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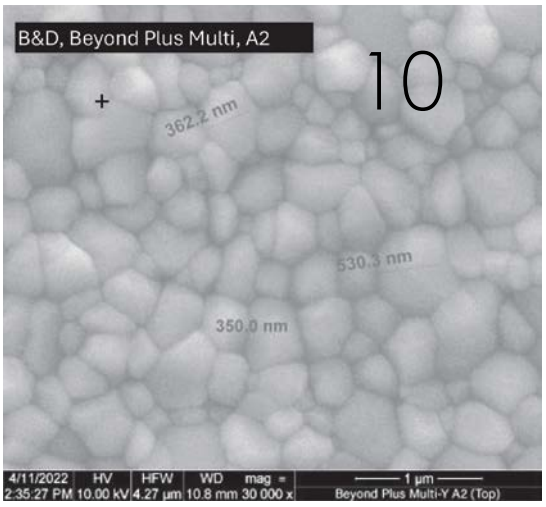

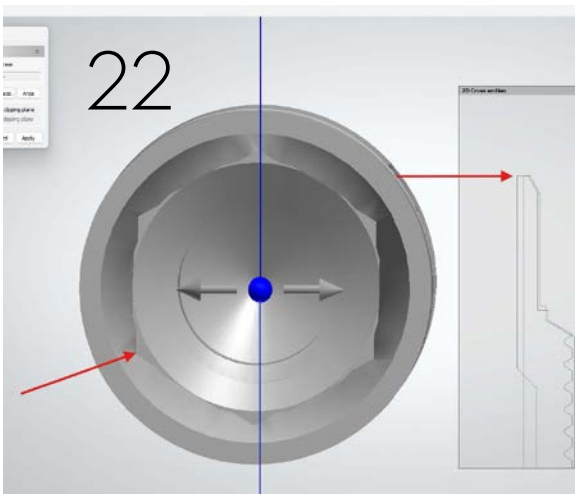

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Collective Success

Rick Sonntag, RDT

FDLA President

As I write to you today, our profession stands at a remarkable crossroads—one that demands both resilience and vision. The macro-economic challenges we've faced over the past year have tested dental laboratories across Florida and beyond. Rising material costs, supply chain disruptions and inflationary pressures continue to impact our bottom lines. Yet, as I speak with laboratory owners throughout our state, I'm consistently inspired by the ingenuity and determination of our members who are finding creative solutions to navigate these turbulent waters.

In times like these, the importance of continuing education cannot be overstated. The landscape of dental laboratory technology is evolving at an unprecedented pace, and staying current is no longer optional—it's essential for survival and growth. Whether it's mastering new materials, refining digital workflows, or understanding emerging treatment modalities, our commitment to lifelong learning is what separates thriving laboratories from those merely surviving.

Innovation extends beyond technology, of course. It's in how we communicate with dental practices, how we train the next generation of technicians, and how we collaborate to elevate standards across our profession. The laboratories that will thrive in the coming years are those that embrace change while maintaining the craftsmanship and attention to detail that define our profession.

As with so many industries, AI, while still in its infancy in dental technology, is slowly taking on a larger role in case design and planning. From automated design suggestions to automated segmentation of implant plans, to predictive analysis for case management, AI is becoming a tool for dental laboratories. The question so many are asking is "…is AI a threat, or is it an ally that can enhance precision, reduce turnaround times and free up your skilled technicians to focus on the artistry and complex cases that require a human touch?" The FDLA is committed to providing the resources and education to help you integrate these technologies into your workflows.

I'm thrilled to remind you about our annual Southern States Symposium & Expo this coming June. This premier event brings together dental laboratory professionals from across the region for an unparalleled opportunity to learn, network, and discover the latest innovations in our field. The education committee is planning an outstanding lineup of speakers, hands-on workshops and exhibits featuring cutting-edge technologies, including comprehensive sessions on AI integration and digital workflows. The Symposium isn't just a conference; it's an investment in your laboratory's future and a chance to connect with colleagues who share your passion for excellence.

The Symposium isn't just a conference; it's an investment in your laboratory's future.

Despite the challenges we face, I remain optimistic about our future. The Florida Dental Laboratory Association is stronger when we stand together, share knowledge and support one another. I encourage each of you to engage with your association, attend our events and contribute your unique perspectives to our collective success.

Thank you for your continued dedication to our profession and to the patients we ultimately serve through our craft.

FDLA Mission

Advancing the individual and collective success of Florida's dental laboratory professionals to enhance oral health care.

Values Statement

INTEGRITY - being honest and open in all that we do

LEADERSHIP - being the guiding light in a changing environment

RECOGNITION - honoring those committed to our industry

SAFETY - promoting safe and quality driven manufacturing practices

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By Travis Zick

Navigating the Challenges

AND MANAGING FOR SUCCESS IN TODAY'S DENTAL MARKET

It won't come as a surprise to most of our readers that the past couple of years have presented unique challenges in our industry. Historic inflationary pressure over the past 4.5 years has caused the average consumer good to cost 25 percent more than it did in the spring of 2021. At the same time, a tight labor market driven by the lowest Labor Force Participation Rate in the past 60 years caused a similar spike in wages. Most people are shocked to hear that just over 62 percent of non-institutionalized, working age population are either employed OR actively looking for employment, according to the United States Bureau of Labor Statistics (BLS). Yes, that means nearly four out of every 10 are not!

In the dental lab business, we have certainly felt the effects of these cost increases. According to data provided by the BLS for dental labs, average wages in the industry also increased 25 percent in the four years prior to 2025. With labor and consumables spiking in cost, dental labs have faced tremendous pressure to maintain profitability. I don't know any dental labs that have raised their prices 25 percent in the past four years!

At the same time, dental spending has been relatively flat since 2022. With fewer discretionary dollars at their disposal, many dental patients have chosen to delay treatment or go with the less expensive treatment alternative offered by their dentist. Over the past two years, the only real growth in dental spending has come from Medicare, and total dental spend is only about 10 percent higher in 2025 than it was pre-pandemic five-plus years ago. In fact, according to a recent survey by the Health Policy Institute, as of Q3 2025, over one-third of dentists say they are not busy enough. That is a significant increase over previous years.

Inside our industry, the beginning of 2025 marked a significant milestone. For the first time in decades, the number of dental laboratories in the U.S. fell below 5,000. For the 20th year in a row, the dental lab industry contracted. While overall estimates of the number of labs that existed in early 2000s vary (including single-person labs who did not report a payroll), we've likely seen a decrease in total labs of 50-60 percent in the past 25 years. Even with the reduction in total labs, however, the number of total employees in the industry stayed fairly stable over the years. That also changed in 2024 as we lost 4.6 percent of our lab employees falling to a record low of 41,548 total employees reported to the BLS. That is a 16 percent drop in the number of employees working in dental labs today compared to our peak in 2004.

Despite all these ongoing challenges, there are still tremendous opportunities to continue to thrive in the lab business. In reality, there are fewer labs, and fewer employees, doing more lab work than ever before. In fact, over half of all labs who responded to the NADL's 2025 business survey reported net profit of over 15 percent. The key to overcoming the challenges and obstacles put in our path is managing through the use of KPIs to maximize efficiency and profitability.

When we discuss managing through KPIs, it's very similar to your favorite sports team using analytics to make their roster decisions. As seasoned dental lab veterans, we all feel we can trust our eyes and instincts when it comes to running our businesses. The reality is that every minute of the day, every penny spent, and every bit of information you can use to set yourself apart in today's competitive world can mean the difference between success or failure.

In our business, we review KPIs in every area of operations, and it is important to remember that all areas have to work together to achieve our financial benchmarks. Customer service, shipping and receiving, front office, production, QC, and admin all must perform in order to maximize our overall financial results. Active KPI management means that every single day we look at some form of KPI information that gives us an ongoing scorecard throughout the month. When the month is closed, and we get the financial statements, we should not be surprised by those final numbers.

From a financial perspective, the most important KPI for constant monitoring is your gross profit margin. Gross profit is the difference between the cost of producing the products we sell versus how much we sell them for. This is the first section on our income statement, and it is the place where the battle for profitability is most often lost. If we are not able to produce enough margin selling the products we are making, then we're basically sunk before we even get to our other costs. This is also where we look and evaluate how we set our prices. The prices we charge must be determined by our cost to make those products, and our desired return. They should never be set based on what our competitors charge. If our costs of production are higher, or our desired returns are higher than our competitors, then it's up to us to add value to justify a slightly higher price point for our clients. If we can't, we won't be in business long, which would also be the case if we try to compete on price and accept insufficient margins!

The main components of gross margin are sales, direct labor and material purchases. These should be monitored constantly throughout the month to make sure the gross margin stays on track. The good news is that the costs are variable, meaning they can be adjusted as sales fluctuate. Your laboratory should have controls and procedures in place to monitor and control direct labor and material purchases. On a daily basis, compare the sales and labor expenses, and manage the labor for the actual work in the lab. Use your lab management system to plan the next week based on work levels in the lab to minimize extra labor from both not having enough work and having too much (resulting in overtime). The result should be a consistent gross margin from month to month regardless of whether you have a good or bad sales month.

Along with the overall gross profit, another KPI of increasing significance is revenue generated per technician. As I mentioned earlier, we have fewer employees making higher wages than ever before in the industry. Along with the increasing help of technology, the amount of productivity and revenue generated per technician has never been higher, and it is increasing constantly. We used to look at productivity KPIs in terms of number of units a technician would put through in a day. Now, with a highly deployable technical workforce who wear many hats, the main productivity KPI is revenue generated. In many cases, your productivity KPIs and your financial KPIs will tell a similar story. If your revenue per technician is low, it's very likely that your direct labor is high, and your gross profit margin is probably low. That's not, however, always the case.

NUMBERS DON'T PROVIDE ANSWERS, THEY LEAD TO QUESTIONS THAT GUIDE YOU TO INVESTIGATE AREAS OF YOUR BUSINESS.

There are many other KPIs that should be monitored on an ongoing basis or checked periodically. Obviously, there are additional expense items that should be monitored to keep in check. On the production side, remakes (both internal and external) certainly play a significant role in determining your success as a lab (and often show themselves in a lower-than-normal gross profit margin). On the sales side, tracking revenue per client, new account acquisition, and overall client retention and churn rates will all help explain what is currently happening with your income statement as well as potential opportunities to improve.

As we constantly tell our team, numbers don't provide answers, they lead to questions that guide you to investigate areas of your business that will ultimately help you improve your performance. If our bottom line is not where we want it to be, why is that? The typical answer is we need more sales! Most of the time, however, that's not the case. By utilizing KPI management throughout our labs, we can put together an overall picture of what's happening and where we need to improve. I'm personally very bullish about the future of our industry, but I also believe we must be active in managing our businesses so that we can capitalize on the opportunities that present themselves going forward.

About the Author

Travis Zick, is co-founder & director of finance & acquisitions with Apex Dental Laboratory Group, a multi-laboratory holding company based out of Waco, Texas with 16 labs in 12 states. For Apex, Travis oversees all merger & acquisition activity, including diligence, structure, and integration. After earning his finance degree from Winona State University, Travis worked as a financial analyst and commercial banker before becoming involved in the lab business. In 2015, he founded Apex Dental Laboratory Group with his partners, which has grown from four labs to 16 in ten years. Travis has served as a transition consultant for lab owners looking to prepare their business for succession, and he has spoken and written many articles on this and numerous business topics related to dental laboratories. Throughout his career, Travis has been active in industry leadership, including numerous roles with the NADL, culminating in his year as president in 2019.

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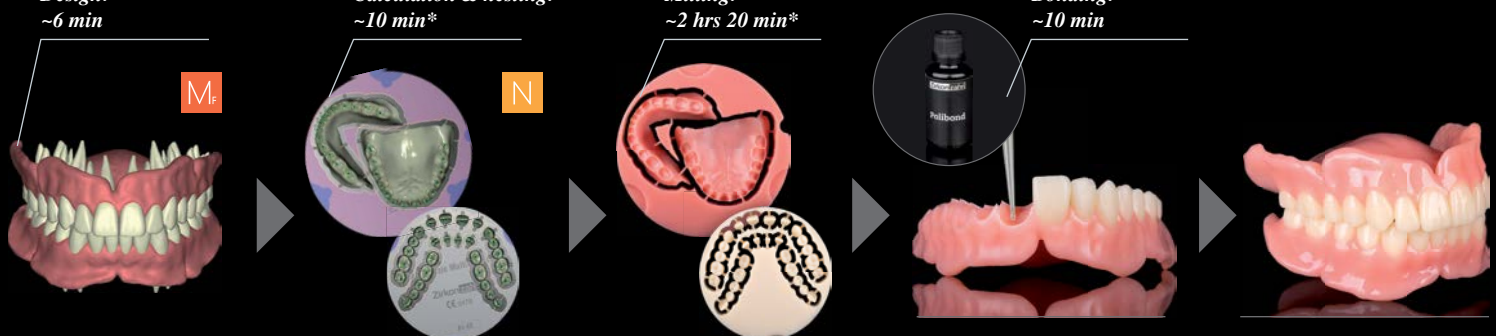

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By Rich Green

What's Real About COLLOIDAL ZIRCONIA?

Virtually all claims made about zirconia—strength, translucency, bondability, polishability, low temperature degradation, wear on opposing, rapid sintering and accuracy of restorations— begin with one characteristic.

The grain size of the zirconia in the disk.

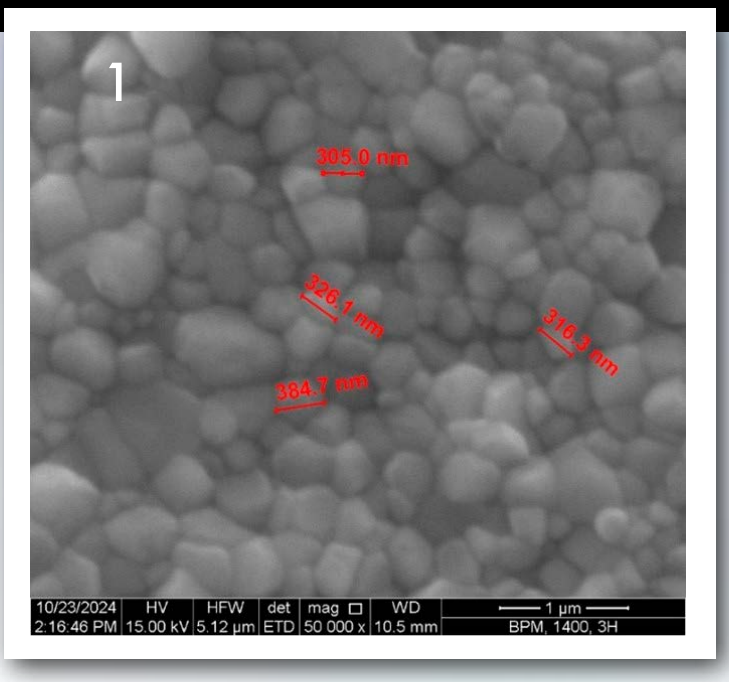
The best outcomes require the smallest grain size zirconia available. In this article, we will discuss how grain size affects the outcomes in your lab and an easy method to check grain size.

Let's begin with flexural strength.

Everybody claims fairly high flexural strength for their products. Some of these claims may be suspect. When strength testing is done, there are three different approved methods. One is a bar of zirconia (2x3x20mm), a three-point bend test, the second is a bar (3x4x40mm), a four-point bend test, and the last is a 15x1.5mm disk as a three-point bend test. Manufacturers have been known to use the test which gives them the best outcome. If your restoration does not match closely to the parameters of the test, this information may be less useful.

A key indicator of higher flexural strength, however, is the size of the zirconia particles making up the feed stock for the zirconia disks. These are wonderfully small, uniform, homogeneous particles which form a precursor of the zirconia material. When I say small, I mean nanometer particle size. (Just FYI, there are 1,000 nanometers in a micron.) Ideally, we are looking for particles smaller than 300nm in the blend.

Now 300nm is incredibly small (**Fig. 1**); it is about the size of exhaled cigarette smoke. I do not know how a manufacturer can isostatically press a dry powder, with a consistency like smoke, without using a binder to hold it together. (More about this later). That's why colloidial process zirconia is demonstrably better.



This is why Origin zirconia uses a colloidal process to control the ultra-fine particles. Using a slurry process to make the particles creates a homogeneous blend of evenly distributed and fairly uniform-sized particles with virtually no space between the particles in the green state. When sintered, the greater number of particles available to bind to each other create more physical contacts sticking to one another, resulting in stronger zirconia. It's pretty straightforward math.

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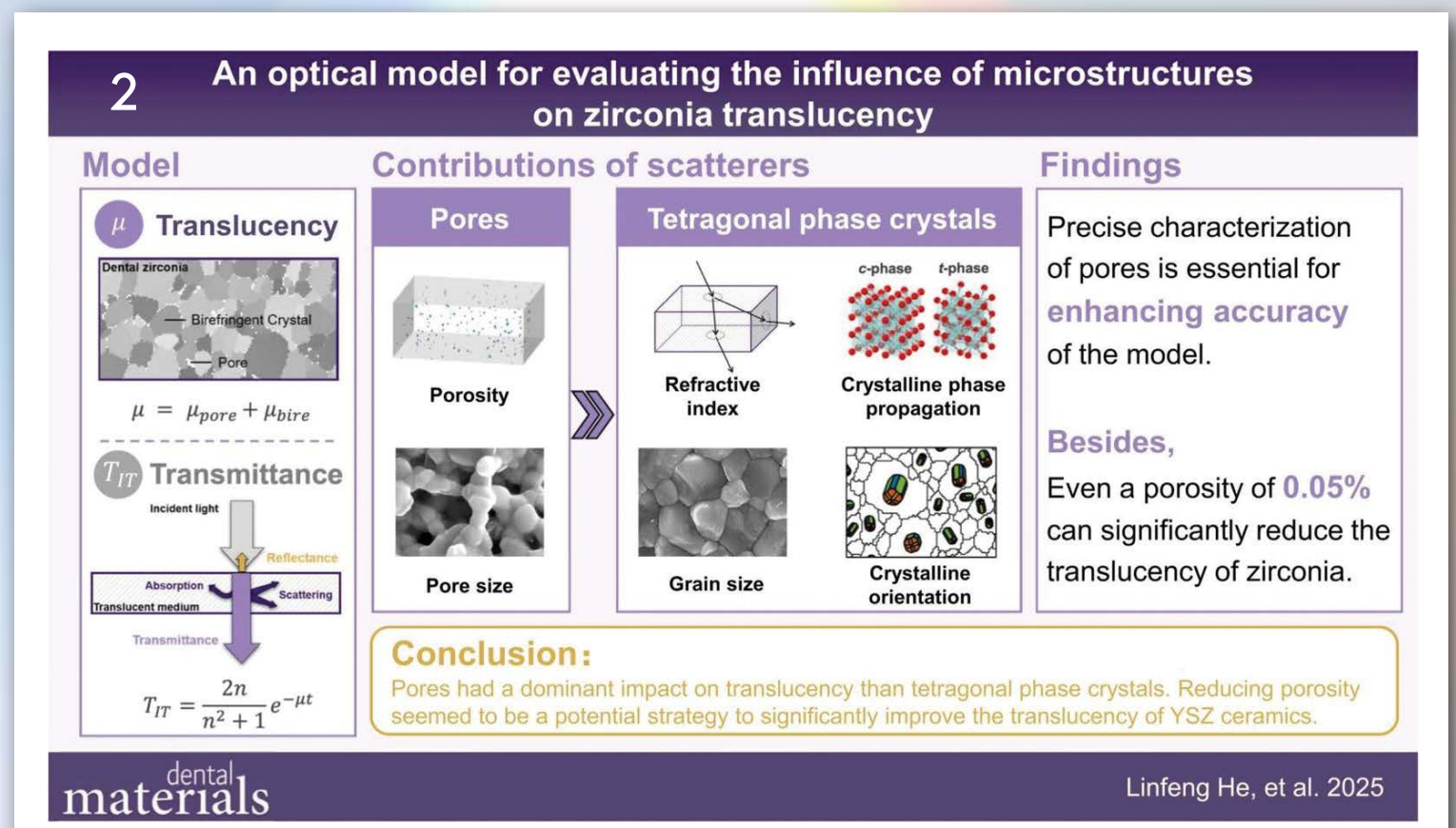


Influence of Nanoparticle sized Zirconia on Mechanical Properties and Sintering Behavior:

A study in the Journal of Mechanical Behavior (UKM Malaysia) investigated the effect of particle size on 3mol% yttria stabilized zirconia (3YSZ).

It found that while smaller particle sizes have a higher diffusion rate and potential for densification, highly uniform particle sizes (in this case, 90nm compared to 30nm variant) produced better mechanical properties like density, hardness, and fracture toughness.

The study confirmed that the initial particle size and its distribution are critical to determining the mechanical strength of the final product.

How about translucency?

Translucency in zirconia is a very complicated subject. To create adequate translucency, the physical makeup, arrangement of the grains, and the grain size of the zirconia blend is critical. A highly translucent zirconia can contain 3Y, 4Y, 5Y, and in some cases even 6Y zirconia. With each increase in yttria content there can be, and is, a decrease in absolute flexural strength. This decreased strength and translucency changes can be mitigated by you guessed it, grain size.

So how does this work? Remember when we talked about those tiny grain sizes? These ~300 nanometer grains are so small some of the light they reflect is outside the physical abilities of humans to see. They become essentially invisible. The colorant used still wraps around the grains and with enough colorant due to increased numbers of grains, the desired color is still vibrant and natural.

Now, some folks will say that increasing the high temperature of the sintering cycle will make the grains larger. Larger grains do mean fewer grain boundaries for light to cross creating higher translucency. While this is true, the downside is even more loss of strength.

So how can binders affect the translucency?

We spoke earlier of binders required by manufacturers who isostatically press zirconia. This binder is required to hold the dry powder together during processing. Then, when the disks are pre-sintered, this binder vaporizes. That's good.

The problem arises with the physical spaces left behind by the glue that has burnt out. The voids left behind create spaces between the particles (**Fig. 2**), especially at points where three or more grains come together, and are shaped in a fashion that resists further compaction, or densifica-

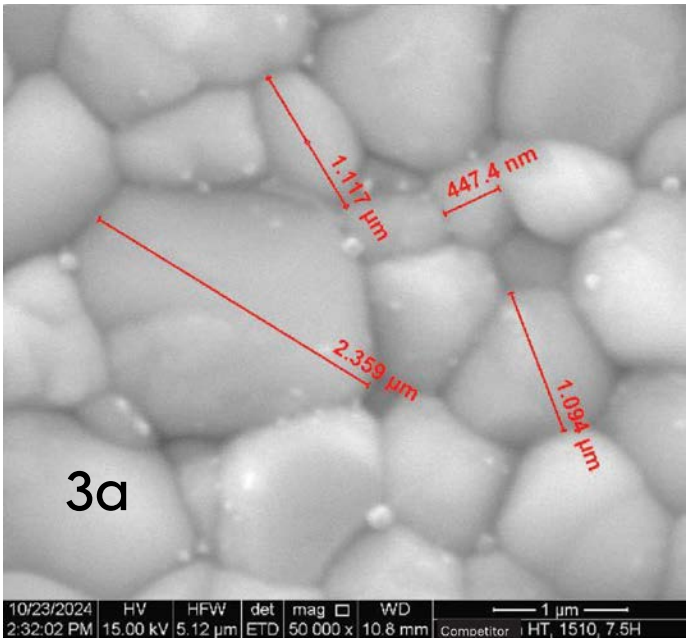


Figure 3a.
non-uniform, nanometer to micron size grain zirconia

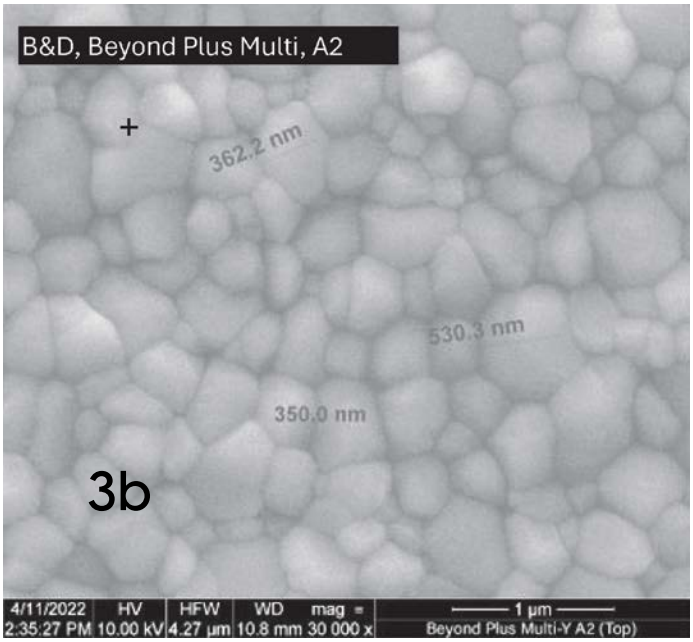


Figure 3b
uniform nanometer size grains

tion. The remaining voids absorb light, making these areas opaque and reducing translucency because of the very process by which those disks are made.

Smooth as silk

Polishability and wear on opposing fall into a similar area so we will discuss these as a group. As most technicians know, polishing consists of making finer and finer scratches on the object being polished. If one starts with a coarse surface, it is more difficult to make that surface smooth enough to achieve a high gloss. This is where nano grained zirconia really shines. (Please forgive the pun.) The smoother surface generated by inherently finer particles starts out closer to a final polish.

Even though the grains shown in Figure 2 are very small, the differences between them are substantial. The larger grains will make the surface difficult to smooth, reducing polishability. The inherently smoother homogeneous nano grains form a smoother surface to begin with. Additionally larger grains are more easily "plucked" from the surface as water infiltrates into the restoration over time and the grains become looser (**Figs. 3a-b**).

Extremely low wear on opposing dentition is also directly related to fine grain structure.

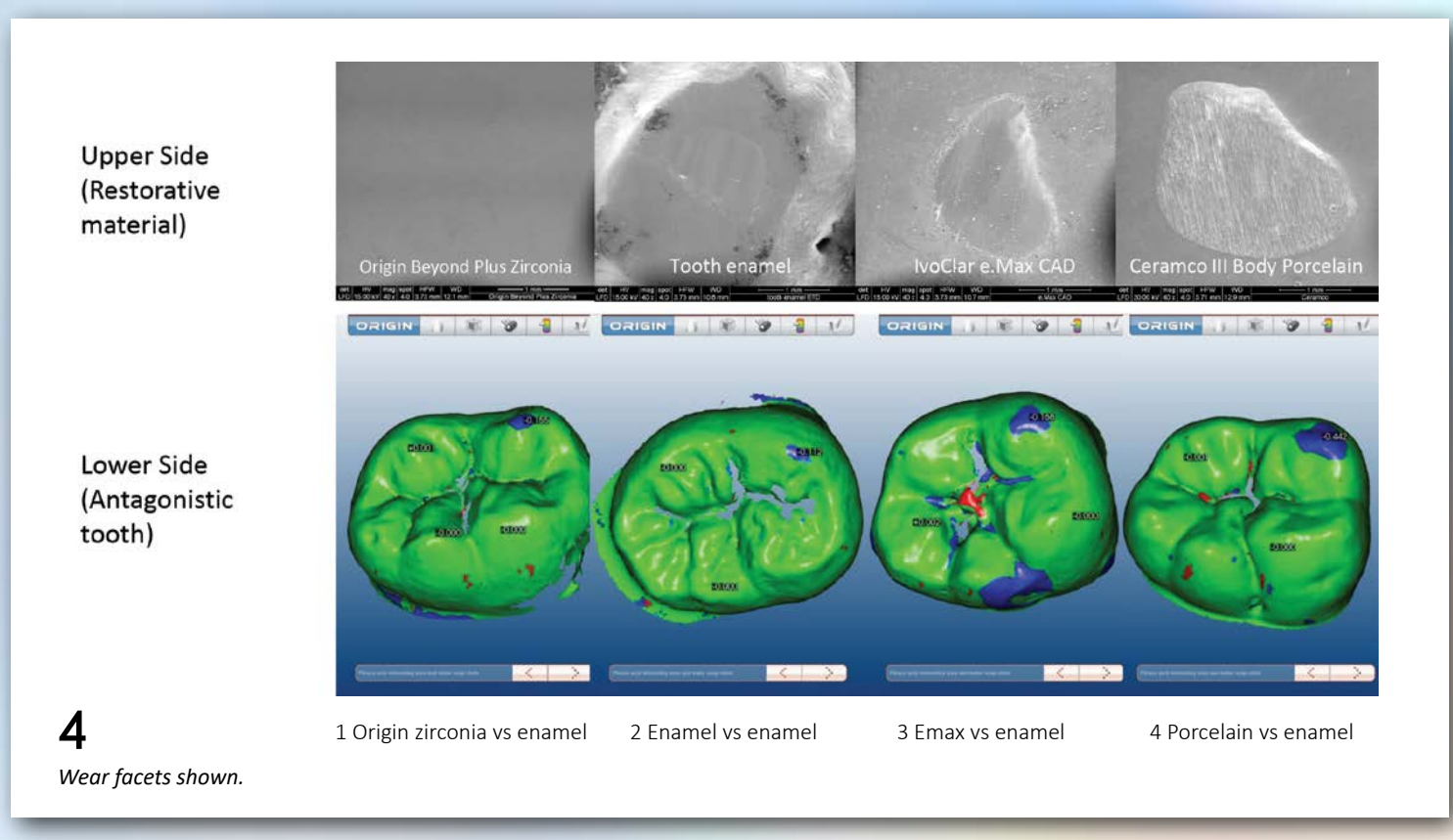
Extremely low wear on opposing dentition is also directly related to fine grain structure. These images from a wear study (**Fig. 4**) show virtually no wear on opposing dentition from colloidally processed zirconia.

Despite the limitations of this study, less wear of the antagonistic teeth is shown with polished Beyond Plus zirconia than with lithium disilicate or feldspathic porcelain.

Rapid sintering, how and why?

"Since COVID" is the phrase so many statements start with, however, during that time many researchers did a large number of studies regarding rapid sintering.

Its viability as a technique has been verified and is being used in many laboratories with good success. There are two key factors that create the best outcomes. One, an oven that can handle high ramp rates, or is programmable to handle quite high starting temps, and two, a zirconia that is designed to optimize the sintering process.



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1 Origin zirconia vs enamel 2 Enamel vs enamel 3 Emax vs enamel 4 Porcelain vs enamel

Wear facets shown.

So, what exactly is the sintering process?

The following diagram offers a simplified explanation (**Fig. 5**).

Model structure of the sintering process is exhibiting (A) instantaneous neck formation, (B) neck growth, (C) cylindrical channels at boundaries and (D) pore elimination. The transport phenomena designated by the numbers in (B) and (D) represent surface diffusion (1), lattice diffusion from the surface (2), vapor transport (3), grain boundary diffusion (4), lattice diffusion from the grain boundary (5) and plastic flow (6).

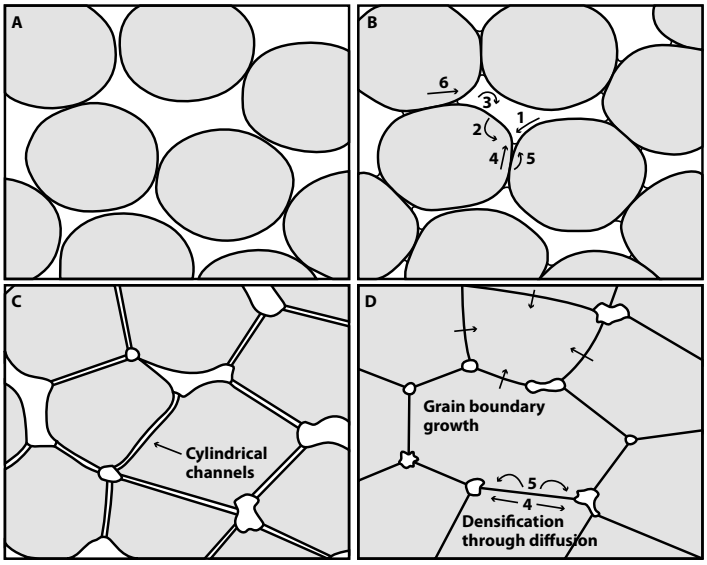
As mentioned earlier in this article, when binders are used to hold the dry zirconia powder together during the isostatic pressing process, that binder has to take up physical space. Then during the pre-sinter process, those binders vaporize. When that material vaporizes, however, it leaves behind voids.

These spaces, left as a result of the binder, actually prevent the particles in the disk from creating really intimate contact with one another at this stage of the sintering process.

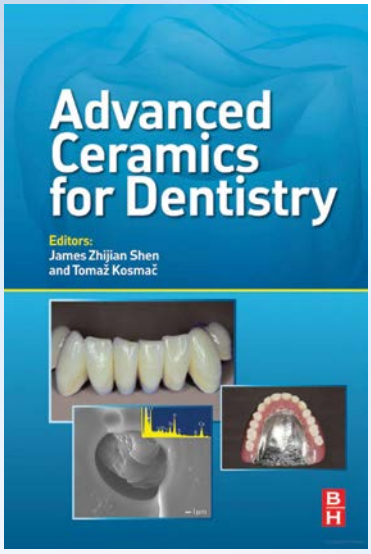
While seemingly small, these voids increase the time required to initiate neck growth. In fact, colloidally processed zirconia, which has virtually no voids, kind of "jumps over" this stage and goes directly into atomic transport and grain establishment.

While seemingly small, these voids increase the time required to initiate neck growth

5



"One obvious advantage of colloidal processes as compared to dry- pressing is the possibility of achieving much higher levels of homogeneity with improved packing of individual particles, which contributes to higher green densities and reduced sintering temperatures. Furthermore, the use of colloidal methods allows the intergranular voids that are often formed during dry pressing to be eliminated." From Advanced Ceramics for Dentistry Ch 17 and 18.



Maximum accuracy, minimum size

With the advent of so many all-on-X restorations, highly accurate shrinkage of zirconia has become even more important. Certain principles guide and direct successful restorations.

1. Homogeneous densification: The study by Li et al. directly confirms that smaller, more uniform particles result in a "better degree of densification" and a more uniform microstructure. This prevents uneven sintering, which would cause inconsistent shrinkage.

2. Isotropic and predictable shrinkage: Predictability comes from homogeneity. When densification is uniform throughout the material, the final part shrinks consistently in all directions. A study on 3D-printed zirconia highlights that printing conditions can lead to anisotropic (non-uniform) shrinkage, but the ultimate goal is to achieve isotropic shrinkage for a precise fit. A homogeneous green body from uniform, small particles is the ideal starting point for this.

3. Improved marginal fit: The marginal fit of a final dental restoration is dependent on the predictability of the sintering process. If the sintering shrinkage is consistent and uniform, the computer-aided design (CAD) can accurately compensate for the change in dimension, leading to a tighter fit. (1)

Although this study specifically examines stainless steel rather than zirconia, the findings confirm the general principle that finer, more uniform powders lead to more predictable shrinkage.

So, what's the easy way to determine if you have true nano scale zirconia?

Just look at the so-called shrink rate, or expansion factor listed with the disk. If it is low, like 1.18 or 1.19, then the zirconia is a truly dense, nano scaled material. If it is 1.24 or 1.25 then the larger grains, and greater number of voids in the disk, is readily apparent.

Certainly not the last word

Zirconia and how we use it is a complex subject. Even the limited number of examples shown here easily suggest colloidal processed zirconia offers superior outcomes to isostatically pressed zirconia.

The objective of this article has been to share with our readers information that can help them understand what is going on in their mills, sintering ovens and labs every day.

There are a large number of studies available about zirconia. Within the guidelines here we've only scratched the surface. Like so many studies we can honestly say, "More studies may be required" to answer specific questions you may have.

Reference

1. Li, Z., et al. (2024). "Characterization of Particle Size Effects on Sintering Shrinkage and Porosity in Stainless Steel Metal Injection Molding Using Multi-Physics Simulation." PMC. pmc.ncbi.nlm.nih.gov/articles/PMC11642630/.

About the Author

Rich Green is the zirconia support manager for B&D Dental Technologies. He's been in the industry for 30 years and has experience as a small lab owner, lead ceramist and line ceramist for production labs. With the advent of automation and the requirements because of the adoption of this new technology, Rich finds ways to leverage materials and marketing to help labs position themselves in a highly competitive marketplace.

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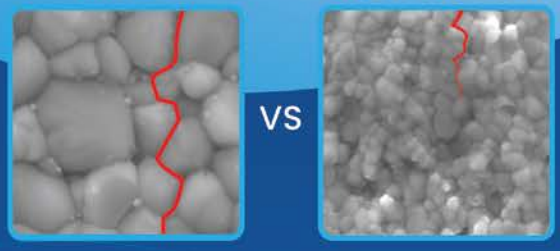

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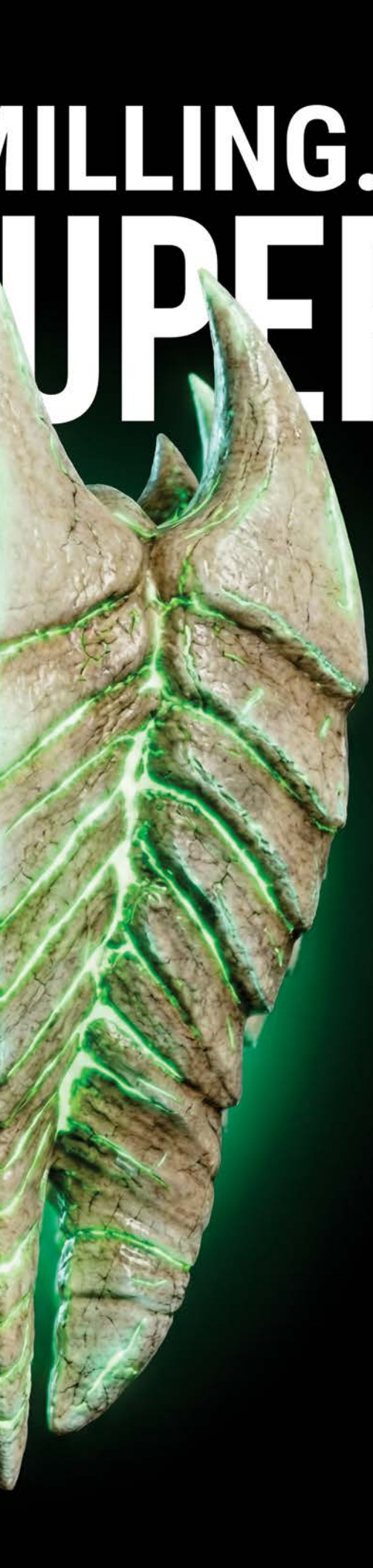

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By Chucri Chemali, TPAD, DTG

MICRO-LAYERING OF THE ZIRCONIA FRAMEWORK ON THE PANTHERA FUSION BAR

INTRODUCTION

The past decade has brought a major evolution in dentistry, impacting both the materials and techniques used in dental laboratories. Moving from entirely manual tasks to new digital and robotic advancements, our workflows have become more efficient and, above all, significantly more precise.

Figure 1
The Panthera Fusion Bar: The Titanium Bar and the Zirconia Framework. (Framework design by Hugo Hebert, TPAD and Jeffrey Dugre, TPAD)

Panthera Dental is a globally recognized and respected dental company whose leadership has successfully embraced this wave of evolution and innovation. Dozens of qualified engineers, dentists and dental technologists have joined forces to offer patients long-lasting, high-quality and superior precision solutions. Among these is the Panthera Fusion Bar (PFB), which addresses a significant need for edentulous patients.

The PFB consists of a titanium bar that supports a full-arch zirconia prosthesis, thereby reducing the risk of fracture of the full arch itself (**Fig. 1**).

In this article, we will focus solely on the micro-layering and finishing of the zirconia framework. The micro-layering techniques presented below are compatible with the majority of ceramic systems currently available on the market. GC Initial ceramic kits were used for the following case.

MATERIALS USED IN THIS ARTICLE:

- The Panthera Fusion Bar: consisting of a titanium bar (anodized gold) and a zirconia framework, milled using Vita YZ® ST zirconia, shade A2.
- Liquid ceramic: GC Initial® IQ Lustre Paste ONE and GC Lustre paste Gum Shade.
- Micro-layering ceramic: GC Initial Zr-FS and GC Initial Zr Gum Shade

ADJUSTING THE ZIRCONIA FRAMEWORK

Once the prototype is tried and adjusted in the patient's mouth and the function and esthetics of the final restoration have been approved on the prototype, the zirconia framework is then milled as an exact copy of this prototype. A 0.5mm cutback is applied at the mid third and incisal third of the teeth in the esthetic area. Micro-layering that area will give the final restoration a much more natural aspect given the depth and interaction with light (**Fig. 2**).

Figure 2
Zirconia framework with minimal reduction in the middle and incisal thirds. (Framework design by Hugo Hebert, TPAD and Jeffrey Dugre, TPAD)

Figure 3
Foundation bake result after firing.

STEP-BY-STEP PROCEDURE OF THE MICRO-LAYERING TECHNIQUE

1. **Foundation bake:** a thin wash bake using liquid ceramics (GC Lustre paste One in this case) is performed to create both a solid bond with the zirconia framework and achieve the desired chroma and internal effects in respect of the shade of the final restoration.
2. **Chromatic powders application:** In this case, GC Initial Zr-Fs was used to create volume in the cutback area and achieve the desired chroma and internal effects of the final restoration.
3. **Enamel powders application:** In this case, GC Initial Zr-Fs was used to finalize the shapes and surface textures. These powders are carefully selected to control the value and opalescence of the final restoration.
4. **Natural glazing and hand-polishing.**

1. Foundation bake:

A thin layer of liquid ceramic is applied to the gingival two-thirds of the crown to achieve the desired shades and chroma. Purple and bluish effects are applied to the incisal third to absorb light, mamelon effects to reflect light and finally, different shades of pink in the gum area observing a variation of nuances in respect to nature: darker pink shades between the roots, lighter at the marginal or free gingivae, and more bluish toward the vestibular area (**Fig. 3**).

2. Chromatic powders application:

A micro layer of chromatic ceramic powders is applied in the cutback zone following the same selection of shades and effects as in the previous liquid ceramic step (**Fig 4**).

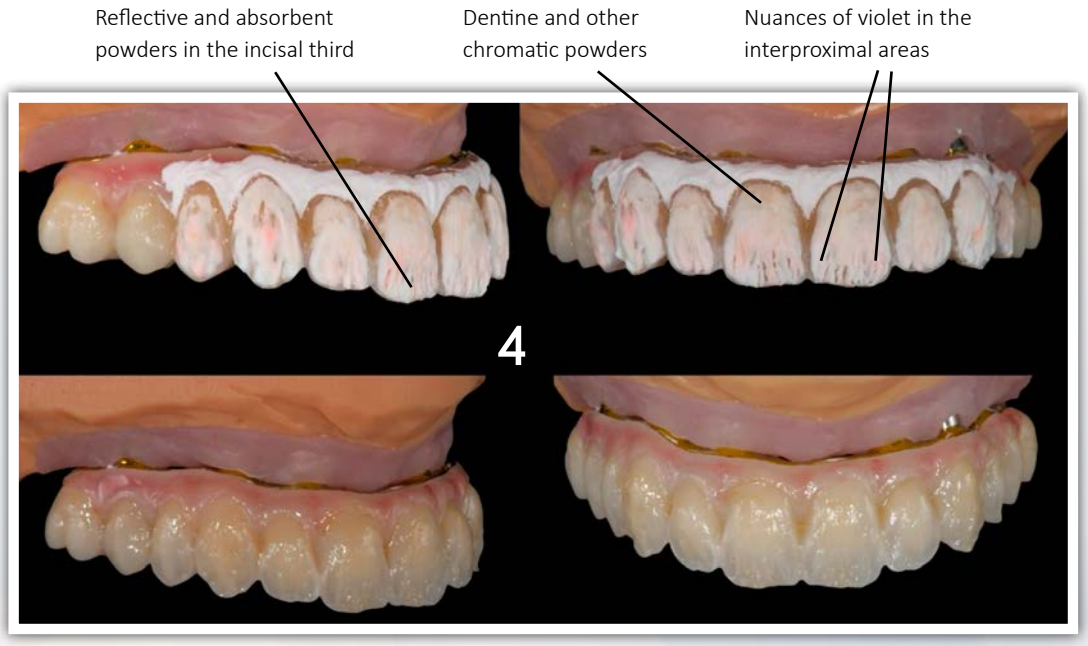


Figure 4
Chromatic powders application and result after firing.

Figure 6
Final volume achieved by applying enamel powders and effects. Application and result after firing.

You can see clearly the chromatic dentin blending smoothly into the incisal third where absorbent blue violet on mesial and distal together with reflective mamelon effects react with the light getting the restoration to a high level of natural esthetics (**Fig. 5**).

3. Enamel powders application:

A micro-layer of enamel and opalescent ceramic powders with nuances of translucencies according to the final result look to complete the shape and surface texture.

Gum area: different pink ceramic shades (dark, light, orange, and bluish pink), all non-fluorescent powders, are applied in the gum area as a very thin micro-layer. GC Initial Zr Gum Shade is used for this case.

As the gum surface did not have any reduction in the zirconia framework, this step remains optional, and the restoration can be finished with only the liquid ceramic coverage of that particular area (**Figs. 6-8**).

Figure 8
Comparison between the internal chromatic effects on Q1 and the final shaping with the enamel effects and pink porcelain on Q2.

4. Natural glaze and hand-polish:

The restoration is completed with the bake of a thin layer of glaze paste followed by a manual polish of all the surfaces to enhance line angles and surface textures (**Fig. 9**)

CONCLUSION:

The dental technologies we have at our fingertips and on our computer screens enable us to offer our patients the very best. PFB is no exception.

The Panthera Fusion Bar is an ideal solution that combines strength, comfort, hygiene, biocompatibility, function, and high aesthetics to satisfy dentists and, above all, their most demanding patients.

The thin layer of ceramic applied in micro-layers in the esthetic area significantly improves the final result of the restoration and helps achieve harmony with natural teeth.

ABOUT THE AUTHOR

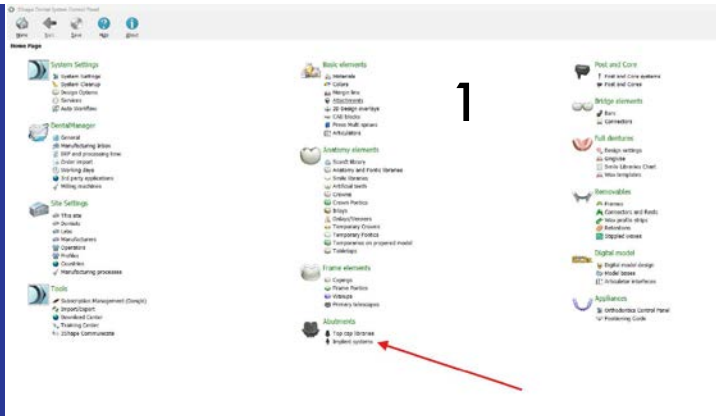
M Chucri Chemali TPAD, DTG, graduated from the dental technology program at Edouard Montpetit College, Montreal Canada, in 1994. Chucri managed a private dental laboratory in a reputable dental clinic where a close collaboration with dentists and patients allowed him to develop his techniques to fully meet and satisfy their expectations. He started Chemali Dental Laboratory Inc. in 1999, offering high quality and esthetic ceramic restorations. M Chemali is an official member of the Dental Technician Guild DTG, the Canadian Key Opinion Leader for GC America Inc., the Canadian Key Opinion Leader for MPF Brush Co., the founder of the Canadian DTG Study Club, the former vice-president of the Dental Technician Order of Quebec-Canada and the recipient of the 2019 Quebec Inter-professional Council (CIQ) award.

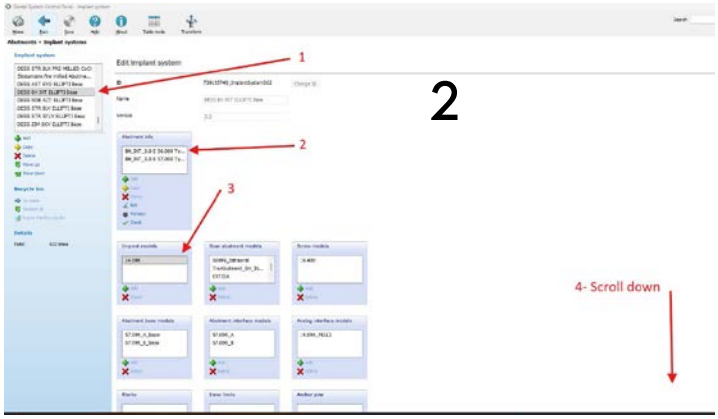
Figure 9
Demonstration of all steps starting with monolithic liquid ceramic (13 and 15), followed by the internal chroma and internal effect powders (12 to 9) and the final shape after glaze and manual polishing (8, 7, 6...).

By Tanya M. Ramirez

IMPLANT KIT SWAPPING: Modern Solutions to Modern Problems

You have a doctor who submitted an intraoral scan using a DESS scan body, but you want to manufacture the custom abutment through TruAbutment — all while maintaining a completely digital workflow. But, how? This issue's Tech Tip answers with a step-by-step guide on how to perform the Kit Swap workflow.





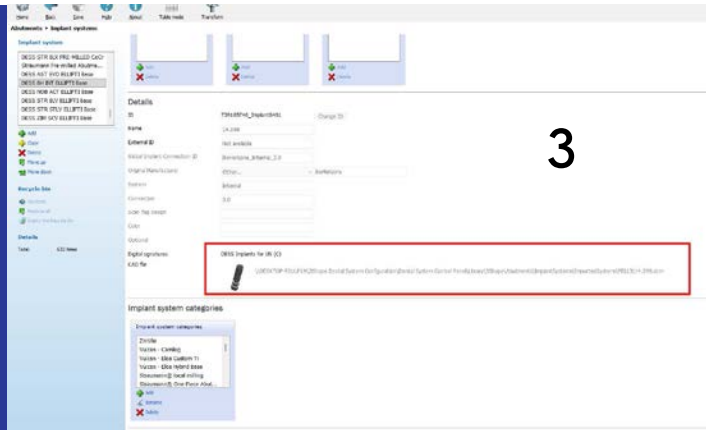
To demonstrate this, we will use a BioHorizons Internal Hex 3.0 custom abutment for tooth #8 and kit swap between DESS and TruAbutment. The steps are as follows:

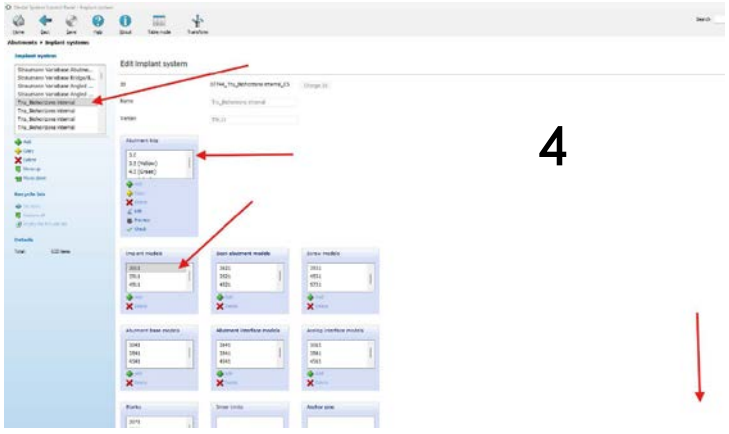
Step 1- Verify

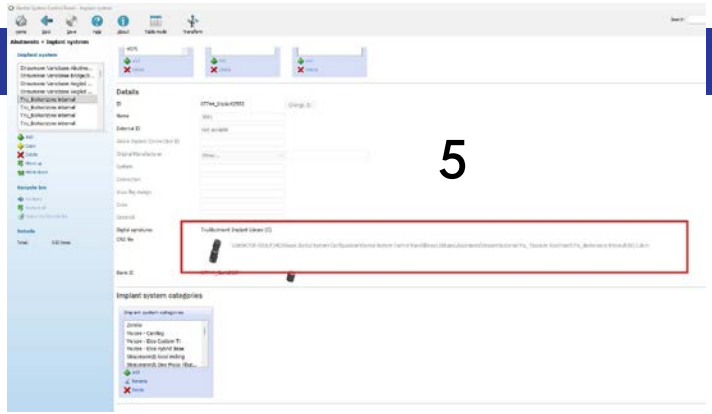
Confirm the alignment between both analogs. This critical first step is important because not all platforms will correspond with one another. Some libraries will deviate up to 30 degrees when the interfaces are misaligned.

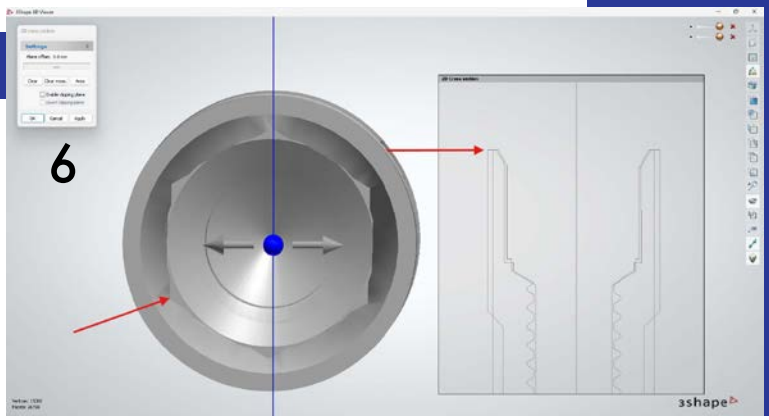
1. Go to 3Shape Control Panel > Implant Systems > DESS BH INT ELLIPTI Base (**Fig. 1**).
    a. First, find the file path to the folder that holds an image of the analog by selecting the reference number in the Implant models section (**Figs. 1-2**).
    b. Then, scroll down the page to the Details section and locate the file path of the folder containing the analog. Do not close out the Control Panel (**Fig. 3**).
    c. Once located, open in 3Shape 3D Viewer and minimize the window.
    d. Next, go back to Control Panel and repeat Steps A-C for the TruAbutment analog **(Fig. 1, Figs. 4-5**).
    e. Now with both analogs available, position the interface of both analogs to an occlusal view and verify that the head of the analog and the hex (interface) are in alignment by using the 2D cross section feature (**Fig. 6**).

Note: While sizes may vary between companies, what's important for this process is that the head and the interface of the analogs are aligned.









f. Once you've confirmed a positive alignment, you can close out the Control Panel.

Step 2– Convert

Now that you've verified a positive alignment, it's time to convert your intraoral scan from DESS to TruAbutment.

1. Go to 3Shape Dental Manager > New Form
   a. Select tooth #8 and choose the Abutment feature.
   b. In the System search bar, type "DESS BH INT ELLIPTI Base."
   c. In the Kit search bar, select either option.
   d. At the top, right-hand corner in the Scan Settings, change the Object Type from Model to Digital Impression.

Note: By choosing "Digital Impression" it allows you access to align the scan body in Design and create an encoded implant position.

   e. Next, click OK.
   f. When back in Dental Manager, RIGHT click on the file created and select Import scan.
   g. Choose the Preparation arch and Abutment Alignment Arch of intraoral scans received from the doctor.
   h. Once imported, RIGHT click and select Design.
   i. In Design, skip to the Segmentation section to expedite the abutment alignment process.
   j. Verify that the implant information is correct.
   k. Choose 3-point alignment and align the scan bodies.
   l. Save and Close the design window.

Note: A message window will pop up once you've closed out stating: "The design module did not make any output files", but that's not true. It saved the encoded file that you will find when you follow the next steps.

   m. RIGHT click on the file > Advanced > Explore Order > Scans.
   n. RIGHT click on the Preparation Scan, select copy, paste it onto your desktop. This scan serves as your "Abutment Alignment Scan" when importing scans in the next step.

Step 2– Convert (continued)

2. Create a second New Form
   a. You will repeat Step 1.A, by selecting tooth #8 again and choosing the Abutment feature.
   b. This time, in the Category search bar, you type: TruTitanium Abutment.
   c. In the System, you choose: Tru_BioHorizons Internal.
   d. In the Kit, you choose: 3.0.
   e. At the top right-hand corner in the Scan Settings, leave the "Object Type" as Model. Doing this communicates with the software that you'll scan in the necessary implant coordinates, which we've tricked the system into believing we've already done in the prior file.
   f. Click OK.
   g. RIGHT click on the file > Import Scan > select the folder your doctor submitted and grab only the Raw Preparation, Raw Antagonist and Bite files (if applicable). When the system asks for the Abutment Alignment Arch, you go to your desktop and select the Preparation Arch scan that we just pasted.

Step 3– Design

Finally, design the file you just imported scans into. When you get to the Segmentation section, you'll notice the implant coordinates are already there! Kit Swap completed.

Citing Sources:

Minh Tran, ThursdayTechTip post in Facebook 3Shape Study Group, December 23, 2023

About the Author

Tanya M. Ramirez is a dental graphic designer, specializing in All-On-X and complex implant cases. With 25 years of dental experience, both chairside and laboratory, and serving in the United States Navy, Tanya leads the CAD/CAM Department as manager with 4Points Dental Designs in St. Petersburg, Fla. where they live in their home. In their spare time, they paint murals, dj afro- latin funk, love hiking and cycling.

FDLA Board Nominations – Now Open!

FDLA is looking for volunteers to give back to the industry and is currently seeking the following professionals and industry partners to serve in leadership positions:

1) Director

Must be an active member of the association. Each term on the board is a one-year term, and a board member can serve up to three years consecutively in a director position.

2) Supplier Representative (Two-year term)*

*Must be an active Associate or Business Partner member

FDLA Time Requirements

Service on the FDLA board requires attendance at approximately four board meetings a year. February, June (in-person during the Symposium & Expo), September and December.

Below: FDLA Board of Directors installation ceremony in 2025.

New board members would be elected on Friday, June 5, 2026, and would serve at least a one-year term on the FDLA state board. (Supplier Representatives serve one (1) two-year term.)

SPECIAL NOTE: Outside of the board meeting held in conjunction with the Southern States Symposium & Expo, all other meetings are held virtually.

To be considered, please complete the survey below on or before Monday, April 20.

https://s.surveyplanet.com/djmv9l33

Two Ivoclar Legends Retiring End of Year

With almost 50 years of service to Ivoclar combined, these industry experts will be missed.

Gary Osborn, CDT has over 40 years experience as a dental laboratory technician and educator. After his retirement from the Air Force in 2004 he joined Ivoclar as a Technical Consultant working in the Technical Services and Education Department. He has been with Ivoclar for 21½ years. He said, "It has been a pleasure to work at Ivoclar for over 20 years. Meeting and working with dental professionals all over North America has been a rewarding and fulfilling career."

Jeff Smith, CDT has over 45 years of experience as a dental laboratory technician, manager and educator. Prior to joining Ivoclar, Jeff taught at the Department of Defense Dental Laboratory School at Sheppard Air Force Base, Texas. He is currently the Director of Technical and Digital Services Department where his primary responsibilities include Education, Product Support/ Troubleshooting, and Research and Development. He has worked at Ivoclar for 26 years. Smith said, "It's been my sincere honor during my time at Ivoclar to have trained, supported and developed lasting relationships with many talented technicians around the country."

SafeLink Consulting Introduces HIPAA Review Service Tailored for Dental Laboratories

SafeLink Consulting, Inc., a nationally recognized compliance consulting firm, announced the launch of a new service: HIPAA Review for the Dental Laboratory. This offering enables dental labs to systematically assess and enhance their HIPAA compliance — an increasingly important dimension of risk management in the dental industry. Dental laboratories routinely handle protected health information (PHI) but may not always realize the full scope of obligations under the Health Insurance Portability and Accountability Act (HIPAA). Drawing on SafeLink's long-standing expertise in OSHA, FDA, and HIPAA compliance, the new review service is designed to help labs close gaps, strengthen documentation and processes, and align their operations with privacy and security best practices.

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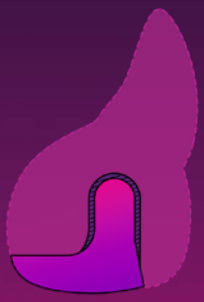

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A Natural Next Step

Richard Wodzinski, CDT, RG, DTG *is the owner and operator of Clearwater Dental Prosthetics. He works closely with dentists and their teams to create high-quality restorations that help patients regain confidence in their smiles. Wodzinski grew up in the dental industry—it's been a part of his family for years—so it felt like a natural path for him to pursue.*

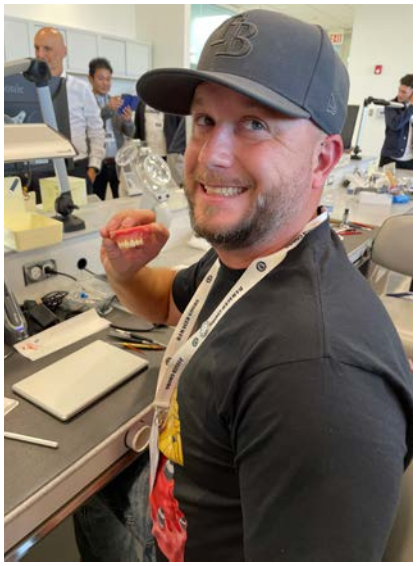
He said, "What I love most about this profession is knowing that the work we do directly impacts people's lives. Seeing a patient smile after receiving their new teeth never gets old." Wodzinski shares more about what the FDLA means to him.

Why did you decide to join the FDLA Board of Directors?

I decided to join the FDLA board of directors because I wanted to contribute to the growth and advancement of our profession. The FDLA plays such an important role in education, advocacy and connection within the dental laboratory community, and I felt it was a great opportunity to give back and help shape the future of our industry. I've benefited so much from being part of the FDLA community over the years – the resources, networking and support are incredible. Joining the board felt like a natural next step to get more involved and help others experience those same benefits.

How does the FDLA provide value to members?

The FDLA gives members a place to learn, connect, and stay ahead. Between the continuing education courses, networking events and industry updates, members have access to tools and information that directly help their businesses grow. Plus, being part of a community that supports and advocates our profession makes a big difference.



There are a lot of meetings and ways to earn CE. In what ways does the Symposium stand out?

The FDLA Symposium stands out because it brings the entire dental laboratory community together in one place. It's not just about earning CE credits – it's about connecting face to face with peers, vendors, and industry leaders. The energy, networking, and hands-on learning opportunities you get at the Symposium go far beyond what you can experience in a typical meeting or online course.

Why should others get involved in the association and its leadership?

Getting involved in the association and its leadership gives you the opportunity to make a real impact on our profession. You gain insight into the issues shaping our industry, have a voice in important decisions, and help ensure the future of dental technology in Florida stays strong. It's also a great way to grow personally and professionally through collaboration and leadership experience.

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Introducing...

CERABIEN MiLai

Micro-Layering Porcelain System for Zirconia & Lithium Disilicate

"The Simplest Micro-Layering Technique for All-on-X Restoration"

Sean Han, CDT

Thursday 2/19/2026
1:00pm - 4:00pm / Lecture and Demo / 3 CDT Credits
Grand Hall G, East Tower, Ballroom, Gold Level

This course introduces a simplified approach to achieving high-end esthetic results for All-on-X and full-arch zirconia restorations using MiLai, a new low-fusing esthetic ceramic system.

LMT labday CHICAGO 2026

Join us for lectures and a panel discussion in Grand Hall G, East Tower, Ballroom, Gold Level.

Grand Hall G	Sean Han	Sung Bin Im	Sean Park	Jean Chiha	Naoki Hayashi Joined by all Distingished Panelists*	David Park
Thursday 2/19/26	1:00pm - 4:00pm					
Friday 2/20/26		9:30am - 10:30am	11:00am - 12:00pm	12:30pm - 1:30pm	2:00pm - 3:00pm	3:00pm - 4:00pm
Saturday 2/21/26	2:30pm - 3:30pm		1:00pm - 2:00pm	9:30am - 10:30am		11:00am - 12:00pm

* Panel Chair:
Naoki Hayashi
Panelists:
Sean Han
Sung Bin Im
Sean Park
Jean Chiha
David Park
Moderator:
Edgar Munoz

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