

The Orthodontic Cure

*Orthodontics Can Stop Bedwetting,
Cure Migraines,
and Even Save Lives*



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Lastly I would like to thank my parents. Both parents encouraged me and my brother, Joe—saying that anything we wanted to do, we could accomplish. I wish more kids had parents like them.

Chapter 1:

Overview

The title of this book makes some very bold claims that are true. I will attempt to explain in detail how orthodontics works to give an individual overall well-being.

Some people may not know what orthodontics entails. Orthodontics is the profession that moves teeth into the correct position with braces or Invisalign. Orthodontics is the profession that can expand the upper palate and move the lower jaw with simple appliances. It is the profession that can change growth and much more. We will explore in detail what the profession of orthodontics can do to improve your overall well-being.

Orthodontists work with cranial nerves. They are all important, but to an orthodontist, the fifth cranial nerve (CN V), or the trigeminal nerve, is critical for all that we do in orthodontics.

The trigeminal nerve is the nerve responsible for sensation in the face and motor functions such as biting and chewing. The largest of the cranial nerves, the “trigeminal” stands for the nerve’s three major branches: the ophthalmic nerve, the maxillary nerve, and the mandibular nerve. The ophthalmic and maxillary nerves are purely sensory, but the mandibular nerve also has motor functions. The trigeminal nerve is the nerve that is

critical for relief from persistent headaches and migraines.

Breathing is life. Orthodontics can improve airways and improve health and actually save lives. Problems with breathing can lead to poor performance in school, at work, and in athletics; they can also lead to snoring and sleep apnea. Sleep apnea can be life-threatening, as it affects sleep, cardiac function, blood pressure, mental function, and much more.

The orthodontist has specialty training from C3 vertebrae and up and can work to eliminate trigger points in this area. Trigger points (or knots in the muscles) can cause a variety of symptoms, such as migraines or persistent headaches. Even more amazing, trigger points between C3 and C7 can produce such diverse symptoms as a dry cough, sore throat, sinus pain, excessive eye tearing, visual disturbances, fainting, and dizziness and vertigo.

Your head houses your teeth, which are important for nutrition. Your teeth and your smile are important in communication. Even if you are in a foreign country, a smile tells the person at whom you are smiling that you are friendly and mean no harm. If your teeth are out of alignment, it can lead to clenching and grinding, with your brain subconsciously trying to grind these teeth into position. Grinding and clenching affect your jaw muscles by developing triggers or knots that lead to jaw pain, TMJ pain, muscle pain, and persistent headaches and migraines.

I am writing this book so that patients can quit suffering. There are simple orthodontic solutions that do not

involve drugs, injections, or surgery. I want to get the word out to people that have been suffering from years of drugs that are masking the pain but not curing it. Every year the pain increases, which in turn increases the patient's drug dose, and so on, in a vicious, painful cycle.

I am also writing this book in hopes that other orthodontists can appreciate what they can do to make their patients healthy. All orthodontists can use the many tools that they have to improve their patients' lives.

Chapter 2: How I Became Interested in Orthodontics Orthodontics Can Prevent Surgery

Hang on! Life is a ride, and only God knows where you are going. I look back at different events in my life and years later say, “Oh, that is why that happened. I built on that bad or good event to arrive at where I am at this moment. I love what I do, and where I am.”

My goal is that, in reading this book, you will look back and say years later, “I am so glad that I read that book—it really set a path of better health for my whole family.”

Did I always want to be an orthodontist? No. I hadn’t even considered it until I was 27 and in dental school. I was told during an orthodontic rotation at Baylor Dental School that I would need surgery (where the surgeon would actually break my palate and my jaw) to better align my palate with my face if I wanted to reduce my gummy smile.

Wow, I thought, why wasn’t something done when I was younger and still growing? Perhaps an orthodontist could have prevented surgery! So, although orthodontics had never been my passion growing up, it became my passion in that moment at dental school.

This is something very important to remember, and I will probably say it more than once: **An orthodontist is the**

only specialist—dental or medical—that can change the skeletal pattern of the face and mouth without surgery.

The specialty degree that we receive is actually in Orthodontics and Dentofacial Orthopedics. Dentofacial Orthopedics is actually modifying the skeletal structure of the teeth and face. For the sake of simplicity, I am just going to discuss the specialty of Orthodontics, but be aware: the Orthopedics part of this specialty is amazing.

I became an orthodontist using a circuitous path. I grew up in a small Texas town called Canyon, where the primary supplier of jobs was West Texas State University. Most everyone in this town of 12,000 had some connection to the University. The importance of education and learning was part of my upbringing from an early age. I loved science and really wanted to be a scientist—a chemist, in fact.

After I graduated from West Texas, I moved to Dallas and got a job working as a chemist in an analytical lab in a semiconductor plant. What I learned in this job is that small details are critical. If the chemical mixtures were not exact, the semiconductors did not work and hence the computers would not work. This was a very important lesson to learn early in my path to becoming an orthodontist: *small details matter*.

A tooth which is off just one tenth of a millimeter can do damage to the teeth, the joints, and overall body health. We will talk about this in more detail when we talk about TruDenta treatment.

On to my path: I soon found that I didn't like working in the lab—there was just not enough contact with people. So I thought marketing might be my niche. I got a job with Celanese Chemical, marketing in their new products division. Even though I did learn much information from Celanese, I changed paths again because there was too much travel involved.

I know—it sounds like I am hard to please. In fact, it sounds like “Goldilocks and the Three Bears” . . . *It's too cold or it's too hot!* “That job doesn't have enough people contact,” “that job has too much travel”—what a whiner! But I finally did find a profession that was “just right,” thanks to my job in chemical marketing.

Here is where the paths start to connect and lead in a purposeful direction. I marketed a chemical, a multifunction acrylate (say that 3 times fast; I bet you can't). This chemical was used in dental-bonding adhesives and in the placement of braces. Because of this crazy-sounding chemical, I became interested in dentistry. I applied to dental school and was blessed to get into Baylor College of Dentistry.

Next the road led me to the University of Oklahoma for specialty training in Orthodontics and Dentofacial Orthopedics—*Go Sooners!*

The University of Oklahoma sat on a beautiful health-science campus in Oklahoma City. The Dental School sat next door to the medical school, and we took classes with the medical students, which really opens your mind to the fact that orthodontics is much more than straight teeth.

I want to thank Dr. Nanda and Dr. Courier for having an open mind (another purposeful pathway). In fact, Dr. Ram Nanda works so hard to promote the science of orthodontics, he is now willing to lecture about cases he would treat differently now. We will get into this in a different chapter. Dr. Nanda and Dr. Courier allowed me into their program, and I was the first female to graduate from the University of Oklahoma's Orthodontic program. Dr. Nanda and Dr. Courier are heroes in my life.

I always had a love of science, physics, chemistry, engineering, and medicine. Orthodontics incorporates all of these fields, and I feel blessed to be an orthodontist.

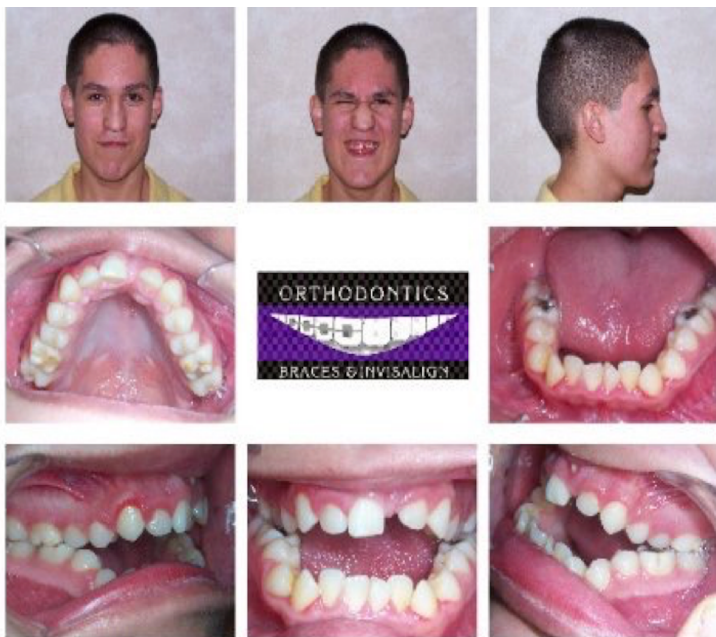
I am so thankful that I didn't stay in chemistry or marketing/sales. But I use all of those past experiences in those fields every day in my orthodontic practice today. I am glad my path led to orthodontics; it is the greatest profession in the world. It is the best fit for me—it gives me a purpose every day, and I am thankful.

Orthodontics affects people's lives in so many ways—not just straight teeth. Dental facial orthopedics, the other branch of orthodontics, changes skeletal structure without surgery.

Below is a young man, DS (22 years of age), who visited our office and wanted his teeth to come together so that he could chew better. He was a very difficult case. He had a narrow palate, an open bite in the front, and an underbite. I told this young man that his treatment would involve braces and orthognathic surgery (a hospital procedure where the upper palate and lower jaw are broken in the operating room and then surgically moved

into the correct position). This is an excruciating surgery where many times the patient is wired together for many weeks. The full recovery for this surgery can be up to one year. It is also extremely expensive, costing \$20,000–\$40,000.

When I told DS that we couldn't help his case without surgery, he said that there was no way that he could afford it. But he did everything we asked, and so we completed his case anyway, without surgery. I just would have never believed that would have been possible. The before and after pictures are shown below. No surgery was needed!





I have treated thousands of patients over the years. I try to learn something from each and every patient. What I learned from DS is that orthodontics can even change skeletal structure, even in adults. This young man was 22 years of age. When I was a student at Baylor, I was told that my only treatment option for cases like this involved surgery. I still think most orthodontists would say that DS needed surgery. I am very thankful for this great patient. He was such a tremendous young man, and look what he gave to the profession—you can treat skeletal cases without surgery.

Another patient where surgery was prevented is shown below:



I am going to say it again: **Orthodontics and dentofacial orthopedics is the only specialty that can move bone as well as teeth and prevent surgery in many cases.**

The picture below is another case where skeletal surgery was prevented:



Orthodontics can prevent gum surgery as well. The top photos show gum recession. The bottom photos (same patient) show correction of gum recession without surgery.



Chapter 3: Orthodontics and Airways

Orthodontics can improve school behavior, sleep, and even put a stop to bedwetting. “What?” you are probably thinking, “That’s an outrageous statement!”

What’s more, if your child is tired at school, snores, or has been diagnosed with ADHD, this may be an indicator that your child has sleep apnea or breathing problems, which can be life-threatening. There are now simple proven orthodontic techniques that will improve your child’s breathing and change your child’s life forever.

“That is impossible,” you may say. “How could that work?”

Let’s start by discussing the profession of orthodontics. It is not just moving teeth. (Here we go a third time—I warned you!) Orthodontists actually receive a specialty degree in Orthodontics and Dentofacial Orthopedics. Dentofacial Orthopedics is changing the growth of skeletal structure.

Orthodontics is the only health profession in the world, medical or dental, that can change the boney facial and mouth structures without surgery.

OK, I just made some pretty outrageous claims. I had better start explaining myself. But first, let me make one more statement: Orthodontics has a huge impact on airways and, therefore, breathing.

With orthodontics, we can expand the palate with easy appliances that are actually anchored to the teeth.

We can get an exact measurement of the airways before skeletal expansion and after skeletal expansion. It is mind-blowing how much improvement we can get in the airways. And with 3D X-rays, we can actually quantify it. I believe an orthodontist's role in airway management is just as important or perhaps more important as that of an ENT or sleep specialist.

With expanders (devices that widen the palate), orthodontists are able to dramatically improve airways, both the nasal passages and the pharynx. In fact, one orthodontic company, Henry Schein, teaches classes on the management of the airway with orthodontics, and they use the saying, *BREATHE, SMILE, THRIVE*. I just love that!

Another way to improve an airway is to move the lower jaw forward with a mandibular growth appliance. This permanently improves the growth and position of the lower jaw. As the jaw grows forward, it also moves the tongue forward. This helps move the tongue from the oropharynx, which in turn gives more space for the body to breathe.

I will talk further about mandibular growth appliances in the following chapters.

Most people consider sleep apnea to be a disease of old, heavy men. But children can also get sleep apnea. I think those kiddos that are battling bedwetting suffer from

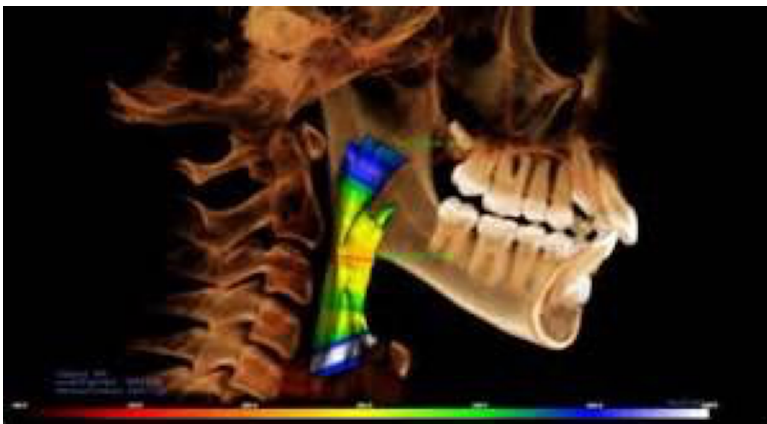
sleep airway problems. They never get a good night's sleep and so they are constantly tired. When their bladder fills, they are too tired to wake up, causing them to wet the bed.

Obstructed breathing also does not allow the child to go into full REM sleep, which interferes with brain activity and is associated with ADHD.

So now that we have had an introduction to airways and orthodontics, this brings me to an . . .

ORTHODONTIC ALERT

If you have seen an orthodontist that recommends extraction of premolar teeth, ask the orthodontist if their office has a 3D X-ray that can measure airways. Below is an example of a 3D X-ray measurement of airways.



Extractions are absolutely necessary in some cases, but do not worry! In this day and age, we have new technology and new information on how extractions can affect airways and how to make the extractions as safe as possible. Make sure your orthodontist is considering what the extractions would do to the airways. Get a second opinion from an “airway-friendly” orthodontist. Orthodontics is life-changing—and you want to make sure that it is a change for the better.

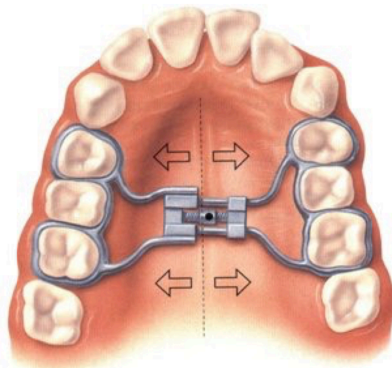
Please remember the term “airway orthodontics.” I will give personal accounts of many of my patients, including my own children. But first, let’s look at one example about how we widen palates without surgery.

Chapter 4: Expanders

As mentioned in Chapter 3, expanders are used to open airways and improve breathing. Expanders are also used to alleviate crowding and correct crossbites (when the upper teeth are more narrow than the lower teeth).

**WHAT TYPE OF EXPANDER DOES YOUR
ORTHODONTIST USE?
BE SURE TO ASK BEFORE YOU GET STARTED.**

There are many types of expanders that are used in orthodontic treatment. When I was first in practice, I used rapid palatal expanders. These are appliances that have two parts, with the expansion device between them. It is cemented into the mouth—not permanently; a special dental cement allows us to remove the expander when the expansion is finished.



With rapid palatal expanders, the parent turns the expander. This is not an easy task. The expander is activated by putting a key in a very small hole and then moving the key toward the back of the throat.



Wow, it is tough! First of all, it is difficult to see the hole. Then, once you have spotted this extremely small hole, it is hard to get the key in. The parent then has to turn the key toward the back of the mouth and not drop it down their child's throat—and to make matters worse, it hurts the child every time the parent turns the expander. No fun!

Believe it or not, rapid palatal expanders are used by the majority of orthodontists. However, we do not use these

in our practice. This is because of my son, Brett. Brett is now 24 years old, but when he was 7 years old, he needed expanders. His mouth was a train-wreck, to put it bluntly. He had severe crowding with teeth going everywhere trying to find a place to fit in his jaws.

I did not want to remove premolars. But I did not want to turn his expander at home, either. Unfortunately, just like many things in life, you can't have it both ways, can you?

Well, it turns out that you can. I went on a search for a better expander. Because of Brett, we now use what is called a Jet expander, which we make in our own office. The parent does not have to do anything with this expander! We activate the expander ourselves, every 8 weeks in our office. Thanks, Brett, for helping me to be a better orthodontist!

It is such a simple concept: it consists of a titanium spring that we compress and lock in position with a very small locking screw. The spring has memory and wants to open. As it opens, the expander puts pressure on the skeletal structures and we get nice, gentle, slow expansion. I like the slow expansion better because it is so simple, and the results are more stable because it allows enough time for the bone to grow and stabilize.

A picture of the expander that we make in our office is shown below:



IS IT POSSIBLE TO GET EXPANSION IN AN ADULT WITHOUT SURGERY?

The answer is *yes!* But do adults wear expanders? No, expanders are not usually used in adults. We can still get expansion, however, because many times the teeth are tipped toward the palate and/or tongue, and it makes the dental arches narrower than they should be. This limits the space for the tongue to fit in the arch. This in turn limits the airway, because the tongue is pushed back into the oropharynx. If you remember, we have talked about how important it is to have open airways to improve breathing and prevent sleep apnea in Chapter 3.

The pictures below are *before* and *after* pictures of an adult Invisalign patient. Invisalign is a very good tool to achieve expansion.



The above patient wore her Invisalign for two weeks at a time and finished in 14 months.

Chapter 5: Headgear? No Way!

Remember the days, not too long ago, what you thought of orthodontics? You imagined headgear, with all those wires and straps coming off the head that made the patient look like an alien. It was every child's nightmare.

The idea behind headgear was to restrain growth in the upper jaw so that the lower jaw could catch up to it in size.

I don't like the idea of holding back growth in the upper palate. I am afraid that it would hold the lower jaw back and put too much pressure on the jaw joint (the TMJ—temporomandibular joint).

Orthodontists are finding that there are better ways. In our practice, we use mandibular-growth appliances that are worn inside the mouth. The effect that these appliances have on profiles is amazing.

EXAMPLES OF MANDIBULAR GROWTH APPLIANCES

Below is a **Forsus** appliance; it attaches to the braces and cannot be seen when worn, allowing patients to wear it all the time. This brings faster results. It is worn for 4 to 6 months.



Which do you think your child would rather wear? Below is a patient that wore the Forsus appliance in our practice.



Photos before Forsus—the lower jaw is back



Improvement in the jaw after Forsus—notice how lower jaw grew.

The patient below wore a **Herbst appliance**, another mandibular-growth appliance.



The above pictures are progress records. Please note that in the pictures you can't even see that the patient is wearing the Herbst.

Chapter 6: Sleep Apnea, Bedwetting, and ADHD

WHAT WE KNOW ABOUT SLEEP

Before we talk about sleep apnea, let's discuss what is known about sleep (much of the information regarding the technical side of sleep comes from a book by Richard Ferber, MD, named *Solve Your Child's Sleep Problems*).

Although experts know a great deal about sleep, our knowledge remains incomplete. Experts do not fully understand why we need to sleep, what causes us to sleep, or what purpose sleep serves. On a basic level, we can say we sleep because it serves a restorative function for our body and our mind. Sleeping allows us to rest the body, maximize our alertness during the day, and process memories.

Sleep certainly is necessary for us to function during the day; if we don't get enough sleep, we are drowsy and unfocused. We feel like we are walking through the day in a fog. The only way to relieve this is to get some sleep.

Why do we sleep at night and not during the day? What sets our so-called "biological clock"? Dr. Ferber discusses sleep from an evolutionary standpoint, sleep provided for man's survival. Various researchers say that sleep protected early man from nocturnal predators. Man would sleep and be quiet while the predators were out roaming the night.

Until the 1950s, doctors and other researchers believed that sleep was a single state distinguishable only by waking. However, we now know that sleep itself is divided into two distinctly different states: REM (Rapid Eye Movement) sleep, and non-REM sleep.

During non-REM sleep, you lie quietly with a regular heart rate and breathing pattern; it is probably closest to what we usually think of as “sleep,” and it provides most of sleep’s restorative properties. There is very little dreaming in this state, although thought processes continue.

During REM sleep, however, the body’s systems are more active, and it is the state in which we do most of our dreaming. During the night, we cycle between non-REM and REM sleep, as well as having the occasional waking.

NON-REM SLEEP

Non-REM sleep is divided into **4 stages**. These move progressively from drowsiness to very deep sleep.

As you begin to fall asleep you enter **Stage I**, the state of drowsiness. In Stage I, your eyes move slowly. Your awareness of your environment is diminished. You can be awoken easily from Stage I. You may even think that you have not been asleep at all. If you allow yourself to continue the transition through drowsiness toward deeper sleep, you may notice a sudden jerk of your entire body.

In **Stage II**, you can still be awoken, but it takes more effort, and you still may not believe that you really have

been asleep depending on how long you have been in stage II. Also, you probably would not report any strange dreams.

As you fall deeper into sleep you fall into **Stage III** and finally **Stage IV**. Your breathing and heart rate become very regular, you may sweat profusely, and you will be very difficult to awaken. Someone calling your name will no longer easily rouse you, as they would have from Stage II; instead, you may be oblivious to sound, unless the sound is important enough, such as hearing the word “fire” or a baby crying.

In non-REM sleep, your muscles are more relaxed than when you are awake. You are able to move, but you lie still because your brain is not sending movement signals to most of your muscles.

REM SLEEP:

After one or two periods of non-REM sleep, you move into REM sleep. In REM sleep, breathing and heart rate become irregular.

You do not sweat. REM sleep is an active state. Your body uses more oxygen than in non-REM because your body is using more energy. In this state, your muscles become very relaxed, especially in the head and neck. Most nerve signals that would normally go to the muscles are blocked within the spinal cord, so that not only are your muscles relaxed but much of your body is effectively paralyzed. Only the muscles controlling the eye movement,

respiration, and hearing are spared. Because the blockade is not complete, some of the stronger signals still get through to the muscles, causing frequent small twitches of the hands, legs, or face. So, although REM sleep is very active in terms of metabolic and brain function, you still remain fairly still.

The most striking feature of REM sleep is its characteristic bursts of rapid eye movement. During these bursts of energy, the blood pressure and heart rate increase, as does blood flow to the brain. Humans cannot be totally deprived of REM sleep, at least not easily. Studies show that certain animals will actually deteriorate and die without enough REM sleep. It is in REM sleep that memories for the day are stored.

REM sleep is when we dream. If you were awoken during one of these bursts, you most certainly would know that you were dreaming. Some experts say that with the rapid eye movement, you are actually visualizing your dream.

Research suggests that REM dreaming allows us to process daytime emotional experiences and transfer recent memories into longer-term storage.

To sum up, we live in three distinct states. In the waking state, we are rational and take care of ourselves and meet our survival needs. In non-REM sleep, the body rests and restores itself while the mind rests. And in REM sleep, the mind is active again, but it is not rational and is disconnected from the body. Major muscle movements in REM sleep do not occur.

Back to the evolutionary theory of sleep. Many researchers hold the theory that REM sleep developed as

an intermediary state between non-REM sleep and waking. An animal in non-REM sleep lies quiet and still, except for soft irregular breathing. So an animal sleeping in non-REM sleep is more easily hidden from predators. But suddenly waking would leave the animal physically active and noisy but confused and more vulnerable to attack. An animal that was in REM sleep would become alert, but with the brain still disconnected from its muscles, it could not make any movement or sound that might alert a predator. Once it was more alert, the animal would wake fully, and it could react appropriately to danger.

REM sleep is the earliest stage of sleep that we develop. Premature babies spend 80% of their sleep time in REM. In full-term infants, it makes up half of their sleep. Experts do not fully understand why REM sleep is so prominent in the early stages of the infant's brain development, but experts say that quiet sleep requires a certain degree of brain maturation.

In REM sleep, the higher centers of the brain receive stimulation from deeper, more primitive areas. Impulses come up the same sensory pathways that are used for sight and sound, and perhaps touch, taste, and smell. Such stimuli are most likely incorporated into dream imagery. In theory, this could allow the infant's developing brain to receive sensory input—to “see” and to “hear”—even before birth. This input would be important to the development of the higher brain centers.

It is also known that the baby in the uterus makes no breathing motions in non-REM sleep; however, respiratory motions do occur in REM sleep. If breathing

was never practiced, then the infant would be born with no experience at breathing.

A newborn enters REM sleep immediately after falling asleep. By three months, the infant will enter non-REM sleep first. This pattern continues for the rest of its life.

Orthodontics is a key piece of the puzzle for a good night's sleep because orthodontics can improve airways, making it easier to sleep through the night and complete a normal sleep cycle.

Children who sleep poorly at night because of problems with breathing have their sleep cycles disrupted and may be sleepy or behave badly during the day. The circadian rhythm function, a 24-hour cycle, is necessary for normal sleep and optimal daytime function.

I have made some bold claims about orthodontics and sleep apnea, bedwetting, and ADHD. The key ingredient for success in these fields and orthodontics is that—here we go again—orthodontics is the only profession that can change skeletal structure and, in turn, airways without surgery.

What does that have to do with sleep apnea, bedwetting, and ADHD? It all has to do with the fact that orthodontics, through expansion of the palate or lower jaw advancement, can improve the airway and sleeping.

Imagine your child in a deep sleep. Suddenly you see your child stop breathing. This is finally stopped when your child makes a loud snore, with a gasp for air, and then your child starts breathing again. Scary!

Here is another scary analogy. Let's say that you are sleeping and someone puts a pillow over your face. You struggle and move and try to open the airway (move the pillow) so that you can breathe again. When a person's airway is narrow or closes completely, it is similar to having a pillow put over your face. Your jaw is struggling, moving right and left, trying to open the airway. This is called bruxing, and you do it in order to try to open the airway. Bruxing leads to triggers or knots in the muscles, which cause headaches. We are going to discuss this further in Chapter 9, on migraines, but just keep in mind that when the airway is small, it also leads to grinding of the teeth.

Sleep apnea is when a person, no matter what age, stops breathing while sleeping. The temporary stop in breathing can last from a few seconds to a few minutes, and can happen many times in the span of an hour. It definitely affects quality of life in many, many ways.

Millions of people suffer from sleep apnea. Most tend to be overweight and men, although women can be affected. Overweight people tend to have fatty deposits in their throats which make the airway smaller.

You also have a higher probability of developing this condition if you have small airways in your nose, throat, and mouth. Younger children, therefore, can also develop this condition if they have large tonsils or adenoid tissue or small palates.

Small mouths lead to sleep apnea. Small palates such as those caused by mouth-breathing or thumb-sucking lead

to small nasal passages. Small palates also do not have enough room for the tongue, forcing it back into the oral pharynx, reducing airway space, and exposing the child to the possibility of sleep apnea and all the problems that can come from this.

Sleep apnea is a condition that can affect many people from many walks of life. Approximately 25 million adults in the US suffer from sleep apnea. Obstructive sleep apnea can pose a danger to your heart, as your body finds it hard to obtain air from your labored breathing. The deprivation of oxygen stops healthy blood circulation throughout the body. There is a correlation between congestive heart failure and sleep apnea.

Orthodontics is a key piece of the puzzle to actually save lives. Orthodontics can cure sleep apnea, as discussed earlier, through skeletal changes; it can give relief from sleep apnea through oral appliances that are scanned and titrated in the orthodontic office.

What does “scan” mean, exactly? We use a light source that takes five minutes to scan the teeth. It goes to an FDA-approved sleep lab via the Internet that manufactures the appliance according to instructions given by the orthodontist. Once the orthodontic office receives the appliance, the device may be titrated several times to obtain perfection in opening the airway. Titration is done in the orthodontic office with a key that further advances moving the lower jaw forward or opening the bite until there is no more sleep apnea. The improvement is confirmed by using the sleep monitor again, but with the oral appliance in place. The result is confirmed by a sleep physician.

There are many symptoms of sleep apnea that affect people in different ways, such as bedwetting, poor performance in school, and ADHD. These are all due to lack of sleep caused by small airways.

Sleep apnea is a serious condition that could lead to death. Those who suffer from sleep apnea sleep normally; they just don't breathe normally while sleeping.

Generally speaking, there are two major categories of sleep apnea. The most common form is obstructive sleep apnea. For this kind of sleep apnea, the airway is not large enough and your muscles around your throat collapse into the airway, preventing breathing. Obstructive sleep apnea is the condition that orthodontists have great success in treating.

The second form is called central sleep apnea. This occurs when the breathing muscles do not receive the right signals from the brain. Unfortunately, orthodontists do not treat this condition.

Sleep apnea is caused by the temporary blockage of the tissues at the back of your throat. You stop breathing for a moment and need to actually wake up to gasp for breath.

When you have more than five apnea episodes in one hour, you are considered to have obstructive sleep apnea.

SYMPTOMS OF SLEEP APNEA

Perhaps the most obvious symptom of sleep apnea is loud, constant snoring. You may pause snoring for a moment, but you may also choke or gasp after pausing.

When you sleep on your back, the snoring gets louder; it decreases in volume if you sleep on your side.

One main sign that you have sleep apnea is that you have trouble staying awake during the day. The moment you are not doing anything, you fall asleep. This can increase your chances of having life-threatening accidents, especially if you are driving.

Besides that, other common symptoms of sleep apnea include:

1. Morning headaches
2. Struggling to concentrate or focus (can include ADD and ADHD)
3. Decreased oxygen levels
4. Together with low levels of oxygen and insufficient sleep, your stress hormones are released, which increases the possibility of high blood pressure, heart attack, abnormal heartbeat, and stroke
5. Stress hormones could also cause heart failure

If sleep apnea is left untreated, you could also develop obesity and Type 2 diabetes.

DIAGNOSING SLEEP APNEA

There are now sleep-study monitors that the patient can pick up at the orthodontic office and use in the comfort of his or her home. The test is relatively inexpensive—it costs \$250 in our office, which includes a reading and diagnosis by a sleep physician. The test does not involve any pain. We show you how to wear the monitor and then you simply sleep in it for one night. You bring the machine back into our office the next morning and then we email the test to a sleep physician. We usually have the diagnosis in 24 hours. Something new coming up on the horizon, however, is a diagnosis that simply requires a urine test. This is still about two years out, however.

CHILDREN WHO HAVE SLEEP APNEA

Hyperactivity and aggressiveness are among the main symptoms when a child is diagnosed with sleep apnea. As a result, it greatly affects his or her studies and social life.

As with adults, children suffer from similar symptoms. Among them include loud snoring, gasping for air, snorting, and temporary stoppage of breathing.

If you find that your child is experiencing sleep apnea, you need to have them treated immediately. Tonsils and adenoids should be evaluated for removal and Continuous Positive Airway Pressure (CPAP) machines can be worn. CPAP is one of the main methods of dealing with sleep apnea. It is a method in which the machine produces air pressure with a mask situated on your nose while you sleep.

When using CPAP, you get more air pressure compared to just breathing normally with the outside air. The air pressure from the machine will ensure that the passageways in your upper airways are open.

If the patient cannot tolerate the CPAP, then an appliance that fits in the mouth (FDA-approved) can be made via the orthodontic office. Oral appliances open your throat, which is done by moving your lower jaw forward. This enlarges the airway and helps stop snoring and sleep apnea.

However, if you prefer a cure for sleep apnea, consider seeing an ENT specialist for tonsil and adenoid removal and an orthodontist for airway expansion. The ENT can remove the tonsils and adenoids and the orthodontist can expand the airway through palatal expansion or lower jaw growth with a mandibular-growth appliance.

BEDWETTING, OR ENURESIS

Urination that occurs in children under two years of age is a spontaneous, automatic act. Between 2–5 years, awareness grows in the children and they can consciously make the decision to urinate or not; the child understands the consequences of urinating and what will happen to his or her environment.

Enuresis is urinating without conscious control of the act. One form of enuresis is bedwetting. Bedwetting is a very common and frustrating childhood sleep problem that can upset the child and the parent. So when the child wets the bed, it is not the urination that causes the

frustration but its aftermath: the child's pajamas and sheets get wet, the child wakes up, and the parents must get out of bed to change his or her pajamas and sheets.

Let me discuss the impact that bedwetting had on my son Brett. Remember, Brett helped us start using the expanders that the parents do not have to turn.

OK, Brett, don't kill me! Remember this is for the common good.

The expanders that we used for Brett gave him many benefits. First, he did not need to have premolar teeth removed, but something else happened that was even more dramatic: after expanders, Brett quit wetting the bed.

Sorry, Brett, I don't mean to embarrass you, but what I observed with you changed how I practiced orthodontics. Because of you, I am very reluctant to ever remove permanent teeth and instead prefer expansion.

Enuresis was affecting Brett's self-image and social interaction. This was a big deal because Brett was reluctant to spend the night at a friend's house, afraid he would have an accident. You can imagine how terrifying it would be if Brett's classmates found out that he wet the bed; they would have teased him incessantly. This improved Brett's self-esteem and his social life.

The expanders improved Brett's airways and he got a better night's sleep and, just like magic, he quit wetting the bed. He had been taking medicine right before he went to bed at night that actually stopped the bedwetting. But there was a caution with the medicine—do not drink

anything after you take the medicine because it can cause kidney damage. This was very scary! It is a scary thing to give a six-year-old kid medicine with that kind of caution.

Another thing happened with Brett, who had been diagnosed with ADHD—his focus at school improved. He still had to take his ADHD medicine, but things were better. I missed a piece of the puzzle with him. I did not have his tonsils and adenoids taken out. I did ask his physician and asked about the tonsils being taken out, but he did not recommend it, as Brett had just had strep throat four times in one year. I still wonder if Brett could have stopped taking his ADHD medicine if I had been more persistent. I loved Brett's physician, but I feel bad that I was not more persistent in asking for a referral to an ENT. When Brett was six years old, however, there was no 3D technology that enabled the doctor to examine and actually quantify the airway.

Now, I believe that it is important to not only expand but to also consult with an ENT if the airway is too small.

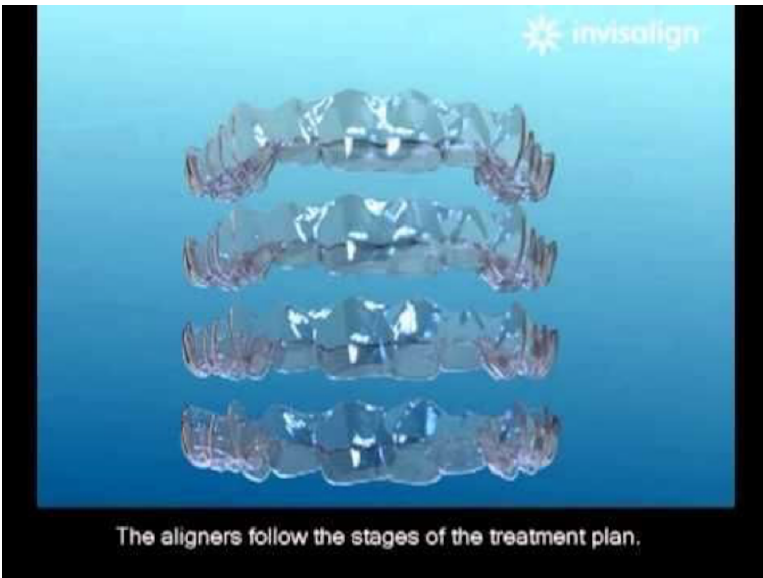
Chapter 7: Invisalign—Using a Modern Approach to Straightening Your Teeth

Invisalign can save one of your most valuable resources . . . time.

Invisalign® takes a modern, scientific approach to straightening teeth, using a custom-made series of aligners created for each patient. These aligner trays are made of smooth, comfortable, and virtually invisible plastic that you wear over your teeth.



Wearing the aligners will gradually and gently shift your teeth into place, based on the exact movements your orthodontist plans out for you.



I plan the movement of the teeth for each stage (aligner1, aligner2, etc.) based on an acquired image. Having treated over 1,700 cases, I know exactly what tooth movement is going to happen at each stage. The more cases I treat, the more efficient and precise the tooth movement becomes. Our practice is a Top 1% Provider of

Invisalign. This means we are among the most experienced providers in North America.



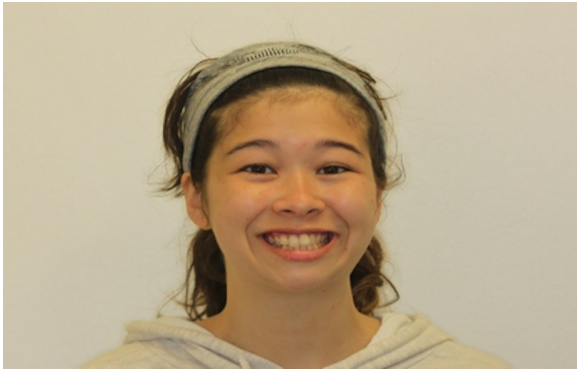
This designation is given to the doctors who make up the top 1% of all North American Invisalign providers and are among the most experienced.

You simply pop in a new set of aligners approximately every two weeks, until your treatment is complete. The patient does the orthodontic adjustments at home by just changing aligners. You'll achieve a great smile with little interference in your daily life. And the best part about the whole process is that most people won't even know you're straightening your teeth.

Now, I said that you wear the aligner for two weeks and then advance to the next aligner. Does that mean that you have to come to the office every two weeks? Absolutely not! Because of my experience, this process is as easy as a video game for me—I know what is going to happen at

each aligner, it is preplanned and pre-calibrated, and all you have to do is wear the aligners. Most appointments are every 3 to 6 months, saving you time that you would never get back otherwise.

I treated my niece who lives in Japan, and over the course of 18 months she only came in three times. Anna Marie's before and after pictures are below:





Here is a statement that may surprise you: Invisalign works so well that in a few years, braces may go the way of Blockbuster Video. Invisalign works as well as, if not better than, braces. There are some knock-off products now on the market, but I choose to go with the leader in the field—Invisalign. It has a 17-year lead on the competition, and the engineering, science, and manufacturing that go into each aligner are mind-blowing.

Here is how the process works in our office. First, let me say that there are no longer gooey impressions that we put in your mouth that make you gag. Rather than those messy impressions, we scan your teeth with a light

source, and it immediately goes over the Internet to Invisalign. The scanner is known as an iTero scanner. The accuracy of this scanner is what I believe has made Invisalign take the lead in straightening teeth, with more precision and therefore speed than braces.

ABOUT THE iTERO SCANNER

We are excited to announce the arrival of the iTero intra-oral scanner in our offices. Most orthodontic patients agree that impressions are the most unpleasant procedure involved in daily orthodontic therapy and would welcome this amazing alternative.



The iTero Scanner captures the contours of tooth and gingival structures, producing an accurate digital orthodontic scan in just minutes. An accurate impression is the foundation of the accurate study model required for

effective treatment planning and orthodontic care, which results in improved orthodontic treatment.

The iTero handheld wand takes a digital image of your prepared teeth, stopping as needed. You can look at the 3D image on the screen in real-time. Now, instead of shipping impressions to the lab to be scanned, the digital image is electronically sent to the lab and is available in the Invisalign Clincheck or the laboratory system the very next day.

The accuracy and detail of the iTero scan vs. a putty impression is kind of like watching HDTV over standard-definition TV. These digital scans don't need to be re-scanned by removing the "clay modeling step"—therefore, we have greatly improved the accuracy.

BENEFITS OF iTERO SCANNING

- Eliminates the discomfort of impressions and re-impressions
- Superior accuracy with no distortion from patient movement during set, removal of impression, or disinfection
- The Invisalign Outcome Simulator helps patients visualize how their teeth may look at the end of Invisalign treatment
- Fewer, shorter patient appointments
- Increased patient comfort by eliminating traditional impressions

Below is a chart that shows the advantages of Invisalign vs. braces.

COMPARISON CHART	INVISALIGN	BRACES
Effectively treats a wide variety of cases, including crowding, spacing, <u>crossbite</u> , overbite and <u>underbite</u> .	✓	✓
Straightens your teeth.	✓	✓
Allows you to eat whatever foods you enjoy.	✓	
<u>Lets</u> you remove the device when you want.	✓	
<u>Lets</u> you enjoy virtually invisible teeth-straightening.	✓	
Allows you to brush and floss your teeth normally for better periodontal health.	✓	
Consists of smooth, comfortable plastic instead of sharp metal that is more likely to irritate your cheeks and gums.	✓	
Frees up your busy schedule, with office visits only every four to six weeks.	✓	
<u>Invisalign</u> Teen®: Provides up to six free replacement aligners if lost or broken.	✓	

We used Invisalign in our offices the first year that they were presented at the annual meeting of the American Association of Orthodontists.—it has been a fun ride watching the engineering development of Invisalign.

Chapter 8: Accelerated Orthodontics

In this fast-paced world, we want things done yesterday. Probably, most of you have taken a trip with a child. How many times have you heard, “Are we there yet?” Or in my case at the office, “Am I finished yet?” Well, in this amazing world in which we live, we can actually speed up orthodontic treatment. We can speed it up to about half the time previously required. Orthodontics can be accelerated with braces or Invisalign. The first method I want to talk about is **AcceleDent®**.



WHAT IS ACCELEDENT?

AcceleDent is a simple-to-use, hands-free device designed for faster orthodontic treatment with only 20 minutes daily use.

By inserting the mouthpiece fitted around your existing orthodontics and wearing the activator for 20 minutes everyday, AcceleDent can speed up tooth movement. Faster tooth movement may decrease the duration of your orthodontic treatment and may help to make your orthodontics more comfortable.

AcceleDent has been clinically proven to move teeth up to 50% faster. AcceleDent has been prescribed to thousands of patients worldwide since its introduction in 2009. AcceleDent has been cleared by the United States Food and Drug Administration (FDA) and available only by prescription from your orthodontist.

WHAT IS PROPEL?

Propel is the second accelerated orthodontic technique that is also approved by the FDA. With this technique, I make dimples around the roots of the teeth while you are in the office, which makes it easier and faster for the teeth to move through the bone. The advantage of Propel is that you don't have to remember to use an appliance every day.

Both techniques work great. I have tried them both. I just finished with my Invisalign treatment. It took 4 months in what was projected to be a 12-month case. I loved it!

Chapter 9: Trigger Treatment Technology (T3), AKA The TruDenta Treatment System

There are 1.5 billion people living with headaches on a recurring basis. Most of these people have tried everything, from expensive medication to needles up their nose, blocker, botox, and other injections. Most of these treatments simply add to the pain.

What if there was a treatment to cure headaches and migraines without any injections or medicine? There is now such a treatment, called TruDenta, or the Trigger Treatment Technology (T3) system. This treatment is enjoyable. It is like going to the spa, only better because the results are long lasting. T3 gets to the real “root cause” of your headache without any medication.

Janet Travell, MD, the personal physician to John F. Kennedy and Lyndon B. Johnson, was the physician that discovered trigger points. In basic terms, a trigger point is a knot in a muscle that refers pain by certain routes. Dr. Travell spent much of her life literally mapping the paths of trigger points. We will talk more specifically about the trigger-point paths in a minute.

The T3 system has literally changed my life. It is a precise, calibrated protocol to cure TMJ (jaw joint) dysfunction, tinnitus, sore jaw and neck muscles, vertigo, headaches, migraines, and much more.

So I said that TruDenta changed my life, but did I suffer from the above symptoms? No, but I had patients that suffered, and it totally changed how I treated those patients. TruDenta taught me that there is a person attached to those teeth; that person has joints, muscles, and nerves that must be in harmony with the teeth. So those teeth are important, just not for cosmetic reasons, but for the overall well-being of the person.

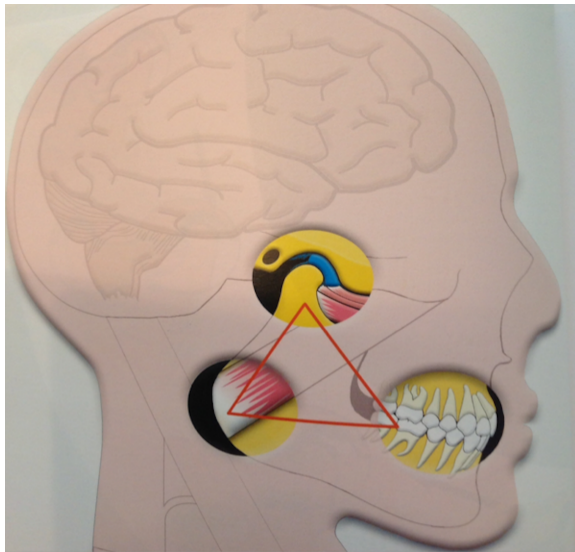
TruDenta was developed by a neurologist who was tired of seeing people suffer from headaches and migraines with no cure. Most neurologists were simply throwing pain medication at the symptoms, but not getting to the root (read: cure) of the problem. Every year the volume on the pain would increase, and the neurologist would have to increase the amount of the medicine.

Why would a neurologist teach orthodontists how to treat TMJ problems that lead to migraines and headaches? Because the neurologist also had a PhD in Sports Medicine and realized how important the muscles were to the overall health of the body. The neurologist realized there had to be balance between the TMJ joint, the muscles, and the teeth. If any part of this triangle was off balance, then it could lead to serious conditions, such as persistent headaches and migraines, vertigo, tinnitus, etc., because of trigger points in the muscles. The trigger points (or knots) in the muscles can wrap around the nerves and refer pain to the head. Believe it or not, triggers in the muscles cause 85% of headaches. The neurologist could treat the joint and the muscles, but could not treat the teeth. Orthodontists have training to treat from C3 vertebrae and up; therefore, orthodontists were the logical choice to treat these patients because

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they could do the last critical step of the treatment: balance the teeth with the muscles.

For overall total health, the TMJ joint must be in balance with the jaw/neck muscles and must be in balance with the teeth.



Let's talk more about the muscle component of trigger-point treatment. Much of the information in the following paragraphs comes from the book *Trigger Point Therapy for Myofascial Pain: The Practice of Informed Touch* by Donna Finando, LAc, LMT, and Steven Finando, PhD, LAc.

In order to clearly understand the nature of an injured muscle, we must first understand the qualities of normal muscles. Normal healthy muscle tissue feels supple and

elastic. The underlying structures—bones, joints, and viscera—may be easily palpated through the skeletal muscle. There is uniform consistency within a normal muscle, and it is not tender when palpated. A healthy muscle will contract in response to nervous impulse, returning quickly to its shape after contraction. Individual bundles of fiber (fascicles) cannot be differentiated while palpating normal muscle.

A dysfunctional muscle will contract, but will not return to its normal shape after contraction. It will instead remain fixed in a shorted position, one that often results in local reduction of blood flow, lymph drainage, and reduction in range of motion. Over a period of time, a chronically contracted muscle will undergo changes. The contracted muscle is no longer able to perform its functions optimally and efficiently. Being shortened, the range of motion is impaired, resulting in poor functioning.

Taut bands, individualized bundles of muscle fiber, may be felt on palpation. They are hard knots in the muscle; the muscle no longer feels smooth, and the knots are tender on palpation. All of us harbor areas of constricted muscles. When the condition is chronic, other aspects of physiology, such as blood flow, lymphatic drainage, and nervous innervation, are affected as well. Our overall health is therefore very closely related to our muscular health.

In her work on trigger points, Dr. Janet Travell defines a trigger point as “a hyperirritable area within a tight band of skeletal tissue.” Triggers within muscle tissue are the most common trigger point—they are known as a

myofascial trigger point. Myo refers to the muscle and fascia refers to the connective tissue that surrounds the muscle. Through the fascia, a trigger point can move from the head to the toe. The implications of the extensive range of trigger points are important to understand. A myofascial trigger point is that area along a tight muscle band that is very tender to touch. The trigger point is the hardest area on the tight band of muscle, and it is painful upon compression. It can give rise to referred pain, tenderness, and autonomic phenomena such as visual disturbances, redness, and tearing of the eyes, referred pain to the head, tinnitus, dizziness, persistent headaches, and migraines.

The size of the muscle is not characteristic of the degree of pain. Rather, it is the degree of hyperirritability of the trigger point that defines the degree of pain. The more hyperirritable the trigger point, the greater the degree of pain to the referred pain area.

A trigger point may begin with muscular strain or overuse that becomes the site of sensitized nerves and decreased circulation. Trigger points tend to develop in areas in which increased mechanical strain or impaired circulation are likely to develop activities or postural stresses. Trigger points commonly develop in the sternocleidomastoid muscle and upper trapezius. However, trigger points can develop in any muscle.

Trigger points can be latent or active. Both will cause stiffness and weakness of the affected muscle and restrict the muscle's full range of motion. Active trigger points are differentiated from latent trigger points in that active trigger points produce pain. Therefore, active trigger

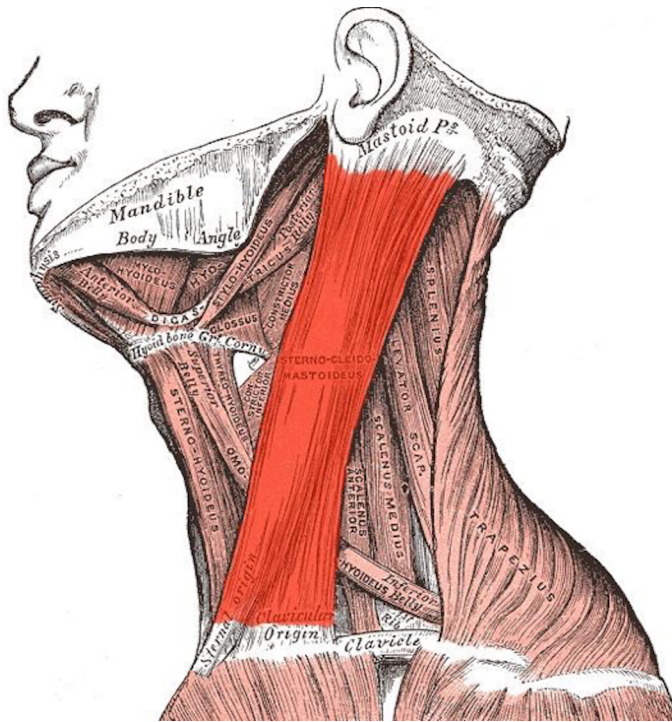
points are considered to be of greater clinical significance. The pain in trigger points tends to be referred away from the affected muscle in a characteristic pattern. The relationship between an active trigger point and its referred pain pattern was mapped extensively by Dr. Janet Travell.

Myofascial pain may be characterized as steady, deep, dull, and aching; it is rarely described by the patient as burning, throbbing, tingly, or numb. Pain varies in intensity from low-grade to quite severe, and it may occur at rest or in motion.

Latent trigger points are far more frequent than active trigger points and are commonly found in patterns of muscular constriction that define a person's normal posture. Activation of a trigger point can occur directly, such as chronic overwork. Indirect activation can occur when a muscle is left in a shortened position for extended periods of time, as in sleeping or sitting for long periods of time with forward head posture. While an active trigger point will frequently revert to latency with sufficient rest, trigger points will not be fully reduced without clinical intervention. This is where the T3 system comes into play.

Let's talk about specific muscles now and their associated trigger points.

THE STERNOCLEIDOMASTOID MUSCLE



Shown above, the sternocleidomastoid (SCM) muscle is one of my favorite muscle groups to work with. Trigger points in this muscle are the primary trigger points responsible for headaches and migraines. In fact, trigger points in this muscle can produce such diverse symptoms as a dry cough, sore throat, sinus pain, excessive eye tearing, visual disturbances, fainting, and dizziness/vertigo.

The SCM muscles contain the most trigger-point density in the human body, perhaps due to the amount of

muscles that help hold the head upright. The SCM in particular is primarily responsible for holding the head in position.

The SCM muscles are the two big ropey muscles located at the front of the neck. The name comes from the three body parts it connects to. Sterno stands for sternum, cleido stands for clavicle, and mastoid stands for the mastoid process of the temporal bone behind the ear. The SCM muscles attach behind the ear and run down the front of the neck, where they split into two heads. One head attaches to the collar bone (clavicle) and the other attaches to the breast bone (sternum) at the base of your throat.

What movement does the SCM muscle control? The right side rotates the head to the left and flexes it to the right. The left side rotates the head to the right and flexes it to the left. Together, both sides flex the neck and head forward. The SCM is also an important accessory muscle of breathing, as it helps to raise the ribcage on inhalation. If you breathe short, fast breaths it can overwork the SCM, causing triggers in the muscle.

INTERESTING FACTS ABOUT THE SCM MUSCLE

1. It is the muscle most injured in whiplash and as such can cause a number of symptoms and refer pain to many areas of the upper body.
2. It should be examined anytime you have pain in the head or neck areas. Often when trigger points

are released and the muscle is softened and relaxed, you will find that the pain is considerably reduced or eliminated.

3. It should be examined for trigger points in its clavicular branch if dizziness, nauseous, loss of balance, and falling are present and no diagnosis has yet been found.
4. It assists in chewing, swallowing, and breathing.

With forward head posture, the SCM muscle is in a constant state of tension, causing trigger points to develop with the associated pain.

WHAT PAIN AND SYMPTOMS ARE ASSOCIATED WITH THE SCM MUSCLES?

The SCM muscles themselves rarely have pain, but trigger points develop that can refer pain up to the head, eyes, sinus, ears, and throat, and cause dizziness.

The SCM trigger points are unique in that they can produce a copious amount of symptoms that appear to have nothing to do with the musculoskeletal system. Listed below are some of the symptoms and disorders that can be produced by these trigger points.

Tension Headache: A common but debilitating headache that is typically attributed to perceived muscle tension in the neck and cranial muscles. The duration of

these headaches can range from 30 minutes to several days.

Migraine Headache: The SCM trigger points can produce many of the symptoms associated with non-aura migraine headaches, such as visual disturbances, muscle tenderness, and unilateral (one-sided) headache pain.

Let's look at the two different divisions of the SCM. These are determined by where they attach.

With the **sternal division** of the SCM—this is the muscle head that connects to the sternum or breastbone—there are many areas of referred pain.

Pain may be felt (or referred) to these areas:

1. Cheek and jaw
2. Sinuses
3. Back of head at the bottom of the skull
4. Around the eye—the sternal divisions's referred pain is felt deep in the eye socket (behind the eye)
5. Top of head
6. Around the temporomandibular joint (TMJ)

The sternal division of the SCM may also be associated with these symptoms:

1. Tearing of the eye
2. Visual disturbances when viewing parallel lines

3. Chronic sore throat when swallowing
4. Chronic dry cough
5. The lower trigger points in the sternal division may refer pain to the upper chest-bone region.

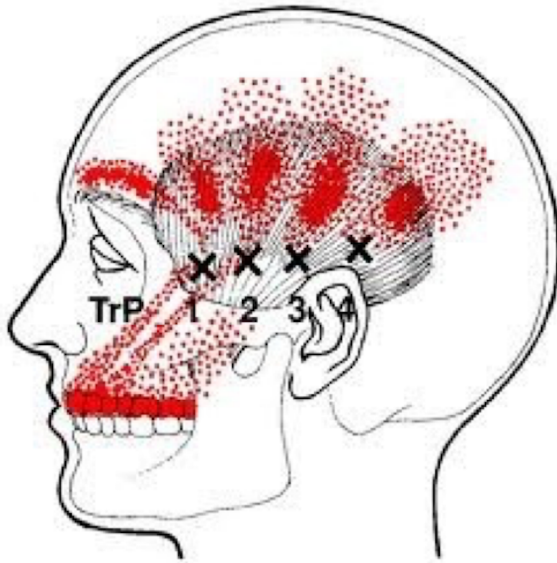
The clavicular division of the SCM connects the muscle to the clavicles or collarbone. Trigger points in the clavicular branch of the SCM can cause problems with balance, vision, and hearing.

Symptoms may be felt in these areas:

1. Pain across the forehead—the really strange thing about this pain presentation is that the forehead pain may extend across the midline of the forehead to the other side
2. Frontal sinus-like headache
3. Earache or ear problems—trigger points in the clavicular division may cause moderate deafness or “ringing” in one ear
4. Nausea
5. Dizziness—stiff neck muscles may prevent sufficient blood from flowing to the brain; the reason this happens is because the brain receives blood from the internal carotid arteries and the vertebral arteries; when the SCM muscles become overly tight, they can squeeze these arteries enough to slow down blood-supply to the brain

6. Car-sickness
7. Hearing loss in one ear

THE TEMPORALIS MUSCLE



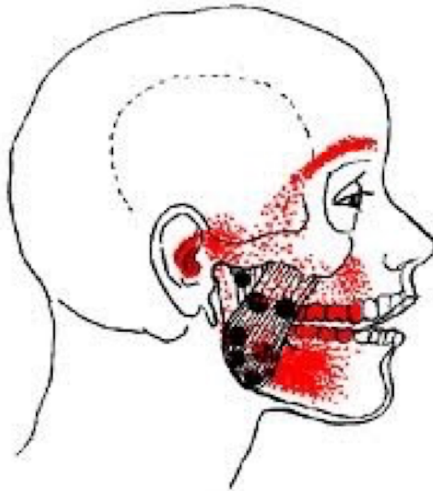
The **temporalis muscle** is shown above. It is a broad flat muscle at the side of the face that is very important in chewing. The knots or trigger points (marked by X's) of this muscle refer pain to the red dots.

Action: Closing the jaw.

Pain pattern: Temporal headache and maxillary toothache. Pain extends over the temporal region to the eyebrow, the upper teeth, maxilla, and the TMJ joint.

Causative factors: Excessive forward head posture, overuse of the muscle due to gum chewing, jaw clenching or bruxing, chronic overuse due to an anteriorly displaced TMJ disc; direct trauma to the muscle caused by a fall or as a satellite trigger point for the SCM or trapezius.

THE MASSETER MUSCLE



The **masseter muscle** is a long, strong muscle running along the side of the jaw. Please note trigger points in black and referred pain areas as the red dots. The masseter muscle can also cause unexplained tooth pain.

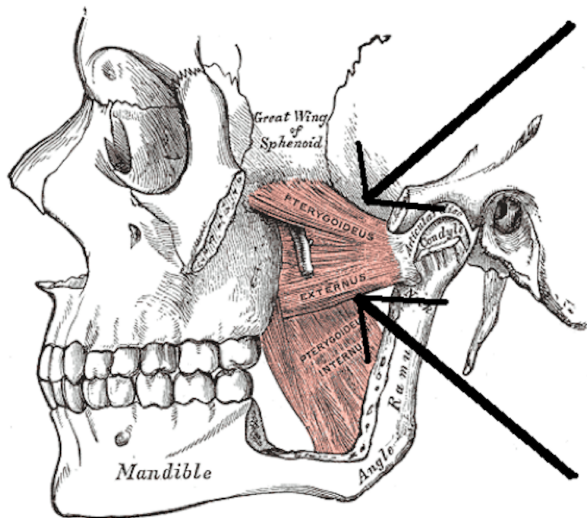
Action: Also closing the jaw.

Pain pattern: Pain at the upper teeth and cheek, sometimes identified as sinus pain; pain at the lower

teeth and jaw. Pain deep inside the ear: patients may experience unilateral tinnitus that is not associated with loss of hearing or vertigo. There can also be marked restriction of mouth-opening. (Normal jaw-opening will allow the comfortable insertion of the knuckles of two stacked fingers in the mouth).

Causative factors: Forward head posture, chronic mouth breathing, bruxing, clenching, gum chewing, nail biting, occlusion difficulties, overstretching during dental work, blow to the head, as a satellite trigger point to the SCM or upper trapezius.

THE PTERYGOIDS (MEDIAL AND LATERAL)



Most patients with TMJ suffer from a muscle disorder that includes the involvement of the **pterygoids**. These muscles are rarely involved alone. The top arrow points to the lateral pterygoid. The bottom arrow is the medial pterygoid.

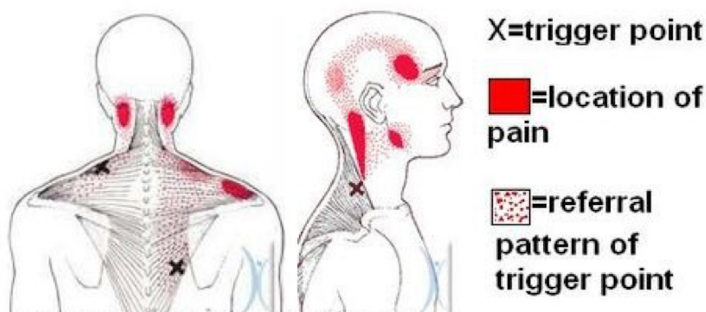
Action: The medial pterygoid closes the jaw, the lateral pterygoid moves the jaw forward for opening.

Pain pattern:

Causative factors: Forward head posture, bruxism, excessive gum chewing, playing a wind instrument. Medial pterygoid is rarely involved alone and will be activated secondary to the lateral pterygoid.

THE UPPER TRAPEZIUS

PAIN IN THE UPPER TRAPEZIUS MUSCLE



Action: Upper fibers, flexion of the head and neck to the same side; elevation of the shoulder acting on the clavicle.

Pain pattern: Trigger points cause pain along the posterolateral aspect of the neck, behind the ear and possibly to the temple.

Causative factors: Sustained flexion of the head and neck and or elevation of the shoulders, compression of the upper shoulders, whiplash trauma from the side.

The above review gives some of the most common muscles that our office works with to treat TMJ dysfunction.

HOW DID WE GET INVOLVED WITH T3?

We never actually set out to treat TMJ dysfunction and its associated symptoms. Before T3, the results in our office just were not good. We would only get the patients better 30 to 40% of the time. We would get the teeth straight 100% of the time, so we thought: why would we want to treat TMJ dysfunction?

Let me tell you how I met the caring people at TruDenta who teach the Trigger Treatment Technology. It is all because of my dog, Maddie.

Sounds strange, doesn't it? Let me explain.



Maddie feeling bad

Maddie is a little six-pound, energy-infused puppy that comes to work with me. She jumps, runs, and greets the staff with enthusiasm every day. But one day, she never jumped and her tail quit wagging. She was crying and couldn't walk. She had hurt her back. I took Maddie to her veterinarian, and he prescribed anti-inflammatory

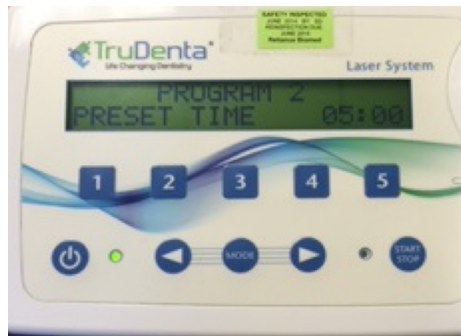
medicine. Maddie could not tolerate the medicine, but the only other option was surgery. I did not want to do surgery.

Jennifer Goodwin, the COO of the company, always there to help in anyway, went on a search for a different way to treat Maddie. Jennifer found a veterinarian in Plano, about ninety minutes from our home. The veterinarian used a cold laser on Maddie's back and she walked out of the vet's office with her tail wagging. We took Maddie back for two more treatments, and she has not had any more problems with her back since then.



Maddie feeling better

The cold laser emits light in certain wavelengths that can penetrate cells and activate mitochondria to energize the cell to reduce inflammation and pain.



Cold Laser

OK, so what does that have to do with the Trigger Treatment Technology system?

I was at an orthodontic meeting two years later, and I was ready to add something to our practice that no other orthodontist really wanted to tackle. So I watched for the booths in the convention hall that no one was visiting. I kept watching the TruDenta (T3) booth, and no one, and I mean literally no one, was visiting it. The second day, I went over and asked what product they were marketing.

Guess what? It was not a product! TruDenta was selling an education, with the tools provided, to treat patients that have an assortment of pains and conditions. I was about to walk quickly away when something made me stop and ask about the tools. You can probably see where this is leading—one of the tools was a cold laser. The

same cold laser I had seen work for Maddie two years earlier. Life is funny—a circuitous path.

I signed up for the education and tools and haven't stopped learning since that time. I have gotten so excited about the results we get with our patients. Our TruDenta staff, however, gets more excited than *I* do!

The T3 system works to balance the TMJ joint, the muscles, and, finally, the teeth. Nationwide, there is a 95% cure rate. Let me share some of our success stories with the T3 system.

Laura's pain was intense. Her TMJ disorder had left her barely able to carry out routine chores around the house. Some days, the pain kept her in bed all day. She feared that surgery would be the next step. Having worked as a dental hygienist, she had seen the many unwanted after-effects of surgery. When pain management seemed like her only other option, Laura became hopeless and depressed. "I asked God to just help me to live with this condition," Laura recalled. "Then my prayers were answered." Laura heard about a new treatment called TruDenta—the T3 system. "I didn't want to get my hopes up, but it sounded good," said Laura. "I had absolutely nothing to lose, and I was desperate."

"I'm sleeping better and am able to get out of bed in the morning without a headache, and I have a clear head," exclaimed Laura "I'm driving again, and am able to get things done around the house without lying down. I am able to take care of my family and do the things we love to do together. I have my life back!"

One more success story: Another patient, Teresa, came to see me. Her pain was so severe, and it deeply affected her family life. In 2009, Teresa sustained trauma to her jaw—an experience that left her, as her family described it, “extremely grumpy.”

“My jaw would just ache and the headaches never went away. I was taking at least 1600mg of Motrin, if not more, daily, and that was to just take the edge off. I am a mom to four wonderful kids who weren’t getting the best of their mom,” said Teresa.

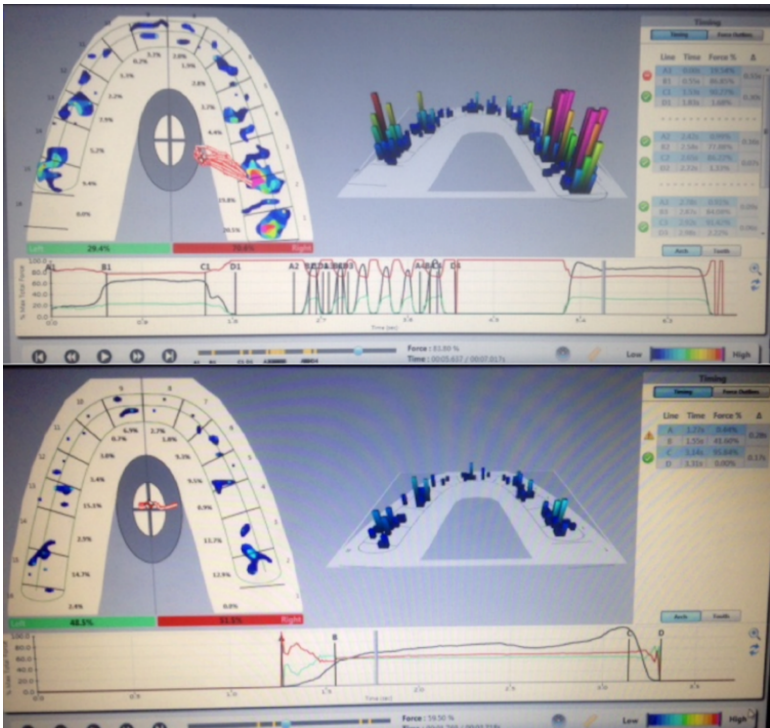
Before visiting our office, Teresa sought the care of a TMJ disorder specialist who employed similar techniques as TruDenta, but the outcomes were mixed (remember: TruDenta is a very calibrated protocol; other techniques may mimic TruDenta, but do not get the same outcomes). Teresa’s headaches would subside, but within a month, the pain would return.

“I suffered until I went to see Dr. Birth,” Teresa recalls. “I thought if I fixed my teeth with braces, my bite would be better and the pain would stop.”

As soon as Teresa recounted her injury and described her symptoms, she could see interest perk up on our team’s faces as we realized that she could benefit from theT3 protocol. We can treat a lot of people. We complete a series of diagnostic tests to determine if you’re a candidate for the treatment. We do a digital bite-force analysis and tooth scan, which are very precise and give us the relative force on each tooth.

The bite-force test analyzes where teeth are hitting, how hard they’re hitting, at what time periods, and if the jaw

shifts as you close. If there's interference either by the shape of the tooth or a tooth being in the wrong position, there may be interferences as you close. The tooth scan can pick up on those minute muscle movements. The minute muscle movements are indicated by the red lines in the middle of the scan. Even though the muscle movements are minute, they create knots or trigger points in the muscle. The trigger wraps around the nerves and leads to numerous painful conditions.



The top scan is before T3 and the bottom scan is after T3. Please note that in the top scan the patient is hitting







heavy on the molars on the right side; this is causing the muscles to shift a number of times in a matter of microseconds, shifting to the right rather than staying balanced. The muscles are required to adapt numerous times to help protect the teeth that are hitting heavy (red lines inside the teeth).

If muscles are reacting to a tooth in the wrong position, they get overworked, which creates a trigger point. That trigger point, in turn, can be the soul cause of headaches, migraines, tinnitus, and vertigo in many cases. Notice that after the T3 system, the contacts are even and the muscles are staying balanced.

Our office looks for specific indicators. When functioning properly, the jaw and its muscles painlessly exert massive forces within your mouth. If the forces that power your jaw are unbalanced or create improper forces, this can be problematic. For example, if your molars take any more than 13% of the bite, that raises a red flag. Painless electronic tests can also survey the range of motion of cervical muscles. If a patient's cervical range of motion (ability to turn and tilt your head) isn't where it should be, that's another red flag.

CERVICAL

4/7/2014 14:56

		Test 1	Test 2	Test 3	Avg	Norm	% From Norm
	FLEXION	50	49	49	49	50	1%
	EXTENSION	51	51	53	52	60	13%
	LEFT LATERAL	37	40	42	40	45	11%
	RIGHT LATERAL	42	40	41	41	45	8%
	LEFT ROTATION	57	60	54	57	80	28%
	RIGHT ROTATION	84	75	82	80	80	*0%

We don't treat everyone, but the consultation is free. We can quickly determine if we can help you or not. If you're a candidate, we can improve your quality of life.

After learning how the T3 systems worked, Teresa felt she had found that elusive solution to her pain, though she did not move immediately forward. She didn't have health insurance at the time. Our office set up a payment plan with Teresa that made it possible to proceed with the three-month treatment.

"By the third treatment, the headaches stopped, and I stopped taking all the pain meds," said Teresa. "I have now completed my 12 treatments, and I have no headaches, my jaw does not ache, and I can laugh with my kids again. The pain is gone and I feel like a new person. I suffered for five years and in just three months the T3 system healed me."

Teresa and Laura's swift deliverance from a life of pain would not have been possible only a few years ago. Now, with the T3 system, available at Orthodontics by Birth, Stewart and Fletcher, more people are finding that they don't have to live with chronic headaches, migraines, clenching and grinding, neck pain or ear pain.

Furthermore, the system is virtually pain-free. "Not only is this cutting-edge technology that obviously works, the treatments are amazing," Teresa attested. "You feel no pain. It's like going to the spa every week!"

We treat many conditions. With this same system, we've relieved people of tinnitus (ringing of the ears). We have also seen success in treating vertigo.

Let's look at one last patient (NB) where we put all the technology together—or, another way to say it: We put the pieces of the puzzle together so that the patient could experience complete body health.

The next patient came to our office with all the symptoms: vertigo, tinnitus, migraines, jaw pain, and neck pain. She had been attacked in New York City. You will see the pins in her head from surgery. The surgery put her skull back together but did not cure her pain.

The picture below is patient NB's bite before Invisalign and T3.



CERVICAL

12/12/2013 10:21

		Test 1	Test 2	Test 3	Avg	Norm	% From Norm
	FLEXION	54	57	56	56	50	+11%
	EXTENSION	50	50	50	50	60	16%
	LEFT LATERAL	23	25	28	25	45	43%
	RIGHT LATERAL	29	29	27	28	45	37%
	LEFT ROTATION	61	61	66	63	80	21%
	RIGHT ROTATION	72	75	64	70	80	12%

The Range of Motion reading shows how patient NB's neck movement was very limited.



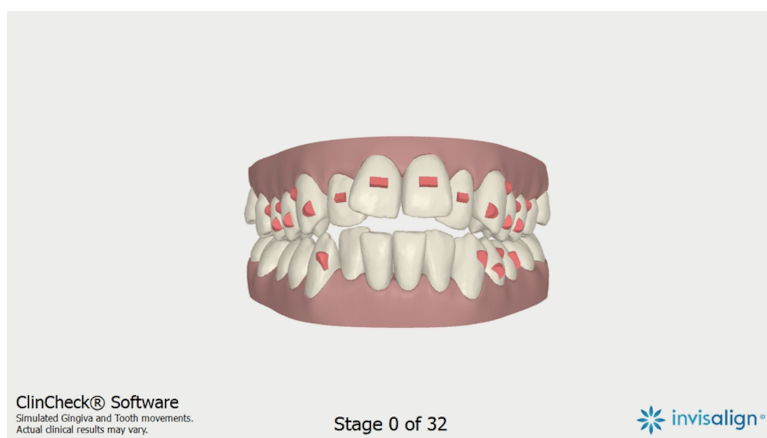
Patient NB's "before" X-ray—note pins in skull.



Patient NB's "after" X-ray—note anterior bite improvement.

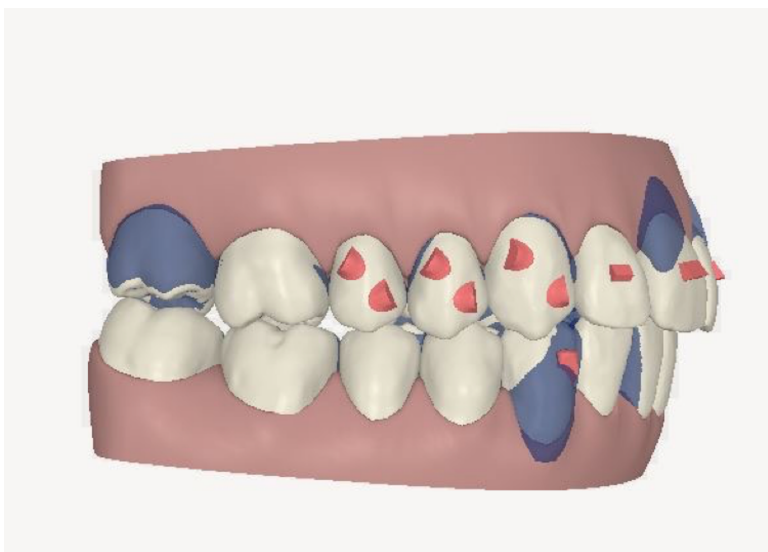
The treatment for NB used a combination of Invisalign and T3 to achieve balance with joints, muscles, and TMJ. We actually ordered a second set of upper aligners with an added splint so that the patient would have an orthotic to sleep in. All of our T3 patients wear an orthotic, which seats the TMJ in the correct position and prevents the posterior teeth from touching while sleeping. I recommend that most of our T3 patients use Invisalign to balance their teeth with their joint and muscles. The second set of upper Invisalign can continue to move the teeth at night and at the same time serve as the splint. It is much more efficient than using braces.

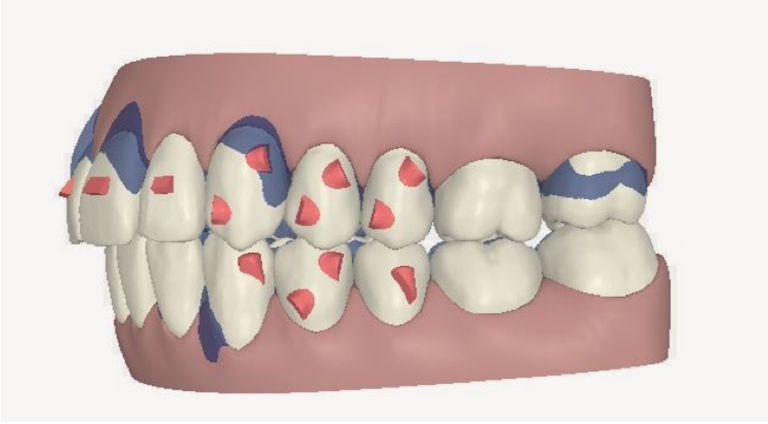
This is patient NB's beginning Clincheck to set up for Invisalign.





This is the patient's last tray. Note the tooth movement that was achieved with Invisalign. The blue is where the patient started and the white is the end result.

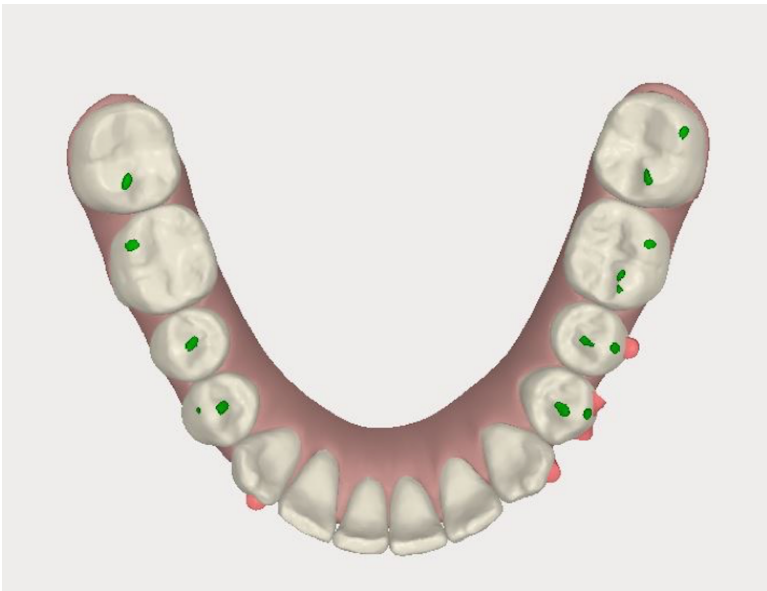
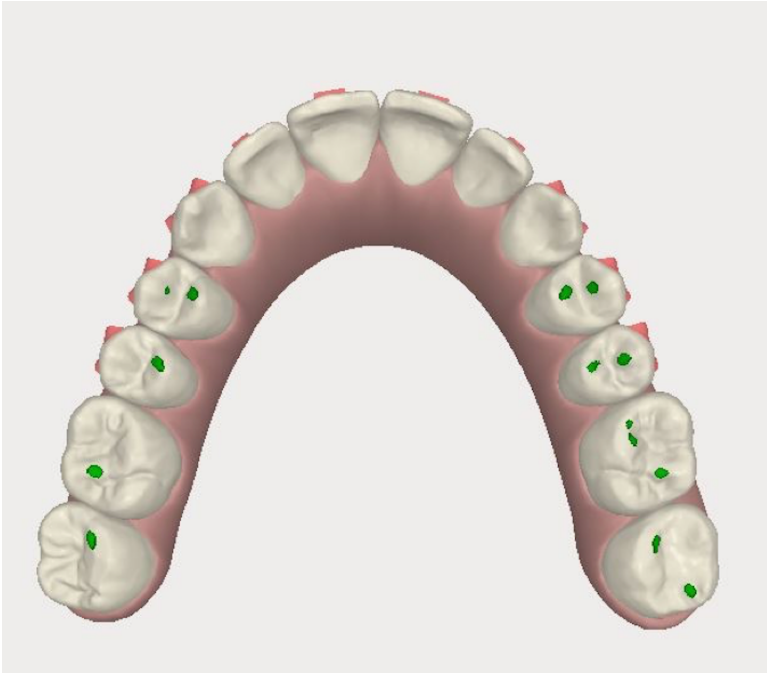


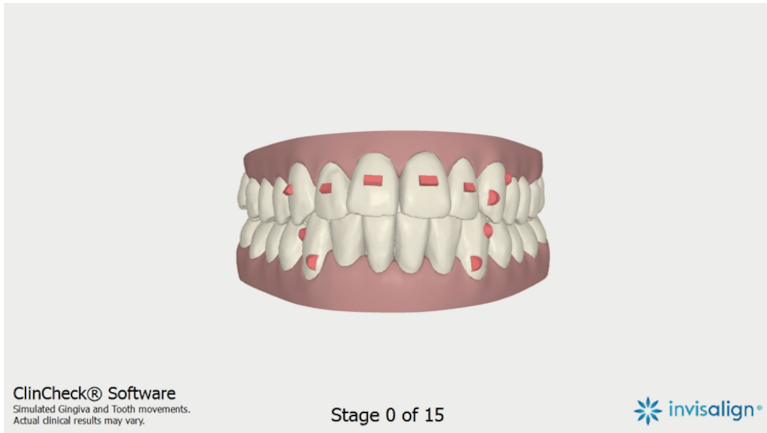




Notice how the arches widened and the posterior teeth sit more upright over the bone. This helps with the best force distribution when chewing and gives healthier forces to the muscles and joint.

I prefer Invisalign for my patients who suffer from muscle trigger points because I can determine the relative force contacts on each tooth before I actually start treatment. As one patient said, “Dr. Birth, with Invisalign’s software, you can see into the future and predict what my bite will look like. You can even predict minute details about where the teeth will contact.”

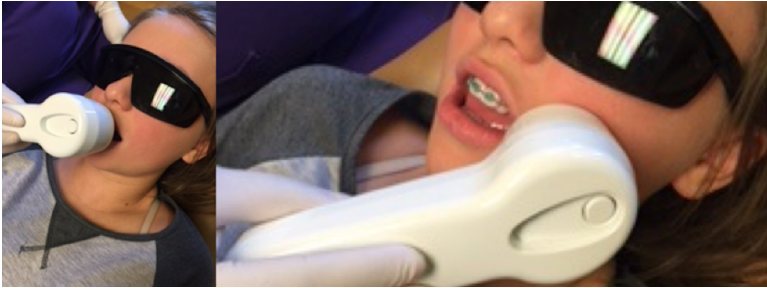




So as you can see from the previous chapters, we not only do orthodontics at our offices, but we have a full service commitment to our patients' overall health. This commitment entails providing the most modern innovations to keep patients safe and comfortable.

COMFORTABLE ORTHODONTICS

In our practice, we use the TruDenta (T3) cold laser to reduce the discomfort of your entire orthodontic experience.



We simply touch the TruDenta cold laser to your jaw for a few minutes and it reduces swelling and increases the blood flow. It may even speed up your care. No drugs, no needles, and you may not even have to take aspirin, Tylenol, or Advil.

PATIENT TESTIMONIALS

“I was expecting a lot more pain because school mates told me it was very painful. The cold laser helped quite a lot. The next day I wasn’t even sore.” *Dereck, age 13*

“The TruDenta laser worked really well. It reduced the amount of pain on my teeth instantly, so that was fantastic!” *S. Brown, age 14*

“Wow! I thought getting braces, even at my age, would hurt! My doctor used the TruDenta laser and it was completely comfortable.” *Debi, age 44*

Chapter 10: Replacing Harmful Habits with Healthy Ones



EMPOWERING PATIENTS TO TAKE THE APPROPRIATE STEPS TO START THE HEALING PROCESS

For complete relief in the Trigger Treatment Technology the patient must change harmful habits (much of the information regarding harmful habits comes from the book *The TMJ Healing Plan: Ten Steps to Relieving Headaches, Neck Pain, and Jaw Disorders* by Cynthia Peterson, PT).

When I talk about TMD, I am talking about TMJ disorder and the myriad symptoms that it includes, such as

migraines, headaches, tinnitus, popping and clicking of the TMJ joint, sore chewing muscles, sore neck muscles, etc.

Fact: The tongue, teeth, facial muscles, chewing muscles, neck, and TMJ dynamically balance each other. When one is out of place or not working correctly, it throws off the balance of everything else.

The problem: Patients' bad habits can throw this delicately balanced system off. We have found that the majority of our TMD patients have bad habits, and most of them don't even realize these habits are harmful.

The goal: Our goal is to problem-solve with the patient, by assessing a possible hurtful habit and creating a solution. We want to increase awareness on how these harmful habits can contribute to TMJ dysfunction (TMD).

The results: By increasing awareness and empowering the patient to eliminate these habits as we go through our T3 protocol, we are achieving longer lasting and better results quicker. In fact, if the patient does not stop these harmful habits, we may never achieve optimal results at all.

The goal is to introduce patients to the most common bad habits associated with TMD, to help them replace these with healthy habits to improve their road to recovery.

Most of our patients get better after three trigger-point therapies. But some of our patients were taking longer than three therapies. The patients that were taking longer all had something in common: they had bad habits that

were not allowing them to get better quicker. Habits such as forward posture of the head, poor tongue position, and keeping the teeth together can all slow down the healing process.

THE POWER OF POSTURE

Learn how to sit, stand, and sleep!

Fixing forward head posture is a perfect tool for looking younger, taller, and thinner. For those of you that were falling asleep, I have your attention now.

We all care about how we look. Just by standing or sitting straight, you change your appearance instantly. Forward head posture, or “text neck” (or “turtle neck”), will quickly rob you of your height of up to two inches and will make you look five to ten pounds heavier than you really are.

There is also a link between head position and body chemistry. If your head is forward, cortisol (the stress hormone) tends to increase. If your head is upright over your spine, it increases levels of testosterone and lowers levels of cortisol in the brain (2010 study by Dana Carney, a psychologist at UC Berkeley).

Here are two fascinating things that happen the instant our posture changes to our head over our spine.

1. We are more likely to have positive thoughts.
2. Our energy levels increase.

So how does this happen? How can forward head posture affect so much?

1. When the head is tipped forward over the spine, the arteries and nerves are compressed. The brain does not receive sufficient blood flow and oxygen. Nerve impulses also do not travel like they should, due to compression of the nerves.
2. If the compression is severe enough it can result in central nervous system dysfunction.

So what does posture have to do with TMD—headaches, migraines, and muscle pain? The answer is everything. Remember those days as a child when your parents or teachers yelled at you for slouching? Your posture is an important key to overcoming migraines and headaches.

Proper posture and balancing your head is essential in achieving the most relaxed head, neck, and jaw positions and the foundation of healthy habits you want to form.

When we think about posture, we begin with the position of the head. The average head weighs about 10 to 12 lbs. In other words, your head is heavier than, say, a gallon of milk. The gallon of milk (your head) is balanced carefully on a stick (your spine) with a bunch of bands (muscles, tissues, and ligaments) to help hold it in place. Now, imagine that the gallon of milk is not balanced, and is tipping forward . . . Instead of the 12 pounds being supported and distributed vertically throughout your system, your neck must struggle to support up to 36 lbs of

pressure. The forward head posture is why many of us have sore necks.

The muscles of the neck, shoulders, and upper back are forced to support the head in forward head position. The resulting strain on the muscles is exhausting.

Forward head posture is also referred to as “text neck.” Our society is constantly leaning forward looking at our cell phones. We have to hold our phones higher and our necks above our spine to get healthy and stay healthy.



Head weighs 36 lbs. vs. Head weighs 12 lbs.

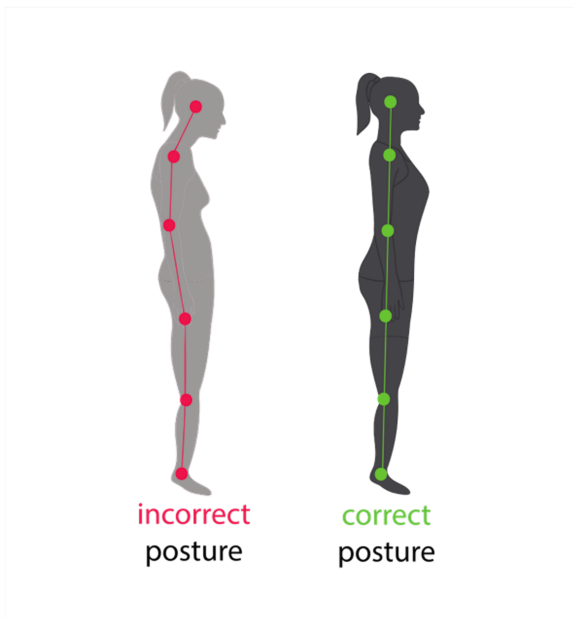
SITTING POSTURE

1. Your feet should be able to reach the floor or rest on a stable footrest in front of your knees.
2. Avoid crossing your legs, as it can twist your body.

3. Take your wallet and keys out of your pocket to avoid pressing on nerves, which could result in incorrect posture.
4. Make sure your back is supported by placing support behind the middle of your back.
5. Sit up straight while watching TV.
6. Add support when reading to avoid looking downward.
7. Do not lie down when watching TV or reading.

STANDING POSTURE

It is important that the ear, shoulder, and hip line up.



Notice how with incorrect posture, **there is forward head posture and retruded jaw posture.** There is a 70% correlation between having forward head posture and a jaw that is retruded.

Retruded jaw position stretches and strains the muscles around the TMJ. A retruded jaw position leads to the following TMJ problems:

1. Stretches out ligaments.
2. Puts pressure on the TMJ and reduces blood flow and metabolism.

SLEEPING POSITION

If you have serious TMD—head, neck, and jaw problems—you should generally try to stay on your back; sleeping on your side can put more pressure on your jaw, neck, and shoulders. However, if you are having health concerns such as difficulty breathing while on your back, sleeping on your back may not be the best position for you.

Helpful hints:

1. Sleep on your back with a pillow under your knees
2. Use a pillow for your head that supports the curve of your neck without pushing your head forward.
3. Too many pillows or big pillows can cause a forward head posture that will strain your neck and make it more likely to clench or grind your teeth.

4. Do Not sleep with arms over your head or under your chin.
5. Do Not sleep on your stomach.

Side sleeping:

1. If you must sleep on your side, it will take extra effort to be balanced because you have more variables to control.
2. Avoid curling up in the fetal position. It will move your head too far forward and causing you to clench your teeth.

Below are examples of proper sleeping:



The muscle most likely to be affected by poor posture is the sternocleidomastoid (SCM) muscle.

Exercises to strengthen the SCM and help relieve neck tension and trigger points:

1. Stretch your arms out straight to the sides like you are trying to touch both walls, and hold that while breathing in and out for a minute and build that up to two minutes over time. Do that a few times a day.
2. While sitting or standing, pull your shoulder blades together as if you are trying to hold a pencil there. Holding that position, count slowly to 12, and release for the count of 5, then repeat. Do that 12 times. That is one set. Do three or four sets a day. Your posture will improve and you will actually walk taller.
3. Stand a couple of inches from the wall and slowly tilt your head back to touch the wall, chin up. Hold for the count of 5, and resume your original standing position. Repeat 12 times (reps), and also do this three or four times a day. You can increase your reps as you get stronger.
4. Tilting one's head from side to side is also a good exercise.
5. Do your best to stretch, as this is very important for keeping muscles enriched with a good blood supply.



Lying on a pillow like this 10–15 minutes a day allows muscles in the neck to relax and stretch and give relief from poor posture (the pillow shown in the picture can be purchased from Amazon—it is called a Soothe-A-Ciser pillow and runs about \$40). Once there is sufficient reduction of the trigger points, the patient is instructed in stretching techniques for the specific muscle such as the above pillow stretches. These stretches are aimed at keeping the muscle from returning to the shortened state. Repeated stretching throughout the day is unquestionably one of the most important aspects of treatment.

TLC—TEETH APART, LIPS TOGETHER TO CALM YOUR MUSCLES

The harm of teeth touching: In one study, people with jaw and joint pain held their teeth together 80% of the time, compared to 20% of the time for people who do not have pain.

Your teeth should hardly ever touch. It can add wear and tear to your jaw joints. A male can bite with 266 lbs of pressure (about the average weight of a refrigerator), so your jaw can produce tremendous amount of pressure as your teeth touch. This force is transferred to your jaw joint. The added pressure can lead to early deterioration or arthritis of the TMJ joint. Muscle pain can occur when the muscles tighten to keep the teeth together. This makes the muscles work harder than they need to.

A forward head posture can also set the stage for teeth clenching. As soon as you bring your head forward, your teeth tend to come together, which leads to clenching.

Grinding your teeth or holding them together can squeeze important synovial fluid out of your joints, which hinders important functions of the joints.

Get enough folic acid—folic acid deficiency causes restless muscles and can lead to grinding. The following foods can help you obtain your recommended amount of folic acid:

1. Leafy green vegetables, such as spinach.
2. Citrus fruits, such as orange juice
3. Beans

4. Breads
5. Cereals
6. Rice
7. Pastas

POSTURE AND TONGUE POSITION

As your head comes forward, your teeth tend to touch and your tongue wants to push against your teeth. Correcting your posture and training your tongue to rest on the roof of your mouth is essential to keeping your teeth apart.

The tip of the tongue should rest on the roof of the mouth behind the upper front teeth, where you will feel ridges. The ridges give the teeth something to push against. The only time the tip of the tongue should touch the front teeth is when making the “th” sound.

Try a test used by many speech therapists:

Speak the letters T, D, N, L, S, and Z, all the while making note of what happens to the tip of the tongue.

In the English language, if the tip of the tongue touches the front teeth when they form these letters, or when it is at rest, then there is most likely a “tongue thrust.”

A tongue thrust occurs when the tip of the tongue pushes against the teeth when resting, talking, or swallowing.

Toning and training the tongue to rest in the right spot can eliminate a tongue thrust. Even if the tongue muscle

is not strong enough, it can be strengthened by simple exercises.

EXERCISES FOR TONGUE STRENGTH

Clucking exercise: Suction your tongue on the roof of your mouth. Then release your tongue making a clucking sound.

Tongue push-ups: Place your tongue on the spot and hold for 10 to 20 seconds, then relax. Repeat this exercise 7 times, three times per day.

Tongue push-ups (with cereal): Place a cheerio or cornflake on the tip of your tongue and hold it against the roof of your mouth until the cereal dissolves. Eat 7 pieces of cereal this way in the morning and 7 in the evening.

Sound and speech: To strengthen the tip of your tongue going to the right spot, practice saying the consonants T, D, N, L, S, and Z. Then try saying, “Ted and Suzy love lollipops and salty donuts.”

People with TMJ disorders tend to have weak tongue muscles. That is why tongue exercises are so important. The TMD patient must retrain their tongue.

Children can also have TMD-related problems.

Swallowing: If a child has a displaced tongue and cannot seal his or her lips or breathe through their mouth, then the child’s swallow could possibly not develop correctly. As many as 80% of children who

swallow incorrectly have problems with their bite, which can eventually lead to TMJ-related problems.

Breathing: For normal oral facial development, including healthy swallowing, the child needs to breathe through their nose. Breathing properly is essential for healing a TMJ disorder. When we breathe, we inhale oxygen and exhale carbon-dioxide gas. If you don't get oxygen, you will die. Chronically starving yourself of oxygen by not breathing correctly will not kill you; however, if you breathe shallow and quickly you may suffer the consequences of oxygen and carbon dioxide imbalance, including aggravation of chronic TMJ disorder. Having the right balance of oxygen and carbon dioxide is critical for your body to work correctly.

Normal breathing should be slow, effortless, and rhythmic, through your nose using your diaphragm. The **diaphragm** is a muscle that attaches below your lungs and to your ribs. It allows your lungs to fully expand downward and outward.

A majority of TMD patients are chest breathers who breathe too fast and only partially expand their diaphragm. With the diaphragm tight, the lungs have to inefficiently expand upward into the chest instead of downward. This requires the neck muscles to lift the chest to make room for the lungs to expand on top and is also called reverse or upper thoracic breathing. This overworks the neck muscles, causing trigger points.

Treating the causes of muscle tightness and pain is the most important and yet most neglected part of the

management of muscle pain. In our practice, we treat the jaw, muscles, teeth, and harmful habits.

Let's say, hypothetically, there once was a man who fell in a hole and broke his leg. He was treated and the bones in the leg healed, but a few months later, he stepped in the same hole and broke his leg again. What was the problem here? No one addressed the cause by patching the hole. So if you treat muscle pain without patching the hole, then you are doomed to endless cycles of treatment and relapse.

In our practice, we patch all the holes—the joint, the muscles, the teeth, and any harmful habits—to achieve total health for the patient.

Chapter 11: Conclusion

I think that Orthodontics and Dentofacial Orthopedics is one of the most important specialties of dentistry and medicine. You can see from the previous chapters just what an impact this specialty has on the overall health and well-being of the patient.

Lastly, let me say these final words:

**ONLY AN ORTHODONTIST IS AN
ORTHODONTIST.**

This means that a general dentist that straightens teeth is not an orthodontist. The general dentist was not accepted into a specialty school where he or she studied intensively about teeth and skeletal growth. Find an orthodontic specialist that cares about your total well-being; an expansive view must be integrated into the care of each patient. Orthodontics is not now, nor has it ever been, just straightening the teeth.

Meet the Team!

I wanted to introduce my amazing orthodontic partners and our incredible team.



This is me, **Dr. Sheila Birth**, with one of our 3D X-rays. It is an integral part of our team. I wish that I had this X-ray when I was working on my board certification—it gives so much information.



The picture above is of **Dr. Charles Stewart**. Dr. Stewart is multi-talented. He attended the Air Force Academy. He attended University of Texas Dental School in Houston. He attended University of Texas Orthodontic School. He was Chief of Orthodontics at the Royal Air Force in England. He was Chief of Orthodontics at Torrejon Air Force Base in Spain. He attended Southwestern Theological Seminary. He volunteers at the Mercy Clinic. Dr. Stewart is a kind man who is always giving back to the community.



Dr. Cristi Fletcher is a kind, compassionate, and very fun-loving individual. Dr. Fletcher attended Howard University Dental and Orthodontic School. Dr. Fletcher received her board certification in Orthodontics—only one in three orthodontists is board-certified. Dr. Fletcher designed the Keller office that is shown in the picture above. Rather than a noisy open bay, all the rooms are spa-like and sound-proof. She is truly a blessing. Dr. Fletcher is like family. Dr. Fletcher does much charity work. One that I particularly like is she works with disadvantage groups in Dallas and motivates them and mentors them to a career track.

The Incredible Keller Staff and Office



The Amazing Ft. Worth and Arlington Staffs and Offices



The Wonderful Burleson Staff and Office





One more picture of the Burleson office—it is really an amazing office that incorporates the railroad history of Burleson, TX—home of Kelly Clarkson.

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TruDenta classes with Dr. Mark Montgomery

About the Author

Dr. Sheila Birth



Orthodontics is my passion. I believe it's one of the best professions in the world, and I am honored to know that each day I am able to make a difference in someone's life. Every smile is important to me, and I enjoy giving patients a beautiful smile that they can live with for the rest of their lives. Seeing the changes that my patients go through when they achieve a beautiful and functional smile is the reason I became an orthodontist.

Thanks to advances in technology, I am truly excited to be able to help patients with chronic headaches, migraines, tinnitus and vertigo. It is a joy to my team and me to be able to help these patients who may have been suffering from these symptoms for years or even decades.

Our drug and needle free system has helped hundreds of patients literally change their lives and live pain free.

Education and Continuing Education

- Bachelor's Degree – West Texas State University
- Doctorate of Dental Surgery – Baylor College of Dentistry
- Master's Degree in Orthodontics – University of Oklahoma

Continuing education plays a major role in being a successful orthodontist. With technology always changing and improving, I feel it is important to stay current with the latest advances in orthodontics so that I can offer patients the most effective and efficient treatments possible.

