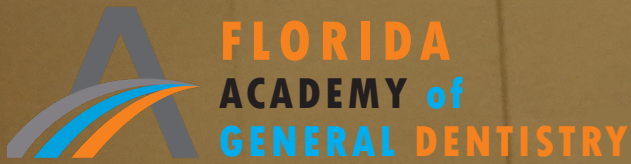


FLORIDA FOCUS

September, 2022

the publication exclusively for the general practitioner



**THE 2022 AGD SCIENTIFIC MEETING IN
ORLANDO**

TONGUE-TIE UPDATE, BY DR. RICHARD BAXTER

**OROFACIAL PAIN: THE 12TH RECOGNIZED DENTAL
SPECIALTY, BY DR. KEVIN HUFF**

3D PRINTING, BY DR. CHRIS GRIFFIN

**WHAT HAPPENED TO THE BIG FILLING?,
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**HOW TO STAND APART FROM THE COMPETITION,
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Patricia "Tri" Jenkins

A Few **Moments** from the 2022 AGD Scientific Meeting in Orlando



FLAGD Executive Director Patricia Jenkins (at right) with Drs. William Kushner and Jennifer Fong

FLAGD President Dr. Matthew Scarpitti presided over a rare summer board meeting.



From left: Drs. Douglas Massingill, Niblado Morales, Aldo Miranda-Collazo, Millie Tannen, Naresh Kalra, Harvey Gordon, Bipin Sheth, President Matthew Scarpitti, and Vice President Toni-Anne Gordon.



**ACADEMY
of GENERAL
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**FREE
ORAL CANCER
SCREENINGS**
**FOR ROSEN SHINGLE CREEK
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Above left,
above right,
and right: **Some
of the many
volunteers of
the Oral Cancer
Screening
Program.** Left:
**Dr. Alex Fleury's
hands-on class
on endodontics.**



Editor's Note: Developing a Shark Mentality with Walter Bond

How do you feel about sharks? Are you awed by their predatory power and ferocity? Do you place "Shark Week" on your Outlook calendar every year? Are you nervous about entering the ocean any deeper than one foot? (Yes! *Thank you, Steven Spielberg.*) Do you collect sharks' teeth and secretly mill onlays for them to check their bond strength?

The keynote speaker for the 2022 AGD Scientific Meeting, **Walter Bond**, leveraged his fascination with sharks and his gift for public speaking to launch a second career as an author and business consultant. A former NBA player, he was inspired by sharks to write *Swim!: How a Shark, a Suckerfish, and a Parasite Teach You Leadership, Mentoring, and Next Level Success*. In his speech to the AGD, Mr. Bond shared some of the "Sacred Six" lessons of his short allegory:

1. Sharks never stop moving forward.
2. Sharks never look down; they always look up.
3. Sharks are always curious and are always learning.
4. Sharks always respect their environment and recognize other sharks.
5. Sharks are always flexible.
6. Sharks always elevate their suckerfish to new levels.*

While I'm not sure my office team would have enjoyed being referred to as "suckerfish," the three days that I spent at the national AGD meeting left no doubt that I was surrounded by genuine sharks in the best, Walter Bond sense. It was a delight to attend the 60th Annual Convocation Ceremony on Saturday and see hundreds of AGD members moving forward to receive their Fellowship and Mastership Awards and Lifelong Learning and Service Recognition. It was inspirational to see our members looking up to new practice goals and vociferously devouring the information in the wonderful courses they attended. Every AGD meeting elevates us to new levels, both personally and professionally. Please see this issue's back cover and plan to attend the 2023 Scientific Meeting in Las Vegas!

Clinical flexibility is certainly well-displayed by the authors in this issue. **Dr. Richard Baxter** encourages us to change our soft tissue exam technique to discover often overlooked tongue-ties, which are far more prevalent than most of us realize. **Dr. Chris Griffin** discusses how he adapted his practice to 3D printing and why he's "on a mission" to encourage other dentists to do the same. FLAGD Director at Large **Dr. John Gammichia** describes the times when he feels it's important to be flexible and provide "the big filling" in his practice, rather than a crown. **Dr. Kevin Huff** discusses the new dental specialty of Orofacial Pain; and **Ms. Liz Lundry, RDH** and educator, provides a protocol for addressing the oral-systemic connection with our patients and describes an effective oral rinse. I'm grateful that so many speakers from the AGD Scientific Meeting are sharing their knowledge and insights with our members in the *Florida Focus* and am looking forward to their articles which will appear in our December issue.

Once more, let the sharks guide you as you move forward toward a Fellowship, a Mastership, an LLSR, or other life goals! Stay well and have a happy and successful autumn!

With warmest regards,
Millie K. Tannen, DDS, MAGD
Editor, *Florida Focus*

* Bond, Walter. (2019). *Swim!: How a shark, a suckerfish, and a parasite teach you leadership, mentoring, and next level success*. John Wiley & Sons, Inc.





Congratulations to the Florida 2022 AGD Award Recipients!



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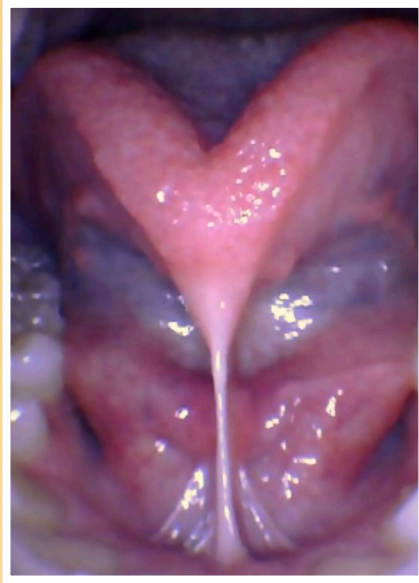
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 Vincent M. Leth, DMD, MAGD, St. Augustine
 Nicholas G. Ressel, DMD, MAGD, Weeki Wachee

Drs. Massingill, Rodriguez, and AGD Vice President Ohmer (center) receive their LLSR awards from AGD President Gerald Botko.

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Tongue-Tie Update:

What Florida's Dentists Need to Know About This Common Condition

by Richard Baxter, DMD, MS, FAAP

Like many of you, when I finished dental school, I had some idea of what a tongue-tie is and how it can impact speech and possibly gum recession. But in four years of dental school, we had only one slide on tongue-tie treatment, and in pediatric residency, we read only one article on tongue-ties, which was already ten years old and outdated.¹ It wasn't until our twin girls were born and the lactation consultant told us they had a tongue-tie that I dove headfirst into the rabbit hole to learn more about this condition.

It turns out that a restricted tongue or tongue-tie is quite common, with traditional estimates in the 4-10% range, but that estimate is mainly for one that is to-the-tip or close to it. So if you have ten patients a day, one patient is likely significantly tied. This statistic does not include less obvious or posterior tongue-ties, which can just as easily impact tongue mobility and function and therefore cause symptoms in many individuals, from babies to adults. A recent study from Brazil found that when properly assessing for tongue-tie, 32.5% of infants had a tongue restriction.² In our office, in recently published research regarding our screening tool, we found that 26% of hygiene patients had significant symptoms and appearance that warranted a closer evaluation.³ So the number of patients affected is likely much closer to 20-25% in our dental offices. It's extremely common, but just because something is common does not mean it's normal. In the next few moments, I'll give you the basics of tongue-tie assessment and symptoms, and point you to some resources if you want to learn more.

“Sticking the tongue out is the *least* specific test for tongue mobility. That's one reason why so many patients go undiagnosed.”

Most medical providers will ask a patient to stick their tongue out to check the tonsils, and many also think that protrusion is a good test for tongue mobility. However, sticking the tongue out is the least specific test for tongue mobility. That's one reason so many patients go undiagnosed. A better test is to check the elevation of the tongue. Ask the patient to open wide (without pain or discomfort) and lift their tongue to the incisive papilla behind the maxillary incisors. If they can lift less than halfway, they are significantly restricted. Some patients will “cheat” and not fully open their mouth when lifting, or without realizing it, the floor of the mouth will lift up to try to get the tongue higher. You can use a gloved finger to hold the floor of the mouth down when they lift to get an accurate picture of their true mobility. The functional grading system by Zaghi and Yoon says that if the patient lifts less than 25% of the way, it's a grade 4 tongue restriction. Between 25%-50% is grade 3, 50-80% is grade 2, and over 80% is grade 1.4 To assess babies or children who are pre-cooperative, we use the knee-to-knee position and come from behind the head. Then use two fingers to lift under the tongue and isolate the frenum. This test is also useful during exams on adults to assess mobility during a hygiene check. You should check for a tongue restriction and assess mobility just like we screen for oral cancer. Oral cancer affects 1 in 10,000 adults.⁵ While obviously a very different diagnosis, tongue-tie affects an estimated 1 in 4 patients of all ages and can cause life-altering symptoms.^{2,3}

Tongue elevation alone does not give us the full picture, and we have to marry symptoms and a patient's quality of life with this clinical sign of tongue mobility. Now, if a patient is tied to the tip and can lift less than 25% of the way, it doesn't take much imagination to see that they will have significant limitations and, therefore, many symptoms of a restricted tongue. What is interesting, though, is that some patients who can lift 75% also have significant symptoms that stem from restricted tongue mobility. So we use a screening tool, the TRQ, which includes fifteen of the most common symptoms and also asks the patient how significant these issues impact quality of life.³ If there is no impact on quality of life, then very likely no treatment would be recommended. With several symptoms and significant quality of life struggles, then it would likely benefit the patient to have the tongue-tie released properly.

The most common symptoms starting with babies are difficulty with nursing or bottle-feeding, painful nursing, choking or coughing, not getting full, slow weight gain, reflux, colic, gassiness, and excessive spit-up or hiccups. They can have any combination of those symptoms, so

nursing a tongue-tied baby doesn't always hurt, and many tongue-tied babies do gain weight well. We use our infant assessment form that parents fill out with over 35 common symptoms, and we look at the general number of symptoms. Most of our patients have 10-20 check marks on the form of significant struggles. We always recommend parents see a lactation consultant or feeding therapist before having an evaluation at our office to ensure that if there is another cause of these issues, that is addressed first. But with tongue-ties being so common, if your child or your patient's baby has these similar symptoms, there is a very good chance there could be a tongue- or lip-tie (or maybe a less obvious posterior tongue-tie), so ensure to check appropriately.

The most common symptoms starting with babies are difficulty with nursing or bottle-feeding, painful nursing, choking or coughing, not getting full, slow weight gain, reflux, colic, gassiness, and excessive spit-up or hiccups. They can have any combination of those symptoms, so nursing a tongue-tied baby doesn't always hurt, and many tongue-tied babies do gain weight well. We use our infant assessment form that parents fill out with over 35 common symptoms, and we look at the general number of symptoms. Most of our patients have 10-20 check marks on the form of significant struggles. We always recommend parents see a lactation consultant or feeding therapist before having an evaluation at our office to ensure that if there is another cause of these issues, that is addressed first. But with tongue-ties being so common, if your child or your patient's baby has these similar symptoms, there is a very good chance there could be a tongue- or lip-tie (or maybe a less obvious posterior tongue-tie), so ensure to check appropriately.

Tongue Restriction Questionnaire (TRQ)

Name: _____ Gender: ____ Age: _____ Date: _____

Please check any issues that apply to help us determine if a tongue restriction may be present.

Current Issues

- ☐ Frustration with communication
- ☐ Trouble with speech sounds, hard to understand, or mumbling
- ☐ Speech delay
- ☐ Slow eater or trouble finishing a meal
- ☐ Picky eater, especially with textures (e.g. meat, mashed potatoes)
- ☐ Choking or gagging on liquids or foods
- ☐ Spitting out food or packing food in cheeks
- ☐ Restless sleep (kicking or moving while asleep)
- ☐ Grinds teeth at night
- ☐ Sleeps with mouth open
- ☐ Snores (quiet or loud)
- ☐ Jaw joint (TMJ) issues (popping, clicking, or pain)
- ☐ Frequent headaches or neck pain
- ☐ Mouth breathing during the day
- ☐ Hyperactivity or inattention

How significantly do these issues impact quality of life?

Very Significantly Significantly Somewhat Not At All

To be Completed by Healthcare Provider:

Tongue Elevation Exam: Grade 1 (>80%) / Grade 2 (50-80%) / Grade 3 (<50%) / Grade 4 (<25%)

Referral Recommended: YES / NO / MAYBE

Figure 1: Tongue Restriction Questionnaire

For children, the three main areas we see issues are speech, solid feeding, and sleep quality. Most people, when they hear "tongue-tied," only think of tripping over your words. In fact, all aspects of speech can be impacted by a tongue restriction, including speech delay, articulation (trouble with sounds, especially R, L, S, SH, TH, K, G), fluency (stuttering), effort to talk (getting tired while speaking), and even singing. We have recently released tight frenums on many singers, including opera singers and a member of a Grammy-award-winning band. At the same time, we had a patient recently who had a to-the-tip terrible restriction and had perfect speech articulation but had other issues that warranted a release. So you have to get a full assessment of related issues to determine the need for a release. Solid feeding issues include picky eating (especially with textures like meat or mashed potatoes), slow eating, choking or

gagging, packing food in the cheeks, spitting out food, reflux, and even constipation.⁶ If the food doesn't start the journey right, it won't end the journey right!

Sleep issues include teeth grinding, snoring, restless sleep, mouth breathing, bedwetting, and other related airway issues. We are taught in school that bruxism is simply "stress-related." I would agree in part, but it's not necessarily psychological stress (it can be!) but rather physiologic stress. Your tongue is supposed to rest fully suction-cupped to your palate. (Where is your tongue right now?) If it rests in the middle or down, it has a tendency to fall back into the throat while you are sleeping. If you can't breathe because your tongue is flopping back and restricting airflow while you are sleeping, your brain gets less oxygen and tries to put your body (restless sleeping) and your jaw (bruxism) in a different



Figure 2: This is an opera singer who was restricted and was lifting her tongue mostly with the floor of her mouth. When we controlled for the elevation, we could see the true restriction. After the laser release, there was minimal to no bleeding and much higher elevation, even when holding the floor of the mouth down. Following the procedure, the patient experienced better sleep quality and improved singing quality.



Figure 3: This 2-week-old baby was having lots of nursing struggles. After the procedure, there was an immediate difference, with less pain for mom and a deeper latch.

position to breathe better while also increasing sympathetic tone. The end result is poor sleep quality and fragmented sleep, which can lead to attention issues, hyperactivity, behavior issues for children, and brain fog or lethargy for adults. We see positive, life-changing results in speech, feeding, and sleep after a proper release in our office, and also when combined with therapy like myofunctional therapy, which helps to retrain the muscles to have proper resting posture and nasal breathing day and night.^{7,8}

Adults with a tongue restriction will struggle with neck and shoulder tension, sleep issues like OSA, poor sleep quality, snoring, bruxism, mouth breathing, brain fog, fatigue with talking or singing, difficulty with sounds or mumbling, or possibly eating issues like slow or picky eating (there are 50 or so items we see related to adults). I had a restricted tongue for 30 years and didn't realize it, so if I'm describing you, seek out a consultation with a knowledgeable provider!

How do we treat a tongue restriction? We always work with a team approach, so we want a baby working with a lactation consultant, a child working with a speech or feeding therapist, and an adult working with a myofunctional therapist before the release. Additional bodywork, therapists, and medical providers are also needed depending on the symptoms and complexity. Otherwise, it would be like having knee surgery but no physical therapy. Your outcome will be suboptimal. After taking a comprehensive history, a full assessment (coming from behind the patient), and checking tongue mobility, we discuss these findings with the parents. A proper release would involve releasing the mucosa and fascia (connective tissue) above the genioglossus muscle. We always stay midline to avoid the lingual nerve or deep lingual vein. The genioglossus muscle limits the depth of the release. A diamond-shaped window under the tongue is opened using various methods, including scissors, scalpel, electrosurge, diode laser, erbium laser, or CO2 laser.

Heat-based methods like electrosurge and diode laser can have unwanted collateral thermal damage but have minimal bleeding. Scissors or scalpels can be dangerous as they are sharp, and patients often move (at least a little bit) during the procedure since it is done under topical anesthetic for babies and young children and local anesthetic (a quarter carpule injected into the frenum) for an older child or adult. Also,

as soon as one cut is made with a blade or scissors, it will start to instantly bleed and obscure the surgical site, preventing accurate follow-up cuts or identification of important anatomy. Also, bleeding must be stopped or controlled before returning the infant to the mother, or imagine a toddler spitting blood everywhere – not ideal! We used a diode laser for 18 months, and while effective at hemostasis, it was slow – about a minute per area. Two minutes on a crying baby can seem like an eternity. It also burns the tissue with a white-hot glass tip around 700-1000C^{9,10}, so it is not optically cutting the tissue as erbium or CO2 lasers do by vaporizing at 100C, the boiling point of water. Without going too much into laser physics, erbium lasers in the 3000nm range have good cutting efficiency due to the high absorption of that wavelength in water, but they have poor coagulation. However, CO2 lasers at 9300nm and 10,600nm have high cutting efficiency (absorb well) as well as good hemostasis, so these are the ideal tools for the procedure for anyone who performs these procedures on a daily basis.

With the CO2 laser, it takes around 10-15 seconds per area to release the tissue fully. So treating a crying baby is very quick and simple, or a pre-cooperative toddler can sit still for the 10-second procedure with parents holding their hands, and treatment is no more traumatizing than a typical vaccine. Afterward, parents must stretch the wounds, or the tissues will reattach and close up again, limiting mobility. It would be the same as getting your ear pierced and then not wearing the earring. We recommend stretches on babies four times a day for 3 weeks. Toddlers and older children are twice a day for 3 weeks. Each stretch is simply massaging with gentle but firm pressure (around 10 seconds) on the wound to “trick” it into healing open instead of sticking back together.

With a proper release (diamond shape), appropriate aftercare, and follow-up at one week and more often as needed, symptoms improve in most cases. Leave a step out, and don't expect improvement. If a tongue is clipped with scissors halfway with no aftercare or follow-up, then there won't be much improvement. Unfortunately, this is often the case in hospital nurseries, ENT offices, and pediatrician offices, so tongue-tie treatment has been dismissed as a fad or unsuccessful. Each step must be carefully considered before treating, so if you are interested in treating these patients, seek extra training before purchasing a laser or using scissors to release restricted tissue.

“We always work with a team approach, so we want a baby working with a lactation consultant, a child working with a speech or feeding therapist, and an adult working with a myofunctional therapist before the release... Otherwise, it would be like having knee surgery but no physical therapy.”

For next steps, I'd recommend checking your existing patient base. Ask them questions when you see a tongue restriction. “Hey, mom, Johnny's tongue appears tight. Any speech, feeding, or sleep concerns for him?” Be curious and open-minded. To learn more, we have a bestselling book on Amazon called *Tongue-Tied* that dives into more detail. To learn to do the procedure, we have an online comprehensive course, Tongue-Tied Academy, with 25 hrs of bite-sized Masterclass-style video lessons that have helped train hundreds of dentists. We

donate 100% of the proceeds of the book, the online course, and our Advanced Live Patient Course at our office to charity. We truly want to help educate providers so they can best serve the patients in their care. Thank you for taking the time to educate yourself on this common condition, and you will probably see a tongue-tie (or three!) tomorrow at the office!

References

1. Kupietzky A, Botzer E. Ankyloglossia in the infant and young child: clinical suggestions for diagnosis and management. *Pediatr Dent*. 2005;27(1):40-46.
2. de Castro Martinelli Irene Queiroz Marchesan Giédre Berretin-Felix RL. Posterior lingual frenulum in infants: occurrence and maneuver for visual inspection. *Revista CEFAC*. Published online July 2018. <http://www.scielo.br/pdf/rcefac/v20n4/1982-0216-rcefac-20-04-478.pdf>
3. Baxter R, Lashley A, Rendell NR. Tongue Restriction Questionnaire: A New Screening Tool to Identify Tongue-Tied Patients. *Compend Contin Educ Dent*. 2021;42(3):e1-e4.
4. Zaghi S, Shamtoob S, Peterson C, et al. Assessment of posterior tongue mobility using lingual-palatal suction: Progress towards a functional definition of ankyloglossia. *J Oral Rehabil*. 2021;48(6):692-700.
5. Oral Cancer Incidence (New Cases) by Age, Race, and Gender. Accessed June 17, 2022. <https://www.nidcr.nih.gov/research/data-statistics/oral-cancer/incidence>
6. Baxter R, Merkel-Walsh R, Baxter BS, Lashley A, Rendell NR. Functional Improvements of Speech, Feeding, and Sleep After Lingual Frenectomy Tongue-Tie Release: A Prospective Cohort Study. *Clin Pediatr*. Published online May 28, 2020:9922820928055.
7. Camacho M, Certal V, Abdullatif J, et al. Myofunctional Therapy to Treat Obstructive Sleep Apnea: A Systematic Review and Meta-analysis. *Sleep*. 2015;38(5):669-675.
8. Zaghi S, Valcu Pinkerton S, Jabara M, et al. Lingual frenuloplasty with myofunctional therapy: Exploring safety and efficacy in 348 cases. *Laryngoscope Investigative Otolaryngology*. 2019;6:247.
9. Romanos GE, Belikov AV, Skrypnik AV, Feldchtein FI, Smirnov MZ, Altshuler GB. Uncovering dental implants using a new thermo-optically powered (TOP) technology with tissue air-cooling. *Lasers Surg Med*. 2015;47(5):411-420.
10. Georgios E. Romanos D. Diode Laser Soft-Tissue Surgery: Advancements Aimed at Consistent Cutting, Improved Clinical Outcomes. *Compend Contin Educ Dent*. Published online November 2013. Accessed June 18, 2018.



Dr. Richard Baxter is a board-certified pediatric dentist, Fellow of the AAPD, and Diplomate of the American Board of Laser Surgery. He is an internationally-recognized speaker on tongue-ties, instructor of the online course *Tongue-Tied Academy*, and lead author of the bestselling book *Tongue-Tied: How a Tiny String*

Under the Tongue Impacts Nursing, Speech, Feeding, and More. He is passionate about educating parents and healthcare providers about the effects a tongue-tie can have throughout the lifespan. He lives in Birmingham, AL with his wife, Tara, and their three girls, Hannah, Noelle, and Molly. He is the founder and owner of the Alabama Tongue-Tie Center where he uses the CO2 laser to release oral restrictions. He had a tongue-tie himself, and all of his girls were treated as infants, so this field is a personal one. In his free time, he enjoys spending time with his family, running, and doing outdoor activities. He serves as a small group leader at his church and is on the board of Reach the Rest, a global missions organization.



3D PRINTING

is Advancing General Dentistry

AT WARP SPEED



by Chris Griffin DDS, FAGD

When I was growing up, I was fascinated by the technology on the show, *Star Trek*. In particular I was in awe of the replicator that could instantly produce any item imaginable, especially food. Fast forward to today, and it's clear to see that we're living in a world where replicator-like devices are here. They're known as 3D printers.

The wide variety of 3D printed items, including a wide variety of dental applications is staggering. Yes, 3D printing technology is no longer theoretical, new, or untested, it's well established, proven, and here to stay.

How does 3D printing for dentistry work?

Before you can 3D print, you need a digital scanner (Figure 1). Many dentists already have adopted this technology even if they are only outsourcing with it.

Once you have a digital scanner, you need a 3D printer and some software.

Labs have been quicker to adopt 3D printing than dentists. 77% of dental labs now 3D print the models they use for crown and bridge¹.

What are the main advantages of 3D printing compared with the traditional methods?

Return on Investment. The procedures that see the biggest laboratory savings are 3D printed dentures², implant surgical guides, and clear aligner models. Most dentists who have adopted 3D printing are saving between \$300 and \$400 per denture, and around \$1,000, or 75% less, per case of clear aligners³. That is a substantial savings.

Accuracy. In my hands, 3D printed dental appliances are unbelievably more accurate than the conventional methods I've used for the last 25 years. I resisted digital scanners for a long time myself because I just didn't understand how this technology could be so much better than all the countless impressions I had done since dental school. I was wrong!

It eliminates the need for a stone lab. No more messy, time-consuming plaster models, along with all that grinding and tweaking to make them workable. No dentist I know who has made the switch to a digital lab has complained about getting rid of their stone lab. It has been over 2 years since I removed my own stone lab, and it seems ridiculous that I held on so long.

The patient's perception. When patients see that you're using 3D printing, it gives them confidence that you're keeping up with advancements in technology.

Speed. Since you will send less and less off to an outside lab⁴, you can start many cases the same day, or within a day or two. In our practice,

we have the ability to start the vast majority of clear aligner orthodontic cases, splints and guards same day. Patients can also be scanned for a denture today and have the final prosthesis delivered faster than ever. That's a huge advancement for us.

What are the 3 big mistakes that many dentists make at the beginning of their 3D printing journey?

MISTAKE #1

The first big mistake that I see dentists make is procrastination. This occurs when a dentist intends to implement a new technology like 3D printing but doesn't take action immediately. It's the mentality of "I'll do it when..." And of course, we all know that the ideal time never comes.

Many dentists are so busy running their practice they often miss out on the biggest opportunities. Although new technology may feel intimidating and even a bit daunting, by acting quickly you are going to benefit patients, team members, and doctors.



Fig. 1: There are many quality digital scanners on the market that can scan full mouth images.

MISTAKE #2

The second big mistake is assuming that you're just going to be able to purchase a printer and it's immediately going to start producing exactly what you want with virtually no effort.

Let's be realistic. If you believe you'll just be able to order a printer, open the box and start using it chairside immediately, that's not logical. It's going to take a little time for you to learn all the nuances. You will need to invest a little time for training for you and your team.

Many dentists naturally wonder how to get started with 3D printing, but really the right question is not HOW, it's WHO. To get the ball rolling, all you need to decide is who in your practice can spearhead and oversee the implementation. Dedication a key team member is a great investment.

MISTAKE #3

The third big mistake many dentists make is to convince themselves that they're doing so well right now, they don't need 3D printing. In conversations, I often hear dentists say things like, "I can see that this is the future and I understand how great it would be, but we're doing so well right now without it, I don't think we need it. Besides, I don't want to go through the time and effort to get it set up."

Well, let's consider that thought process for a moment.

Remember, this isn't about embracing new technology purely for the sake of it or only because it's the next big shift in dentistry. This is directly related to increased profitability and time savings. Yes, there are some huge benefits waiting for you as soon as you take the plunge.

Many dentists who have a successful milling operation at their practice may also not see the benefit of adding 3D printing over their current CAD/CAM milling unit. While there is no doubt that milling has become a standard in dentistry, 3D printing adoption is much faster than milling was at this stage in its development. Many experts agree that it is not if, but when, that 3D printing will be considered the standard of restorative dentistry⁵.

What are the most common concerns?

Some dentists don't have confidence to do adapt to this new technology. They see other dentists doing it successfully but somehow feel that those dentists are different, and they don't believe that either they can do it or anyone on their staff can do it.

The truth is, all skills are learnable, and adding 3D printing to your practice is no different. It just takes a little time and training to develop a process you can repeat daily.

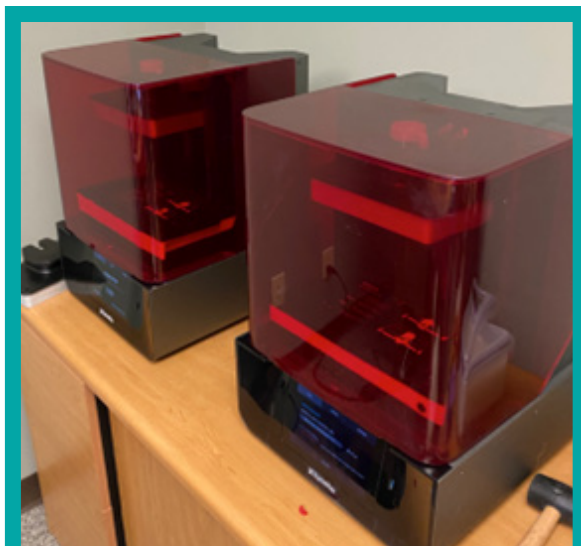
The Financial investment. What is a typical investment in terms of equipment to get a practice up and running and how quickly could you recoup your investment? Many printer bundles can be acquired for less than \$20,000 with the printer portion of that bundle ranging from \$4000 to \$10,000³. The goal I tell new 3D printer owners is to recoup their investment in pure savings within two months or less. I recouped mine in 21 days.

Durability. Anytime you invest capital in a new technology, it is common to worry about durability of the equipment. I was initially concerned that something this precise that's in use every day would constantly require repairs, but that's not been the case for my printers. The original 3D printer (Figure 2) I purchased in 2020 is still a workhorse that just keeps trucking along all day, every day.

What procedures do most dentists successfully 3D print in the beginning?

While the number of procedures that can benefit from 3D printing is ever-growing, most dentists should see immediate benefits by providing models, splints, dentures, and implant surgical guides. The very first thing we teach dentists to master is models. We use 3D printed models (Figure 3) for so many applications. We make study models, whitening tray models, esthetic mock-up models, crown and bridge models and especially clear aligner staging models. Of all our model applications, clear aligner models are the most printed and the most profitable (Figure 4). Of course, there is a level of skill required to understand clear aligner therapy, but once you are comfortable treating these in your office, you will see this as your biggest return on investment with 3D printing both monetarily and with time savings⁶.

After models have been mastered, the next procedures we recommend printing are nightguards or splints. When I began 3D printing these during 2020, this was a tedious, time-consuming task. I had to use one of several third-party software options and the learning curve for creating a quality guard or splint was steep. Things are



FROM TOP RIGHT: Fig. 2: My original 3D printer is on the left. I purchased an identical 2nd printer a few months later. Fig. 3: These are 3D printed models before they are removed from the 3D printer build plate to be post processed and used. Fig. 4: This is a series of 3D printed clear aligner staging models before they are removed from the build plate for post processing. Fig. 5: This is a 3D printed surgical guide for 5 maxillary implants in our surgical setup for the day of implant placement.

rapidly changing, however. With the advent of outsourced online services that will design devices for dentists and return a ready-to-print digital file for a nominal fee, these are now one of the easiest procedures to complete at my practice. Many times, we are able to deliver the device on the day of diagnosis.

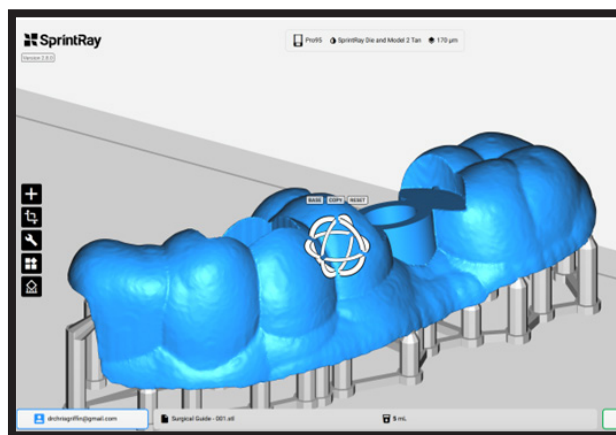
If a practice provides dental implant therapy, I recommend mastering and printing surgical guides next (Figures 5 & 6). This technology is a gamechanger for surgical guides. While I think it is wise for any dental surgeon to learn proper flap techniques and how to freehand implant placement at a high level, surgical guides routinely reduce surgical times for many dentists who have adopted them. For several years, I outsourced my surgical guides to a laboratory. While they produced quality guides, there is no comparison in my mind between having a lab fabricate your guide and the dentist designing and printing their own guide (Figure 7). When I design my own guide using a third-party design software, I have the ability to stitch my own cone beam DICOM digital data file to the STL digital scanner file and visualize exactly how I want my implant to orient in the patient's bone. Anecdotally, I have had fewer restorative issues when I design the implant body placement myself and I have also found that the healing time seems quicker in my surgical guide patients.

In my practice, when a patient comes in for the surgery, it is common for the surgery to take 15 minutes instead of an hour. I have a feeling that plays a significant role in my improved outcomes. That's a huge win for both me and my patients.

The last procedure I recommend mastering for most general practices is the denture (Figure 8). The cost savings for 3D printing these in-house is significant.

How long do 3D printed dentures last compared with traditional dentures? The jury is still out on this one, but it isn't as big a deal as you might think, because if a 3D Printed denture wears down or breaks prematurely, you can print a brand new one without the patient even having to be there because you've already got it in your design software. This saves them at least one appointment and a lot of heartache.

In my practice, the hard cost of the resin to make the denture base and the denture teeth is around \$10, and if you compare the cost of in-house 3D printing versus in-house CAD/CAM milling, 3D printing is between 80 and 90 percent less expensive⁷. The most challenging part of the process is learning how to design the denture in a design software. Once that is mastered, dentures create some of the greatest savings in the practice. 3D printed immediate dentures are especially



TOP LEFT, Fig. 6: This is an image of the 3D printed surgical guide in place before we begin the implant placement. **TOP RIGHT, Fig. 7:** This is an example of a surgical guide that we designed in our office that has been uploaded to the 3D printer software to print with supports that will be removed in post-processing. **LOWER LEFT, Fig. 8:** This is a 3D printed denture after the teeth and denture base have been printed separately and bonded together, but before it has been post-processed for delivery.

Dr. Chris Griffin is on a mission to spread the word about how practice automations can revolutionize current dental practice workflows. Teaching other dentists how they can use 3D printing to provide clinical excellence while at the same time slashing overhead is a true passion for Chris and is the driving force of his message. You can reach Dr. Griffin at drchrisgriffin@gmail.com.



gratifying. Often patients who need full-mouth extractions are eager to move forward with treatment. By harnessing the power of 3D printing, you can diagnose, design, and print rapidly, even same day. This is something that cannot easily be duplicated by conventional methods.

The dentist with the 3D Printer can charge less, do the procedure faster for the patient and ultimately make more profit, with a product that is improving every day.

There's absolutely no question or doubt that 3D Printing is the current huge leap of innovation for our noble profession. You can learn it now, or you can learn it later. The choice is yours, but if you procrastinate, everyone is going to catch on and many of the advantages of early adoption will be lost.

Welcome to the new world of dentistry. This is no longer *Star Trek* fiction, it's present-day reality.

References

1. Drevenstedt G. (January 2022) 3D Printing Continues to Grow. *Journal of Dental Technology*. Volume 39 (1)
2. Griffin JC, et al. (March 2022) Using 3-D Printing To Streamline Time-Sensitive Immediate Dentures. *Decisions in Dentistry*. Volume 8 (3)
3. Mazda J. (July 2020) 3D Printing Goes Chairside, Efficient In-House Manufacturing of Models, Guides, Dentures, and More. *Inside Dentistry*. Volume 16 (7)
4. Latham J. (January/February 2022) Getting Started with 3D Printing. *Dentistry Today*. Volume 41. (1)
5. Barsoum M. (January 2022) Will 3D Printing Become the New Manufacturing Standard in Dentistry? *Dental Economics*. Volume 112 (5)
6. Khosravi R. (April 2022) Fit to Print Part 1. *Dentaltown Magazine*. Volume 23 (4)
7. Rensburg, C. "Printing vs Milling Dentures: Inside Dental Technology." *Inside Dental Technology*, 1 Sept. 2020, aegis dental network.com/idx/2020/09/printing-vs-milling-dentures. Accessed 17 July 2022. Tarek Assi, DMD, FAGD, Pompano Beach



OROFACIAL PAIN:

An overview of the 12th ADA-Recognized Dental Specialty

by Dr. Kevin Huff

Orofacial Pain (OFP) is the specialty of Dentistry that encompasses the diagnosis, management, and treatment of pain disorders of the jaw, mouth, face, and associated regions. These disorders include, but are not limited to, the host of over thirty temporomandibular joint (TMJ) disorders, neuropathic and neurovascular pain disorders, primary headaches, and the management of sleep disorders as they relate to orofacial pain and function (Figure 1).¹ 25-35% the United States population suffers from these ailments that fall into a void of care between dentistry and medicine.²⁻⁷ The dental specialty of OFP is dedicated to the evidenced-based understanding of the underlying pathophysiology, etiology, prevention, care, and treatment of pain disorders of the head, neck, jaws, teeth, and associated structures.⁸

The specialty of Orofacial Pain was officially recognized on March 3, 2020, by the National Commission on Recognition of Dental Specialties and Certifying Boards. The formal request for specialty was submitted by American Academy of Orofacial Pain (AAOP), which is now the official professional specialty organization for the specialty of Orofacial pain. The American Dental Association (ADA) formally recognized the American Board of Orofacial Pain as the official certifying board in May, 2022.^{9,10}

OFP Specialists have advanced didactic and clinical training in the diagnosis and management of orofacial pain and endeavor to provide evidence-based diagnosis and management of OFP disorders. To be considered a specialist by the ADA and by many state dental boards, an individual must have passed the written and oral defense components of the psychometric examination administered by the American Board of Orofacial Pain. They are then Diplomates of the American Board of Orofacial Pain. Diplomates of the ABOP, if members of the AAOP, can apply for fellowship within the AAOP. A directory of ABOP-certified specialists can be found on the ABOP website: <https://www.abop.net/>.

OFP specialists may use a combination of several diagnostic and treatment strategies for patients with orofacial pain disorders that may include diagnostic tests such as obtaining or referral for appropriate imaging (CBCT, CT, MRI, etc.), risk assessment, and ordering appropriate blood tests as well as providing evidence-based treatments such as self-care training and counseling to reduce risk factors, intra-oral splints, physical therapies, trigger point injections and trigeminal division blocks, medications (gabapentinoids, SNRIs, tricyclic antidepressants, muscle relaxants, etc.), and other treatments. Because of the complexity of many orofacial pain conditions, OFP specialists often coordinate and collaborate with the patient's primary medical and dental providers, medical and dental specialists such as endodontics, oral and maxillofacial surgery, neurology, and neurosurgery, as well as behavioral and affiliated health care providers (psychiatrists, counselors, physical therapists, chiropractors, massage therapists, myofunctional therapists, etc.) to support patient-centered care. Orofacial Pain specialists are also trained to collaborate with sleep physicians in the management of obstructive airway sleep breathing disorders, such as snoring and obstructive sleep apnea.

One of the roles of every dental specialty is the establishment of parameters of care that support the evidence-based practice model. Currently, there are three documents that formulate the current parameters of care for the diagnosis and management of orofacial pain:

1. *Orofacial Pain: Guidelines for Assessment, Diagnosis, and Management*¹
2. *Temporomandibular Disorders: Priorities for Research and Care*¹²
3. *Diagnostic Criteria for Temporomandibular Disorders*¹³

Orofacial Pain: Guidelines for Assessment, Diagnosis, and Management is updated based on the work of a consensus panel

who performs ongoing assessment of the current scientific literature and is republished every five years according to policy of the American Academy of Orofacial pain; the most recent publication is the fifth edition (2018). Application of the AAOP Guidelines perform valuable roles:

- Provide clinicians with a basis for providing scientifically based assessment, diagnosis, and management of OFP disorders
- Educate clinicians about current evidence-based OFP practice
- Improve patient outcomes through application of proven therapies
- Reduce inappropriate treatment protocols based on anecdotes and tradition.

The second document, *Temporomandibular Disorders: Priorities for Research and Care* is a 340-page consensus report published in March, 2020, by The National Academies of Science, Engineering and Medicine (NASEM). It was commissioned by The National Institute of Health and The National Institute of Dental and Craniofacial Research and is freely available online. In summary, the NASEM report includes the following recommendations:

1. The health professions (e.g.; medicine, dentistry, nursing, physical therapy, etc.) need to increase education and training about TMD and orofacial pain in a holistic, integrated manner, rather than in a limited, fragmented discipline-specific approach.
2. The existing twelve Orofacial Pain post-doctorate residency programs in the United States are encouraged to create "Centers of Excellence for TMD and Orofacial Pain" to provide broad-based interdisciplinary care, continuing education, and training for health professionals, to expand clinical and basic research, to disseminate best practice guidelines, and improve access to care for the millions

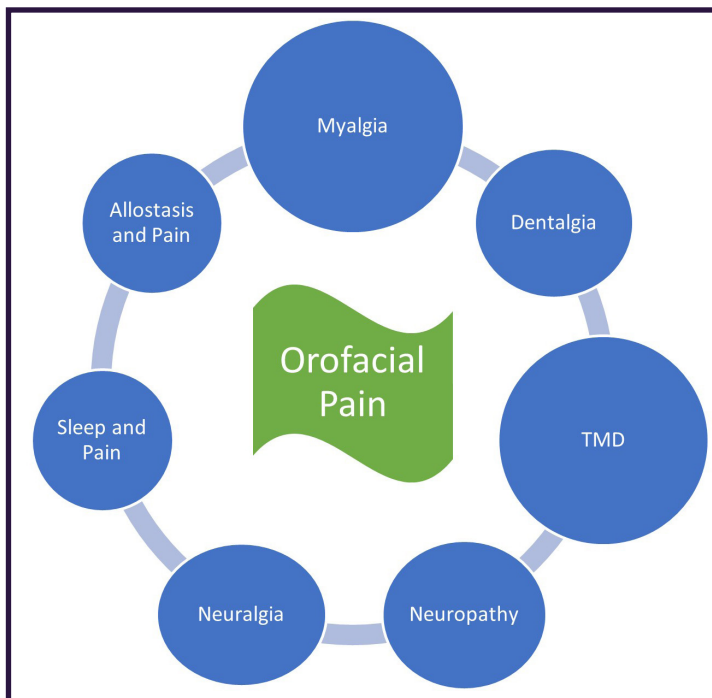


Figure 1. The specialty of Orofacial Pain encompasses the diagnosis and management of muscle pain, tooth pain of non-odontogenic origin, the complex scope of temporomandibular disorders, and nerve pain and nerve malfunction. The recognition of and appropriate management of psychosocial factors and compromised sleep related to orofacial pain conditions are also included in the specialty of Orofacial Pain.

suffering from orofacial pain disorders in the United States.

3. All health insurances carriers, both private sector and governmental, should make reimbursement for TMD and Orofacial Pain diagnosis and management a priority, consistent with other chronic pain conditions, regardless of whether care is provided by a qualified dentist or physician.
4. Many health care providers continue to rely on aggressive, more invasive, and more costly protocols as first-line options for the assessment, diagnosis and management of TMD and associated OFP; priority need for appropriate training in evidence-based management of OFP conditions was identified.
5. There is a priority need for the National Institutes of Health (NIH) to significantly increase both the monetary funding for research in TMD and OFP, and to incorporate TMD and Orofacial Pain research into future NIH nation-wide initiatives.

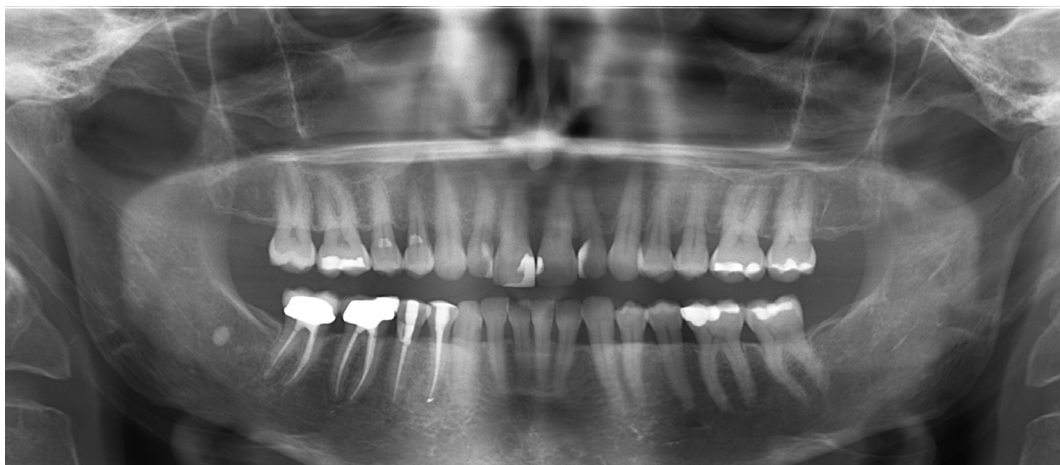


Figure 2. Many orofacial pain conditions, such as chronic myalgia with referral, are misdiagnosed as irreversible pulpitis, resulting in unnecessary and costly procedures. For example, this patient suffered from "a toothache" in the lower right quadrant for many years; two general dentists and an endodontist diagnosed pulpitis, and multiple endodontic and restorative procedures were performed over two years followed by two occlusal equilibrations. The patient continued to suffer from intermittent pain in that quadrant and finally presented to an orofacial pain specialist who accurately diagnosed her and was able to resolve her pain nearly completely within a few weeks through conservative, evidence-based intervention.

The third document that is becoming a guiding force within the specialty of OFP is the *Diagnostic Criteria for Temporomandibular Disorders*, developed by the International Network for Orofacial Pain and Related Disorders Methodology (INFORM), published in 2014. Known as the DC/TMD, this is a "living" document designed to adapt based on the current scientific evidence. It provides guidelines for diagnosis of the cartilaginous, boney, and muscular disorders that fall under the general umbrella term "TMD" based on standardized clinical examination protocols confirmed when needed by appropriate advanced imaging. Furthermore, the DC/TMD embraces the biopsychosocial model of pain, which has been the standard for medical pain management for many years. This model, which values the psychosocial factors that often exacerbate the pain experienced by patients, or allostasis, as well as the physical factors that are at play in orofacial pain conditions.

Traditionally, the biophysical model has prevailed in dentistry, where diagnosis and treatment has focused on the physical rationale for TMD diagnoses (eg., occlusion, disc placement, anatomy, etc.). While certainly physical factors may be the etiology of an OFP condition, ignoring the psychological and social contributing factors may be the reason why some strictly physical treatments fail to provide optimal outcomes. (Figure 2).

The current parameters of care promoted by the specialty of orofacial pain, for a significant majority of OFP patients, yield the most predictable, most favorable outcomes, with high patient satisfaction and a very low incidence of complications. In fact, tools and strategies used to implement transformative self-care programs and less costly, minimally-invasive protocols, is greatly needed in the prevention and management of all chronic pain, especially chronic Orofacial Pain and TMD.¹⁴⁻²⁰ For example, while surgical intervention is certainly indicated and appropriate when conservative care fails, invasive treatment for the majority of temporomandibular disorders is contraindicated. In fact, two studies compared non-surgical evidence-based treatment protocols to surgical treatment protocols in the treatment of patients with TMJ disc dislocation without reduction ("closed lock").^{21,22} They showed no significant difference in the long-term outcomes between non-surgical protocols and the surgical protocols. Another study compared the long-term outcomes of similar TMD patients treated with non-surgical protocols compared to two different TMJ surgical protocols, TMJ arthrotomy/arthroplasty utilizing alloplastic implants to replace the TMJ discs, and TMJ arthrotomy/arthroplasty without alloplastic disc replacement. The results of this study revealed no significant differences in long-term outcomes between the non-surgical treatment protocols and the TMJ arthrotomy/arthroplasty protocols without alloplastic implants. The TMJ arthrotomy/arthroplasty alloplastic implant group had far less favorable long-term outcomes, compared with the other protocols.²³

In conclusion, the new specialty of orofacial pain is dedicated to helping the significant portion of the population who suffers from acute and chronic pain condition of the head and neck that fall in the recognized gap between the fields of dentistry and medicine. It is now the only ADA-recognized specialty for the management and non-surgical treatment of temporomandibular disorders, neuropathy, neuralgia, primary headaches, allostatic factors related to orofacial pain, and sleep disorders as they relate to orofacial pain conditions. Through practicing within the biopsychosocial model of pain management, orofacial pain specialists endeavor to apply the most current, scientific, and evidence-based principles to the diagnosis and most appropriate management of orofacial pain disorders. Of course, the continued objective study of the pathophysiology of these conditions is an essential goal of this new specialty.

REFERENCES

1. Huff, K. Do I Have TMJ. *Spear Digest*. October 16, 2019. Accessed July 11, 2022. <https://www.speareducation.com/spear-review/2019/10/do-i-have-tmj>.
2. St Sauver JL, Warner DO, Yawn BP, et al. Why patients visit their doctors: assessing the most prevalent conditions in a defined American population. *Mayo Clin Proc*. 2013;88(1):56-67.
3. US Department of Health and Human Services. The 2005 Surgeon General's call to action to improve the health and wellness of persons with disabilities. Washington, DC: US Department of Health and Human Services; 2005. www.cdc.gov/ncbddd/disabilityandhealth/pdf/whatitmeanstoyou508.pdf.
4. Centers for Disease Control and Prevention (CDC). Prevalence and most common causes of disability among adults—United States, 2005. *MMWR Morb Mortal Wkly Rep*. 2009;58(16):421-426.
5. Lipton JA, Ship JA, Larach-Robinson D. Estimated prevalence and distribution of reported orofacial pain in the United States. *JADA* 1993; 124(10): 115
6. Taylor H, Curran NM. The Nuprin pain report. 1985; Louis Harris and Associates: New York
7. Lipton, J.A., J.A. Ship, and D. Larach-Robinson, Estimated prevalence and distribution of reported orofacial pain in the United States. *Journal of the American Dental Association*, 1993.124(10): p. 115-21.
8. Schiffman, E.L., et al., The prevalence and treatment needs of subjects with temporomandibular disorders. *Journal of the American Dental Association*, 1990. 120(3): p.295-303.
9. Heir, G. Orofacial pain, the 12th specialty. The necessity. *JADA* 151(7) <http://jada.ada.org> July 2020.
10. National Commission on Recognition of Dental Specialties and Certi-

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fying Boards Newsletter, March 3, 2020. www.nationalcommission@ada.org.

11. De Leeuw R, Klasser GD. Orofacial Pain. Guidelines for Assessment, Diagnosis and Management. Ed 6. Hanover Park, IL: Quintessence Publishing, Inc. 2018.
12. National Academies of Sciences, Engineering, and Medicine. Temporomandibular Disorders: Priorities for Research and Care. Commission Report. 2020. <https://www.nationalacademies.org/our-work/temporomandibular-disorders-tmd-from-research-discoveries-to-clinical-treatment>. Accessed July 11, 2022.
13. Schiffman E, Ohrbach R. Executive summary of the Diagnostic Criteria for Temporomandibular Disorders for clinical and research applications. *JADA* 2016 Jun;147(6):438-45. doi: 10.1016/j.adaj.2016.01.007. Epub 2016 Feb 26. PMID: 26922248; PMCID: PMC4884471. Institute of Medicine. Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research. National Academies Press, Washington, DC; June 29, 2011.
14. Friction, JR, Anderson K, Clavel A, et al. Preventing Chronic Pain: A Human Systems Approach—Results From a Massive Open Online Course. *Global Adv Health Med*. 2015;4(5):23-32
15. Friction, JR. The Need for Preventing Chronic Pain. *Global Advances in Health and Medicine*. 2015; 4(1), 6-7.
16. Friction, JR, Gupta A, Weisberg MB, Clavel A. Can we Prevent Chronic Pain? Practical Pain Management. 2015; December:1-9
17. Friction, J, Clavel A, Weisberg M. Transformative Care for Chronic Pain. *Pain Week Journal*. 2016, pp44-57.
18. Friction J, Whitebird R, Vazquez-Benitez G, Grossman E, Ziegenfuss J, Lawson K. Transformative Self-Management for Chronic Pain Utilizing Online Training and Telehealth Coaching. Health Care Systems Research Conference; Apr 11, 2018; Minneapolis.
19. Grossman E, Vazquez-Benitez G, Whitebird R, Lawson K, Friction J. PACT-A Self-Management Program for Chronic Pain utilizing Online Education and Telehealth Coaching, Findings of the Pilot Study. Health Care Systems Research Conference; Apr 12, 2018; Minneapolis.
20. Schiffman EL et al. Randomized effectiveness of four therapeutic strategies for TMJ closed lock. *J Dent Res* 2007 Jan;86(1):58-63.
21. Friction JR et al. Long-term study of temporomandibular joint surgery alloplastic implants compared with nonimplant surgery and nonsurgical rehabilitation for painful joint disc displacement. *J Oral Maxillo Surg*. 2002 Dec;60(12):1400-11. Doi:10.1053/joms.2002.36091
22. Friction JR et al. Long-term study of temporomandibular joint surgery alloplastic implants compared with nonimplant surgery and nonsurgical rehabilitation for painful joint disc displacement. *J Oral Maxillo Surg*. 2002 Dec;60(12):1400-11. Doi:10.1053/joms.2002.36091
23. Kirk WS. Risk factors and initial surgical failures of TMJ arthrotomy and arthroplasty: a four to nine year evaluation of 303 surgical procedures. *Cranio* 1998 Jul;16(3):154-61. doi: 10.1080/08869634.1998.11746053

What Happened to the Big Filling?

by Dr. John Gammichia

I am a 53-year-old dentist. I graduated from the University of Florida College of Dentistry in 1995. (Go Gators!!) I have been a private practice general dentist for over 27 years and have seen many treatment options come and go. I have seen the new and improved thingamajig not last past the first review, and I have also seen ingenious ideas which have revolutionized our profession.

One type of restorative treatment from the “old days” that has gone away - but I want back - is the “big filling.” Depending on how old you are, you might not even remember seeing these unbelievably large pin amalgams. They were almost always from the military. Either the patient was in the military, or his dentist was a military dentist. If you have never seen them, they are a sight to see, large two-, three-, or four-cusp amalgams that are entirely amalgam. The anatomy is usually done impeccably well, and they are usually over forty years old.

As you know, amalgam is quite a versatile material, easy to use and not very technique sensitive. Here are a couple of examples I found of large amalgams that are exquisite (Figure 1).¹



Figure 1¹

I have found that the “let’s do the best, most conservative dentistry so we can save your tooth longer” mentality is waning. I don’t see my older patients coming in with these large composite or amalgam restorations. I am not seeing them in magazines, and I am not seeing lectures on this type of dentistry. I have friends that admit to me they do not place them simply because they just don’t have the skill set to do this treatment. If they can’t do a crown, then the only other treatment is extraction.

I am a courtesy faculty member at a dental school, and I see teeth slated for extractions where I would just place large restorations.



Figure 2



Figure 3



Figure 4

I can’t tell you how many times I have seen patients for second opinions, and their dentists have told them they need aggressive dental work. Maybe it’s greed on the dentist’s part. Maybe it is a fact that some dentists have production goals passed down from the top brass. Or maybe it is just because they don’t know how to place these large restorations. I can tell you that I am an ultraconservative dentist, and I know that I am different. Different

in that when I see a large lesion in a tooth, the first thing I think about is fifty years from now. I think of the “cycle of death” illustration. What I do today is a good predictor of what this tooth is going to look like in fifty years. I don’t think about what the patient can afford. I don’t think about what will get me the most production. I think of this person in front of me... the *whole* person. I become discouraged when I see a 22-year-old with three root canals and three crowns in their mouth. I can’t help but think that a more conservative approach could have been taken. I know this might be a little out there, but I can tell you there is not a single person under 22 years old in my practice for whom I have done a crown or an onlay.

I know what you are thinking: “Ok, Dr. Hotshot, what do you do with the kids that come in with huge holes in their teeth?” I am glad you asked! The large composite restoration is a huge part of my practice.



John V. Gammichia, DMD, FAGD, graduated from the University of Florida in 1995. Since then he has owned and worked in a fee for service office in Apopka, FL. He has been involved in the AGD since 2001 when he served on the Communication Counsel. Out of this counsel came the idea of a dental blog. In 2005, Dr. Gammichia started the AGD's blog called *The Daily Grind*. He was the primary "blogger" for 8 years.

Dr. Gammichia has a passion for posterior composites and conservative dentistry. He has published articles in *The AGD Impact*, *Dental Practice Reports*, *Dental Economics*, *Dental Money Digest*, and many others. He is a graduate of all the Continuums of the LD Pankey Institute and has been a member of Spear Education for over 6 years. In 2019, Dr. Gammichia became an evaluator for *REALITY Esthetics*.

I think they are fun and challenging; they are pretty; they are money makers (although this is not part of the decision making); and I think they last. But more than any of that, they are great for the patient and are a great way to save the tooth from a crown and the next step in the cycle of death.

Let's talk about Matt who came into my office with a fractured tooth (Figure 2). Matt was 24 years old and feared the worst. He assumed he would have #29 and #30 restored and #31 extracted, because he knew he couldn't afford to restore it with a crown, much less a root canal, a post and core, and a crown. The lesion in #31 was deep, but the radiograph showed some dentin between the caries and the pulp. I tested the tooth for vitality, and it tested within normal limits. I presented to Matt that we could restore #29 and 30 with composite with no problem. I also told him that I thought I could restore #31 with composite. I told him I felt that there was enough tooth there to do this safely and that I didn't think he was going to need a root canal.

As an aside, this caries is mild compared to some teeth I have restored. There is a wave of research that is swinging the clinical thought process back to the indirect pulp cap, leaving infected dentin and just placing a base over the pulp ceiling. Knowing that the science is behind me, I remove caries until I am close the pulp. I place Vitrebond and then "fill, baby, fill." I have no problems restoring large, deep lesions.

I told Matt that I thought I could save tooth #31 for a long time with a composite restoration for about the same fee as an extraction (my fee is \$360 for an extraction, and the fee for this restoration was about \$450). He said he would like to save the tooth. Think of Matt's future. I am going to do a composite restoration that I hope lasts fifteen to twenty years. That means he will be fortyish before he needs to think about this tooth again. Hopefully, when he is forty, he will be in a much better financial situation than he is in now. I have saved him from an extraction. I saved him from #2 super-erupting. I saved him from an implant. All for \$450.

Figure 3 shows teeth # 29, 30, and 31 after all the caries were removed. I was thrilled with the margins, and I felt like I didn't leave any infected dentin, only secondary dentin.

For the restoration, two elements are crucial, the bonding agent and the curing light. Each will "make or break" a restoration. I use the best of both and hardly ever get complaints of sensitivity, and I do a lot of restorations just like Matt's. I use SE Protect from Kuraray as my adhesive system, and I use the Valo Grand curing light from Ultradent. In Matt's case, I used a Tofflemire with a Getz matrix from WaterPik to restore #31. Then I used my contact ring and a sectional matrix to restore #30. From the photo (Figure 4), you see the fantastic result. Also, just because I am not doing a crown doesn't mean it isn't productive. Matt's fee for these three restorations was \$940, and it took me and my assistant 1 hour and 6 minutes to do this. I don't know about you but that is pretty good production for me. So now everyone was happy. You wouldn't believe how thankful Matt was. He referred his whole family to the office and wrote a pretty impactful five-star review.

The second case I want to highlight was an 85-year-old retired missionary who came to me for a second opinion. The dentist he went to previously gave him a quote of over \$3000 to restore teeth #4 and 5 (Figure 5). Did I mention that he was a retired missionary? I told him that I could restore these teeth for about \$800 and do it in less than an hour. He said, "Let's go."

The treatment took me 33 minutes from start to finish (Figures 6, 7, and 8). Imagine how pleased he was when I showed him these photos. I am not saying that all my patients receive huge composite restorations, but it is in my repertoire if I need it. In this second case, I am assuming the previous dentist knew the retired missionary could not afford \$3000 but really didn't know how else to treat him. I realize that this is a skill that needs to be learned. But I feel like we are doing a disservice to our patients if we can't give them options. I am not saying that, in both of these cases, crowns would not have been warranted. But in both cases, it wasn't financially feasible for these patients, and I was able to come up with a solution that fit their needs. In the second case, I did not receive a 5-star review. He went old school and wrote me a handwritten mailed "thank you" card.

There are things in my lifetime that have come and gone. In my practice, I am bringing back the Big Filling, and I want you to think about bringing it back too. Sure, I am asking you to go a bit out of your comfort zone but think of the possibilities. You can be creative and get your artistic juices flowing again. You can have fun again. You can add this to your repertoire, and you can save teeth that otherwise would be extracted. And lastly, you can get a lot of hugs and a lot of "wows." You'll get a lot of thankful patients and a lot of raving fans. Now that is an innovation that is going to be around for a long time.

Reference

1. Boushell, L. W., Roberson, T. M., and Wilder, Jr., A. D. Chapter 14: Class I, II, and VI Amalgam Restorations. *Pocket Dentistry*. Retrieved July 24, 2022, from <https://pocketdentistry.com/14-class-i-ii-and-vi-amalgam-restorations/>



Figure 5



Figure 6



Figure 7

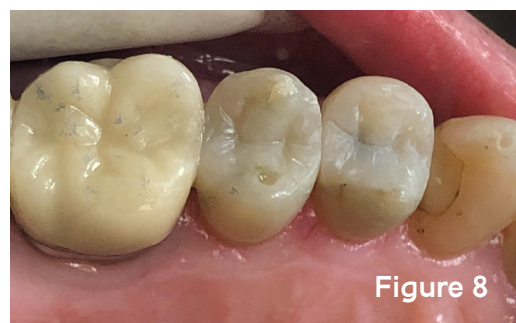


Figure 8

How to Stand *Apart* From the Competition

by Liz Lundry, RDH

What do patients really want? As a hygienist of over 40 years and an educator and trainer with The JP Institute for over 30 years, I've had the opportunity to apply principles of success as a clinician and continue to share those principles with my consulting clients. The JP Institute has provided training for thousands of practices in the US, Canada, Europe, and Australia, enabling them to get better clinical results and increased case acceptance. This, of course, translates to higher profitability, more referrals, and a happy cohesive team. What our patients really want is to be heard and understood. When we take the time for effective communication, everything changes.

At the core of the JP protocol is changing the conversation we have with our patients. Rather than just focusing on their dental/periodontal needs, we first and foremost educate the patients on the connection between their oral health and overall health. Even though we all know about this connection, as trainers we have found this knowledge is rarely presented to the patients in a way that makes a significant impact on them. When we talk to our patients, sitting with them eye to eye, knee to knee, and relate their own risk factors to the treatment they need, their perception of what we do for them changes dramatically. Our JP-trained practices report not only better case acceptance, but better relationships with their patients.

Back in the early 1980s, long before we learned about biofilm and the oral systemic link, JP founder and pioneer Jan Lazarus was teaching about the host-modulated response. The protocol she developed has stood the test of time and science has proven its validity. It is an individualized approach to periodontal and restorative care based on the patient's risk factors.

The treatment includes repetitive and open-ended non-surgical perio therapy which integrates restorative care. The therapy is all-encompassing as we use the most effective technologies in the battle against biofilm.¹ We also include screenings for oral cancer, blood pressure, airway, periodontal disease, and restorative needs. This is done by the hygienist at each hygiene appointment. The hygienists present their findings while doing a case presentation of perio and restorative

treatment to the patient. When the doctor comes in to do the exam, the patient already knows what they need, and as the hygienist reports the findings of the screenings and treatment discussed with the patient to the doctor, the patient's response is also shared, i.e., do they want the treatment discussed? What are the barriers? This way, the doctor has critical information to make a diagnosis and knows immediately what support is needed to help the patient accept the treatment plan.

The restorative conversation includes aesthetics, orthodontics, and implants, as well as the importance of replacing failing dentistry. Patients need to appreciate that failing restorations provide a happy home for pathogens. We believe that periodontal therapy is not complete until the restorative therapy is done. We also discuss nutrition and lifestyle with our patients.

Our goal is a healthy oral microbiome which is instrumental to a healthy body. The JP Institute has always used a natural approach to healing, recommending products that are non-toxic and effective. We recommend StellaLife products to our practices. This is a game-changing product line. After using the products as a clinician, I was so impressed that I became the Clinical Education Manager for StellaLife.

The StellaLife VEGA Oral Care Rinses replace chlorhexidine with none of the side effects we see with chlorhexidine, such as staining, burning, toxicity, and increased blood pressure. Recent university studies comparing StellaLife to chlorhexidine, povidone iodine, and other oral products demonstrated toxicity to fibroblasts and stem cells of the apical papilla by commonly used products but no toxicity with StellaLife.^{2,3} In fact, StellaLife was proven to induce "significantly greater fibroblast migration and proliferation."⁴ StellaLife doctors report 4 weeks-worth of healing in one week when the StellaLife VEGA Oral Care Recovery Kit is used in conjunction with surgical procedures.

The StellaLife Recovery Kit also provides pre- and post-surgical analgesia, reducing or eliminating the need for opioids.^{5,6} It disinfects the mouth and reduces inflammation, pain, bleeding, swelling, and bruising, providing



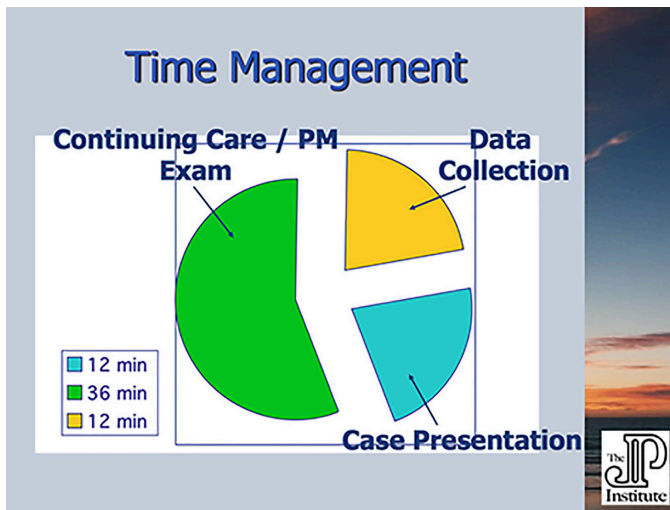
Figure 1, top: Lichen planus before treatment. Figure 2, bottom: Lichen planus following treatment.



Liz Lundry has been a practicing Dental Hygienist since 1979, when she graduated from Foothill College in Los Altos, California. She has been an in-office trainer since 1988 and earned her Laser Certification in 2000.

As a consultant, Liz works with dental practices all over North America through The JP Institute, providing hands-on technology training including lasers, air polishers and ultrasonics, integration of nutrition, customized in-office coaching and rigorous post-graduate seminars and workshops.

She is a published author, and a veteran clinician. As a speaker, she has presented at international seminars, national study clubs and state meetings. Liz is also the Clinical Education Manager for StellaLife. Liz can be contacted at (925) 216-6563 and LLundry@StellaLife.com.



References

1. Chen, C., and Rich, S. Biofilm Basics: Understanding bacterial biofilms is pivotal in the fight against periodontal infection. *Dimensions of Dental Hygiene*. 2003;1(1):22-25.
2. Batra C., et al.: An in-vitro comparison of four antibacterial agents with and without nicotine and their effects on human gingival fibroblasts. *J Periodontol*. 2022; 93(2): e24-e33. Published 2021 December. doi: 10.1002/JPER.21-0262
3. Peng, Z., et al. Cytocompatibility properties of an herbal compound solution support in vitro wound healing. *Front. Physiol.* 12, 1-9. Published 26 March 2021. doi: 10.3389/fphys.2021.653661
4. Fujioka-Kobayashi, M., et al. Cytotoxicity and gene expression changes of a novel homeopathic antiseptic oral rinse in comparison to chlorhexidine in gingival fibroblasts. *Materials*. 2020; 13(14): 3190. Published: 17 July 2020. doi.org/10.3390/ma13143190
5. Lee, C., et al. The efficacy of preemptive analgesia: Using a non-opioid alternative therapy regimen on postoperative analgesia following block bone graft surgery of the mandible: A prospective pilot study in pain management in response to the opioid epidemic. *Clin J Pharmacol Pharmacother*. 2019; 1(2): 1006.
6. Tatch, W. Opioid prescribing can be reduced in oral-maxillofacial surgery practice. *J Oral Maxillofac Surg*. 2019; 77(9): 1771-75.

a more comfortable experience for our patients. The kit also has anxiolytic (anti-anxiety) ingredients that allow patients to stay more relaxed before, during, and after the procedure. It actually tastes good, and patient compliance is excellent.

StellaLife also provides temporary relief from the symptoms of Lichen Planus, Oral Pemphigoid, Xerostomia, Angular Cheilitis, Aphthous Ulcers, Mucositis with Oncology patients, and more. The company offers training for their doctors and teams and even promotes each practice by listing it under the practice zip code on the Providers page of the StellaLife.com website, sending the offices potential new patients.

Patients want natural, kind, gentle and comfortable care. They prefer to avoid unnatural chemicals, steroids, antibiotics, and opioids. When you provide individualized treatment rather than use a "cookie cutter" approach, the patients see the difference between you and others in your community. An all-encompassing approach integrating total body health further sets you apart. Your patients will appreciate you and send you referrals. By applying these principles, we make a lasting impact on our patients' lives beyond the dental care we provide. We help patients overcome their barriers to treatment. Most importantly, we can enjoy fulfillment and satisfaction as clinicians and business owners, which enables us to be the best at what we do. In the words of one of my earliest mentors: "Live long and prosper!"

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