

AAID NEWS



How The Pandemic Changed Dental Staffing

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INSIDE

- The Complexity of Advertising as an Implant Specialist
- The Psychology of Dental Implant Case Acceptance
- The Many Benefits of Allograft Materials



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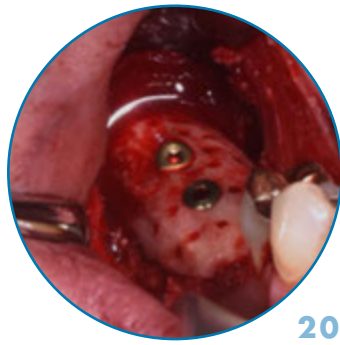
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Dennis Flanagan,
DDS, MSc, FAAID, DABOI/ID, AAID Editor

EDITOR'S NOTEBOOK

Should we abandon the term "centric relation"?

The relative positioning of the maxillary teeth and mandibular teeth is done for various dental prosthetic procedures. This relationship is termed the "centric relation (CR)."

The definition of CR in the GPT-9 is: "CR is the maxillomandibular relationship, independent of tooth contact, in which the condyles articulate in the anterior-superior position against the posterior slopes of the articular eminences. In this position, the mandible is restricted to a purely rotary movement. In this unstrained, physiologic, maxillomandibular relationship, the patient can make vertical, lateral or protrusive movements. It is a clinically useful, repeatable reference position for mounting casts."

CR was first discussed in the literature about 90 years ago and described the temporomandibular joint (TMJ) positioning without regard to teeth positioning. CR was defined in two different arenas. Firstly, it was defined as an ideal or optimal relation for patients who had lost posterior support.

Determination and recording of centric relation describe how are the upper and lower teeth come together on complete closure of the jaws. CR needs to be reproducible for the dentist and also be physiologically acceptable and comfortable for the patient.

Secondly, CR has been used in dentate patients. But there was significant differences between maximum intercuspation (MIC) and CR found in the vast majority of patients. This has been expressed as a "centric slide." Thus, a centric slide may be normal.

CR is a term that has been at the center of discussions and controversy. All this has caused turmoil and may be a distraction from clinical research. Additionally, clinicians may have been performing procedures that may have been needless, according to some. Yet, controversy persists about the definition of CR. This is confusing for dental students, clinicians, researchers, and academics.

Determination and recording of CR describe how are the upper and lower teeth come together on complete closure of the jaws. Additionally, CR describes how the mandibular condyles are positioned in the TMJ fossa. CR needs to be reproducible for the dentist and also be physiologically acceptable and comfortable for the patient.

Recent articles have brought this issue to the forefront (1,2,3). Zonnenberg et al performed a database search on the terms:

"centric relation", "masticatory muscles", "maxillomandibular relationship" and "condylar position." The search went back about 70 years. They found "a problematic pattern of changing definitions" of CR. This has caused serious controversies in dentistry. I'm sure many of us can remember the equivocations made by certain dental school professors.

Zonnenberg and coworkers conclude that the term CR is "flawed". They even suggest that this term be abandoned. They state this because, in their view, patients have individual and unique anatomical phenotypes. This includes the dentition, musculature, personality, and temporomandibular joint structures. They also conclude that the relationship of the jaws "is determined by the maximum intercuspation of the teeth and should therefore be considered as biologically acceptable." They go on to state that "clinicians need to acknowledge that an average individual will have stable, repeatable, and functional maximum intercuspation which determines the location of condyles and disks in the articular eminence."

Maximum intercuspation may be very appropriate in dentate patients but many patients present for implant treatment in a completely edentulous or partially edentulous state. The onus then falls on the implant dentist to bring the patient to a functional relationship of the jaws that may or may not mimic the patient's original dentate condition. This is part of the art of dentistry. An appropriate outcome can be attained by different dentists who can use any number of methods for diagnosis and treatment.

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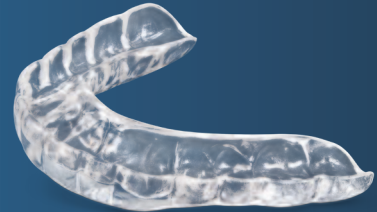
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¹ American Dental Association (ADA) Health Policy Institute (HPI). <https://www.ada.org/en/publications/ada-news/2020-archive/september/hpi-poll-dentists-see-increase-in-patients-stress-related-oral-health-conditions>

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Duke Heller,
DDS, FAAID, DABOI/ID
2021 AAID President

PRESIDENT'S MESSAGE

You Owe It to Your Patients to Attend an AAID Annual Conference

In the next few days, implant dentists from all over the world will come together in person and even online for four days of intensive learning. This year's theme, Pursuing Implant Competence is really the sounding board for all of my presidential goals in 2021—continuing implant education to make a better implant dentist.

John Maxwell, a life coach and author, said, "For the person trying to do everything alone, the game really is over. If you want to do something big, you must link up with others. One is too small a number to achieve greatness. That's the Law of Significance."

Most of us would agree that we, in AAID leadership, walked on the shoulders of those leaders and pioneers who went before us. The AAID needed past giants to get AAID where it is today—specifically those who were willing to teach something new or do something better. And we need you to step up and challenge yourself to learn a new skill, refine something you are already doing, but most importantly to talk with your peers.

My mentor Zig Ziglar taught me to be a constant learner. He taught me the need to be a constant student because things change, and you have to change and grow. And I emphasize the word "grow."

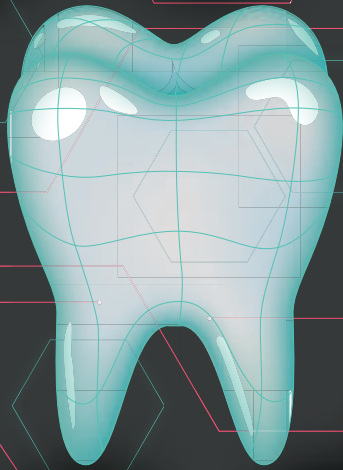
Growth is important because it helps you become a better practitioner and help provide your patients receive better outcomes.

Zig also said, "You are who you are and what you are because of what has gone into your mind. You can change who you are and what you are by changing what goes into your mind."

Jim Rohn, entrepreneur and motivational speaker, said, "*Never begrudge the money you spend on your own education.* If you don't change what you are doing today, all of your tomorrows will look like yesterday." He also said, "If you want to earn more, learn more."

If you weren't able to attend this year's event, you owe it to yourself to be present for an AAID Annual Conference. (You can still register for the virtual conference by going to www.aid.com/annual). Attending virtually lets you access top implant education, keep current on your skills, and take your practice to the next level.

The AAID needs you to step up and challenge yourself to learn a new skill, refine something you are already doing, but most importantly to talk with your peers.



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How The Pandemic Changed Dental Staffing

Tips on how to find the right staff *By Bonnie Litch*

If you look at the headlines today, it's hard to avoid reading about staffing shortages affecting businesses across the United States. Restaurants, retail stores, even professional offices are all feeling the pinch. Unfortunately, the dental community has not escaped this trend.

A May 2021 report by the Health Policy Institute at the American Dental Association about the economic effects of the COVID-19 pandemic on dental practices noted that “more than 80% of owner dentists who are currently hiring are finding the recruitment of dental hygienists and assistants to be extremely or very challenging,” as compared to before the COVID-19

pandemic. This same report found that:

- 66.3% of dentists said recruitment of dental hygienists was extremely challenging, and 19.7% reported it was very challenging.
- 59.2% of dentists found recruitment of dental assistants to be extremely challenging, and 23.9% stated it was very challenging.
- Hiring of administrative staff and associate dentists has presented difficulties as well, with more than 70% of owner dentists saying recruitment of administrative staff was

extremely or very challenging and more than 50% of owners reporting the same for recruiting associate dentists.

Maryland-based dental consultant Roger P. Levin, DDS, believes the issues with staffing began prior to COVID-19, though they were undoubtedly exacerbated by the pandemic. Dr. Levin, founder and CEO of Levin Group, explains that the unique set of skills and training needed by dental hygienists, assistants and front-end staff made for a smaller potential pool of applicants for open positions as compared to other industries. “Staffing a dental office has become increasingly complex over the years – so much so that in our comprehensive systems-based consulting programs, we have prioritized recruitment, integration and training to help practices attract and retain the best team members. We feel these actions will lead to the inherent success of the practice.”

According to a survey from the ADA's Health Policy Institute, patient return is now highest to date: Patient volume in private practices was at 89% on average in August, the highest it has been since polling began in March 2020.



STAFFING ISSUES DUE TO COVID

Despite the shortages that existed before COVID-19, there is no doubt in Dr. Levin's mind that the pandemic has played a critical role in this "perfect storm" of staffing challenges. "Prior to the pandemic, many areas in the U.S. were struggling to hire for positions. While inconvenient, I believe that this pre-pandemic shortage would have organically resolved over time as dentists would have gradually accepted the increased compensation levels required to attract staff." The pandemic was a game-changer in that many hygienists – as well as dentists – chose to leave the field altogether.

Vincent Vella, DDS, FAAID, DABOI/ID, agrees that dentists choosing to retire has exacerbated the already challenging situation. Dr. Vella, who practices in Rochester, New York, states: "We lost a number of good dentists who decided to pivot or retire versus continuing to practice under tougher and more expensive regulatory guidelines. The patient base being served by these practitioners is now coming to us, looking for a new dental home. So, we have our traditional clientele who are now feeling safer coming into the office to have the work done that they put off during the height of the pandemic, as well as new individuals who need our help."

According to a survey from the ADA's Health Policy Institute, patient return is now highest to date: Patient volume in private practices was at 89% on average in August, the highest it has been since polling began in March 2020. Patient volume in public health settings also hit a new record, at nearly 90% of pre-COVID-19 levels. More than one in four health center dentists indicated they had greater patient volumes compared to before the pandemic. Dr. Vella says that "all of this pressure

requires having a full, trained staff at the ready. I've been looking for a dental hygienist and a front desk person for eight months. And, talking to my dental colleagues, we are all in the same boat, struggling to hire additional employees."

Again, the pool of applicants for those positions has shrunk considerably. Shane Samy, DMD, FAAID, DABOI/ID notes that 1,000 dental hygiene licenses have not been renewed this year in his state of Oregon. This is more than 22% of all hygienists. Given the highly specialized skills and training required to be a dental hygienist in an implant office, these figures do not bode well. "These individuals need to be able to start an IV, have experience with phlebotomy and IV sedation, and be ACLS certified."

Complicating the workforce problem is the desire of job seekers to find a work-from-home (WFH) position. The pandemic showed people that WFH is doable; however, it does not make sense in a service-centered industry such as dentistry. Therefore, some individuals who have not felt comfortable in a work environment – especially one as intimate as a dental practice – have chosen to switch industries.

OTHER STAFFING ISSUES

James Miller, DMD, FAAID, ABOI/ID, notes that competing with large, managed care systems for talent is another important factor in being able to hire staff. "These companies are attracting young dentists and hygienists with higher pay levels and benefits. We need to compete with these entities in order to recruit and retain high-quality workers."

Other compounding issues are increasing costs of supplies and PPE, demands for higher salaries, and the challenges of specialized on-the-job training.

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COVER STORY

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Other budgetary concerns that affect the ability to hire and retain exceptional staff include falling reimbursement rates and the need to invest in new technology and infrastructure. The need for flexibility is yet another component, as Dr. Vella points out: “With my current staff, someone will have an issue like kids getting sick or a has a child exposed to COVID and must quarantine. I have learned to be innovative and schedule things in different ways; always tweaking staff and working to be flexible. If one of my surgical team members is out, or if I am out, I have to have a flexible team member to slot in their place.”

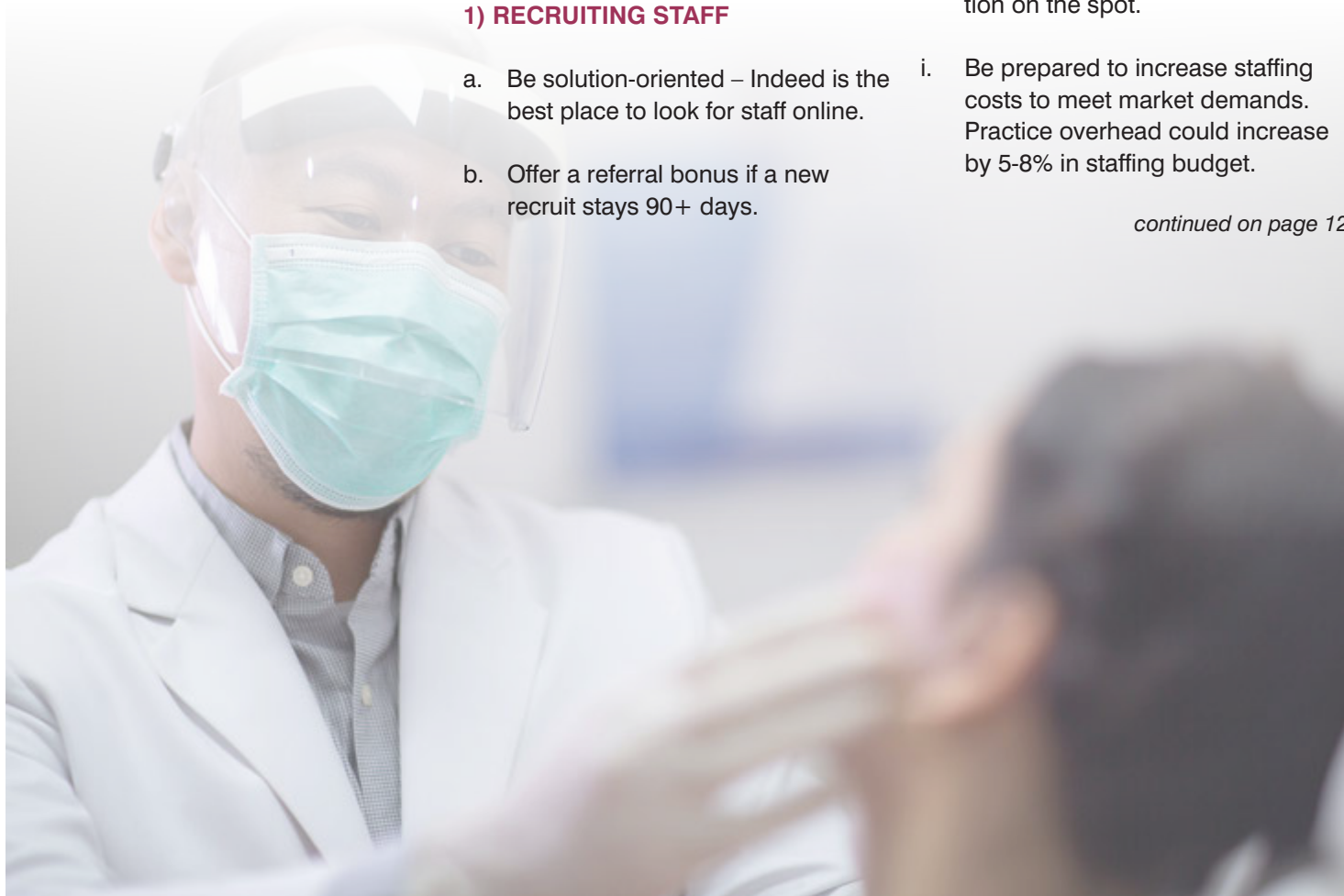
RECRUITMENT, INTEGRATION, AND RETENTION

According to Dr. Levin, dental office staffing shortages are here for the long haul. “I see these issues lasting for at least 7-10 years. There is a paradigm shift here across all industries (for example WFH trends), and the dental community needs to make staffing strategies a pivotal part of their practice,” he says. Dr. Levin has been working on steps that practitioners can take to mitigate these shortages to best recruit, integrate, and retain qualified employees.

1) RECRUITING STAFF

- a. Be solution-oriented – Indeed is the best place to look for staff online.
- b. Offer a referral bonus if a new recruit stays 90+ days.
- c. Reach out to former staff to come back.
- d. Talk to patients – send out an email.
- e. Use social media.
- f. Give out signing bonuses.
- g. Keep an eye out for people who seem to have potential.
- h. Interviewing – start with a telephone interview to prescreen, then get a resume and call references so you are prepared to offer position on the spot.
- i. Be prepared to increase staffing costs to meet market demands. Practice overhead could increase by 5-8% in staffing budget.

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COVER STORY

continued from page 10

2) INTEGRATION AND RETENTION

- a. Be prepared to train employees – it expands the pool of applicants to include someone with less experience if you have an on-boarding training regime. Update system documents that show office procedures step-by-step for staff to study. Systems are the best way to train; watching videos or webinars is not as effective.
- b. To keep staff, rethink how you treat them. Relationships should not be transactional. People want an environment where they feel appreciated, recognized, and respected. Have a “customer service” plan for employees – this may solve many retention issues for a practice.
- c. Have a mission statement and purpose so staff know that their jobs are meaningful.
- d. Competitive compensation – rethink what you are paying your current staff members so you don't lose them.
- e. Have systems in place for the practice – make sure they are leading-edge. Many practices make the mistake of not updating their systems. Without current technology and systems, it is hard to train new staff and be more efficient.

Dr. Levin has other thoughts on how to help retain your current team. He suggests providing a retention bonus at the one-, five-, ten-, and twenty-year

marks, with amount increasing as the years go on. He believes that these amounts can be paid using the \$50-\$100k a practitioner would stand to lose due to staff turnover. He also suggests bringing fun into the office with lunches, dinners, gift certificates, movie passes, time off, staff retreats, etc. He cautions that dentists must be careful not to burn out remaining staff and advises meeting one-on-one with all team members on a regular basis to check in – a sign of compassionate leadership.

SO, NOW WHAT?

Many people believe that once we, as a country, are through with the next wave of COVID-19 and its variants, business will go back to normal. But Dr. Levin says this is not the case: “This is just merely phase one of a staffing revolution and we don't know where it is going yet. We must get rid of the mentality that we are doing staff a favor to just employ them. In reality, work should be an enjoyable growth opportunity, and if we don't supply it, they will go somewhere else to get it.

Complicating the workforce problem is the desire of job seekers to find a work-from-home (WFH) position. The pandemic showed people that WFH is doable; however, it does not make sense in a service-centered industry such as dentistry.

Our solution must be to put leading edge efficient systems in place. Almost every practice has a 30-50% growth potential in the next three years. We now must access this potential to pay for the increased overhead. We can't wait it out and do different things. We need to create an environment where we love where we work, and we happen to get paid.”

Bonnie Litch is a freelance writer in Northbrook, IL.



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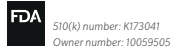


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*References: Accuracy of Edentulous Computer-Aided Implant Surgery as Compared to Virtual Planning: A Retrospective Multicenter Study; R. Vinci, M. Manacorda, R. Abundo, A. G. Lucchina, A. Scarano, C. Crocetta, L. Lo Muzio, E. F. Gherlone, F. Mastrangelo. J Clin Med. 2020 Mar 12;9(3):774. doi: 10.3390/jcm9030774 // Clinical Factors Affecting the Accuracy of Guided Implant Surgery - A Systematic Review and Meta-analysis; Wenjuan Zhou, Zhonghao Liu, Liansheng Song, Chia-Ling Kuo, David M Shafer; pubmed.gov; Epub 2017 Jul 22





By Joe Weiss, AAID Advocacy and Governance Specialist

The Complexity of Advertising as an Implant Specialist

The right of ABOI Diplomates to advertise themselves as dental implant specialists is complex and varies from state to state. Despite several courts finding the ABOI Diplomat credential to be a *bona fide* credential, many states still refuse to recognize implantology as a dental specialty. The lack of clarity in the recognition of dental specialties is because the state dental boards can—and have—made different regulations regarding dental specialties in each state. Because of this, dental specialties are defined differently in every state.

The AAID has been actively working through litigation and advocacy throughout the past 20 years to ensure that ABOI Diplomates are properly recognized as dental implant specialists across the country. This work has led to the recognition of ABOI Diplomates as specialists in several states, including Florida, California, and Texas.

While many members are unable to rightfully refer to themselves as dental implant specialists, there are several ways that members can stand out by advertising their membership. All AAID members can, and are encouraged to, advertise their AAID membership. This allows members to demonstrate to the public why they are uniquely qualified to perform implant procedures, while not referring to themselves as a specialist. Here are some examples of ways that different types of members can legally advertise their AAID membership:

- Fellow of the American Academy of Implant Dentistry
- Honored Fellow of the American Academy of Implant Dentistry
- Associate Fellow of the American Academy of Implant Dentistry

Unless a member is sure that they are legally allowed to refer to themselves as a dental implant specialist, they should refrain from using the terms *specialist* or *board certified* in their advertisements. All members are encouraged to visit their state dental board's website and read the regulations regarding dental specialties.

Reach out to Joe Weiss, the AAID Advocacy and Governance Specialist, at Joseph@aaid.com or 312-335-1550, ext 277, if you would like to learn more about what you can and can't say in advertisements in your specific state.

“All AAID members can, and are encouraged to, advertise their AAID membership. This allows members to demonstrate to the public why they are uniquely qualified to perform implant procedures, while not referring to themselves as a specialist.”



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By Roger P. Levin, DDS

The Psychology of Dental Implant Case Acceptance

Case acceptance isn't something that practice leaders can afford to approach in an "off-the-cuff" manner. There are specific steps that should be taken to improve patient understanding, facilitate clear communication, and allow practices to increase implant case acceptance.

Value-based communication

The starting point of implant case acceptance is to communicate value. The new implant patient phone call is often a functional call during which the front desk staff member is pleasant, appoints the patient, and acquires the necessary information. There's nothing bad about this call, but it's not value-based as the conversation usually focuses on the clinical attributes of dental implants and a general rationale of why a patient might want them. It should go further to create a true value proposition where a patient becomes motivated, excited, and ready to accept implant treatment.

The easiest way to consistently create value is to work from a prepared script. The script becomes a training guide and will provide a format to effectively communicate value to patients. The following components should be incorporated when developing scripting:

1. **Scripts should always be written in a positive tone.** The goal is to keep a high energy and enthusiastic approach to building value for dental implants.

2. **Engage the patient in conversation.** Build questions into the script that engage the patient so that they are focused, interested, and understand the value proposition. The more the patient engages in a back-and-forth conversation, the more likely it is that they will accept treatment.
3. **Include a minimum of three to five value statements.** Most dental professionals feel that they know how to communicate the value of dental implants. Still, it's good to be prepared with well-thought-out value statements that will be included in the script. The statements can be tailored to the specific needs of that patient.
4. **Use power words.** Power words are words that create a level of energy that leads to trust, which is a critical factor in implant case acceptance. Power words include words like *great*, *wonderful*, *terrific*, *unbelievable*, and *beautiful*.
5. **Talk as if the patient is going to follow through with dental implants.** This creates a mindset for patients that they have a unique opportunity to improve the quality of their life and that the barriers such as cost, surgery, time off from work, and recovery are minor things to deal with to have a lifetime of improvement.

All too often to the doctor or treatment coordinator has an excellent conversation with the patient that simply ends with the patient “going home to think about it.” This is a missed opportunity as the highest level of motivation the patient will have to accept treatment occurs while they are still in the practice.

Ask for commitment

One of the clear mistakes in achieving implant case acceptance happens when there is no request for a commitment. All too often to the doctor or treatment coordinator has an excellent conversation with the patient that simply ends with the patient “going home to think about it.” This is a missed opportunity as the highest level of motivation the patient will have to accept treatment occurs while they are still in the practice. Patients who commit to having treatment and schedule before they leave the office are by far the most likely to follow through with treatment. This is due to the other considerations people face in their daily lives, including financial capability, schedules, and competing activities such as vacations. Gradually their motivation will diminish.

Asking for a commitment is not a gimmick or a trick. Instead, it’s about building a strong value proposition for them to develop a strong desire to have dental implants. A simple technique that has been beneficial to many practices is simply to ask this key question: “Mrs. Jones, would you like to have this done?”

When you ask this question of a patient, they will automatically answer it even if they do not express it out loud because their brain will always provide an answer. It may be yes, no, not sure, I have questions, or

I have objections. Regardless of what the patient is thinking, it’s likely that the patient, in a value-based conversation, has developed a level of trust and will express one of these answers. Here are options for how you should respond:

- If the patient says yes, congratulate them on a wonderful decision and reinforce the benefits they will enjoy.
- If the patient says no, simply stop at that point and revisit it in future hygiene or follow-up visits.
- If the patient says maybe, politely ask them some probing questions to see what might be a barrier that is creating uncertainty. If you find a particular pattern with patients being unsure, go back and check your value-based scripting and presentation.
- If the patient has questions, calmly answer them. The practice should develop a list of frequently asked questions (FAQs) and develop scripted answers which typically reinforce the benefits a treatment. Once you know a specific issue or barrier, focus strictly on overcoming that issue and treatment will be accepted.
- If the patient has objections, don’t feel defensive and react negatively or aggressively. Many dentists and

treatment coordinators don’t realize how they come across when they are challenged as an authority, or a patient disagrees with them. I have always explained in case presentation seminars that no one objects unless they are interested. Patient objections can actually create a roadmap toward understanding how to work with the patient. You can overcome objections by calmly and politely reiterating important points and working with patients to help them become comfortable.

Follow up, follow up, and then follow up again!

In the new world of consumer psychology, follow-up is one of the most important factors to case acceptance. In fact, the follow-up stage of case presentation is now equally important to the case presentation itself. The reason is simply that no matter how good you are at presenting cases, there will be patients who just need to check further details in their lives before making a commitment. I believe the Internet has contributed to this desire to hold off on decisions as many people like to go home and do online research before they decide. For many people, the Internet has become the arbiter of decision making. We “Google” everything (i.e., restaurants,

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clothes, people), so why not an expensive surgical procedure? There are also factors such as checking with spouses, work schedules, or household finances.

The best approach to follow-up is to reach out to the patient on three-week cycles as they are deciding. If the practice has a treatment coordinator, it becomes their responsibility. If not, the front desk person can make a simple phone call to check in. We've seen many practices tell the patient that they will give them a call in about a week or offer a second in-office consult to go over any final questions or concerns.

The bottom line is that follow-up can increase implant case acceptance by 20 percent or more. Follow-up needs to be incorporated as part of the case presentation system and time must be allotted to make calls. To get the best results, a repeatable system must be put in place.

More than anything else, case presentation is about building a trust-based relationship with a patient. First, focus on building value with excellent scripting and benefits statements. Next, ask for a commitment and be prepared to respond to any decision, questions, or objections a patient may have. Finally, follow up with every patient.

Roger P. Levin, DDS is the CEO and Founder of Levin Group, a leading practice management consulting firm that has worked with more than 30,000 clients to increase production. A recognized expert on dental practice management and marketing, he has written 67 books and more than 4,000 articles and regularly presents seminars in the U.S. and around the world.

To contact Dr. Levin or to join the 40,000 dental professionals who receive his Practice Production Tip of the Day, visit www.levingroup.com or email rlevin@levingroup.com.

The new implant patient phone call is often a functional call during which the front desk staff member is pleasant, appoints the patient, and acquires the necessary information. There's nothing bad about this call, but it's not value-based as the conversation usually focuses on the clinical attributes of dental implants and a general rationale of why a patient might want them. It should go further to create a true value proposition where a patient becomes motivated, excited, and ready to accept implant treatment.

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By Andy Burton,
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The Many Benefits of Allograft Materials

Sufficient alveolar bone for the placement of implants in a prosthetically ideal position is often a challenge. Deficiencies of the alveolar ridge may result from trauma, developmental defects, periodontitis/peri-implantitis, or tooth extraction and subsequent alveolar bone resorption.¹ Augmentation of insufficient bone volume prior to or at the time of implant placement is often required to assist in creating a long-term function and esthetic result.² The surgeon considering augmentation modalities for correction of insufficient bone volume must consider systemic and local host factors, available surgical approaches and appropriate graft materials. Osseous augmentation is a surgical procedure that replaces missing bone with graft material from the patient's own body (autograft), from another human (allograft), from another species (xenograft), or from a synthetic source (alloplas-

tic graft).³ In this article, we'll review the available osseous allograft materials and their properties, how osseous allograft materials turnover into new bone with regards to implant dentistry, and when osseous allograft materials are indicated.

Allograft is defined as a graft harvested from an individual other than the recipient, but from the same species.⁴ Therefore, allografts used in implant dentistry are derived from other humans that are different than the individual receiving the graft. Allograft bone is collected from the cadavers of humans that have donated their bone for beneficial uses by other living people. Prior to being used to benefit others, the bone is sourced through a tissue bank.⁵ The tissue banks are responsible for the timely medical screening and ultimate clearance of fresh donor tissue. The donor tissue must be verified and cleared to be free from known pathogens and infectious diseases, such as human immunodeficiency virus (HIV). The tissue banks then prepare the donated bone for use. Preparation includes removal of fat from the bone: a process using ethyl alcohol or by hot sterile water under high pressure. The bone is crushed into a particulate or cut into standardized shapes and sizes as a block. Terminal sterilization is completed by a deep freeze-drying method or by gamma irradiation to achieve 10⁻⁶ SAL at 25-38 kGy.⁶

It is important to understand the different properties of the available allograft material and the biologic mechanisms of osteoconduction, osteoinduction, and osteogenesis.

Terminal sterilization ensures the lowest degree of potential disease transmission, thus providing the highest level of safety to recipients. Irradiated graft material is readily available as a cortical particulate, a cancellous particulate, or a mix of cortical and cancellous particles.⁷ Freeze dried bone (FDB) particulates are readily available in the same forms and mixtures of cortical and cancellous bone. Particulate bone may be further classified by particulate size and mineral content, mineralized or demineralized. Bone blocks are mineralized allografts made up of cortical shells with a cancellous core and are commonly from either the ilium or the vertebral body.

Ultimately, the goal of bone augmentation is to form new viable bone of adequate quality and quantity to place an implant and restore esthetics and masticatory functions. Bone graft materials will undergo a process of resorption and subsequent turnover into new bone known as bone remodeling. In 1965, Harold Frost first described on the bone multicellular unit (BMU), also known as the cutting/filling cone, which is responsible for bone turnover or bone remodeling.⁸ BMUs consist of a cone of osteoclastic activity, the “cutting cone” responsible for demineralizing or “cutting” injured or dead bone, a resorption cavity, and a trailing cone of osteoblastic activity, the “filling cone.” Tetracycline labeling of metabolic fronts assess the velocity of the

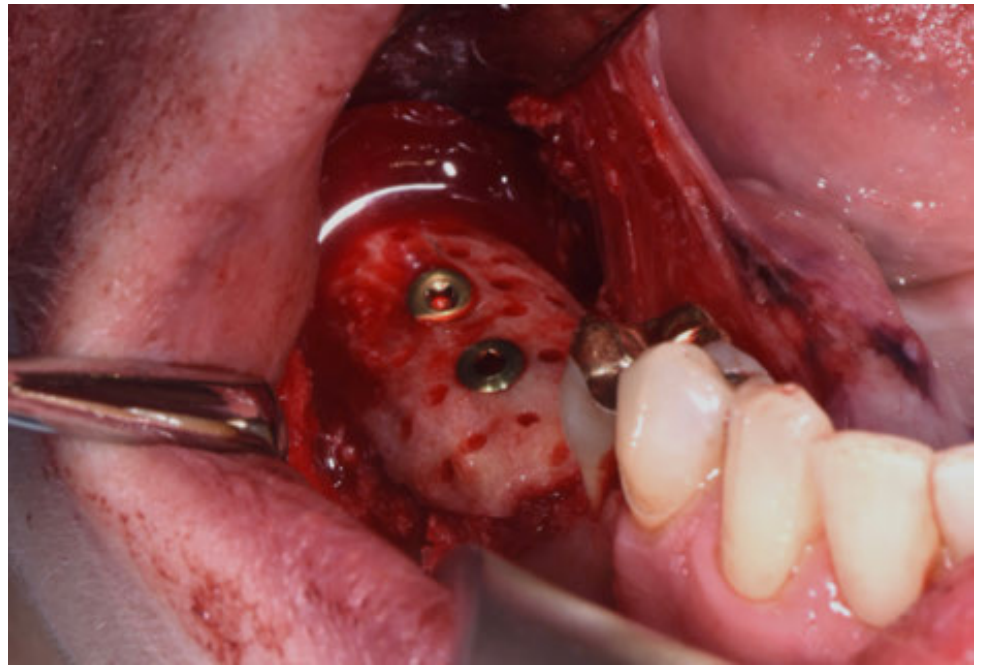


FIGURE 1. Block allograft: Irradiated tri-cortical iliac block graft.

cutting/filling cone at a rate of ~40µm per day. The cutting cone opens a resorption cavity one month following activation. Osteoblasts within the filling cone form new bone and will fill the resorption cavity within 3 to 5 months, leaving a completed secondary osteon in its wake.⁹ Resorption rates and subsequent turnover rates of graft materials are influenced by the three major characteristics: composition (cortical or cancellous), mineralization (mineralized or demineralized) and size (particle size or thickness).¹⁰ Cortical bone is compact and very dense in nature. The density of cortical bone slows the resorption rate thus slowing the turnover rate.¹¹ Cancellous bone is less dense and comparatively has a faster resorption rate. The presence of mineral content slows the resorption rate, where demineralized graft materials have a faster resorption and turnover rate. Larger particle sizes resorb at a slower rate than smaller particle sizes. Due to the larger sizes of bone blocks, it would be logical to think they have the slowest resorption rate based on size alone. And this may be true for inlay block grafts. In general, onlay bone

grafts exhibit a higher resorption rate since they are exposed less in the recipients' site vasculature and they accept forces from the surrounding soft tissues compared to inlay grafting.¹

It is important to understand the different properties of the available allograft material and the biologic mechanisms of osteoconduction, osteoinduction, and osteogenesis.¹² Osteogenesis occurs when vital osteoblasts originating from bone graft material directly contribute to the growth of new bone. Autografts are osteogenic in nature where allografts cannot be osteogenic due to their lack of vital osteoblasts. Osteoconduction occurs when bone graft material serves as a scaffold for new bone growth.¹³ Osteoblasts from the margin of the osseous defect utilize the bone graft material as a framework to spread upon and grow new bone. Allografts in the very least are osteoconductive. Mineralized irradiated particulate and bone blocks, as well as mineralized freeze dried particulate and bone blocks, are osteoconductive. Osteoinduction involves stimulation of

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osteoprogenitor cells to differentiate into osteoblasts and then begin the formation of new bone.¹⁴ A graft that is osteoconductive and osteoinductive will serve as a scaffold for native osteoblast and trigger the formation of new osteoblasts, promoting faster remodeling and modeling of the alveolar defect. Demineralized allografts undergo a process that remove the mineralized content of the bone. The removal of the mineral content of the bone releases the growth factors, cytokines, and other bioactive material contained within the osseous extracellular matrix which are osteoinductive.³ Thus, demineralized allograft materials are considered an osteoinductive material.¹⁵

Various graft modifiers can be added to allograft material to promote biologic mechanisms. Autogenous blood concentrates, platelet-rich fibrin (PRF), is well-documented to aid in soft tissue healing.¹⁶ PRF has also been reported to demonstrate an increase in new bone formation and has a positive effect on early bone healing.¹⁷ Platelet-rich fibrin (PRF) is a modification of platelet-rich plasma (PRP). It is indicated for alveolar bone augmentation, sinus lift procedure, extraction socket preservation, defect reconstruction following cyst enucleation or tumor excision, and also alveolar cleft repair. PRF is an autologous fibrin with

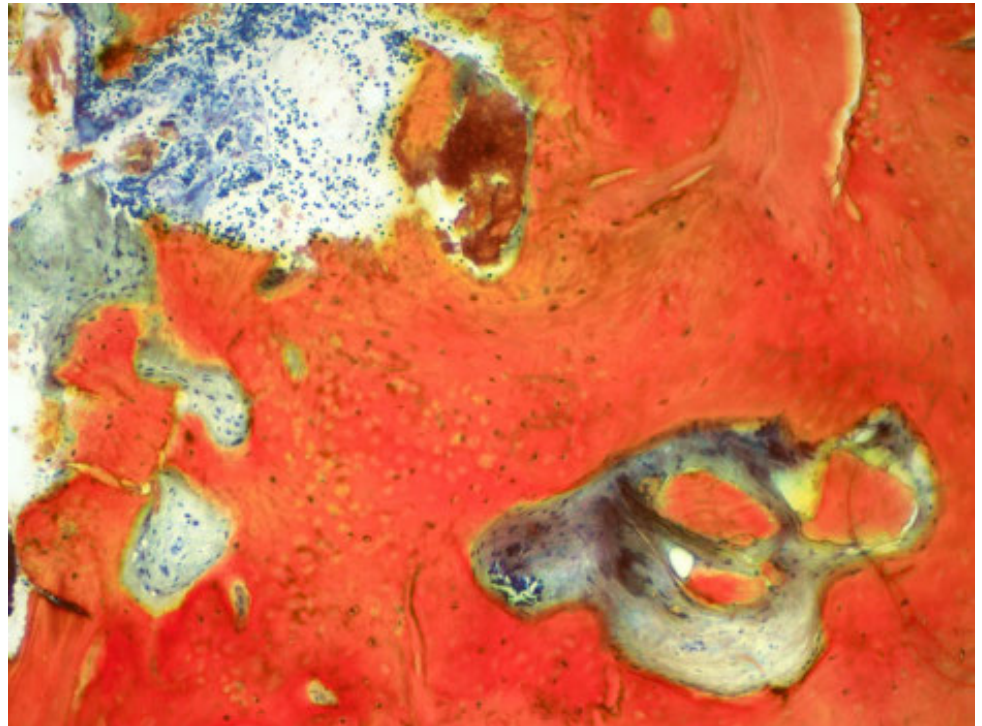


FIGURE 2. Histomorphological analysis of the irradiated tricortical iliac block graft above. Six months post augmentation, core samples were taken and evaluated. Percent total vital bone is 91% and 9% remaining allograft.

a large quantity of platelets and leukocyte cytokines.¹⁸ This blood concentrate contains high levels of platelet-derived growth factor (PDGF), TGF, vascular endothelial growth factor, insulin-like growth factor (IGF), and epidermal growth factor (EGF).¹⁹ These growth factors play a central role in hemostasis and the bone healing process, which makes PRF advantageous. Platelet growth factors are a well-known source of healing cytokines, usable for clinical applications. In many studies, PRF has a direct or indirect effect on bone regeneration in bone grafting or bone defect healing.²⁰⁻²² Many advantages of PRF for bone regeneration have been reported in the literature.²³ Recombinant growth factors such as BMP-2 and platelet-derived growth factor (PDGF) have been shown to increase osteoinductive properties of allogenic bone graft materials.²⁴ Bone marrow aspirate concentrate (BMAC) with the use of allograft

was evaluated and resulted in an improved pattern of bone formation, with higher bone density in the peripheral regions of the graft.²⁵ BMAC offers an autogenous source for multipotent stem cells in addition to growth factors.²⁶ Mesenchymal stem cells (MSCs) are multipotent cells and are highly capable to differentiate into osteocytes and osteoblastic progenitor cells.²⁷ The addition of graft modifiers can alter the biological mechanism properties of allograft material and may be considered when indicated.

Bone allografts are excellent material due to their biological properties and are indicated in for use in implant dentistry. Historically, the autogenous graft has been referred to as the gold standard in graft material; however, owing to complications—mainly at the donor site—this procedure has been criticized and its indication questioned.²⁸ The use of the allograft

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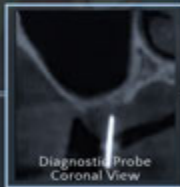
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removes the complications and second surgical site morbidity associated with autogenous grafts. Allografts are indicated in socket preservation.²⁹ It is well established that post-extraction ridge preservation can be beneficial prior to implant placement.^{30,31} Currently, allografts are the most common material used for ridge preservation.³²

Al-Ghamdi et al. suggested that FDBA is only osteoconductive, while DFDBA can be both osteoconductive and osteoinductive. DFDBA also showed more vital bone and less residual grafting material compared to FDBA when placed in extraction sockets 19 weeks after extraction.³³ Studies comparing cortical and cancellous FDBA demonstrated no significant differences in the percentage of new bone formation at extraction sites.³⁴

Allografts are an excellent choice for sinus augmentation procedures. Dr. Hilt Tatum Jr. performed the first sinus augmentation procedure in 1974. After more than 40 years of performing thousands of sinus augmentations, Dr. Hilt Tatum Jr. advocates the use of allograft material solely for the successful outcome of a sinus augmentation.³⁵ The availability of allograft material in various quantities and the ease of accessibility allows the implant surgeon to be more efficient during the sinus augmentation



FIGURE 3. Mineralized freeze-dried particulate graft with blood concentrate modifiers (L-PRF + iPRF) to create "Sticky Bone" for the use in guided bone regeneration in the anterior maxilla.

procedure. Sinus augmentation using allograft (particulate or block) is predictable.³⁶

Allograft bone blocks are indicated for use in vertical or horizontal ridge defect augmentations. Starch-Jenson reported no difference in implant treatment outcome after horizontal ridge augmentation with allogeneic bone block compared with autogenous bone block. However, increased

risk of complications was frequently reported with allogeneic bone block.³⁷ Today, the use of CAD/CAM technology provides customized allografts that are defect-specific. The application of individual CAD allografts supports bone formation at deficient sites with reduced patient morbidity, decreased surgery time, and high patient acceptance.³⁸ A systematic review by Monje, et al, concluded that the use of allogeneic

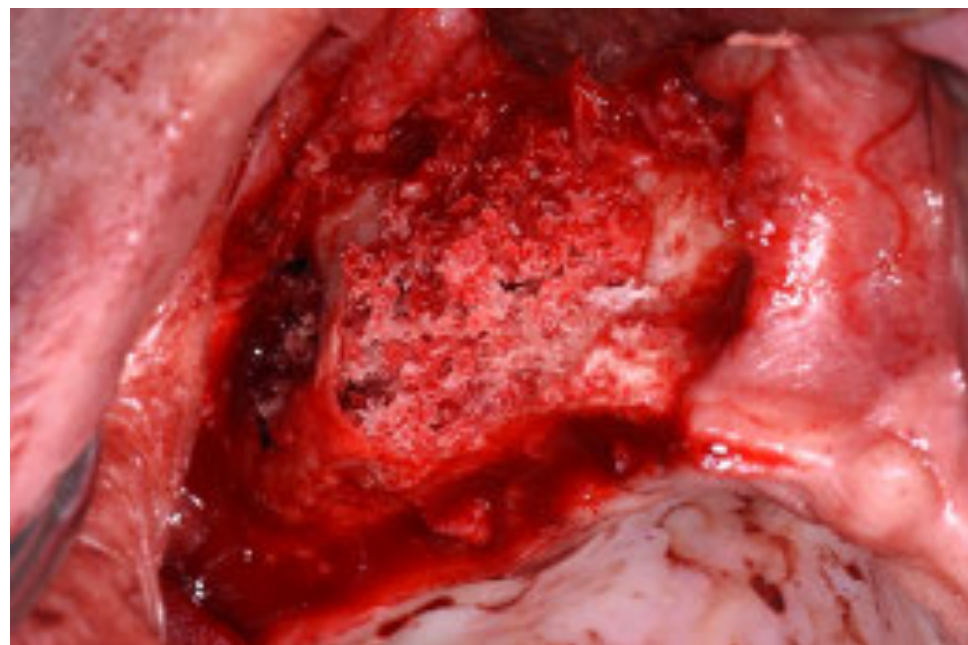


FIGURE 4. Irradiated cancellous particulate used to augment the maxillary sinus prior to implant placements.

Bone allografts are excellent material due to their biological properties and are indicated in for use in implant dentistry. Historically, the autogenous graft has been referred to as the gold standard in graft material; however, owing to complications—mainly at the donor site—this procedure has been criticized and its indication questioned.

bone block grafts represent a reliable alternative to autogenous block grafts for augmenting the atrophic maxilla.³⁹

Allograft materials also have proven successful for guided bone regeneration (GBR). It has been used for GBR ridge augmentation, as well as in the treatment of periodontal defects and peri-implant defects.⁴⁰ Lee reported a 1:1 mixture of cancellous and cortical Freeze-Dried Bone allograft combined with resorbable barrier membrane is effective for the treatment of peri-implant defects when using GBR.⁴¹ Whether you are utilizing GBR for horizontal ridge defects or periodontal/peri-implant defects, allograft materials are indicated.

Allografts have an excellent track record as a reliable bone graft material. They are safe and readily available in seemingly unlimited quantities in various compositions. They prevent the second surgical site and donor site morbidity complication frequently reported with autogenous grafts. Understanding the indications for their use, which osseous allograft materials are available and their properties, and how osseous allograft materials turn over into new bone provides the implant surgeon with a solid foundation for the use of allografts in the daily practice. Experienced clinicians and patients continue to enjoy the benefits of allograft bone materials in implant dentistry. The introduction of allograft bone materials into a daily practice is best following a comprehensive course and one-to-one

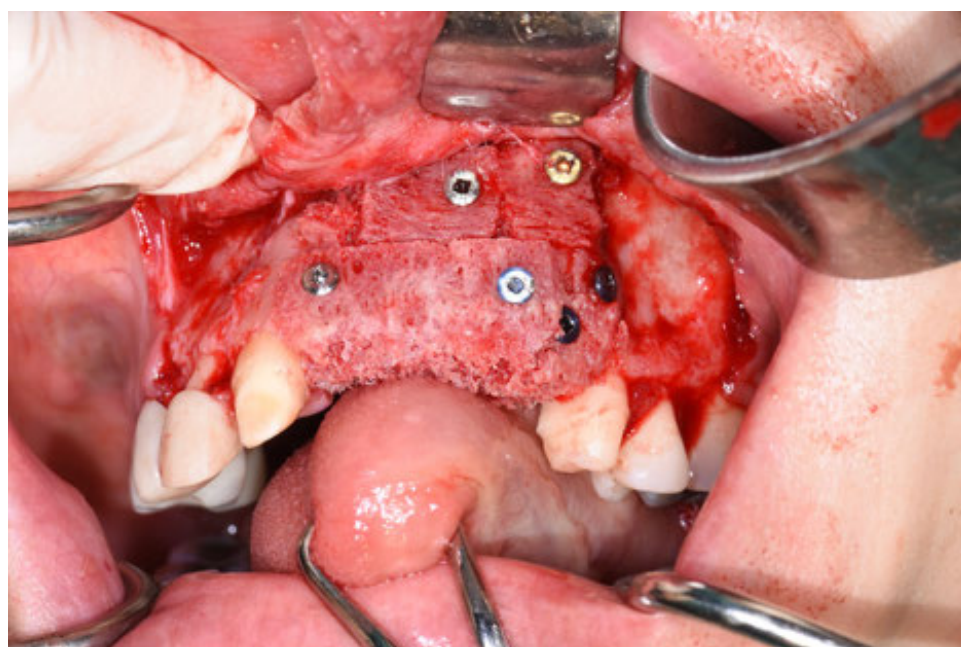


FIGURE 5. Irradiated vertebral block allograft material used to restore severe vertical and horizontal deficiencies of the anterior Maxilla.

mentorship by an experienced clinician. Are you currently using allograft materials in your practice? Share your experiences with @theimplantman and @theimplantdentists on Instagram.

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FIGURE 6. Mineralized freeze-dried allograft used in ridge preservation immediately following tooth removal.

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Editor's Note: Because of busy schedules, you may not have time to read the dozen or so articles in each issue of the *Journal of Oral Implantology*. In this section of *AAID News*, we selected a few articles that have broad applicability to the daily practice and provide a brief summary of key points so you can decide if you wish to read the complete article. The following articles are from Volume 47, Issue 3 (2021).

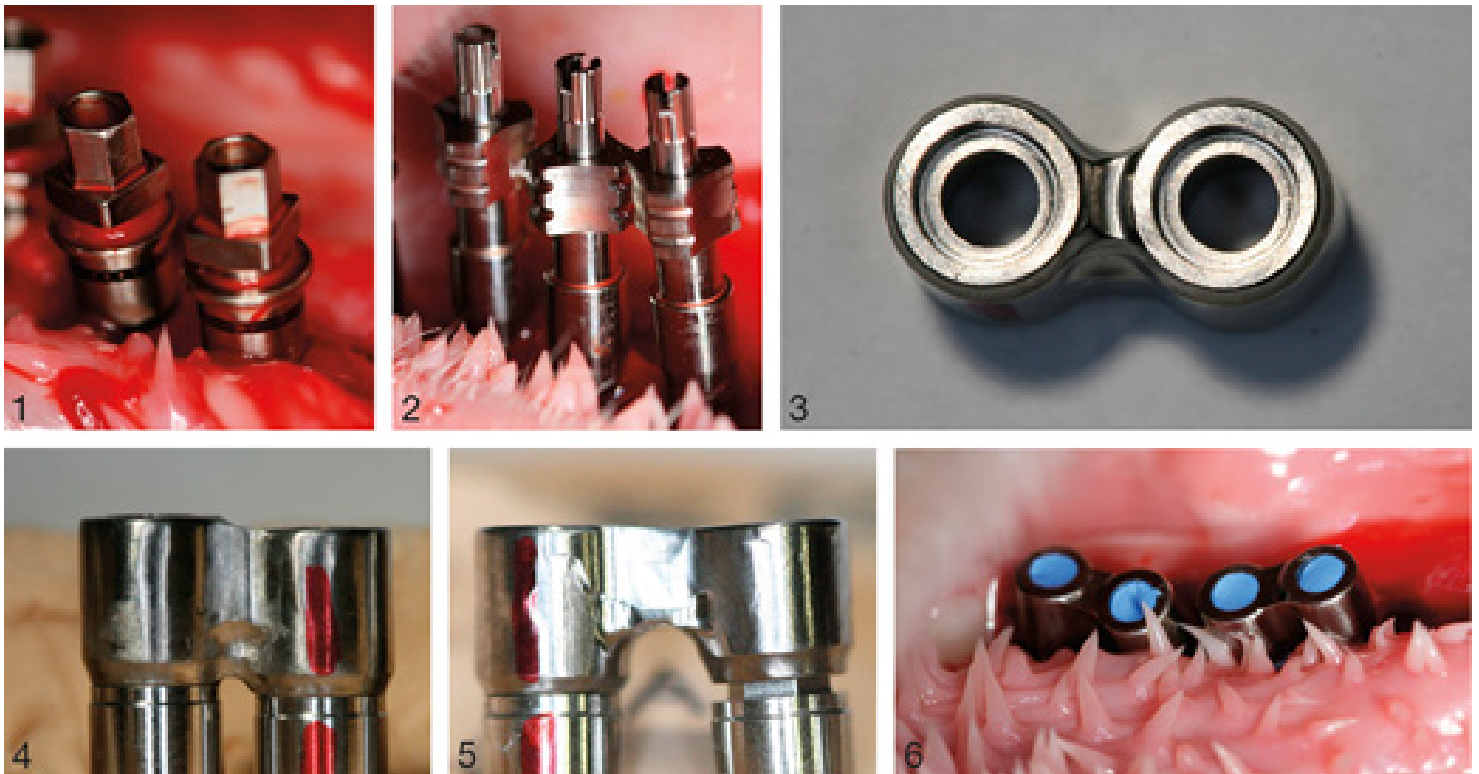


RESEARCH ARTICLE

Implications of Implant Framework Misfit: An Animal Study on an Ovine Model

Although clinicians routinely aim to provide a prosthesis with an accurate fit on implants, a degree of prosthesis misfit is inevitable. This exploratory pilot animal study evaluated the effects of framework vertical misfit and the timing of implant loading on implant position and screw loosening. Four implants were placed in healed ridges of each side of mandibles of 3 sheep. On the right side, 2 immediate frameworks were placed after 2 days. One framework was fitting, and the other one had a vertical gap

of 0.5 mm on the distal implant. After 8 weeks (first review), the left side received 2 conventional frameworks with similar fit conditions to the right side. At the first and second reviews, implant-level impressions were taken to measure the vertical displacement of distal implants, and the loosening torque values of the retaining screws were measured. The loosening torque values for the immediate fitting frameworks were considerably greater than the immediate misfitting frameworks.



FIGURES 1–6. FIGURE 1. Surgical placement of the implants. FIGURE 2. Implant level impressions were taken immediately after the placement. FIGURE 3. The fitting surface of a framework showing a nonengaging interface. FIGURE 4. An example of a fitting framework. FIGURE 5. An example of a misfitting framework, in which a 0.5-mm vertical gap was added on between the fitting surface and the distal implant. FIGURE 6. An image of the 2 frameworks immediately after fitting.

RESEARCH ARTICLE (continued)

This was noticeable at the first review. At the second review, the loosening torque values were comparable to the immediate fitting and misfitting frameworks. Vertical implant displacement was observed for all misfitting frameworks. However, much

greater implant displacement occurred under the immediate frameworks. Therefore, implant frameworks with vertical misfit in the present study were associated with less screw stability and more implant displacement. Retightening the retaining screws

during the maturation of bone seemed to maintain the torque values.

Jaafar Abduo, BDS, PhD, Roy Judge, BDS, MSc, PhD, *Journal of Oral Implantology*. 2021 June; 47(3):183-189.

CLINICAL ARTICLE

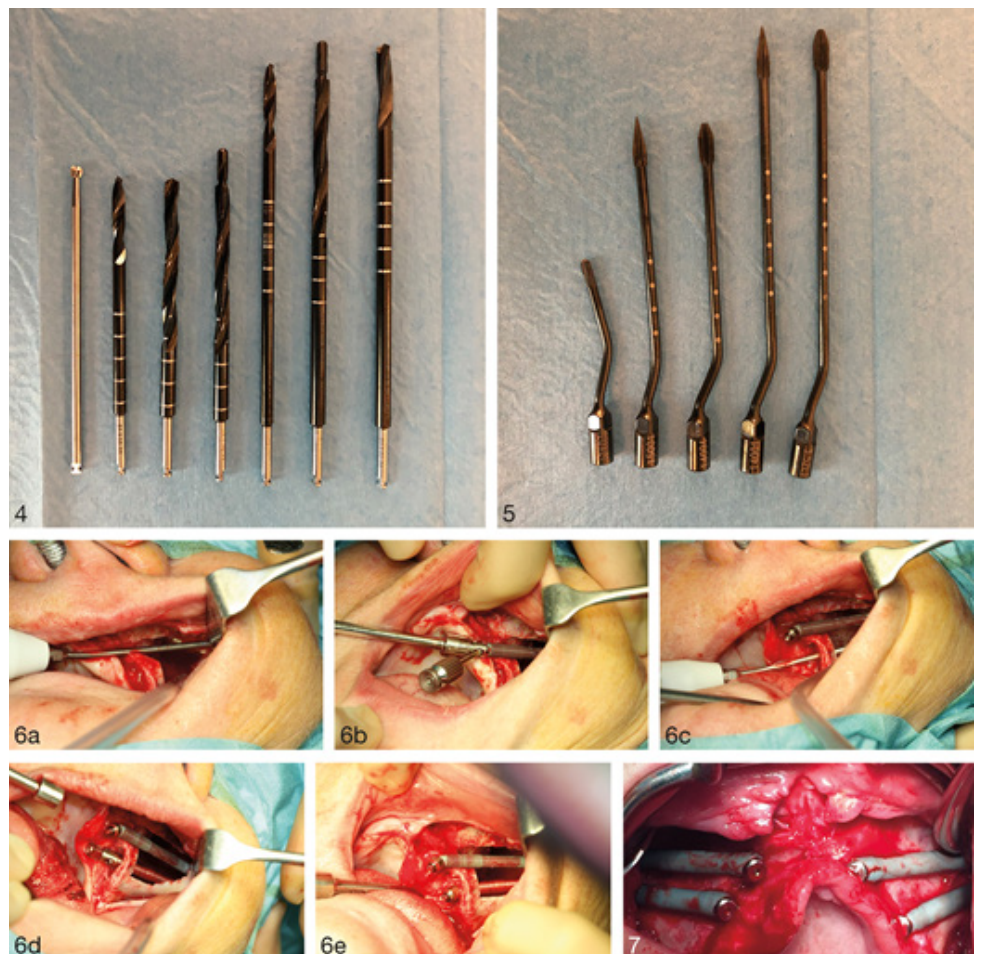
Immediate Oral Rehabilitation With Quad Zygomatic Implants: Ultrasonic Technique vs Conventional Drilling

Inserting zygomatic implants is a challenging surgery and requires special care and great precision. Piezoelectric surgery offers several advantages: more precise bone cutting with improved intraoperative visibility and a low temperature increase. The aim of this case-control study was to evaluate whether ultrasonic instruments can be as effective as standard drilling instruments for zygomatic implant surgery in terms of clinical outcomes. Ninety-two patients with atrophic maxilla were included in the study. Implant sites were prepared with the ultrasonic technique (test group = 47 patients) or traditional drilling (control group = 45 patients). In total, 368 zygomatic implants were inserted (202 with the extrasinus technique, 77 with the sinus slot technique, and 89 with the Brånemark technique). Complete arch provisional prostheses were delivered 3 to 5 hours after the surgical operations.

The mean follow-up after surgery was 24 months (range = 12–32 months). The primary outcome evaluations were based on implant survival rates and postoperative complications. Operative time and surgeon's stress were evaluated as secondary outcomes. Implant survival rate was 100% in the test and 98.89% in the control group. Postoperative complications were seen in 9 patients (4 in the test and 5 in the control

group); the difference was not statistically significant. Operative time was longer in the test group; however, surgeons were more comfortable using ultrasonic instruments. Within the limitations of this preliminary study, the ultrasonic technique was a feasible alternative to traditional drilling for zygomatic implant surgery.

Marco Mozzati, MD, DDS, Giorgia Gallesio, DDS, Funda Goker, DDS, MSc, PhD, Margherita Tumedei, DDS, PhD, Paoleschi Cesare, DDS, Andrea Tedesco, DDS, Massimo Del Fabbro, MSc, PhD, *Journal of Oral Implantology*. 2021 June; 47(3):205-213.



FIGURES 4–7. FIGURE 4. Sequence of surgical drills used in control-group patients. FIGURE 5. Set of ultrasonic working tips used in test-group patients. FIGURE 6. Representative intraoperative images of the sequence of zygomatic implants inserted in a test-group patient. (a) Anterior zygomatic implant site preparation ultrasonic working tips. (b) Insertion of the anterior zygomatic implant. (c) Posterior implant site preparation ultrasonic working tips. (d) Two fully threaded zygomatic implants inserted. (e) Two zygomatic implants with both abutments placed. FIGURE 7. Intraoperative view of a case-group patient in which the partially threaded quad zygomatic implants have been inserted with the extra-sinus technique.

RESEARCH ARTICLE

Quantifying the Emergence Profile Contour for Immediate Provisionalization: A Proposed Mathematical Model

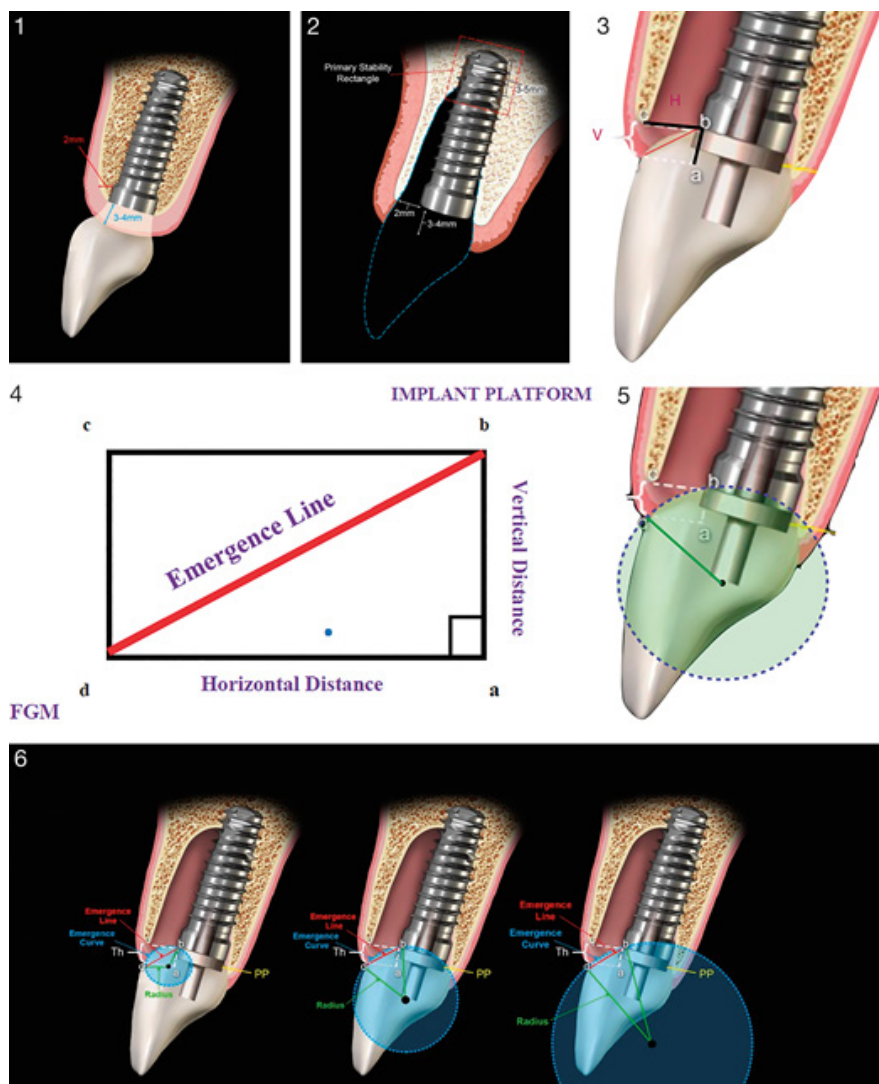
Identifying the ideal position of the final restoration prior to implant surgery is essential for optimal esthetics. The study of the emergence contour design of implant restorations has been limited. The aim of this report is to compile the factors that affect the final esthetic outcome and integrate those factors into an easy-to-use model. This geometric model includes a linear distance created by the placement of an implant platform in relation to the free gingival margin and a circle representing the emergence profile to create an emer-

gence curve. If this model is evaluated and available, a practitioner can make appropriate decisions based on 3-dimensional immediate implant concepts. The authors conclude that hopefully this mathematical model, when integrated with prosthetic and implant-planning software, will enable the automated design of the most crucial buccal subgingival marginal contour (running from the buccal mesial line angle to the distal line angle). This innovation will remove the need for estimating the arbitrary submarginal contour design. The integra-

tion will facilitate fabrication of an immediate prosthesis, which will result in the ideal buccal or labial gingival tissue contour.

Edgard El Chaar, DDS, MS, Cecilia White, DMD, Toni Salama, DDS, Andrew Andrawis, DMD, *Journal of Oral Implantology*. 2021 June; 47(3):191-198.

FIGURES 1–6. FIGURE 1. Established parameters in a healed ridge. Current implant guidelines suggest placement with a 3–4 mm vertical distance between the implant platform and future gingival margin, 2 mm of buccal bone thickness. In addition, there should be a 1.5-mm distance between an adjacent tooth and 3-mm distance between an adjacent implant. FIGURE 2. Established parameters in immediate placement. Implants placed in the extraction socket should provide for a gap of 2 mm between the implant platform and buccal plate, a vertical distance of 3–4 mm between the implant platform and existing free gingival margin, and 3–5 mm of apical bone for establishment of primary apical stability. FIGURE 3. Establishing a geometric model based on established parameters. The vertical depth is measured from a line corresponding to the height of the free gingival margin directly above the implant platform to the most buccal point on the implant platform (line a to b). The horizontal distance is measured from the buccal wall of the socket to the implant platform (line a to d). These lines make up the legs of a right triangle. FIGURE 4. Calculating the emergence line value. From the clinical situation, the established variables, vertical and horizontal distances, can be demonstrated as the legs of a right triangle. These can be used to calculate a value for the emergence line, as demonstrated from point B to point D. FIGURE 5. Quantifying degree of convexity. To better represent the actual shape of the emergence profile, it can be viewed geometrically as part of a circle. The degree of convexity over this distance can be changed by using circles of different sizes. A smaller circle represents a more contoured emergence profile with greater convexity. A larger circle represents a more gradual emergence profile with less convexity. FIGURE 6. Effect of prosthetic contour on emergence curve. To best correlate the clinical effect of altering the prosthetic contour on our model, we used circles with varying radiuses to reflect the process of over- and undercontouring. The smaller circle on the left represents the addition of prosthetic material to push soft tissue apically. The larger circle on the right represents removal of prosthetic material to encourage coronal migration of the soft tissue. Th indicates tissue height; PP, prosthetic platform.





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CONGRATULATIONS TO THE 2021 Dental Student Award Winners

Every year accredited dental programs refer an outstanding pre- and/or post-doctoral dental student who demonstrates great interest, academically and clinically, in implant dentistry. The award serves as recognition of students' achievements, as well as provides the opportunity for the winner to advance their skills and knowledge within the field of implant dentistry. Winners receive complimentary membership and registration to an educational meeting of their choice. Look out for these future dental implantologists!

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Mandie Driver, DDS, Louisiana State University Health Science Center School of Dentistry

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AAID Candidates Pass the Associate Fellow Written Exam, Part 1

The AAID encourages members to advance their implant education by becoming credentialed. The Associate Fellow written exam (Part 1) is the first step in this process. It is designed to assess knowledge of basic science, "entry-level" knowledge and understanding of implant dentistry principles, and the ability to apply these principles in a clinical situation. Candidates who pass Part 1 have four years to take the Part 2 (oral) examination.

So far, 6 candidates passed Part 1 of the Associate Fellow Exam. The AAID can help you with Part 2 by providing you with a credential coach. Visit www.aaid.com/coach for more information.

Congratulations to the following candidates:

- Dr. Xena Alakailly, Troy, MI
- Dr. Aatif Ansari, Indianapolis, IN
- Dr. Elaine Bersaba-Vong, Tamuning, Guam
- Dr. Noah Mustafa, Seacaucus, NJ
- Dr. David Robbins, Gladwyne, PA
- Dr. Gregory Williams, Tigard, OR

2021 AAID Proposed Bylaws Amendments

AMENDMENT 1: (line 293)

Amend Article VI, Board of Trustees, Section 3, Meetings, E) Voting		
CURRENT WORDING	PROPOSED AMENDMENT	IF ADOPTED WILL READ
<p>Voting</p> <p>Voting rights of a member of the Board of Trustees shall not be delegated to another nor exercised by proxy.</p>	<p>Voting</p> <p><u>As facilitator of the Board of Trustees meetings, the President shall only vote to break or make a tie.</u></p>	<p>Voting</p> <p>Voting rights of a member of the Board of Trustees shall not be delegated to another nor exercised by proxy. <u>As facilitator of the Board of Trustees meetings, the President shall only vote to break or make a tie.</u></p>

Rationale:

It has been the precedent in AAID history that the president only votes in Board of Trustees meetings to make or break a tie. Other bylaws (AAID Bylaws Article VII - Officers, Section 3 - Duties of Officers, A)

President line 336) imply that the President is the facilitator of the Board of Trustees meetings, but there is currently no bylaw that states how the president votes during the meetings.

The above amendment will be considered by the voting members of the American Academy of Implant Dentistry at its Annual Business Meeting on Saturday, November 13 at 2pm at the Hyatt Regency Chicago. For more information, please contact Joseph Weiss, AAID Advocacy and Governance Specialist at joseph@aid.com



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newmembers

The AAID is pleased to welcome the following new members who joined between June 25, 2021, and October 25, 2021. The list is organized by state, with the new member's city included. International members are listed by country, province (if applicable), and city. If you joined the AAID recently and your name does not appear below, it will be listed in the next issue of *AAID News*.

PLEASE WELCOME THESE NEW MEMBERS IN YOUR AREA.

Arizona

Frank Emmert, Oro Valley

Arkansas

Blakely Cingolani, Bryant

California

Feras Al Rezk, Visalia
Georgin Carrasco, Del Mar
Sassan Dadseresht, Temecula
Greg Friedman, San Diego
Kenneth Han, San Francisco
Hannah Hong, La Canada
Amir Khatami, San Diego
Aita Koopahi, Walnut Creek
Juan Mejia, Los Angeles
Shamiram Melko, Los Altos
Michael Miyasaki, Sacramento
Minh Nguyen, Rocklin
Mohamed Othman, Sunnyvale
Yigal Prilutsky, Burbank
Joshua Rosales, San Pablo
David Sewell, Pasadena
Kazuma Sugahara, Redlands

Colorado

Robert Bull, Colorado Springs

Delaware

Sattar Syed, Wilmington

Florida

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Lauren Alfred, North Miami
Nehal Ali, Weston
Jeffrey Allen, Merritt Island
Joseph Alvarez, Estero
Gayane Avakyan, Weston
Vibhor Bidkar, Coconut Creek
Hector Cabrera, Miami
Nicholas Castellanos, Miami
Cornelia Dadaciu, Bradenton
Paula De Oliveira, Bonita Springs
Aaron Delgado, Estero
Annie Diaz, Cape Coral
Kim, Doan Jacksonville
Ivonne Duarte, Doral
Jordan Eckardt, Miami
Yelisbet Fernandez, Coral Gables
Luz Franco, Tamarac
Flavio Falcon, Miami Gardens
Alexandre Gaeta, Palm Beach Gardens
Rogelio Garrote, Miami
Juana Geldres, Palm Beach Gardens
Andre Gonzalez, Coral Gables

Alberto Graupera, Hialeah
Mariano Gutierrez, Hialeah
Amr Hassan, Wesley Chapel
Rosa Hernandez, Sarasota
Daniel Izaguirre, Cape Smiles
Alexander Jelichich, Miami
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Adil Khan, Fort Lauderdale
Rafael Llanes, Hialeah
Ernesto Llerena, Tallahassee
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Alejandro Martinez, Indialantic
Yamila Noriega-Abreu, Sarasota
Ricardo Perales, Fort Myers
Annelise Perez, Fort Meyers
Reinaldo Perez, Miami Lakes
Sahar Rafiq, Naples
Carlos Rodriguez, Orlando
Emilio Acosta, Fort Myers
Elizabeth Santiago Torres, Saint Cloud
Ali Ahamed Shaik, Tallahassee
Paola Soto, Miami
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Huy Tran, Viera
Timothy Turner, Sebring
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Sandra Wasif, Oviedo
Mohamed Youssef, Venice

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Mark Barr, Atlanta

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Rashmika Patel, Morton Grove
Jose Rosalez, Chicago
Dima Sibai, Burr Ridge
Fransiskus Tjiptowidjojo, Chicago

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Kansas

Josh Matthews, Leawood

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Louisiana

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REACH PATIENTS & BUILD TRUST: Share a success story on AAID's website

Inspire, inform and increase your online visibility

Showcase the incredible ways that dental implants have changed the lives of your patients with others on their dental implant journey. Each month, thousands of potential patients look to AAID-implant.org for advice and guidance on dental implants and where to find a qualified dentist.

We want to celebrate the amazing outcomes of your patients — plus inspire people to learn about your practice and the importance of choosing an AAID member dentist for treatment. Submit your story to us today and be featured!



How to Submit Your Story

1. Choose one of your favorite **dental implant patient success stories**
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 - a. A short testimonial about their results or improvements
 - b. A well-lit, high-resolution portrait/headshot of patient
3. Write the story in 400-600 words. Break it into 3 paragraphs: **Challenge, Solution, Results**
4. Submit the story and photo at: aaid-implant.org/submit-story
5. Our editors will review your story and deliver a digital proof for your approval before it gets published



Check out the dental implant success stories your AAID colleagues are sharing on our public-facing website:

aaid-implant.org/category/what-patients-say

5 Benefits of Sharing Your Patient Story:

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2. Showcase your work to thousands of new people
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Total searches for AAID dentists on the Dr. Finder

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New Members

continued from page 34

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Cape Elizabeth

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Chibueze Okoro,
Upper Marlboro
Subram Ramamurthy,
Baltimore

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Samuel McGuire,
Portage
Shaun Williams,
Caldonia

Minnesota

Jonathan Falkowski,
Apple Valley
Kyle Novotny, Blaine
Peter Thurnau, Lakeville

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Laurel

Missouri

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Mukuka Kapilikisha,
Hollister

Montana

Andre Cardoso, Billings

Nevada

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Henderson

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Valley Stream
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Deidra Harrison-
McClain, Goodlettsville

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Waxahachie
Ibrahim Saeed, Houston
Maria Santos, Kingwood
Nidhi Shah, Houston

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Glenn Evans, Radford
Julia Jackson,
Annandale
Jay Patel, Burke

Washington

Jon Caldwell, Renton
Andy Keith, Seattle
Gurveen Khatkar,
Tacoma

Kunal Narang, Bellevue
Anthony Surratt,
Aberdeen
Renee Tai, Fircrest
Lance Timmerman,
Tukwila
Jonathan Todorovich,
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Christopher Mah,
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Jessamine Martinez,
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Parth Naik, Surrey
Vivek Patel,
Williams Lake
Bob Sun, Vancouver
Chloe Tan, Richmond

Manitoba

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Winnipeg

Ontario

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Michael Rondinelli,
Sarnia
Eva Volman, Dundas

Quebec

Mohamed Youssef,
Verdun

Saskatchewan

Anis Haji, Unity

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France

M. Stuart Molly

Japan

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Koichi Nishimura

Korea

Sangheon Yee

Qatar

Fadi Akhabbani

Saudi Arabia

Ali Alenzi

South Korea

Junyoung Park
Ahmed Seiam
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Marwan Atrouni
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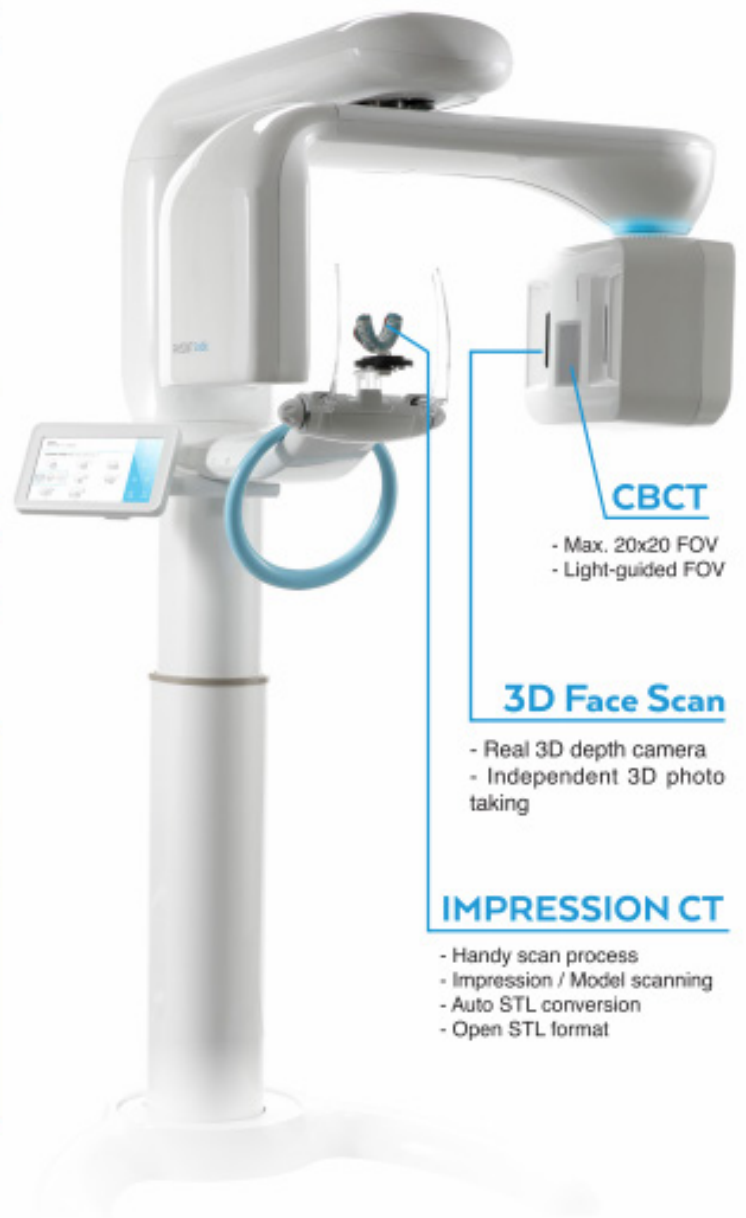
NEW STUDENT MEMBERS

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Catherine Baitinger
Kris Bano
Anjali Bhagirath
Jacob Bonola
Laura Borodic
Austin Brasher
Andre Cardoso
Rebecca Carratt
Sidney Chadwick
Kyle Coon
Claudio Cosio
Ashli Donahue
Mandie Driver
Yelisbet Fernandez
Connor Francis
Ian Furlong
Betsy Grove
Yohannes Hadera
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Gabriella Hurov
Mamdouh Kachlan
Karen Khachatryan
Hannah Klaassen
Olivia Kutlesa Hewko
Jiachen Lin
Ramzy Lotfi
Gloria Luong
Shay Mieczkowski
Keenan Osman
James Pacheco
Allison Podget
Shahram Raof
Michael Schiappa
Stephanie Schreiber
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Editor's Notebook

continued from page 4

The human jaw is a complex multiorgan structure with multiple bones, muscles, tendons, ligaments, teeth, mucosae, all enwrapped by a normal or abnormal personality. Parafunctional habits may into play that effect treatment.

So, should we abandon the term CR? Should the functional aspects of the relationship of the jaws be described by two or three terms that would be used in various combinations. Terms that describe occlusal tooth interaction, condyle position, muscle origin and insertion locations on bone that may affect leverage, muscle bite force capacity, limitations of mandibular movement, effects of proximate osseous structures such as the antra, flexure of the mandible during loading, psychological factors, etc. Should these parameters be assigned mathematical values that result in a numerical expression that defines a range of function?

There are differences of opinions as to the importance of a centric slide and if it contributes to any temporomandibular disorders. Nonetheless, at least one study demonstrated that there is no connection between a centric slide and TMJ disorders. The reproducibility of CR position for TMD patients is apparently not well defined in the dental literature. But one study suggests that there is no variation between CR position in TMD-patients and non-TMD patients.

Maximum intercuspation (MIC) describes teeth relation irrespective of the TMJ positioning. MIC is generally stable reproducible and acceptable and comfortable for patients. The MIC condylar position is generally an appropriate position for dental treatment.

There can be variations in the position of the condyle in the fossa when the teeth are in MIC. Thus, any definition that describes any one specific condylar position may be

inappropriate. Jaw position is dynamic as it occurs during swallowing and clenching. Condylar position as shown on cone beam computerized tomogram (CBCT) or magnetic resonance imaging (MRI) may not indicate a problematic issue. During function the condyle may be positioned in the fossa, on the incline or on the crest of the eminence. The thickness of the fibrocartilage covering of the TMJ can indicate the magnitude of loading it has been subjected to. The bone roof of the fossa is covered with thin vascularized fibrous connective tissue that may not tolerate severe biomechanical loading. Most loading is directed to the posterior ramp of the eminence.

The mandibular fossa may be considered an adjacent structure to the TMJ and not a functional component. Thus, considering CR as a condyle-fossa relationship may be inappropriate since there is no universally accepted correct condylar position.

Identical repeatability of CR may not be a valid proof of correctness. CR may be determined by any one of several methods with slightly different results. Reproducibility may not be such an important ideal because of all the soft tissues involved in the condyles being positioned.

The word centric may not be appropriate because it implies that the condyles are centered which may not be true if this means centered in the glenoid fossa. CR also may imply that there is a correct and proper position for the condyles as in a hard surface mechanical device. There may be a biologically correct position which implies that there is some positional leeway. Adhering to set of theoretical rules may lead to misdiagnosis and inappropriate treatment. Most healthy dentate patients have a repeatable stable, and functional MIC so no extraordinary diagnostic procedures would be necessary. The condyles are already appropriately positioned.

Some patients will present with mandibular instability that is a result of an unstable MIC from injury or malocclusion. These may require establishment of a new jaw relation such as in edentulous or partially edentulous patients, full mouth rehabilitation patients and those with orthodontic or orthognathic issues. Patients with intracapsular trouble may require comprehensive treatment to establish a stable mandibular position.

Instead of attempting to create a specific jaw position, a reproducible condylar position on the posterior ramp of the eminence is appropriate with the understanding that it may be a variation. Forcing condylar positioning may be an error. When a new MIP is established, the masticatory tissues will undergo remodeling to accommodate the jaw position and stability should be attained in the majority of patients.

Given the decades of controversy, emotionality and bickering it may be impossible for the profession to agree on appropriate terminology that expresses the functional relationship of the jaw. The CR controversy continues.

References

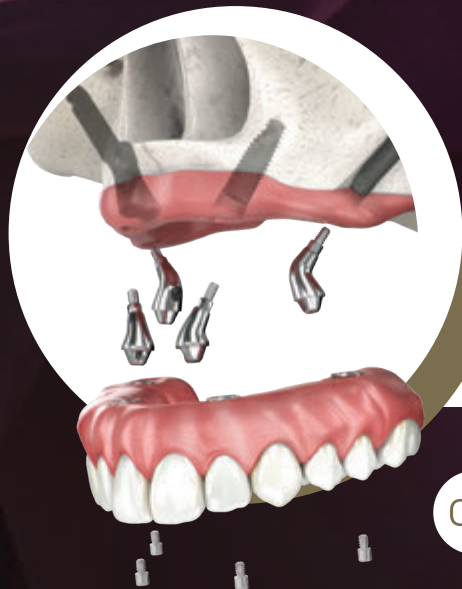
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Zonnenberg AJ, Mulder J. Variability of centric relation position in TMD patients. *Eur J Prosthodont Restor Dent.* 2006 Mar;14(1):32-7. PMID: 16599096.

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Location: Surrey, BC, Canada
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 Email: andrew@implant.ca
 Website: www.implant.ca

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Aichi Implant Center

Location: Nagoya, Aichi-Ken, Japan
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 Website: www.hotta-dc.com

Beirut AAID Study Club

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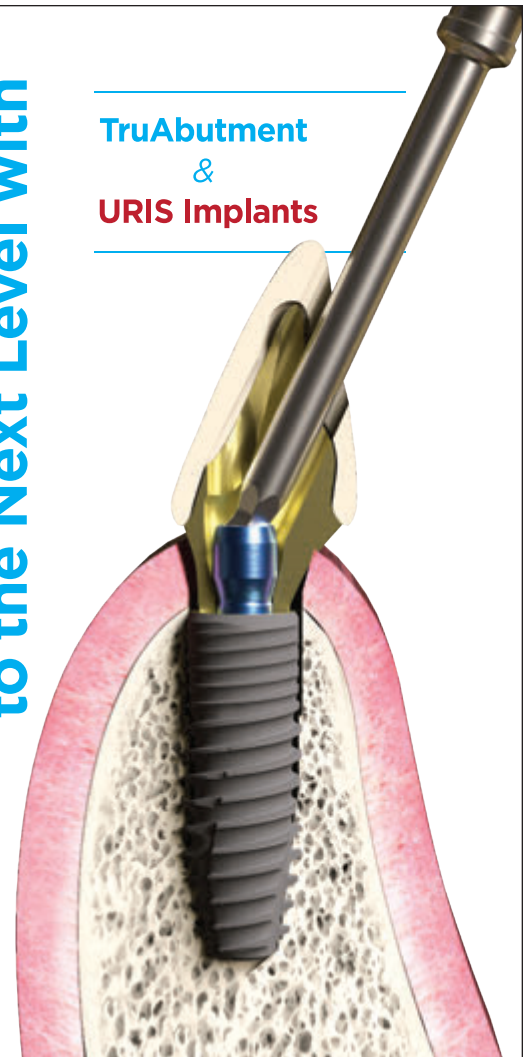
Dr. Ron Zokol
Contacts: Barbara Cox and Dr. Faraj Eder
Emails: barbara.cox@ddidental.com
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Pre-Doctoral Winners, continued from page 32

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Olivia Kutlesa Hewko, DDS,

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Duc Le, DMD, Nova Southeastern

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Gloria Luong, DMD, Western University of

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Lindsey Montileaux Mabbutt, DDS,

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Sohail Rana, DMD, University of Pittsburgh

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Maggie Lucretia Schlindwein, DDS,

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Dentistry & Oral Health

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Sviatlana Stsiatsevich, DDS,

Virginia Commonwealth University

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Luca Trooien-Smith, DDS, University of

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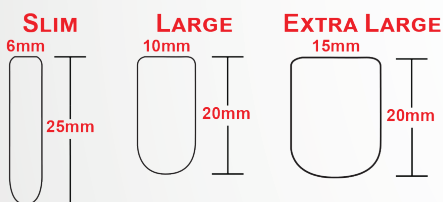


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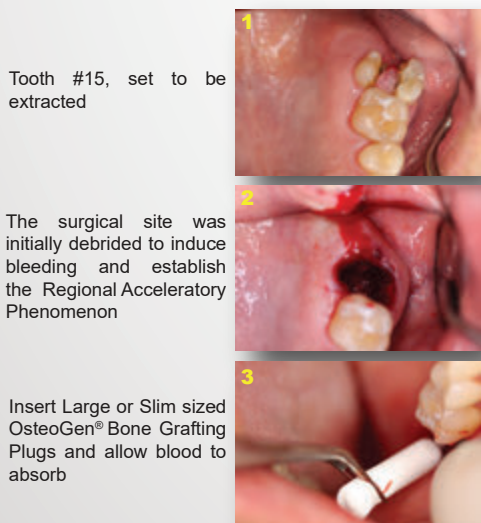
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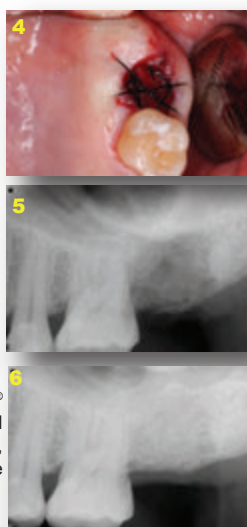
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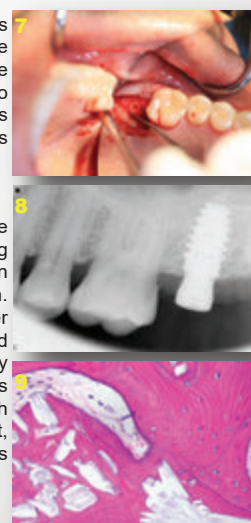
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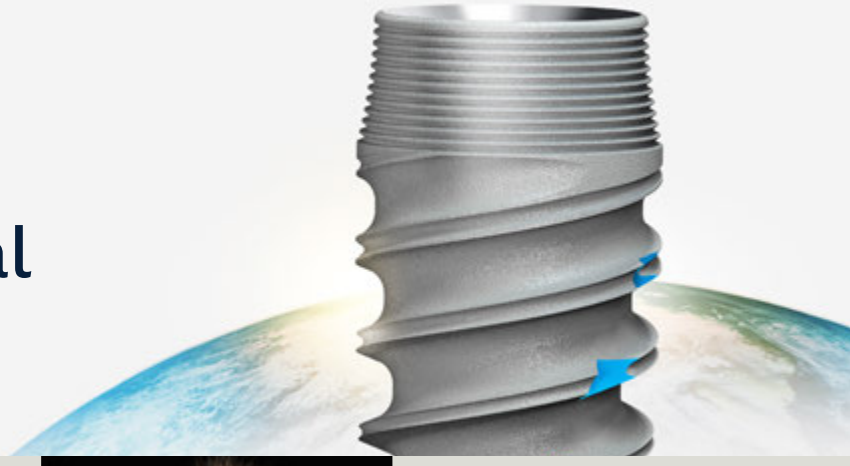


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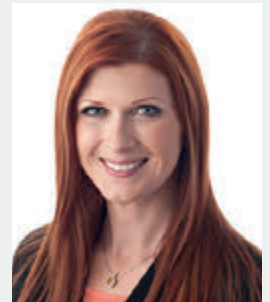
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