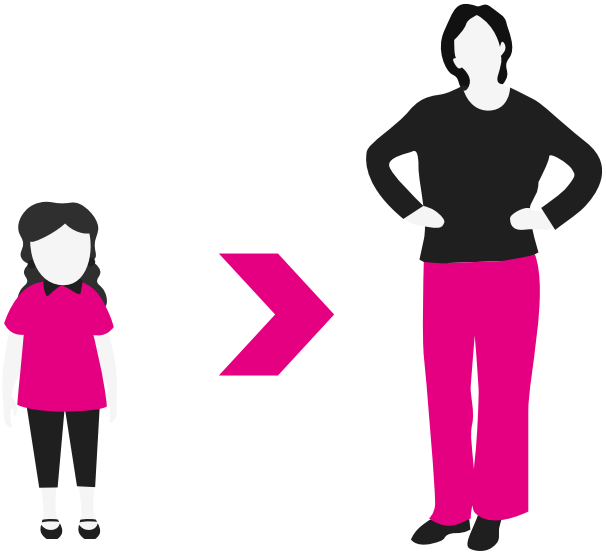
PART ONE

INTRODUCTION

It's every parent's fear, and one we're asked about constantly. ***"Will my child need braces?"*** It's a valid and common concern, one that has a common solution attached that most parents and children would like to avoid (and likely the reason you downloaded this handout). But it may surprise you to know that braces may not be the solution you think they are. Braces are a great solution to solve issues like dental crowding, but what about the facial profile, the airway, the posture, the breathing patterns, and the facial pain that commonly plagues individuals that had braces?

You know how more and more people are getting braces a second time? What if I told you that the habits your child has at 6 will affect their health at the age of 60?

Sadly, it's true. And crooked teeth are just ONE SYMPTOM of a greater problem that lies beneath the surface. And this problem isn't impacted by luck or genetics like most tend to think.



6 YEARS OLD 60 YEARS OLD

BAD HABITS = BAD HEALTH

This problem stems from changes in our children's daily habits. And these simple habits, if done wrong, will likely cause you a fortune to try and resolve and years of therapy for your child. What if there's a better way?

YOU'RE NOT ALONE.

Even as a dentist I didn't know this for years. I had to have braces in college with multiple extractions of my adult teeth, 8 in total! I thought that was normal, my genetic luck of the draw, and so I went. I was devastated to learn that one habit I had growing up was the main culprit of my plight, and the majority of children today are making the same mistake.

At 35, I was living in a lot of pain, my jaws and neck were hurting every day, and my wife complained of my snoring nearly every night. I was confused, I didn't fit the profile. "I am thin and tall, isn't snoring for those overweight?" I had spent over three years in braces, so why was my face and neck hurting so often? Thankfully, my questions lead to answers, the ones I'm about to share with you.

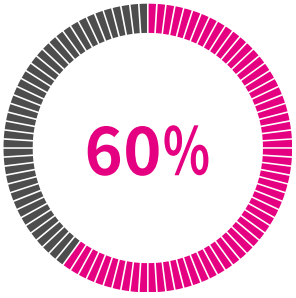
You likely don't know these forthcoming facts and the way they influence your child. My parents were sad to learn that these innocent habits, watched without alarm, lead me to have so many troubles, costs, pain, and stress. It wasn't their fault, but I wish someone had shared with them what I'm about to share with you.

I'm no longer in pain, and I no longer snore.

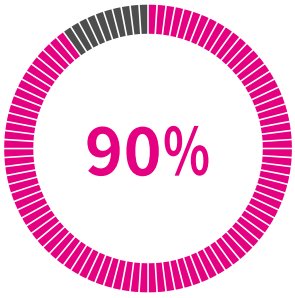
And I have helped countless children and adults restore their health like mine, but my passion is truly prevention. So it's time we start making these concerns more alarming. And it's time we help our children get back on the path to better health, better faces, and better smiles.

Before I begin to describe the 5 habits below (feel free to skip down if you like), let me give you some background material to further support what I'm about to tell you. In summary, the way we function as a child has a majority stake in the facial form we develop along with the size and shape of our dental arches. We've all seen individuals after braces, their chin still narrow and weak, their smile still gummy, and although their teeth look straight, something still looks off.

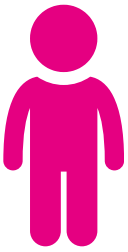
The reason I point this out is to remind you that the smile itself and the unsightly changes to our dental alignment is often JUST ONE of the issues we'll develop when facial growth is skewed. In fact, there are more serious consequences at stake here and they always go hand in hand with crowding.



FACIAL DEVELOPMENT COMPLETE BY AGE 8



FACIAL DEVELOPMENT COMPLETE BY AGE 12



Many parents are unaware that 60% of their child's facial development is completed by the age of 8 and that 90% of facial development is completed by the age of 12. But for whatever reason, the orthodontic norm is to wait until your child's adult teeth arrive and then attempt correction. This also occurs around the age of 12, after most, if not all, of our facial development is finished. What can we accomplish then?

For most of us, traditional orthodontics will simply aim for the smile. And when later treatments like mine necessitate the need for extractions and sometimes jaw surgery, why would we wait for these detrimental changes to occur and then try to simply fix the smile using such aggressive techniques?

Along with crowded teeth, a lack of facial development normally accompanies many, if not all of these symptoms:

- POORLY FORMED, UNBALANCED FACES
- A CROWDED, UNSIGHTLY SMILE
- A POOR BITE
- TMJ AND CRANIOFACIAL PAIN
- SLEEP DISORDERED BREATHING
- POOR HEAD AND NECK POSTURE
- LIFELONG DETRIMENTS TO OUR ORAL HEALTH

At this point you're probably a little surprised and wondering why you haven't heard this information before. Sadly, I don't have the answer. We weren't taught this in dental school, so our general understanding as a whole is not where it should be. So let me try and fill in the gap.

Below are the 5 most common mistakes children are making to disturb their natural growth patterns and why it's a problem for you both.

1. MOUTH BREATHING

This is the king of troubles and the main one that got me growing up. When I asked my mother to try and find pictures of me mouth breathing, it took her a day to bring me a stack of them. Here are just two of them for example:

There are a lot of causes for mouth breathing, but nevertheless, the nasty habit has long been described in research as a detriment to our facial development. “If not treated, developmental deficiencies progress, and thereby the severity of structural changes in the body rises. Mouth breathing impacts everything - facial development, alignment, functioning, and growth of the body. We often diagnose such patients with anterior open bite, an overjet, a distal position of the lower jaw (weak jaw and chin), a narrowing of the upper jaw, and an increase in the height of the lower facial third.” (1) The cause for these changes is from changes to tongue posture, which is the next habit we’ll discuss, but first, let me share one more thing while on the topic of mouth breathing.

You'll certainly want to know that breathing through the mouth and breathing through the nose is not the same for the body at any age. Nasal breathing controls the volume of inhaled air and, more importantly, the volume of exhaled air. Body oxygenation occurs during exhalation not during inhalation. The negative pressure created in the lungs upon exhalation in the nose breathing pattern versus mouth breathing provides more time for binding of oxygen to hemoglobin in the blood. ***(1) What's all this mean?*** That your child gets more oxygen, feels better, sleeps better, and grows better when breathing properly, **THROUGH THE NOSE.**

What's more, is that the nasal passages are developed through the soft but consistent forces of nasal breathing. If you aren't breathing through your nose consistently, your nasal walls aren't expanding normally. This makes it even more difficult to breathe through the nose, all but ensuring that the habits that caused this issue will continue. With smaller nasal passages, a simple cold, minor inflammation, or allergies may be all that's needed to make nasal breathing extraordinarily difficult. Therefore, establishing adequate nasal breathing early in life is essential to maximize the growth of the skeletal complex and the upper airway. (2)

I won't go into detail, but it's worth noting to you that the most common causes of altered breathing are:

ENLARGED ADENOIDS

ENLARGED TONSILS

DEVIATED SEPTUM
(NASAL OBSTRUCTION)

ALLERGIES

CHRONIC SINUS INFECTIONS

It's good to keep these in mind to ensure that your child isn't fighting these additive causes to mouth breathing. Now that you know the problems associated with mouth breathing let's move on to bad habit #2.

2. POOR TONGUE POSTURE

Tongue posture is the next issue that always accompanies mouth breathing. When we breathe through our mouth, for whatever reason, our tongue must drop down into the floor of our mouth. Don't believe me? Try opening your mouth, place your tongue against the top, and breathe through your mouth. See what I mean?... It's simply not possible.

One of the most common causes of poor tongue posture happens to be tongue-ties. Tongue-ties are greatly discussed in the literature and have grown in interest since the 1960s. How to diagnose the tie, how to treat it, and if it even matters remain at odds in the scientific community but a consensus is forming especially on the latter. In the past, tongue-tie was only diagnosed if a child couldn't feed as an infant or had a speech impairment. But if the tongue can't rest firmly in the roof of the mouth while opening at least half-way, it's an issue. So what is a tongue-tie? Don't worry, many don't really know exactly what they are or when they're present. I didn't get a single lecture in dental school on tongue-ties. But here are the facts to remember:

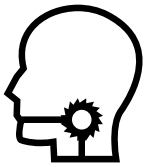
Tongue-ties are "an embryological remnant of tissue in the middle of the tongue between the under-surface and the floor of the mouth." (3) Although a visual tongue-tie may be present, it doesn't need to be addressed unless a functional limitation is noted. This is something that should be determined at birth but unfortunately, few are assessed in the delivery settings these days.

That's all I'm going to share for now. Just remember that a tongue-tie can hold the tongue in the wrong position causing a plethora of troubles.

But before I get off topic, let's talk about the changes that occur when the tongue is resting in the wrong spot, like mine did when I was a child.

At rest, the tongue should be resting fully against the roof of the mouth while we breathe. "The ability to breathe effortlessly and quietly through the nose with the tongue suctioned up and the lips gently closed is essential to optimal craniofacial growth and development. Muscular pressure on facial bones, or the lack thereof, can influence directional growth over time."(4) The stability created from the tongue resting against the palate maintains the palatal arch and supports the mid and lower anterior face. Low resting tongue posture has been correlated with both Class II and Class III malocclusions (overbite and underbite). The continual low posture at rest slowly changes the face, the swallowing pattern, and occlusion. (4) When we're breathing through our mouth (habit #1) the tongue must rest low, and the forces applied to maintain that position greatly alter the "signals" that direct our facial development. In this case, the tongue isn't doing its job. In the next habit, we'll talk about how the tongue makes things even worse by being out of place during function, not simply while at rest.

NEXT: The Wrong Swallow



3. THE WRONG SWALLOW

This is the trickier one to observe unlike the first two. If your child is breathing through their mouth, you know bad habit #1 and #2 are present. I'll teach you how to check for this one in a moment, but let's discuss what it is first.

Once again, let's describe what's normal and why normal matters. When we swallow normally, the tip of the tongue presses against the roof of the mouth just behind the front teeth. The teeth come together tightly and the elevator muscles of the jaw work to stabilize the oral cavity. The tongue then sweeps the food backward to complete the function.

"Atypical swallowing develops as a compensatory movement pattern when normal movement is inhibited in some way. A tongue thrust swallow involves the excessive effort of the muscles around the mouth and the tongue exerts forward and/or sideways pressure into the teeth, rather than vertical pressure into the hard palate with a front to back motion."(4)As you can infer, a proper swallow applies pressure from the tongue towards the roof of the mouth. When we alter this position, it changes the pattern of muscles that contract. This can have a drastic effect on the dentition and facial form. The transition between the infantile swallow pattern and the adult pattern occurs at normally 12-15 months as the teeth begin to erupt. (5) A failed transition is occurring commonly, as only 85-90% of adults today show a proper swallow pattern. (6) When this transition doesn't occur, the tip touches the inner surface of the front teeth or between the dental arches rather than the palate, the upper side of the tongue is curved downwards and the base touches the back part of the palate. This condition causes a reduced contraction of the lower jaw elevator muscles while the muscles surrounding the mouth show increased activity, missing in normal physiological conditions. (7)

So what's the worry here? Atypical swallowing is frequently connected to the presence of malocclusions (a bad bite), skeletal open bites, rotations of the upper jaw (creating gummy smiles), long and retruded lower jaws, and dental issues like spaces between the front teeth, flared front teeth, overjet and overbite.(5)

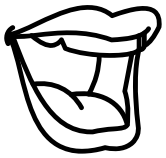
There are two kinds of atypical swallows, commonly referred to as "tongue thrusts." One is anterior and the other is called lateral.

ANTERIOR

LATERAL

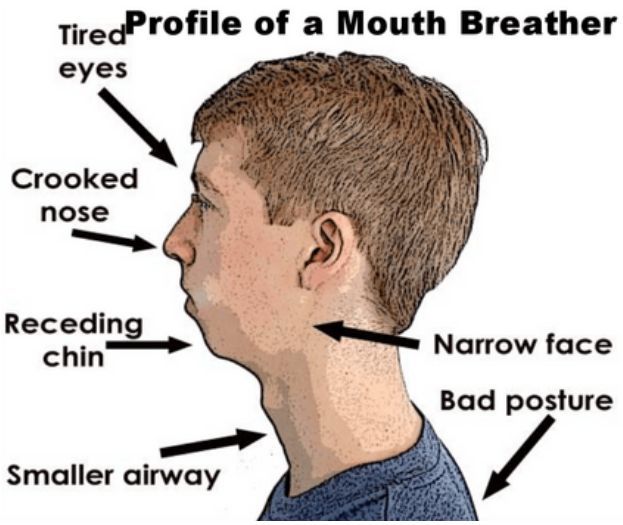
Want a quick way to check your child for the presence of one? Do this:

Use your hands to gently separate your child's lips while their teeth are together. Ask your child to swallow and see if the lips must help. Normal swallowing requires zero effort of the lips or muscles surrounding the mouth. If your child just pressed their lips shut, they aren't swallowing properly. If you were able to keep them separated during their swallow, congrats! Now look for signs that their tongue poked through their teeth in the front or on the side, this too would indicate they have an abnormal swallow. If not, you might be in the clear on this one!



4. MOUTH OPEN, LIPS APART

Maybe this one sounds like Habit #1, but it's different. The fact is, it's far more common to breathe through your mouth when your mouth is open, but not impossible to still breathe through your nose while the lips are separated and the mouth is left open. We covered the changes to the facial structure when describing mouth breathing, so I'm not going to repeat myself here. But I myself liked to play video games and watch TV with my lips apart.

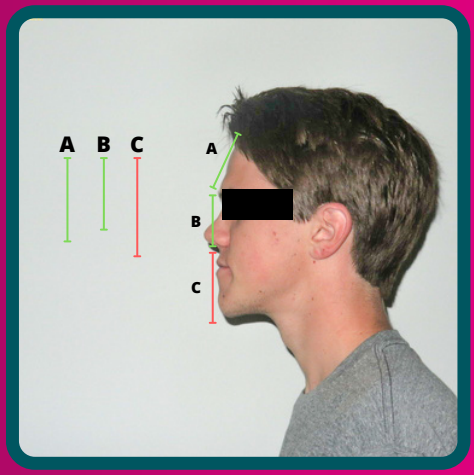


I may not always have been mouth breathing, but either way, the facial tension that's created from an altered state of posture will negatively impact your child's facial balance and oral health. "It is possible that in some environments the appropriate cues and consequences for developing appropriate facial postures are not present. Given the high rate of open mouth posture seen in orthodontic populations, it may be useful for parents to encourage their children to maintain anterior lip seal postures."(8) I certainly wish I had. Even early on you can see my smile becoming more "gummy" and even worse by the time I was in college. Thankfully I was able to improve that, but that is another topic altogether. If I or my parents had known that, I would have saved myself a lot of pain and suffering

Let me just offer a summary to help you visualize why these changes occur. When the mouth is open, the tongue is nearly always low. This reduces the balancing forces of the tongue to the inside of the upper teeth and palate. The buccinator and masseter muscles are stretched, tensing the muscle while increasing the outside forces on the upper teeth. This will normally move the upper teeth into a narrow arch causing crossbite and leading to a lifetime of oral and facial deformities. Here are some examples, these are outcomes we must avoid as early as possible.

CROSSBITE

NARROW FACES



LONG FACES

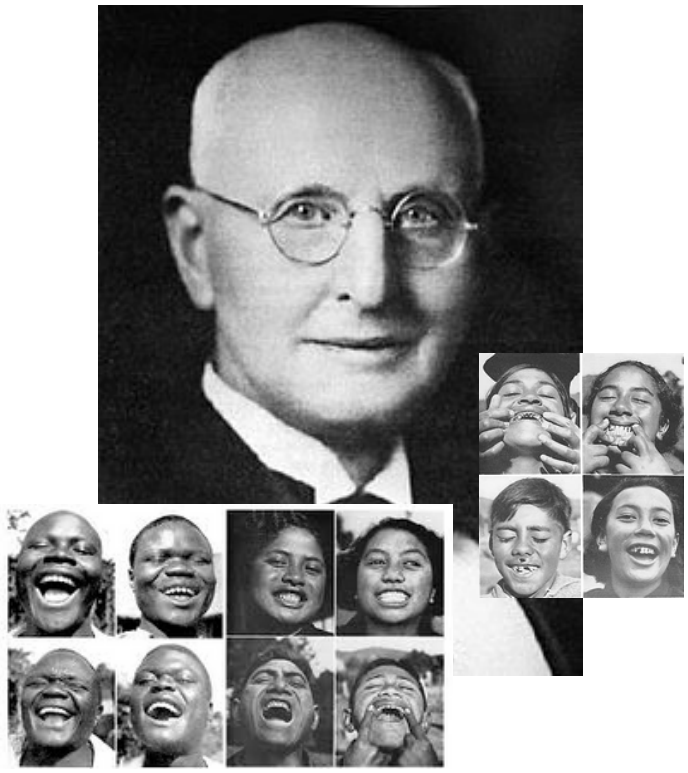
"Please remember, the lips at rest should always be together!"

5. EATING A SOFTER DIET

This may be the worst and most common habit we have in our current setting. There are countless books and research articles connecting the changes in our diet to the changes in our faces over the last several centuries, but after the industrial revolution, things began to change rapidly.

“As far as we can discover, the changes in jaws with new diets and urbanization were first noticed and recorded in the 1830s.”(9) I like how Sandra Kahn put it in her book, Jaws: The Story of a Hidden Epidemic, when she said “Our jaws are built for a Stone Age diet, but we’re living in a Big Mac environment. Lack of routine chewing is exacerbated now by patterns of bolting down “fast foods" that make up a substantial portion of the diet of children in much of the developed world today."

From 1914 to 1928, Dr. Weston Price traveled around the world studying the teeth of native people and discovered that traditional societies typically didn’t suffer from the same ailments we had in America such as tooth decay, crowding, and gum disease. He attributed these changes to the nutritional differences in our food, but later evidence revealed it wasn’t the differences in nutritional value as much as the difficulty and degree required to chew the food altogether.(9)



When I look back at my childhood, I remember a softer diet consisting of pizza, spaghetti, various home-cooked meals, restaurants, and fast food. Most of my diet was soft. My favorite meal was a combination of corn tortillas dipped in queso or in other words “mush”. I hated vegetables, they were too hard to chew. Between my diet and my open mouth posture, orthodontic therapy became a certainty that neither I nor my parents expected.

The preponderance of the evidence shows that abundant chewing in youngsters paves the way for proper orofacial development. It is hard to recognize that such a seemingly minor, everyday activity can have such profound effects, but it can. (9)

It’s time we start to examine the density of food as much as the nutritional value of it. Thankfully, healthy foods tend to be much harder and require more muscle effort to chew. These high forces and chewing counts are the key. The mechanical forces generated by chewing food not only help your jaws grow to the right size and shape, but they also help your teeth fit properly within the jaw. (10)

So consider what your child is eating routinely.

Is anything in their diet harder to chew than an apple? It should be, and they should be chewing hard foods every day. That may be hard to hear, but the research won’t lie. It’s time to swallow the truth and eat the right type of foods.

INTERESTED IN SOLUTIONS?

Those are the most common habits influencing facial development, smiles, and overall health. While they've become commonplace, this doesn't make them normal. In cases like this, "safety in numbers" doesn't apply. Considering that 95 percent of modern humans have deviations in dental alignment; 30+ percent are recommended to have orthodontic treatment (half have extractions); and 50 percent have wisdom teeth removed (9), it can be easy to think that's just the way it is.

The good news is we can change these statistics, one child or adult at a time. Let me comfort you again, you may be shocked and surprised to just be learning these habits are detrimental. I educate parents and patients in our practice daily, pointing out the cause and effects, and working to remedy the unwanted changes that we're seeing. This therapeutic effort is called Myofunctional Therapy. Traditional dentistry focuses solely on the mouth. At Element8, we ensure the components of your face AND mouth are working together and looking their best to help you live healthier, happier, and pain-free lives. Need to schedule a consultation? Give us a call! 918.393.0070.

Thank you for downloading this handout. I hope you learned a lot and will share this information with your friends. Education will be the only way to change these approaches over time, but it's time we all do better for our children and ourselves. To learn more about our program, our approach, and the costs, visit breathedentistry.com/element8

Stay tuned, more is on the way.

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CITINGS:

1. Basheer B, Hegde KS, Bhat SS, Umar D, Baroudi K. Influence of mouth breathing on the dentofacial growth of children: a cephalometric study. *J Int Oral Health.* 2014;6(6):50-55.
2. Torre C, Guilleminault C. Establishment of nasal breathing should be the ultimate goal to secure adequate craniofacial and airway development in children. J Pediatr (Rio J). 2018;94:101-3.
3. Letter to the editor regarding N. Sethi, et al., benefits of frenulotomy in infants with ankyloglossia, IJPO (2013), http://dx.doi.org/10.1016/j.ijporl.2013.02.005.
4. D'Onofrio, Linda. "Oral dysfunction as a cause of malocclusion." Orthodontics & craniofacial research 22 (2019): 43-48.
5. Maspero, C., et al. "Atypical swallowing: a review." Minerva Stomatol 63.6 (2014): 217-27.
6. Proffit W. Ortodonzia moderna. Second edition. Mi- lan: Elsevier Masson; 2001.
7. Dahan J. Tongue Disorders and jaw deformities. Nosological aspects and therapeutic concepts. Mondo Ortod 1989;14:777-89.
8. Gross, Alan M., et al. "Rhinometry and open-mouth posture in young children." *American Journal of Orthodontics and Dentofacial Orthopedics"* 103.6 (1993): 526-529.
9. S. Kahn. 2018 *Jaws!: The Story of a Hidden Epidemic.* Stanford University Press
10. D. Lieberman. 2013. *The Story of the Human Body: Evolution, Health and Disease.* Penguin UK