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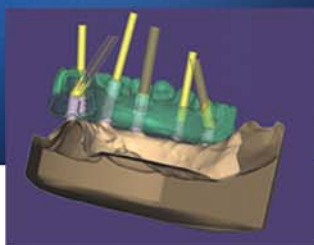
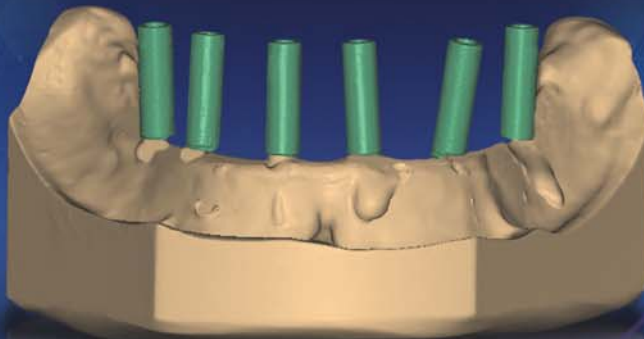


ENGINEERING IMMEDIATE PROTOTYPES:

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Finding New Opportunities

Running a business through a global pandemic is something none of us have experienced before. We have all been faced with totally new situations and we had to deal and grow with them.

Many of us have gone through the hurdles of closed dental offices for multiple months and not getting any cases. We have experienced the fear of how to survive as a business owner and the realization of the responsibilities we have to our team who is like family to us. All of this combined in a very condensed time is all very new to us.

When faced with new situations and relatively similar issues across the globe, we all are able to look for new opportunities.

Looking within our own four walls, business came back and as far as I know, most of us are very busy. I hope we can sustain this flow for a long time and business will run smoothly into this new normal.

Looking into wider areas, let's look at continuing education where things got really difficult. How do we further educate ourselves when we cannot attend conferences and educational courses? Over the last several months, we have spent time attending webinars and on-demand courses. How about attending our statewide or even national conferences that we were used to attending for networking and meeting friends and colleagues?

Well, these will have to wait for a little while, at least until things are safer and more clear.

We, as your FDLA board, were creative and planned a Virtual Symposium together as a replacement for our cancelled Southern States Symposium in May. We were able to engage first class keynote speakers and on-demand specialty courses.

We hope you were able to participate in the Virtual Symposium and enjoyed the opportunity to share knowledge and gain new skills. We look forward to meeting in person in the near future.

Alexander Wünsche, CDT, ZT

FDLA President



When faced with new situations and relatively similar issues across the globe, we all are able to look for new opportunities.

FDLA Mission

Serving Florida's dental technology professionals as a valued part of the dental team enhancing oral health care.

FDLA Vision

Advancing the individual and collective success of Florida's dental technology professionals in a changing environment.

Values Statement

FDLA's board of directors and professional staff are guided by these principles:

- Integrity
- Leadership
- Recognition
- Safety
- Acceptance
- Innovation

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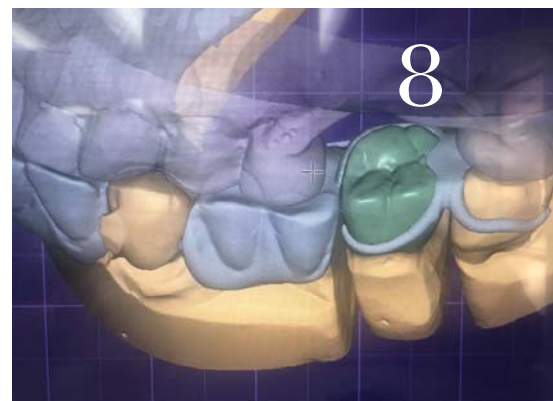
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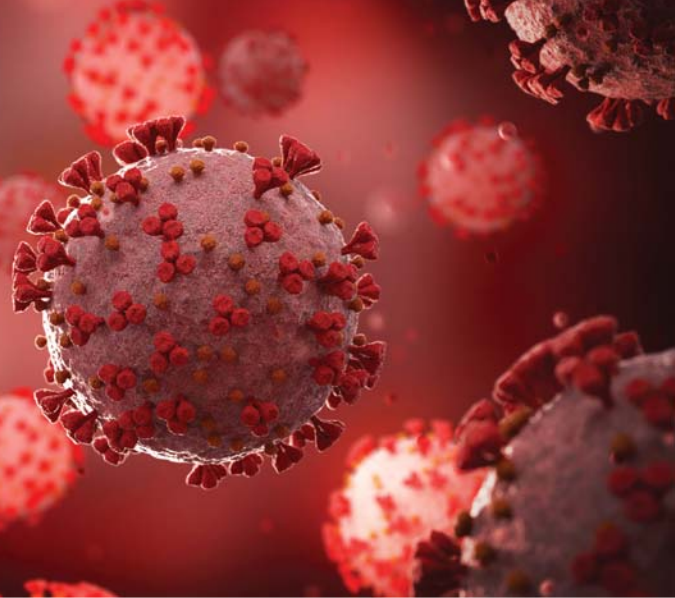
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COVID-19 Resources Available to You



→ SBA Disaster Assistance Available for Florida

For small businesses, small agricultural cooperatives, small businesses engaged in aquaculture and most private nonprofit organizations, the SBA is offering Economic Injury Disaster Loans to help meet working capital needs caused by the Coronavirus (COVID-19).

All 67 Florida counties are included in the disaster declaration for Coronavirus (COVID-19).

SBA Resource Partners information can be obtained on the SBA website at www.sba.gov/local-assistance/find/.

SBA Economic Injury Disaster Loans offer up to \$2 million in economic assistance to help small businesses overcome the temporary loss of revenue resulting from

the disaster. These loans may be used to pay fixed debts, payroll, accounts payable and other bills that can't be paid because of the disaster's impact.

Interest rates offered are as low as 3.75 percent for businesses without credit available elsewhere; businesses with credit available elsewhere are not eligible. The interest rate for non-profits is 2.75 percent.


To apply, visit the SBA Disaster website at <https://disasterloan.sba.gov/ela/>.

The SBA came out with a simplified forgiveness application for PPP under \$50,000.

If you are, or you know somebody in this range, please forward the following link to the article. https://www.sba.gov/article/2020/oct/08/sba-treasury-announce-simpler-ppp-forgiveness-loans-50000-or-less?utm_medium=email&utm_source=govdelivery

→ HR Resource available through Seay Management Consultants

As a valued association member of the FDLA, you have access to a complimentary human resources and employment hotline provided by our partner, Seay Management Consultants.

While specific guidance for employers on how to navigate the spread of the Coronavirus (COVID-19) is challenging with the evolving situation, Seay Management Consultants are able to remind employers that there is still a lot of autonomy to create new policies and procedures (i.e. allowing/requiring employees to stay home). You can reach them at **888-245-6272**. 



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DESIGNING A CROWN TO FIT AN EXISTING PARTIAL

Providing an additional service that helps the dentist and the patient is one of the many goals of the lab to keep everyone happy. Designing a crown to fit an existing partial can help you do that. In this article, we're going to go through the simple process of using Exocad to create a crown under an existing partial in one step.

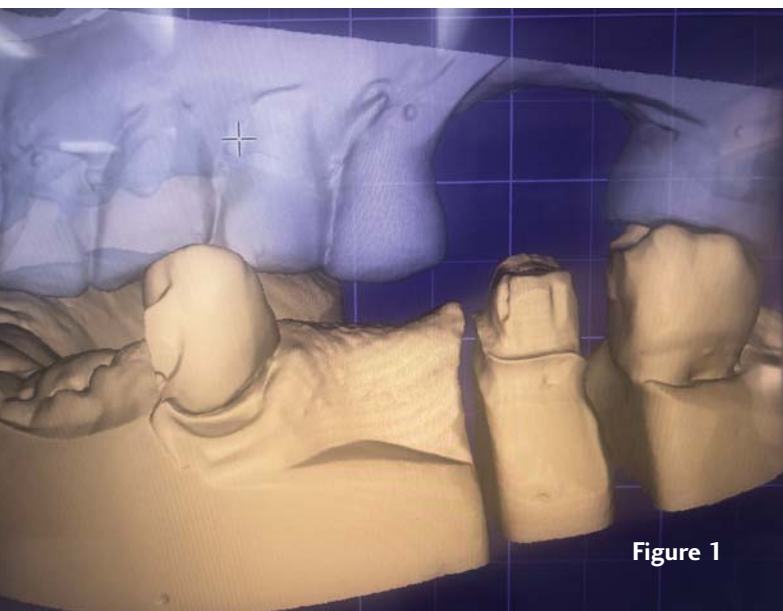


Figure 1

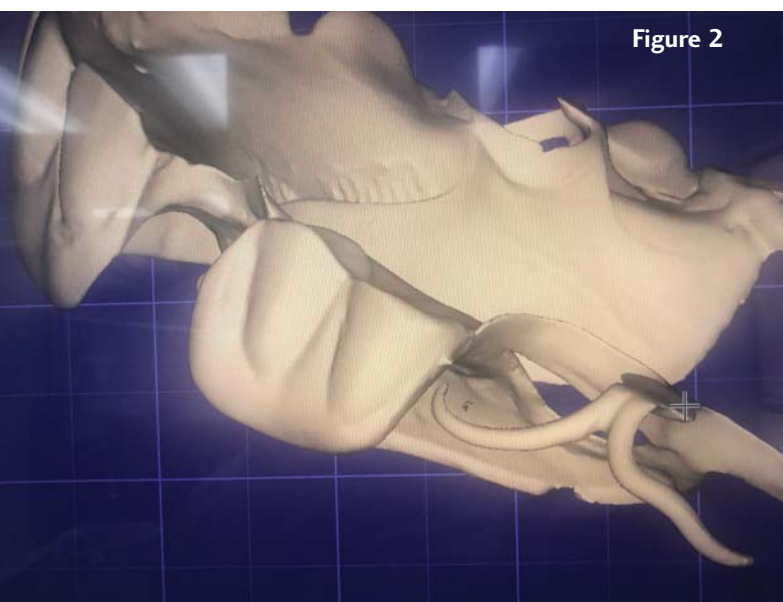


Figure 2

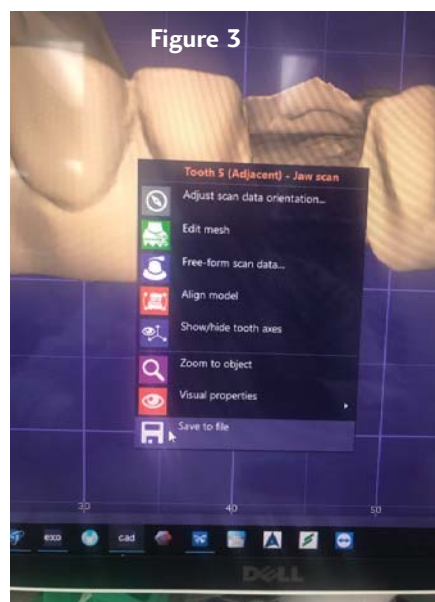


Figure 3

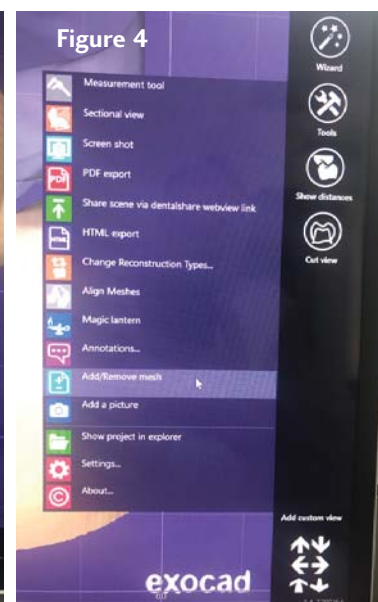


Figure 4

First, scan the poured models into a database as you would any other digital design case. Next, setup a second database and scan only the patient's partial. Use whatever scan spray you use to make sure to get all of the details you need. Designate the scan as an antagonist scan so that it will align the file properly later. Save this file as an .STL file so you can work with it later.

Go back to DB1 and in the tools menu, select add/remove file. This will open an additional menu (add/remove mesh) that will allow for specific files to be imported into the case. Find the button for antagonist and select. This will let you find the file in DB2 to import into your open database, using the same process to align the partial that you would use to align a regular opposing arch.

At this point, everything is in one database and it gets easier. Choose your favorite tooth library to get your design started.

Figure 5

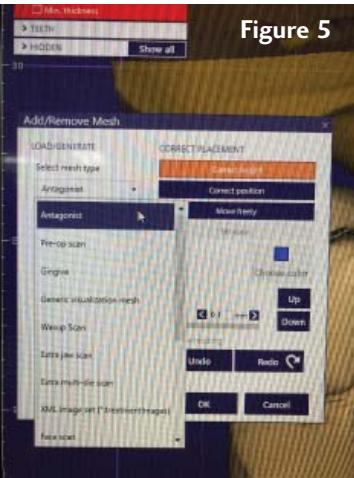


Figure 6

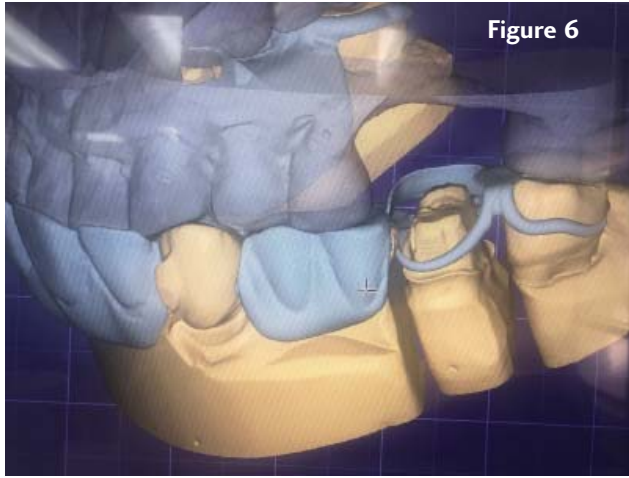
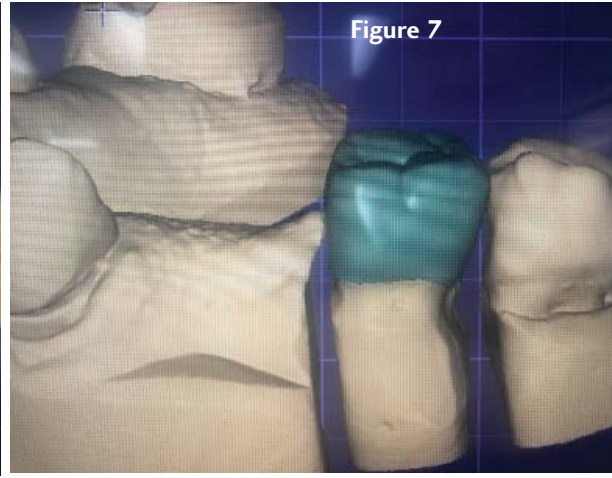


Figure 7



After you have your proposal, you will get to a point where you will use the free forming tool to cut the intersection of the partial and the crown. This is why it's important to save the file for the partial as an additional antagonist scan. Once this is done, you can use the transparency sliders in Exocad to see the relationship between the partial and the crown design. At this point, you can do minor adjustments to the crown to improve the fit, the anatomy, or any other aspect that you might feel needs attention, then move forward to saving the case as ready to send to the mill for fabrication.

At our lab, we have become comfortable enough with this process that we no longer ask for the partial a second time to verify the fit prior to a complete finish and delivery.

Digital design has taken our process to a level that provides a better and more exacting fit. It makes coming to work everyday something that we all look forward to, much like when we were young technicians. [i](#)

About the Author:

Doug Jackson, CDT, started his career in 1973 as a delivery driver and model technician. He became certified in crown and bridge in 1980, and ceramics in 1986. He opened a lab in a dental office in 1987, and soon moved into a separate facility to be independent of the dental practice. He has attended many hours of courses at The Dawson Academy, Pankey Institute and Spears. Jackson has been a director on the FDIA board for many years.



Figure 8

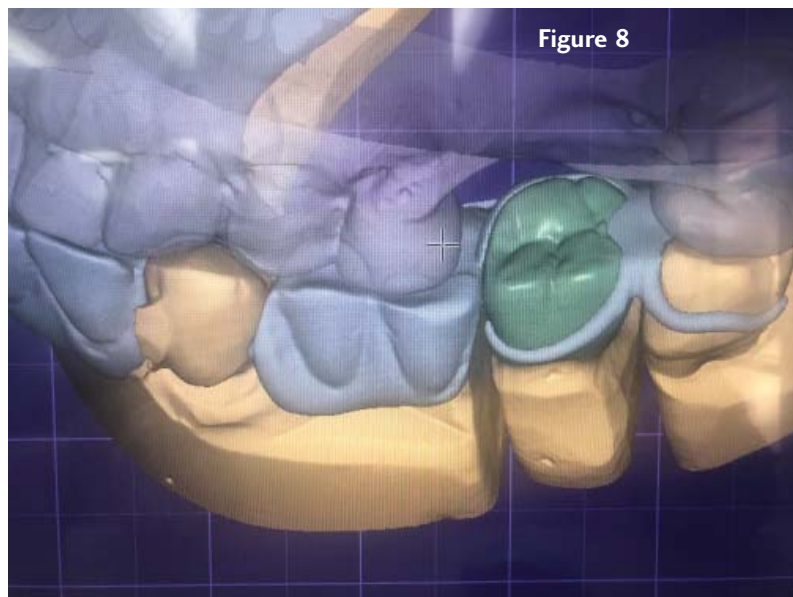


Figure 9

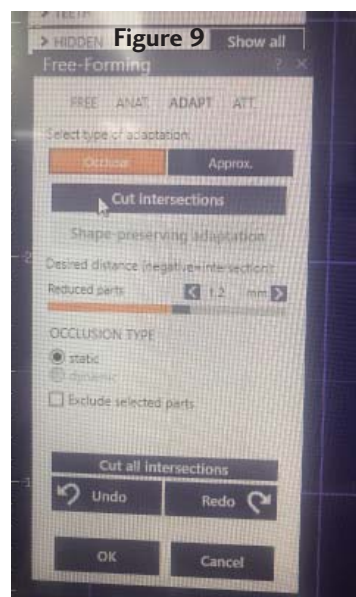
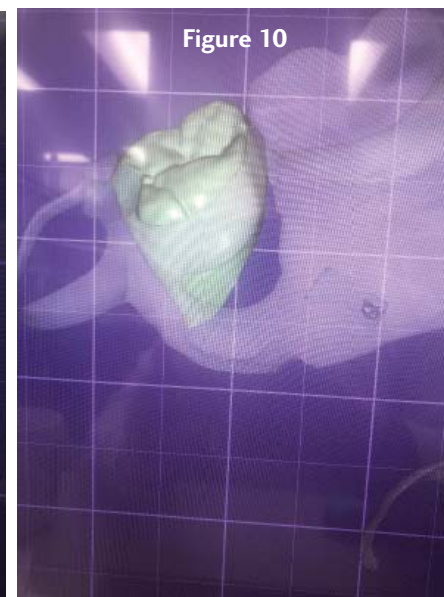


Figure 10



By Nick Glickman

Engineering Immediate Prototypes:

THE BOUTIQUE LAB JOURNEY TO FULL ARCH MARKET LEADERSHIP

THE ADVENT OF CAD/CAM INDUSTRIALIZED DENTAL PROSTHETICS.



M

Modern dental laboratories are forced to compete across international lines in a race-to-the-bottom price war, driven by the conglomeration of human and capital resources.

In large, the dental industry has elected quantity over quality. No longer do technicians operate chairside en masse. The boutique model of custom shade appointments and individual try-ins has been tempered by convenience and immediacy. Today, a file transfer to corporate design and milling centers is the cheapest path to the next patient appointment.

This trend is a reflection of shifting U.S. culture and values. Yet, there still remains an innate drive to promote a quality patient care message. Despite a spiraling trend toward ready-made dental prosthetics, a devotion to our Hippocratic oath permeates deep in our collective subconscious. Quality warriors do still exist among dental laboratories and clinicians, hidden away from the white noise of internet sensationalism.

A striking manifestation of these opposing forces is made evident by the growing number of full arch clinicians building CAD/CAM laboratories, premised on increased quality control, lower cost and immediacy.

From the lab owner's perspective, this dream appears misguided. Requisite technical knowledge of functional tooth setups and manual post-processing largely does not exist inside the clinic.

So, as a lab, why not take advantage of this budding shift towards digital chairside services? The market yearns for full-arch services guided by CAD/CAM lab experts.

We can enter a blue ocean of opportunity by harnessing the power of digital All-on-X treatments

— one of the most demanded and profitable patient services. Mastering the digital full arch marketplace requires the laboratory return to chairside appointments. Assisting with diagnostics and immediate loading, the dental lab is almost guaranteed to take home the case.

This is not a novel business model. But this time around, CAD/CAM technology facilitates unprecedented levels of patient care through marketable lab services.

LEADING THE FULL ARCH TREATMENT PLAN WITH COMPUTER DENTAL DIAGNOSTICS

When tackling a full-mouth reconstruction, it is imperative to establish a sound technical project that mitigates transmission errors between design and placement. Laboratories must strive to understand the functional implications of their occlusal design in relation to a surgical plan, all while managing patient esthetics. Today's digital tools give us the opportunity to control these variables beyond our wildest dreams of yesteryear.

If we consider the old analog approach to full arch rehabilitation, the development of digital dentistry starts to unfold in a logical and meaningful progression.

For example, traditional face bow records were once the best means to engineer a full-arch prototype. Yet chairside adjustment remained a lengthy process, due to transmission errors that occur when registering the face bow recording of an asymmetrical patient on a symmetrical articulator. In short — midlines and occlusion were off despite best intentions.

Yet, the face bow maintained relevance in early iterations of digital dentistry, until the dawn of intraoral scanning. Suddenly, laboratories began receiving digital file packages instead of alginate impressions and bite records. And a new problem arose. When bringing intraoral scan data into a CAD program, the models import arbitrarily into the virtual articulator. So the question becomes — how can we mount digital models into a virtual articulator?

Certainly, we could mill or print the digital models, mount into our physical articulator and rescan the adjusted situation. Alternatively, we can transfer patients one-to-one into a virtual articulator using only digital records captured in a laboratory-driven

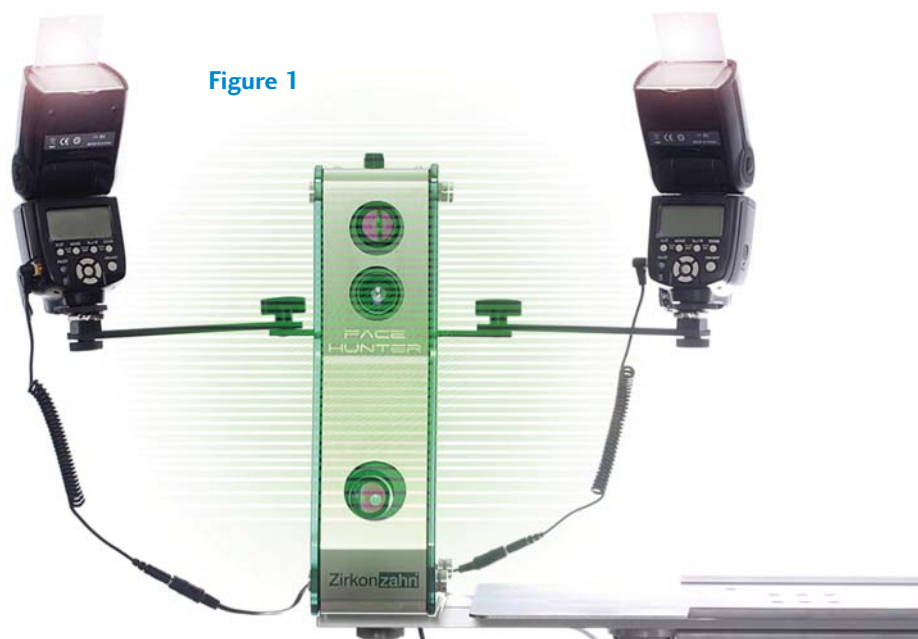


Figure 1

diagnostic service that revolutionizes treatment planning of full-arch implant restorations.

The Zirkonzahn Face Hunter and PlaneSystem give us the opportunity to transfer the patient maxilla into a virtual articulator by means of 3D face scans. With a set of pre-op models and 3D face scans, the dental laboratory can prototype the restorative and surgical plan inside the virtual patient's mouth.

This innovative approach to full mouth immediate prototypes is based on simple geometric principles established by the PlaneSystem and digitized with the Zirkonzahn Face Hunter (Figures 1-2).

The market yearns for full-arch services guided by CAD/CAM lab experts.

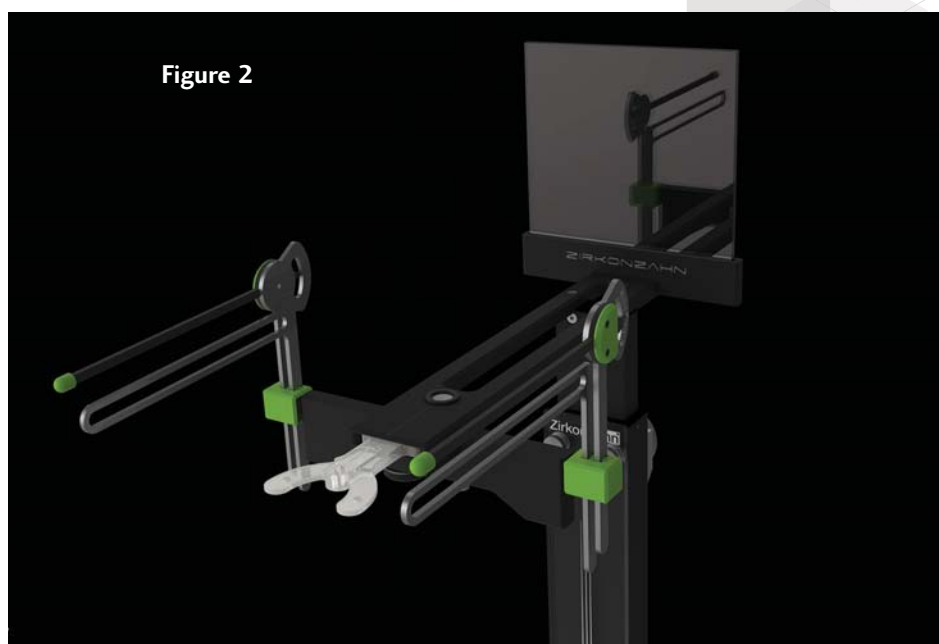


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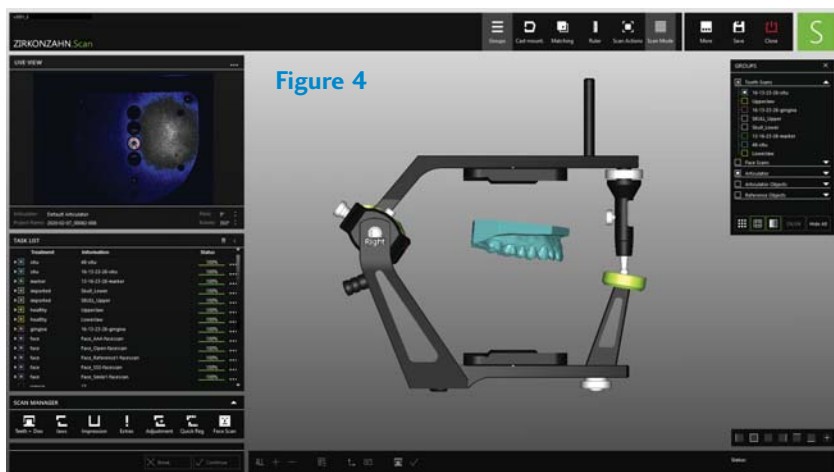
Figure 3



The techno-clinical team will register the patient in a Natural Head Position (NHP) with the Zirkonzahn PlaneSystem to record the patient's absolute midline and individual Ala Tragus plane as it relates to a zero degree horizontal plane (Figure 3).

The NHP reference is then digitized with the Face Hunter and imported into the Zirkonzahn.Scan software — a virtual plaster room. Additional portrait scans are merged to the Face Hunter scan of the patient in the NHP to create a 3D virtual patient.

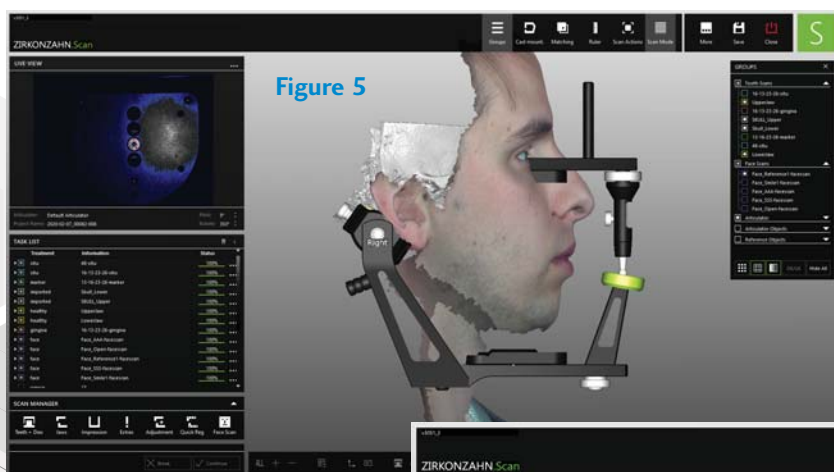
Figure 4



Once the digital models are imported and matched to the face scans, we can initialize an automated cast mounting function within Zirkonzahn.Scan to transfer the maxilla one-to-one into the virtual PS1 articulator. The software prompts us to mark the skeletal midline, masticatory center and Ala Tragus relationships on the 3D virtual patient. These references auto-position the situation models within the virtual articulator (Figure 4).

In addition, we can introduce key reference objects and patient-specific occlusal planes to guide our functional and esthetic prototyping in the design software (Figures 5-6).

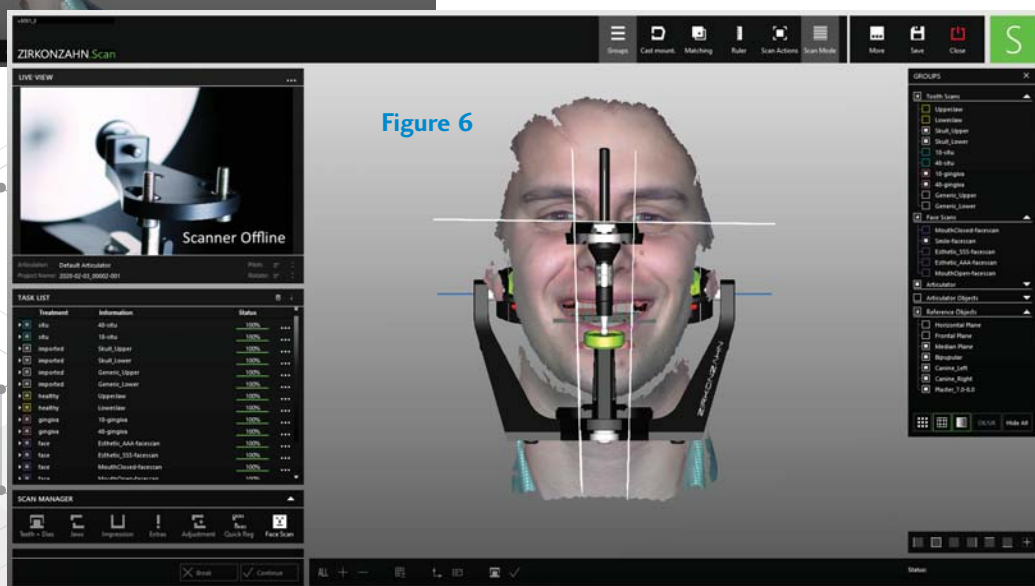
Figure 5



Just like that — the dental technician has complete control over the functional and esthetic evaluations prior to introducing anything into the patient's mouth.

With the technical project established, we can finally proceed with prototyping and surgical planning.

Figure 6



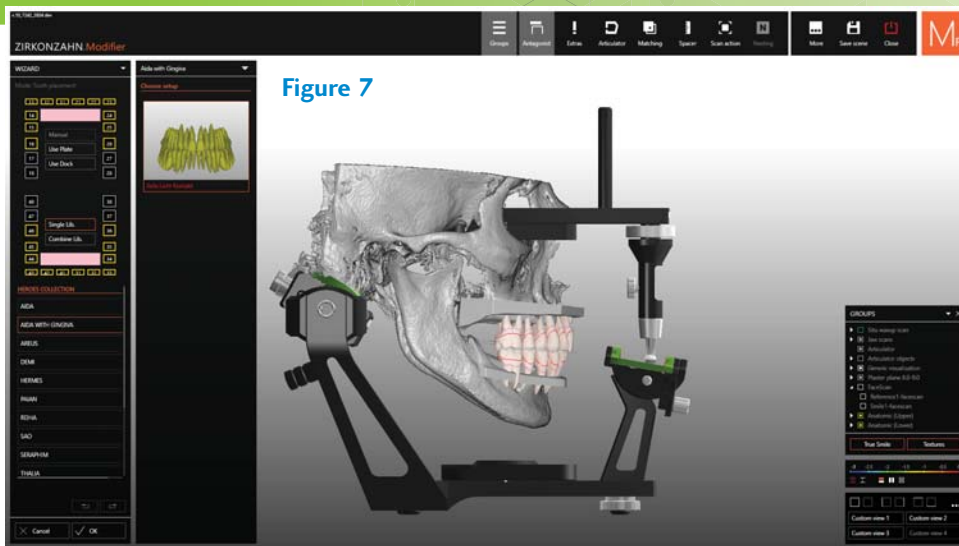


Figure 7

The dental technician has complete control over the functional and esthetic evaluations.

CAD software innovations, such as the Zirkonzahn Modifier software, give us the opportunity to design full mouth setups with increased precision in less time. Intelligent software algorithms like auto-docking can position mounted tooth libraries over the individual occlusal planes determined in the Zirkonzahn Face Hunter and PlaneSystem workflow (Figures 7-8).

In a matter of moments, the techno-clinical team can digitally present patients with an array of functional and esthetic tooth setups. If necessary, we can even mill patients their new smile as an anatomic bitesplint to test drive the functional and esthetic result. Such exercises are further examples of a laboratory-driven service that enhances patient experience on behalf of the clinician (Figure 9).

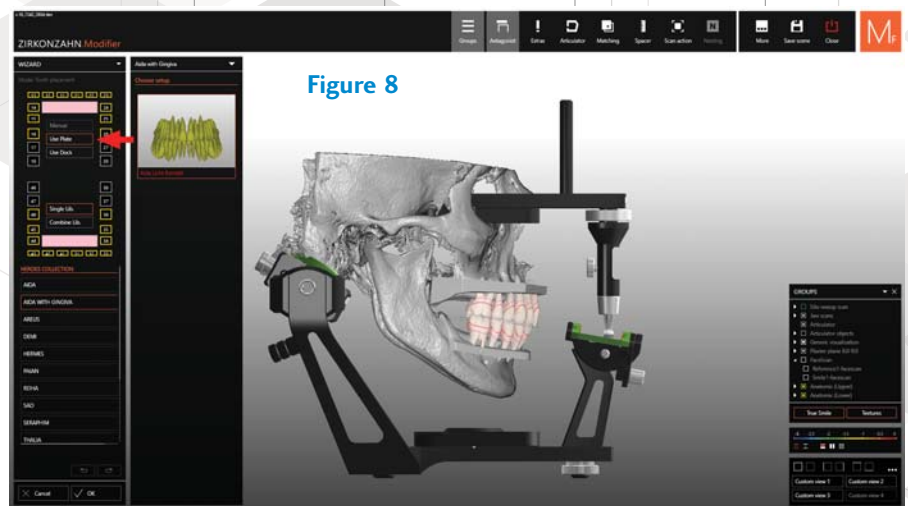


Figure 8

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Figure 9



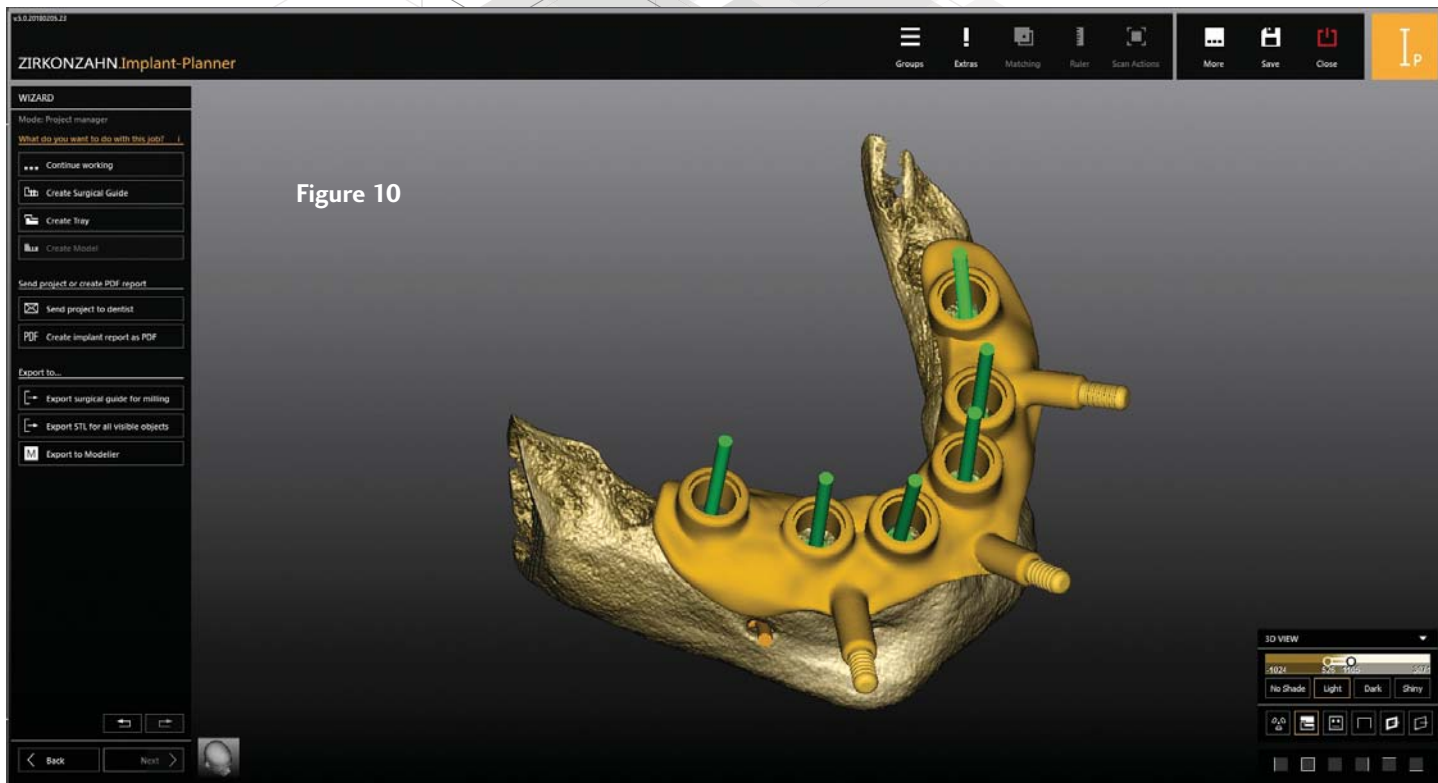


Figure 10

Digital tools provide new frontiers to exceed patient expectations.

Once the prototype is optimally adjusted in the Zirkonzahn Modifier software, the virtual setup is imported into the Zirkonzahn Implant Planner to correlate the restorative necessities with the surgical requirements.

Implant planning software is the closest we have come to eliminate transmission error and bridge the gap between planning and outcomes in immediate therapy. Based on the implant plan, we can mill a surgical guide alongside an immediate provisional. Not only will we ensure maximum stability of our immediate prototype, but we also shorten the chairside conversion process, so the techno-clinical team can move on to the next case in less time (Figure 10).

Through a laboratory-driven process, we can finally lead the treatment plan from a restorative perspective that respects insights from the surgical team—and vice versa. Digital tools provide new frontiers to exceed patient expectations, while increasing case acceptance and chairside efficiency. As technicians, we must take the leap to drive marketable services within the dental clinic to build a following around full prosthetics. [1](#)

ABOUT THE AUTHOR:

Nick Glickman is the education director for Zirkonzahn USA. An expert in digital workflow and business development, he synthesizes technical expertise with market demands to bring new workflow solutions to digital dentistry. Leveraging a background in business consulting, he helps laboratories build new business frontiers with digital workflows through tailor-made education programs at Zirkonzahn education centers worldwide.





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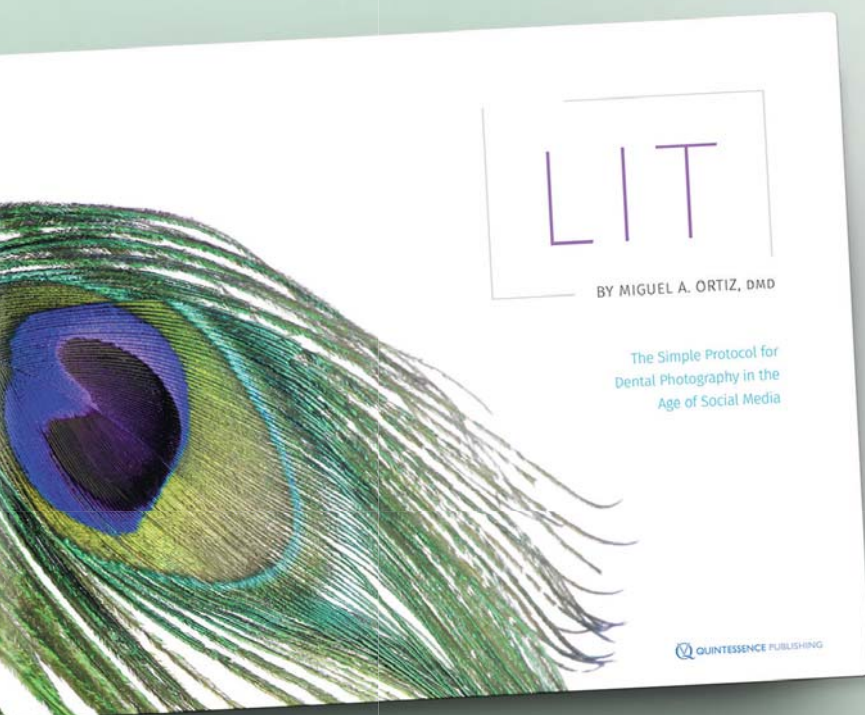
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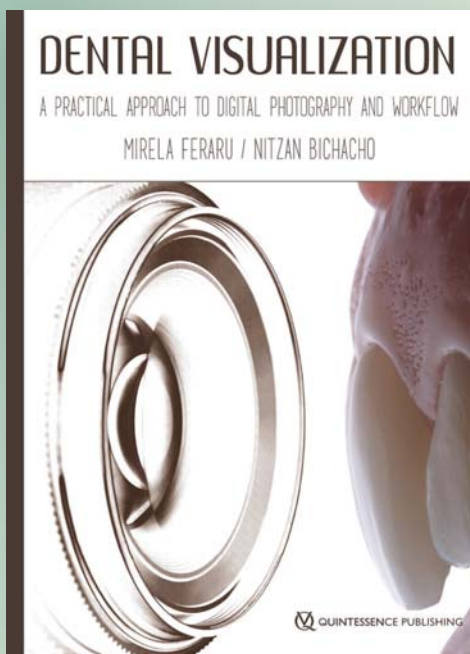
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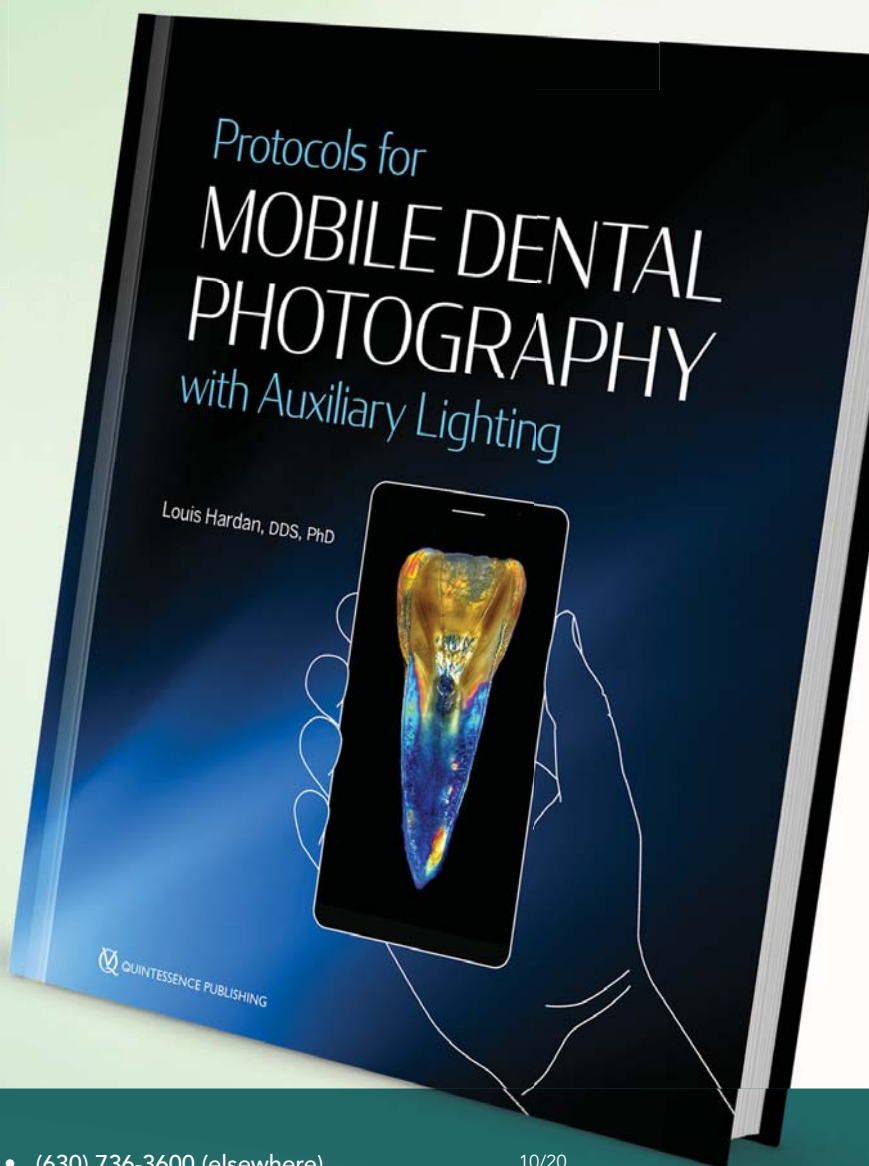
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Achieving a Natural Result Without Layering Ceramics

What a year it has been. With all that has been thrown in our direction, we still show up, put our heads down and fabricate little pieces of art each day. We were scheduled to have a course at the Southern States Symposium back in May, showing how a full contour restoration pairing Cercon xt ML Zirconia with MiYO liquid ceramic or metal oxide stains could be accomplished. The course was designed as a basic introductory course to show the ease of incorporating these ideas into your daily operation. Then, the world turned upside down, plans changed, new strategies were formulated and here we are putting pen to paper, so to speak, in an attempt to explain how you can achieve a natural result without layering ceramics. Bart will start with his one-bake technique using metal oxide stains on a full contour zirconia crown.

Metallic oxide stains come in both powder and paste form.

It is our intent to offer as many options for creating an esthetic monolithic zirconia restoration as possible. The first one we will demonstrate is an anterior zirconia crown characterized with metallic oxide stains. Metallic oxide stains come in both powder and paste form. Some examples of metal oxide stains are Celtra Universal Stain, IPS Empress Universal Stain and Noritake Cerabien Zr external stain. Metallic oxide stains typically fire at a much higher temperature than glass ceramic stains (Ivocolor), ceramic stains (luster paste) or liquid ceramics (MiYO).

There are two particularly good reasons to use metallic oxides. One is that the lab may not have invested in a ceramic stain system. The other is that it is fast because you can stain and glaze in one firing. The fact is that sometimes we find ourselves in a situation where time is more of a factor than we would like. It has been my experience that to achieve a good glaze on a monolithic zirconia restoration it either must be fired at high temperature once or fired several times at low temperature and polished. The reason for this is because zirconia is a poor conductor of heat. Hence, the reason why metallic oxide stains should be used when your desire is to fire only once. Metallic oxide stains can withstand high heat and remain stable.

Since we are trying to create the most esthetic monolithic zirconia crown, it only makes sense to use a multilayer zirconia. The most difficult part of achieving a lifelike anterior mono-zirconia crown is making realistic incisal translucency. That is done for us with the multi-layer zirconia. All that is left for us to do is add the effects. In this demonstration, we are using Dentsply Sirona's Cercon xtML. It has a very gradual blend from gingival to incisal. Plus, Dentsply Sirona did not get carried away with trying to create too much incisal resulting in lowering the value.

The following are the steps in the one bake stain and glaze technique of a monolithic zirconia using metallic oxide stains.



Figure 1

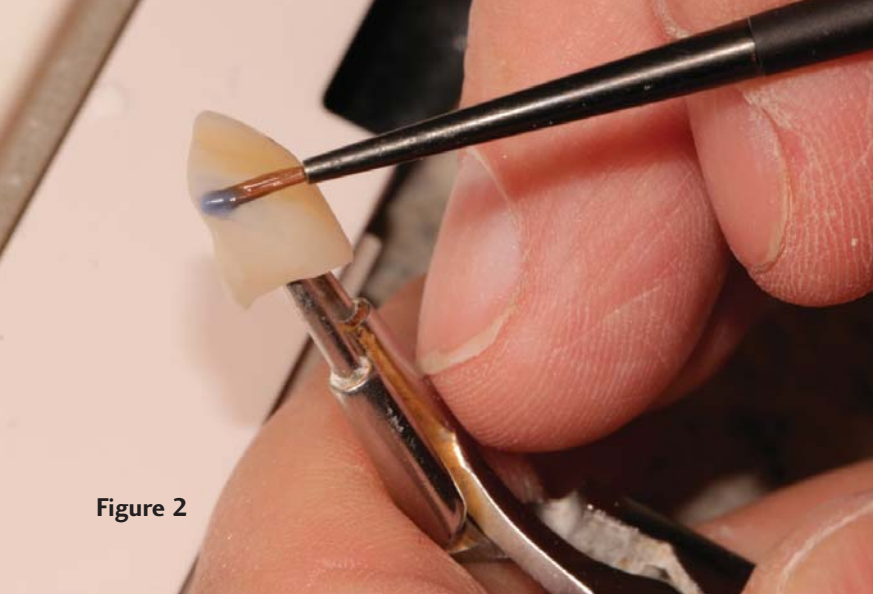


Figure 2

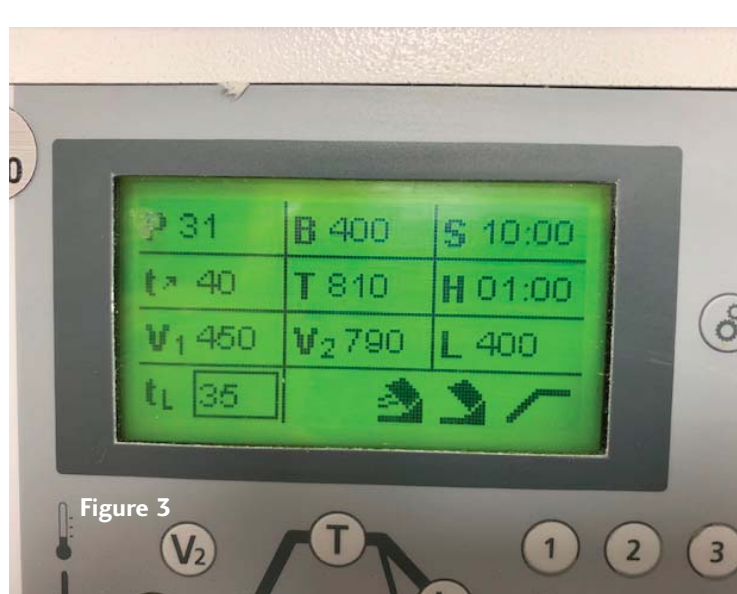


Figure 3

- Lightly sandblast (one bar) the restoration. Steam clean the restoration or put it in the ultrasonic for a few minutes in distilled water. Be sure to dry the crown thoroughly. Water is the nemesis of glaze. I always brush glaze liquid on to the surface prior to glazing. Then I brush it off with a fluffy brush. This serves to clean the surface again as well as reduce surface tension so that the glaze and stains flow smoothly.
- Choose the stains you are going to use (**Figure 1**). In this case, I am going to be a little extravagant in order to show what can be achieved by this technique.
- Mix the glaze to a creamy consistency. It should not drip off the brush. The same is true of the stains. Apply the glaze to the crown first. While the glaze is still wet, apply the stains directly to the crown in the areas as needed (**Figure 2**). You may want to use a serrated instrument to vibrate the crown slightly to give it a smooth appearance.
- When using this technique, a firing range of 790°C to 810°C usually works best. I fire under vacuum and hold for one minute (**Figure 3**). However, in talking to other technicians, I have found that some fire as high as 860°C to achieve the results they desire.
- These steps can be followed by polishing or buffing. The result is in **Figure 4**.

The MiYO liquid ceramic system can seem daunting at first. The idea of floating color and creating depth with a stain was a little outside my box when it was introduced and I have to admit, my kit may have collected a little dust before I cracked it open. What I failed to realize at the time

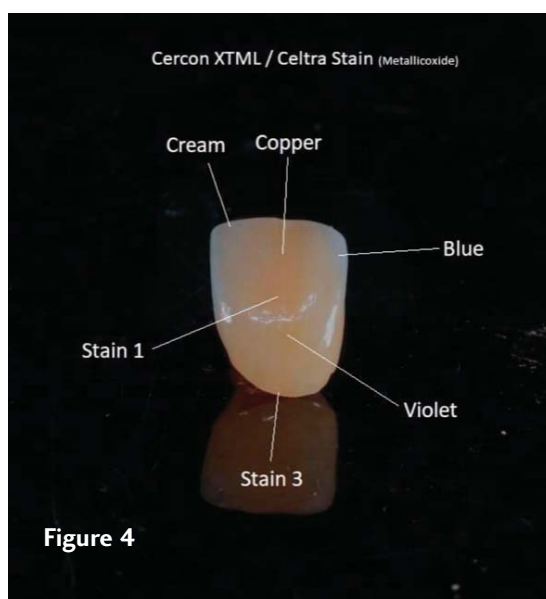


Figure 4

was the beauty of MiYO is in the name itself... Make it Your Own. There are some simple rules to follow such as:

1. Do not use water with the stains.
2. You'll have to spend a few minutes each morning mixing them to reincorporate the particles in the suspension liquid.
3. Follow your firing parameters.

Drying time is key, not only are you drying your stains, but you are warming your substructure as well. The larger the restoration, the longer I will dry it. My oven is set to dry the crown while open for eight minutes at 450°C, then close and soak for an additional seven minutes. Then climb at 45°C per minute to 740°C and hold for one minute under vacuum. With a cooling phase, the program is just under 30 minutes. It's a long cycle, but the deal

Since we are trying to create the most esthetic monolithic zirconia crown, it only makes sense to use a multilayer zirconia.



Figure 5



Figure 6



Figure 7

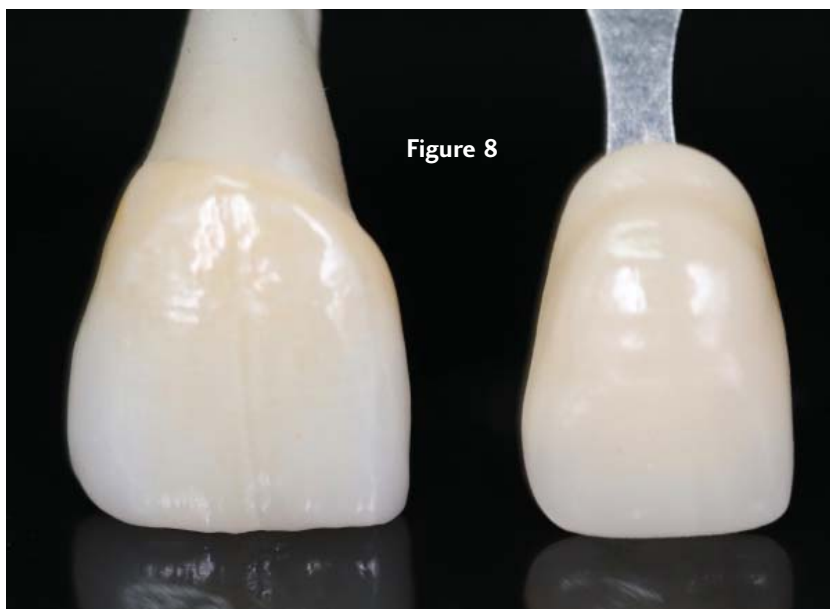


Figure 8

is to fire it once and while it's in the oven, I can get a cup of coffee, check my social media or look for that \$20 lost in the bathroom. All jokes aside, MiYO is not difficult, it's just a different technique and, I would argue, is bringing full contour zirconia crowns into their full potential.

The restoration I will be discussing was milled out of the Cercon xt ML B1 puck (Figure 5). In the green state, I added some texture and that characterization showed up after sintering (Figure 6). When I'm faced with a challenging restoration match, I will do the fine detail in a subsequent firing and then use the structure material to finish it off. In making MiYO my own, I've found I get a better result for those cases, but 90 percent of what I'm actually faced with is the simple A2 with some very minor features that I can accomplish by floating those colors together. The crown as presented is that type of restoration. In Figure 7, you can see the sintered crown pre-stain in relation to an A2 tab. I wanted to demonstrate how easy it is to bring the chroma up, this opens more options in shade matching if you have a tooth with a bright incisal edge and is very warm at the gingival.

You can see where I used the Trans A at the gumline and floated it up through the middle of the restoration—this is after I had lightly covered the entire surface with a thin layer of glaze. Then, I floated some incisal using a mixture of two parts Storm and one part Lumin Plus across the incisal edge gently floating it down fading out before I reached the incisal third. The next step was to add the hypocalcification just above the gum line using a mixture of one part Snow, five parts Linen and five parts Lumin Plus.

Snow is white and opacous, it has been described as nuclear white and left on its own will not look natural. On this crown, the Snow is toned and the mixture is placed on the distal line angle where the gingival third meets the middle third and floated in the crescent shape you see. Then, it is gently pulled up towards the incisal and then into the middle having it fade out from a cleaner line that follows the height of contour. I then used the same mixture to create some craze lines in the mesial and distal lobes by starting just above the hypocalcifications pulling them towards the incisal just inside the line angles. I also floated a thin craze line in the groove that runs down the long axis of the crown. Next, I floated Storm outside of each craze line through the line angle and into the contact area. This creates a subtle contrast and highlights the craze lines and brings a little more

translucency on the edges of the crown. I then placed a tiny amount of Storm on the mesial side of the middle craze line at the incisal and then a small amount of Straw distal on the same craze line at the incisal and pulled it down along the craze line creating another contrast that is a little more subtle than the one before. Now it's time to dry your crown and go look for that \$20. What you see in **Figures 8 and 9** is the restoration after firing. Notice how the texture is present after firing.

The final demonstration will focus primarily on the application of MiYO gingival liquid ceramic. While there are other glass ceramics on the market, there is nothing that I know of that comes close to the MiYO gingival kit. MiYO has greatly reduced the working time of fabricating zirconia hybrids with its ability to replicate natural gingival tissue. The advantage is also in less firings at much lower temperatures than if you were to layer gingival porcelain and if attention is given to texture while in the wet stage, there is little need to use rotary instruments—this, of course, means much less chance of fracture.

For restorations where the gingival is being restored, there is advantage in using pink infiltrating liquid prior to sintering. The next step is where I differ from some of my fellow technicians. I glaze the entire restoration as I would a monolithic zirconia crown. That means that I glaze it at 810°C. Of course, depending on the size of the restoration, I slow the heat rate climb and extend the cool time. For a zirconia hybrid, this cycle is typically an hour (**Figure 10**). This case glazed in about 45 minutes. Glazing the restoration like this also makes it possible to internally stain the tissue particularly the interdental papilla and between the root eminence where vascularity is denser.

Whenever it is necessary, you should map the existing tissue. This way, your restoration will look natural in situ. For this case, I chose the G3 tissue shade on the Celtra gingival shade guide. It is a relatively dark pink. I chose Merlot for the base shade because it is the darkest color in the MiYO gingival system. I chose Rouge Structure as the body of the tissue and Orchid structure for the attached gingival. In almost all cases, I use Frost structure for the gingival margin. I applied a thin layer of Merlot to the entire tissue area while applying it a little thicker in the interdental papilla and between the roots. Immediately, I wet layered Rouge structure over the Merlot (**Figure 11**). Because of the secret liquid, they mix very little unless you want them to. I like to swirl the layers



Figure 9



Figure 10

together in some places because it gives you a very realistic vein effect. It is important to note that the vein effect can also be done with the new Venule material. While still wet, I layer Orchid structure in the attached gingival area as well as run a thin bead of Frost structure along the gingival margin (**Figure 12**).

From my experience with the MiYO material, I find that mixing the material with InSync liquid works

Whenever it is necessary, you should map the existing tissue.

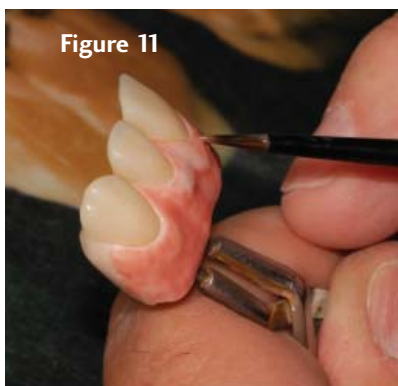


Figure 11

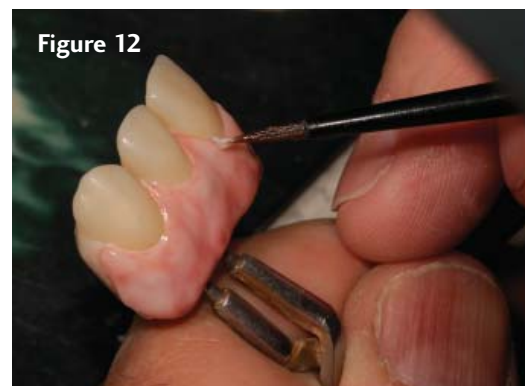


Figure 12



Figure 13

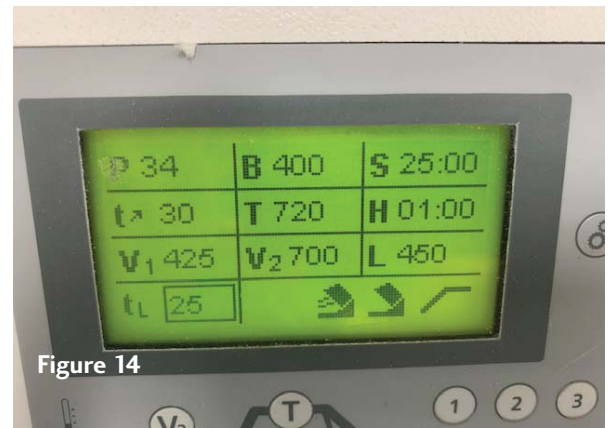


Figure 14

best. Yes, you can mix the colors with water, but the material becomes cloudy. The beauty of MiYO is that the color that your eye sees when you apply it is what your result will be. This is so important when you are trying to match existing dentition. In addition, when I have tried using water with the Structure material bubbles resulted.

At this point, I put any other effects that I am going to use, i.e. Venule, Raspberry, Midnight, Lumin. Allow the restoration to dry, but not entirely. This can be done by putting the restoration close to a heat source such as an open oven muffle or a hair dryer. It is important that the MiYO material retain some moisture so that you can texture the gingival. I find the fan brush provided in the MiYO brush kit to be indispensable (**Figure 13**).

If you spend a little extra time on this step, there will be much less need for rotary tools to finalize the case.

With a wet brush (inSync liquid), clean off any material that may have strayed to the coronal portion of the restoration. Now you bake the restoration (**Figure 14**). Even though MiYO colors can be fired as high as 740°C, whenever the Structure material is fired the high temperature is 720°C (of course, allowance is made for different ovens). This firing cycle required 45 minutes.

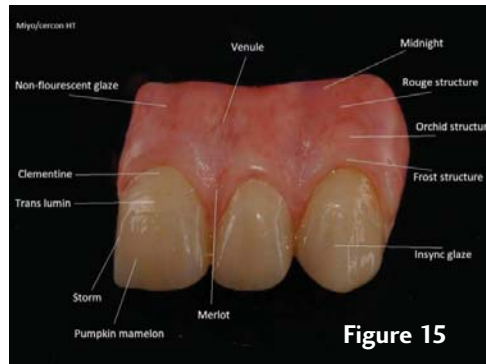


Figure 15

After cooling, some adjustments were made. Primarily, smoothing some areas with a rubber wheel. After thoroughly cleaning, glaze the restoration. If the coronal area needs glaze, use the regular inSync glaze. Use the non-flourescing glaze on the tissue area. You can also add MiYO material if needed in the glaze bake since the material is self-glazing. Use the same program that you used for your first bake (**Figure 15**). After the restoration cools, you may want to polish with Diashine or buff.

We hope you have gained a little insight into how a natural look can be achieved in a full contour zirconia restoration by using some of these techniques. The idea of revamping your process can be a little daunting at first, but once you grasp the technique of floating colors, you can add another method to keep creating those little pieces of art. [i](#)

About the Authors:

Bart Cothran, CDT, is a seasoned lab professional with 44 years of experience as a top-notch dental technician, with 28 years spent as a dedicated very small lab owner. Bart is a hands-on trainer of Celtra Ceram (Dentsply Sirona) and is widely respected by his accomplished peers as a high-end ceramist. He is a proud member of the Florida Dental Laboratory Association, where he serves as board member. He is also a member of the NADL. Bart attended Florida Technological University, where he studied chemistry in the college of natural science.

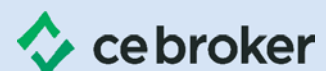


Kevin Krumm, CDT, TE, joined the United States Air Force in 1993, where he was initially trained as a Dental Assistant. After his first duty assignment in 1997, he was afforded the opportunity to train as a Dental Lab Technician, where he continued his career until his retirement in 2013. Once retired, he settled in the Orlando area, where he continues his career at Touchstone Dental Lab.



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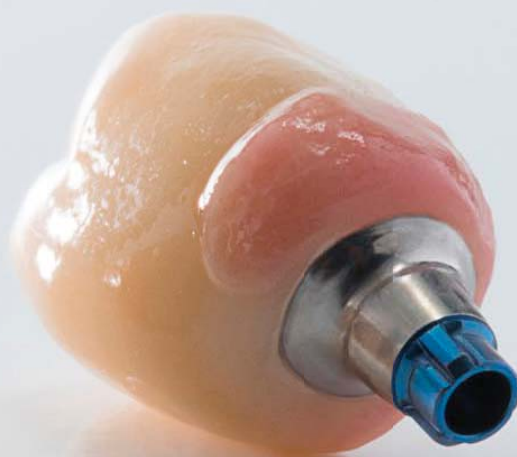
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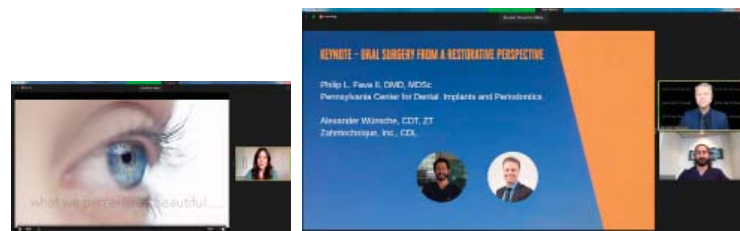
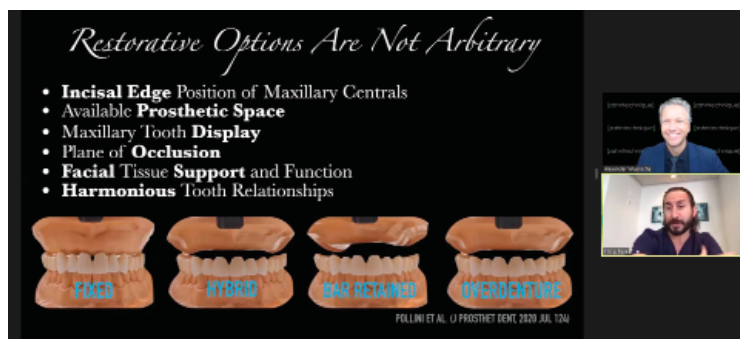
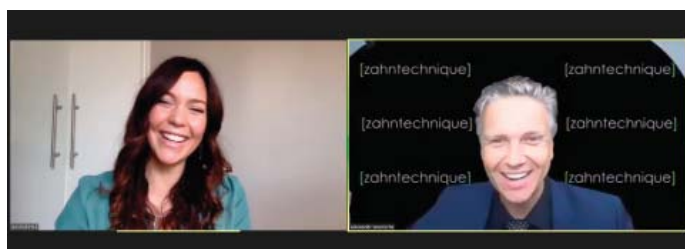
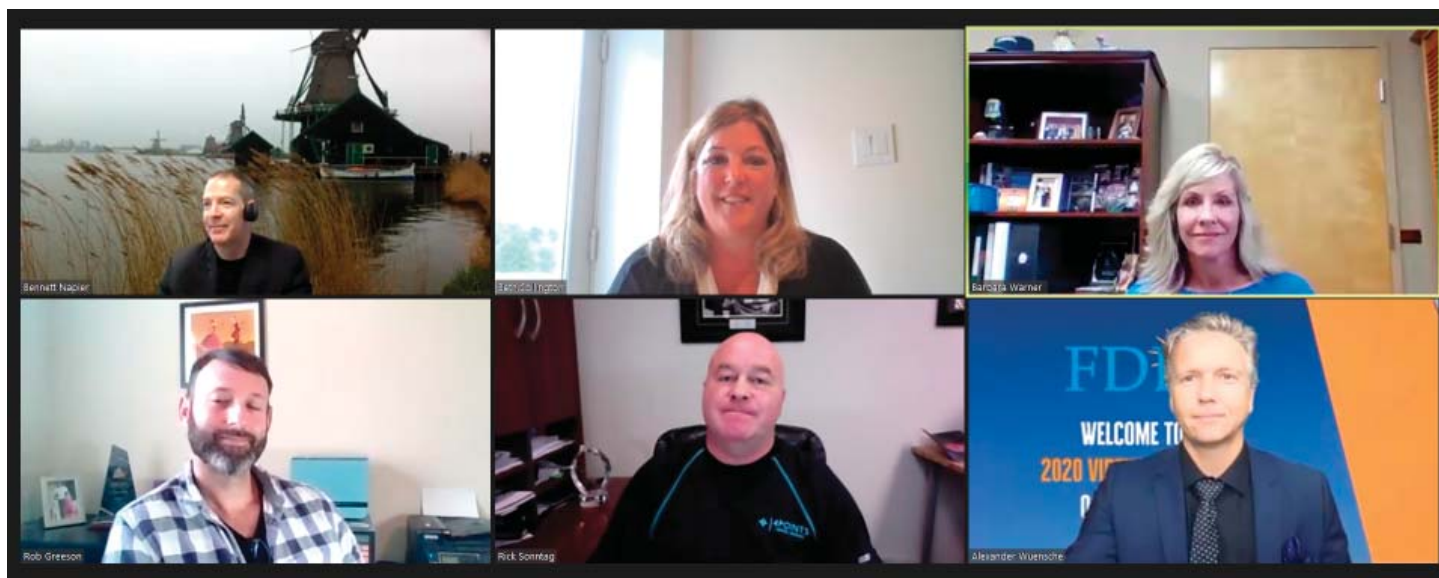


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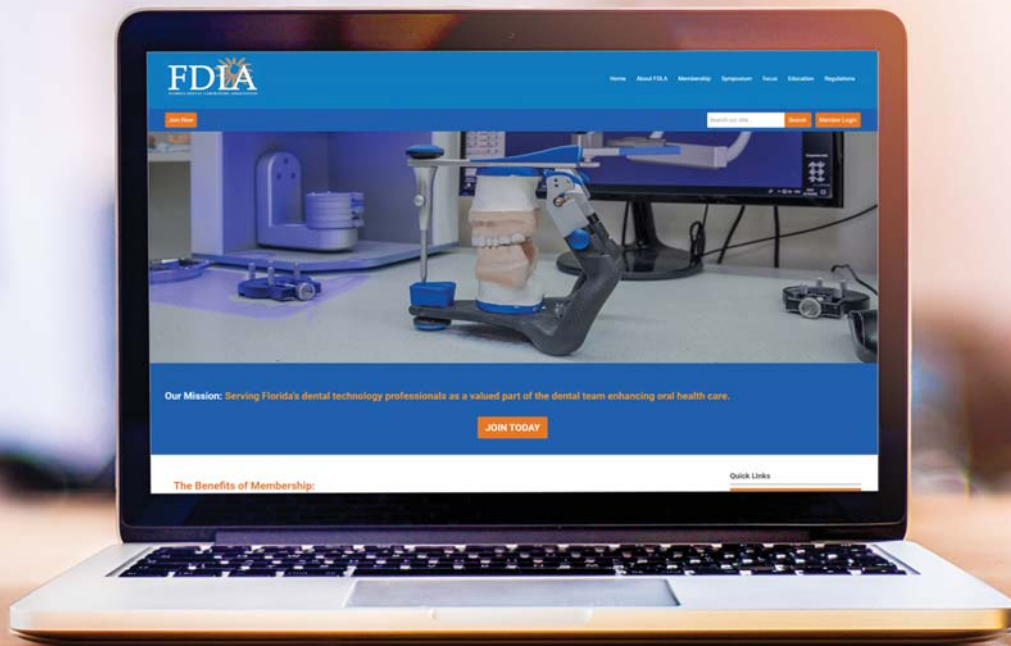
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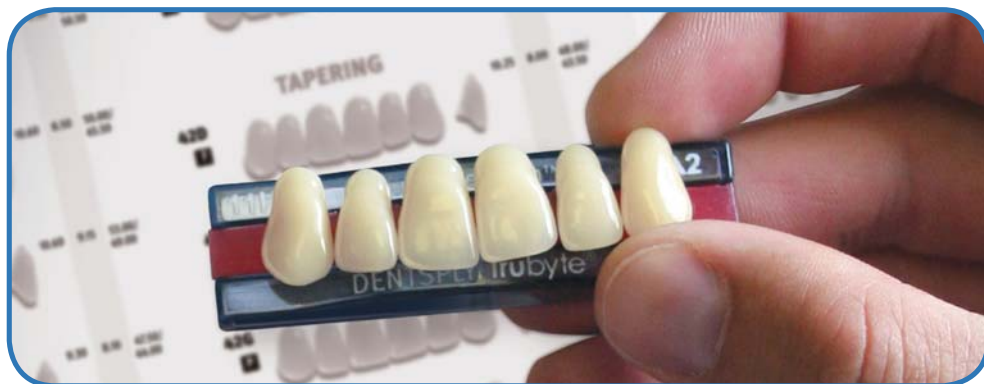
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