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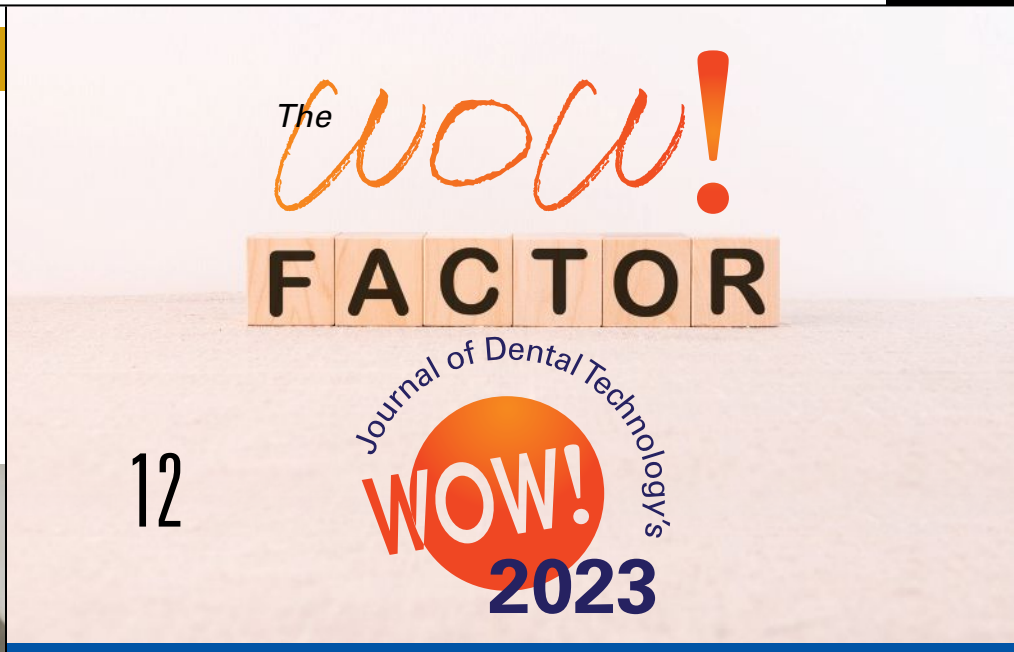

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In this issue of JDT, you can earn 5 professional development credits for reading the articles, and .5 scientific credit for passing the technical article quiz #43429 available on the JDT page, www.nadl.org/jdt.

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NBC Announces Launch of the New Digital Workflow CDT Specialty

NBC has long been working to integrate digital technologies into its examination process for the Certified Dental Technician (CDT) credential. As part of these efforts to evolve the certification programs, NBC is developing a new CDT specialty in Digital Workflow.

After more than a year of working on this new CDT specialty, NBC is excited to announce that the Digital Workflow Written Specialty Examination will launch in October 2023, and the Digital Workflow Practical Examination is expected to launch in January 2024.

"We are beyond thrilled to be launching the Digital Workflow CDT Specialty," said NBC Chair Rebecca Wade, CDT. "We have been working on this for a while and would not be here without the tremendous support of all of our volunteers in making this happen."

The process began back in 2022 when NBC created a task force charged with exploring the creation of a new certification for digital technicians. The task force performed a job task analysis for digital workflow and NBC sent the draft job task outline to its communities of interest to validate the work of the task force. Using the responses from the communities of interest, NBC finalized a job task outline and a written examination blueprint for the new Digital Workflow CDT specialty.

The Digital Workflow CDT specialty examination will consist of four domain areas as follows:

- Domain I: Data Acquisition (21 – 25 percent of written examination questions are from this domain)
- Domain II: Design Indications (30 – 34 percent of written examination questions are from this domain)
- Domain III: Fabricating Restorations (22 – 26 percent of written examination questions are from this domain)
- Domain IV: Maintaining Digital Equipment (20 – 24 percent of written examination questions are from this domain)

Within each domain, numerous task areas will serve as the foundation for the Digital Workflow Written Specialty Examination. Areas covered include retrieving the IO scans and scanning physical impressions, designing a variety of restoration types, nesting, milling, printing, regulatory standard questions, equipment maintenance, and more.

"We have had technicians asking for years when there would be a certification path for a Digital CDT," said NBC Vice Chair Jamie Stover, CDT. "We are proud to provide all those working in digital production roles an opportunity to test their knowledge and skill set against a national standard and earn this new certification."

NBC is also working with a task force to develop the components of the practical examinations for the Digital Workflow CDT Specialty. NBC is currently pilot testing the Digital Workflow Practical Examination and believes it will be in a position to launch the Digital Workflow Practical Examination in January 2024.

"This is an exhilarating time for dental laboratory technology and for the NBC certification programs," said NBC Secretary/Fiscal Officer Jeffrey Davis, Master CDT, TE.

"We also want to say a special thank you to the Foundation for Dental Laboratory Technology for their sponsorship of the development of the Job Task Analysis," said NBC Immediate Past Chair, Mark Stueck, CDT. "It really has been tremendous to receive so much support from the dental laboratory community."

Interested in learning more? For a complete listing of the examination content for the Digital Workflow Written Specialty Examination as well as a listing of examination references and frequently asked questions, please visit https://nbccert.org/digital-workflow-cdt-specialty.cfm, call (800) 684-5310, or email certification@nbccert.org. **JDT**

NADL MISSION AND VISION

NADL
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By Heather Voss, MBA, CDT, NADL President

Finding Your Tribe

We are incredibly fortunate in the dental laboratory profession to have such a strong sense of identity and community. I have had the opportunity to engage and participate with so many amazing communities in our profession: Ladies of the Mill, Damaged Goods, Dental Lab Association of Texas, Florida Dental Laboratory Association and LMT Lab Day, just to name a few.

Finding your community can be vital for personal well-being, growth, and a sense of belonging. Communities often provide a platform for self-expression and self-discovery. I know for me, being a member and volunteer with the NADL/NBC/FDLT has enriched every aspect of my life. Whether it is through shared hobbies, interests, or cultural affiliations, being part of a community allows a person to explore and celebrate aspects of their identity.

Your community becomes a support system that you can rely on during both good and challenging times. Having people who understand your struggles and successes can provide emotional support, practical advice, and a space to share your thoughts and feelings.

Communities often offer opportunities for learning, skill development, and personal growth. Interacting with others who have different perspectives can broaden your horizons, challenge your assumptions, and encourage you to step out of your comfort zone.

Building a strong community allows you to expand your social and professional network. Whether you are looking for job opportunities, business partnerships, or collaborative projects, a community can provide connections and resources that you might not have access to otherwise.

Communities are great sources of knowledge and information. Members often share advice, insights, and practical tips that can help you solve problems, make informed decisions, and navigate various aspects of life more effectively.

In a community, individuals can uplift and empower each other. By offering encouragement, motivation, and mutual support, you can collectively achieve goals and overcome obstacles that might seem insurmountable alone.

Heather

JDT

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Outsourcing Overseas

Overseas outsourcing has been a somewhat contentious topic of conversation within the dental laboratory profession. There are those who see great value in outsourcing, others who vehemently oppose, and the majority who are likely in the middle. Many labs would love to keep the work in-house, but see no other option other than to outsource in order to meet client price expectations while dealing with high workload and staffing shortages.

The latest 2023 NADL Dental Lab Fees Survey provides a snapshot view of the current level of outsourcing as well as the rationale behind it. While the NADL has no stance on overseas outsourcing, the organization continues to emphasize the importance of increased transparency and disclosure.

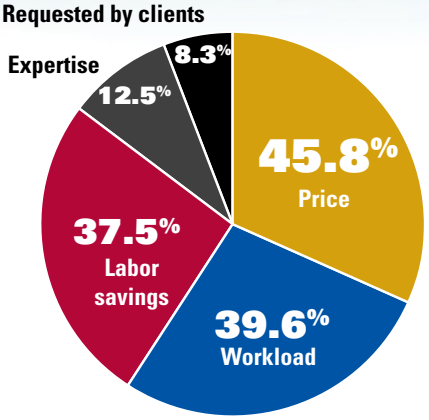
"The discrepancy in the growth of offshore work versus the percentage of dental labs who are transparent about their connection to imported restorations continues to solidify the need for point of origin disclosure and oversight. We know as the DSO market continues to grow, there will be more demand for offshore prices. However, transparency and disclosure about how those prices are achieved should be demanded and enforced."

— Travis Zick, Co-Founder and Director of Finance & Acquisitions with Apex Dental Laboratory Group

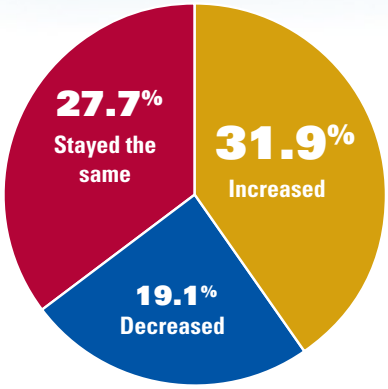
How much of your lab's work is outsourced to overseas labs?

0% (None)	20.8%
1%-24%	47.9%
25%-49%	20.8%
50%-74%	8.3%
74%-99%	2.1%
100%	0%

What factors made your lab decide to outsource overseas?



Over the last three years, how has the amount of work your lab has outsourced overseas changed?



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Jim Glidewell, CDT
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Trusana Premium Denture System:
Empowering Denture Fabrication with Innovation, Precision, and Esthetics

The Trusana Premium Denture System, from Myerson, introduces a new era of high-impact denture fabrication, revolutionizing the industry with its patented chemistry, optimal physical properties, and streamlined workflow. This article includes a comprehensive overview of the Trusana Premium Denture System, its key features, benefits, and advantages. Additionally, it delves into the technical aspects of the system, including the workflow and materials used.

Overview: The Trusana Premium Denture System is a cutting-edge solution comprised of Trusana Premium 3D Tooth Resin and the newly released Trusana Premium 3D Denture Base Resin and Trusana Bond Denture Adhesive. The three products work together to create a premium complete denture with unmatched physical properties and esthetics.

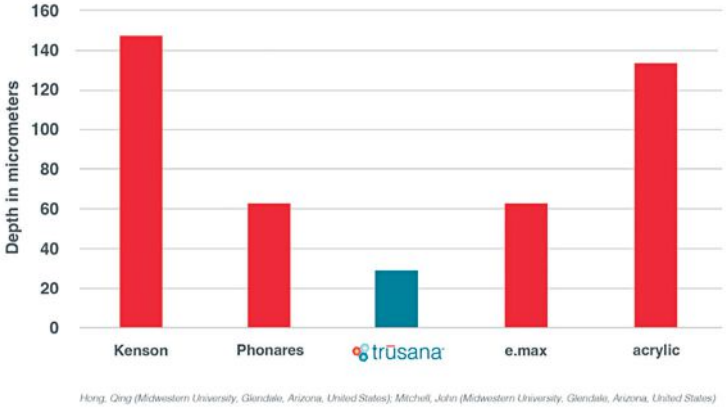
1. **Digital Workflow:** Trusana utilizes advanced digital technology, eliminating manual processes and ensuring precision throughout the fabrication process.
2. **Customization:** The system allows for highly customizable dentures, tailoring each prosthetic to meet the specific needs of the patient, while showcasing the artistry of the dental technician.
3. **Patient Satisfaction:** The dentures fabricated using the Trusana system provide exceptional fit, comfort, and esthetics, resulting in high patient satisfaction.
4. **Time and Cost Savings:** The streamlined process reduces turnaround time, allowing for faster denture delivery, and optimizing laboratory efficiency, leading to cost savings.

Figure 1a Low Moisture Absorption

Understanding the Benefits and Advantages: The Premium Denture System offers several benefits and advantages over other denture fabrication methods.

1. **Precision and Accuracy:** The digital workflow ensures precise measurements and consistent outcomes, minimizing errors and adjustments.
2. **Improved Fit and Comfort:** The customizable nature of Trusana Premium Dentures results in a superior fit, reducing discomfort for patients.
3. **Unique Physical Properties:** Unlike other 3D printable resins, Trusana's low-moisture absorption rate reduces bacteria, stains, and odor (**Fig 1a**). Trusana's proven wear resistance is exceptional compared to other well-known materials (**Fig. 1b**).

Figure 1b Average Wear Track Depth (SD)



Hong, Qing (Midwestern University, Glendale, Arizona, United States); Mitchell, John (Midwestern University, Glendale, Arizona, United States)

4. **Enhanced Strength and Esthetics:** Trusana's esthetics mimic nature, allowing for life-like smiles, and producing beautiful, high-impact dentures.

5. **Efficient Workflow:** The digital process eliminates many manual steps, increasing productivity and reducing labor-intensive tasks. The workflow is simple and straightforward, allowing technicians of all levels to successfully work with the system.

Familiarization with Components and Materials: The Trusana system incorporates a digital workflow and award-winning materials.

1. **CAD Software:** Computer-aided design (CAD) software is used to design the dentures.

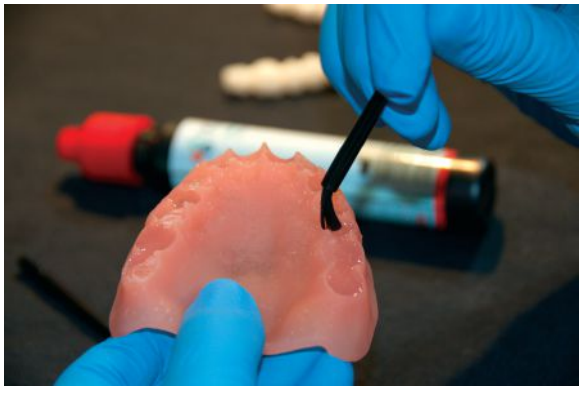
2. **3D Printer:** The Trusana system utilizes advanced 3D printing technology to manufacture denture bases and teeth and is currently validated on Asiga printers with more 3D printing systems validated soon.

3. **Innovative, Award-Winning Materials:** Trusana Premium Dentures are printed using patented biocompatible resins, ensuring safety, durability, and esthetics. Trusana resins won a RadTech/UVA Emerging Technology award winner for additive manufacturing in 2020.

Trusana Premium Denture System Workflow: The Trusana Premium Denture workflow is straightforward and intuitive, each contributing to simple, streamlined fabrication process.

1. **Digital Design:** Denture Design STL files are processed using slicing software to generate printable files.

Figures 5a-5d



2. **Printing:** The denture base and teeth are printed using Trusana Premium Denture Base and Tooth resins.

3. **Cleaning:** The denture base and teeth are cleaned in Isopropyl Alcohol.

4. **Checking Fit:** The printed denture base and teeth are carefully assembled to check precise alignment and fit (**Fig. 4**).

5. **Denture Assembly:** The printed components are bonded together using Trusana Bond Premium Denture Adhesive (**Figs. 5a-5d**).

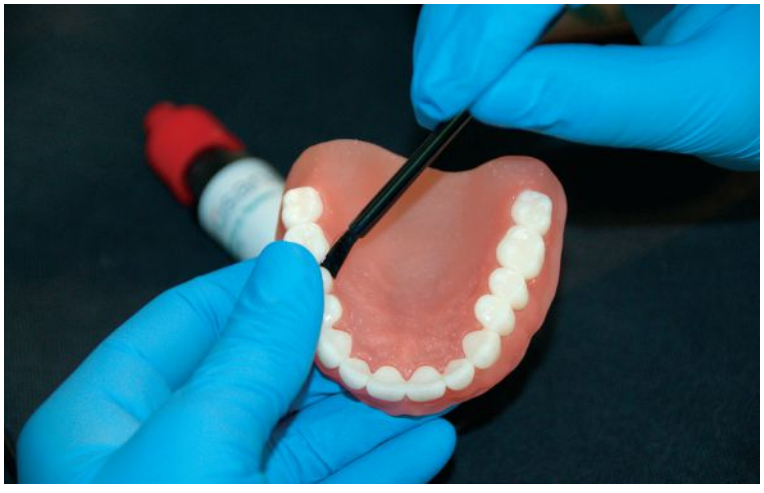
6. **Secondary Curing:** A secondary-curing process is employed using a light cure unit to finalize the cure and to enhance the strength and stability of the denture.

7. **Annealing:** The assembled denture is placed in a hot water bath to increase the strength of the denture by 10 to 15 percent.

8. **Finish and Polish:** The denture is finished and polished using traditional methods and tools.

The Trusana Premium Denture System represents a significant advancement in denture fabrication, offering a simple workflow, enhanced precision and customization, superior materials, and patient satisfaction. By embracing this proven system, dental laboratories can streamline their workflows, achieve consistent and high-quality results, and deliver exceptional dentures to patients. Trusana continues to empower dental technicians in the pursuit of excellence in the fabrication of beautiful smiles. ■

For more information, visit:
www.zahndental.com/trusana



Meet the Candidates

Each year, the National Association of Dental Laboratories (NADL), the National Board for Certification in Dental Laboratory Technology (NBC), and the Foundation for Dental Laboratory Technology (Foundation) hold a call for interested candidates to apply for the organizations' boards. These boards guide the organizations through proven leadership, a shared vision, and support for the missions of the association.

Serving as an association leader is both an honor and a commitment. It requires individuals who participate fully in association activities, possess well-developed interpersonal and communication skills, and have a drive to move the organizations forward based on its missions and goals.

Below we would like to take the opportunity to introduce the new incoming Directors and Trustees who have been selected to their respective boards and will take office beginning on January 1, 2024.

NADL
National Association of
Dental Laboratories

Incoming NADL Board of Directors

NADL is a non-profit trade association and is a voluntary membership. It was founded in 1951 to ensure that the domestic dental laboratory industry could remain competitive and profitable by recruiting and retaining skilled technicians while providing high-caliber products and services to the dental industry. Since then, the NADL has branched out by offering business training and access to relevant services to ensure laboratories can work to their highest potential. NADL is the voice of the industry at the national level.

CARRIE LING

Lifelike Dental Studio, Inc. – Temple, Texas

Carrie Ling is the co-owner of Lifelike Dental Studio, Inc. in Temple, Texas. Carrie is a wife, mother of four, and a lab owner. She and her husband Chris started Lifelike Dental Studio in 2005. Over the past 18 years, she has learned how to juggle the many different roles she has played, both in the lab and at home. Carrie looks forward to applying her multitasking skills in the work she will do with NADL.

DORY SARTORIS

DCS Dental Laboratory – Jacksonville, Fla.

Dory Sartoris is the president and owner of DCS Dental Laboratory in Jacksonville, Fla. DCS is a full-service lab founded in 1988 by her father, Dennis Charles Sartoris. In 2013, Dory received her bachelor's degree from Georgia Southern University. She was featured as a second-generation lab owner in JDT's 2019 "Who's Hot" issue. Dory previously served on the board for the Florida Dental Laboratory Association from 2015-2023, serving as president in 2021-2022.

Together these three organizations are like the three legs of a tripod.
They each need the other to continue to stand up, be strong, and support the industry.

NBC
National Board for Certification in
Dental Laboratory Technology

Incoming NBC Board of Trustees

NBC was established in 1957 to provide professional certification to both dental technicians and dental laboratories. It is not a membership organization, but rather, a certifying body. CDTs and RGs are not required to be members of the NADL, but are sometimes eligible for discounts on NADL products and meetings.

JOHN MADDEN, CDT

Minneapolis, Minn.

John Madden, CDT, runs a small digital removable lab, John Madden Prosthetics, and works in the clinics at the University of Minnesota managing the prosthetics lab and helping students learn digital dentistry. For the past 15+ years, John has dedicated his time to teaching, lecturing, patent development, consulting, and developing removable techniques relevant for the next generation of dentistry.

BRANDON SMITH, CDT

Dayton, Ohio

Brandon Smith, CDT, is a certified dental technician specializing in Implants with 16 years of experience. He has worked for various labs including Dental Associates Lab and Triad Dental Studio. He has also worked for the Whip Mix Corporation and 3Shape Inc. doing technical support, training, R&D, and lecturing. He was also key in creating education plans and content for large DSO organizations. He is currently the Technical Advisor for Dental Associates Lab and owns his own consulting business offering training, education courses, design services and R&D.

The Foundation
For Dental Laboratory Technology

Incoming Foundation Board of Trustees

The Foundation was created in 2008 through both financial seed money from the NADL and intellectual property from NBC to provide a mechanism to ensure the future viability of dental laboratory education. The focus is to advance the profession of dental laboratory technology by developing educational curriculum and programs that will be relevant and accessible to technicians and other members of the dental team. The Foundation provides grants, scholarships and resource coordination to deliver direct support to dental laboratory schools and technicians.

CAROLYNN CAPPS, MBA, CDT

She Designs Dental Studio, Inc. – Matthews, N.C.

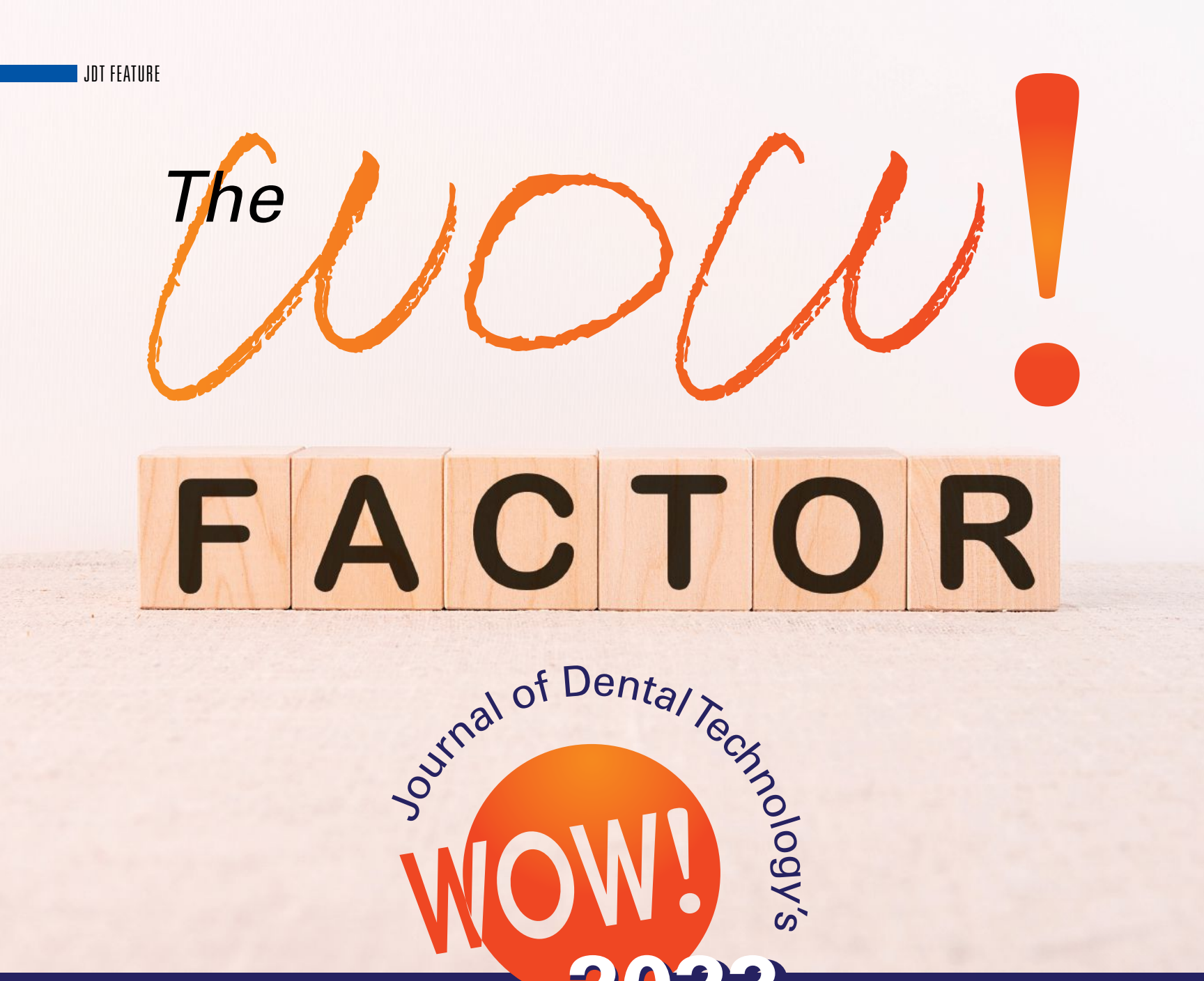
Carolynn Capps is president and owner of She Designs Dental Studio, Inc., in Matthews, N.C. Carolynn began her dental career in 1993 as a ceramist. She received her MBA from Western Governor's University and her bachelor's in biomedical sciences from the University of South Florida. She is also a graduate of NADL University and earned her CDT in Ceramics in 2009. Her work experience includes dental regulatory compliance, international technical consulting, quality assurance and quality control. She has a passion for encouraging and empowering women by creating, facilitating, and amplifying the voices of women in the industry.

ELVIS DAHL

Derby Dental Laboratory – Louisville, Ky.

Elvis Dahl began his career at Somer Dental Laboratories as a part-time shipping clerk in 2008. Elvis quickly formed relationships with CDTs, technicians, and vendors to become a leading team member. After 13 years, Elvis took his passion and skills to the Preat Corporation. There he discovered his fondness for presenting and educating the industry about implant components and attachments. Elvis is now with Derby Dental Laboratory serving as a client service representative. In 2018, Elvis created Voices From the Bench, the only weekly podcast dedicated to the dental lab industry. Every episode, he and his partner interview people from the profession and talk about different views and unique aspects of the industry.

The WOW! FACTOR



Journal of Dental Technology's WOW! 2023

What products and services have the WOW factor? They are the ones that are consistently relied on to save time and money and improve the quality of work. The 2023 WOW! judges reviewed and researched the nominations and the top-ranked products are listed in alphabetical order. Learn more about today's WOW! factor products.

Five of the industry's best professionals comprise this year's judging panel. The panelists reviewed and ranked the nominations based on their experience and research, and the JDT thanks these panelists for giving their time.

Carolynn Capps, MBA, CDT

Co-Founder/CEO, She Designs Dental Studio, Matthews, N.C.

Carolynn Capps began her dental career as a ceramist at a small family-owned dental laboratory. She received her MBA from Western Governor's University and her bachelor's in biomedical sciences from the University of South Florida. She is a recipient of the NADL U scholarship award and graduate of the NADL University. Her dedication, passion, perseverance, and work ethic lead her to becoming a CDT in ceramics in 2009. She has a passion for encouraging and empowering women by creating, facilitating and amplifying the voices of women in the industry. She is a mother, sister, daughter and grammie to two grandsons and one granddaughter. She enjoys wine, hiking, traveling and exploring new cultures.

Michael Capps, CDT

Owner/technician, Technic Dental Lab, Orland Park, Ill.

Mike Capps, CDT, is a 1976 graduate with an AAS degree in dental technology from Triton College. He is certified in ceramics, orthodontics and removable prosthetics. He attends several continuing education programs every year on orthodontics, cosmetics, implants and management. Capps is a member of NADL and served as past president of the Illinois Dental Lab Association. He is also an associate member of the Illinois State Dental Society.

Kurtis Helm, CDT

Owner/manager, Helm Dental Laboratory, Wylie, Texas

The full-service laboratory employs 60+ technicians and focuses on the use of technology in the fabrication of all fixed and removable prosthetics. Helm Dental Laboratory has recently opened their Technology & Training Center, which houses all the digital functions of the lab as well as provides a location for dental CE programs. Helm attended Texas A&M University and received a degree in biochemistry. After serving five years in the United States Air Force as a dental laboratory technical trainer, he moved back to Texas to open his lab in 1993. He is a Certified Dental Technician in ceramics and removable dentures. Helm lectures all over the United States for numerous companies and organizations.

Shanon Torstenbo, CDT

Owner, The Lab Dental Studio, LLC, Concord, N.H.

Shanon Torstenbo started her dental laboratory journey while attending a two-year degree program at Middlesex Community College in Massachusetts. She graduated with an associate degree in dental laboratory technology in 2014. In 2017, she earned her CDT designation in the specialty of complete dentures. Torstenbo has spent the majority of her career as an in-house technician working directly with doctors and patients in a clinical setting. In 2022, she and her husband opened their own removable lab, The Lab Dental Studio LLC, in Concord, N.H. Torstenbo is always striving to become a better technician and learn more.

Tom Wiand, CDT

Owner/general manager, Wiand Dental Lab, Scottsdale, Ariz.

Tom Wiand opened Wiand Dental Lab in 1992, specializing in removables and implant supported full-arch prosthetics, including the All-on-4™ using both conventional and digital techniques. He received his associate degree from the McCarrie School of Health Sciences and Technology in Philadelphia. Wiand has restored over 4,000 All-on-4™ cases and speaks on behalf of multiple implant companies about this progressive treatment option. Dedicated to education, he serves as an adjunct instructor at the Arizona School of Dentistry and Oral Health. Wiand is also a dental technician alliance member of the American College of Prosthodontics (ACP), the NADL, and the Technical Research Consortium group (TEREC). He consistently donates his time, talents and resources to the A.T. Stills C.A.R.E program, the Arizona Mission of Mercy, and Donated Dental Services.

Journal of Dental Technology's WOW! 2023

Alien iBar

Experience the WOW factor of the Alien iBar and see how it can elevate your lab and bring lasting smiles to patients.

Introducing the Alien iBar by Alien Milling, the innovative full arch hybrid zirconia restoration that will revolutionize your restorative dentistry options. The Alien iBar is a state-of-the-art implant-supported prosthesis that offers unmatched durability and strength, thanks to its titanium bar reinforcement.

Crafted with the latest CAD/CAM technology by Alien Milling and Blender 4 Dental, using only the finest zirconia materials, the Alien iBar delivers exceptional esthetics, unparalleled function, and exceptional resistance to chipping and wear. It provides maximum support for a full arch restoration while offering a natural-looking smile that patients will love.

With Alien iBar now available in Alien HT, Alien Multi-Layer and Alien Extreme Zirconia, labs can cater to diverse clinical needs while maintaining the highest standard of quality. Whether you are treating a patient who prioritizes natural-looking esthetics or another who requires maximum strength and durability, the Alien iBar has you covered.

The Alien iBar has already gained a reputation as a state-of-the-art implant-supported prosthesis, offering unparalleled support and stability for full arch restorations. Now, with the addition of Alien Multi-Layer and Alien Extreme Zirconia options, it has become even more versatile, catering to a wider range of clinical cases and patient preferences.

In what ways does it save time and money?

The Alien iBar is a time and money-saving solution for dental professionals. Its precision-engineered design streamlines the restoration process, reducing chair time significantly. The precise fit and minimal adjustments further contribute to time savings, translating to increased productivity and improved patient satisfaction. Furthermore, the Alien iBar's superior strength and durability ensure it can withstand the test of time, reducing the need for frequent repairs or replacements, resulting in long-term cost savings for both dental professionals and their patients.

How is quality improved?

The Alien iBar is engineered to provide superior stability and support, ensuring that the prosthetic stays securely in place for years to come. This makes it a perfect solution for patients who are looking for a long-lasting, reliable, and esthetically pleasing smile. The use of top-grade zirconia materials and titanium bar reinforcement enhances its quality and longevity, offering outstanding resistance to wear and chipping.

What do customers say is the WOW factor?

Customers are raving about the WOW factor of the Alien iBar. Patients are thrilled with the natural-looking smile it provides, allowing them to regain their confidence and enjoy life to the fullest. Dental professionals are equally impressed with the ease of use and predictability of the restoration process, as the Alien iBar consistently delivers exceptional results without any surprises. The combination of outstanding esthetics, durability, and ease of use has left both dentists and patients astounded, making the Alien iBar a preferred choice for full arch hybrid zirconia restorations.

In conclusion, the Alien iBar is a groundbreaking solution that raises the bar for full arch hybrid zirconia restorations. With its exceptional strength, esthetics, and cost-effectiveness, it is set to transform the field of restorative dentistry. Experience the WOW factor of the Alien iBar and see how it can elevate your lab and bring lasting smiles to patients. Join the ranks of satisfied dental professionals and patients who have embraced this revolutionary product. Embrace the future of restorative dentistry with the Alien iBar by Alien Milling.

Alien Milling Technologies
(844) ZIRCONIA
www.AlienMilling.com

anaxgum

Journal of Dental Technology's WOW! 2023

anaxgum is a gingiva-shade, light-cure composite system with a color and layering concept focused on replicating nature's own concept: replicate blood and bone as a base layer, and layer true-to-nature gingiva colors on top. Instead of tasking users with painting a simulation of gingival vascularity and depth, this simple anaxgum concept enables even composite novices to create natural-looking gingiva with realistic vascularity and true depth.

anaxgum Paints are flowable, opaque stains used to replicate blood and bone as a base layer with a blood-shade of red, a cream, a purple, and a dark brown. anaxgum Gingiva Pastes and Gingiva Flows intuitively replicate the gingiva tissue with three neutral shades (light pink, dark pink and orange pink) and two special Gingiva Pastes (purple pink and brown pink).

In what ways does it save time and money?

anax USA's commitment to reliable supply for U.S. customers limits time spent waiting for key colors/shades on backorder. anaxgum also saves time by eliminating the need for spot-curing while building gingival form and texture in composite. The stability of anaxgum Gingiva Pastes holds the form and texture applied with brushes and instruments until full curing of the composite layer takes place. User-friendly handling, colors and overall optics all work together to save significant time when learning how to get the best results with the anaxgum system, and anax USA's library of online video tutorials provide instant, on-demand technique instruction.

When following anaxgum's layering concept, minimal material volume is necessary to create natural-looking gingiva on long-term prototypes and final restorations, saving money as well as time. Now that the anaxgum color concept has been translated to pre-mixed ceramic pastes in the Soprano Surface system, a consistent color concept from provisional to final or between opposing arches restored in different materials is possible, which streamlines the entire esthetic finishing workflow.

photo by Carlos Baurier Salvans

How is quality improved?

anaxgum gives users of all experience and skill levels the ability to create composite gingiva that looks like live tissue with a surprisingly short learning curve and free online training resources. The high polishability of anaxgum also results in a more durable, color-stable surface when proper curing steps are performed.

What do customers say is the WOW factor?

"Anaxgum is an amazing product! Its ease of use and incredible esthetics have changed the way we do business. The system Anaxdent has put together is easy to learn and makes any level of technician look like a seasoned pro!"
— Bobby Clark, Clark Dental Lab, Weatherford, Texas

anax USA
(877) 897-6598
anaxusa.com/anaxgum

When following anaxgum's layering concept, minimal material volume is necessary to create natural-looking gingiva.

Photo and case by Pheng Lor, Esthetics by Lor, Oakdale, Minn.

Journal of Dental Technology's WOW! 2023

ArgenIS Milled Cobalt-Chrome and Titanium Bars

Our customers are consistently amazed by the level of accuracy in the fit, which ensures seamless integration with the restoration.

ArgenIS Milled Cobalt-Chrome and Titanium Bars are for use in both fixed and removable cases at the abutment level. These bars are milled from Grade 23 titanium and Argen CoCr 255 with an industrial precision 5-axis milling machine. Cobalt-chrome and titanium bars are compatible with most multi-units. Hader, Dolder, Attachment, Thimble, Montreal, and Wraparound bars are available.

In what ways does it save time and money?

Argen offers several time and cost savings opportunities when you outsource your cobalt-chrome and titanium bars. Argen ensures efficient production, minimizing errors and delays. Faster turnaround times are possible due to Argen's dedicated focus and streamlined operations. Quality assurance measures lower the risk of defective products, preventing costly rework for labs. By avoiding investment in equipment and infrastructure, your lab's overhead costs are reduced. Outsourcing also allows your lab to allocate resources effectively and concentrate on core activities.

How is quality improved?

ArgenIS Milled Cobalt-Chrome and Titanium Bars improve quality through the use of premium biocompatible materials and state-of-the-art equipment for the precision manufacturing of bars. By milling these bars from discs, the elimination of porosity is ensured, enhancing the structural integrity and reliability of the bars. These bars are designed to fit seamlessly with abutment interfaces.

Cobalt-chrome and titanium bars are available in a wide range of indications, catering to various dental restoration needs. This comprehensive approach highlights a commitment to providing tailored solutions for different cases. The combination of these elements — the use of quality materials, advanced milling technology, porosity-free, and precision fit — collectively contributes to the elevated quality of ArgenIS Milled Cobalt-Chrome and Titanium Bars.

What do customers say is the WOW factor?

The standout "WOW factor" for our customers when it comes to ArgenIS Milled Cobalt-Chrome and Titanium Bars is the precision fit and the stunning final polished appearance of the product. Our customers are consistently amazed by the level of accuracy in the fit, which ensures seamless integration with the restoration. The bars arrive at the lab with minimal adjustments required since Argen handles all the necessary work, delivering a hassle-free experience. The rapid turnaround time also contributes to the overall positive impression. The remarkable combination of precise fit, polished esthetics, and efficient service embodies the WOW factors that consistently impress our customers in relation to ArgenIS Milled Cobalt-Chrome and Titanium Bars.

Argen
(800) 255-5524
argen.com

ArgenZ HT+ Multilayer Zirconia

Journal of Dental Technology's WOW! 2023

ArgenZ HT+ Multilayer is the first high-strength zirconia to employ dynamic layer thicknesses. This zirconia is made from our proprietary HT+ zirconia, which has a high strength of 1250 MPa throughout and transitional layers that vary depending upon the disc thickness. This layer distribution creates a natural gradient without visible layer lines, which makes nesting easier.

In what ways does it save time and money?

ArgenZ HT+ Multilayer is available in 16 VITA Classical Shades, three Bleach Shades, and five Light Shades. "L" or "Light" shades are formulated for implant-retained full arch restorations. Slightly lighter than their corresponding shade, the light shades provide a more accurate shade match on long-span to full-arch cases. With an accurate shade match, labs can expect fewer remakes and less labor effort, saving them both time and money.

How is quality improved?

ArgenZ HT+ Multilayer has the highest strength (1250 MPa) compared to Argen's other zirconia. It also has the same translucent material (45 percent) as ArgenZ HT+ Zirconia. It's strong enough for the posterior but esthetic enough for the anterior. This unique formula makes ArgenZ HT+ Multilayer the go-to zirconia for any lab. ArgenZ HT+ Multilayer also blends with ArgenZ Anterior and other ceramic materials, making it perfect for combination cases in the mouth.

What do customers say is the WOW factor?

"We continually strive to improve the restorations we provide our customers and their patients. We've tested several zirconia products and are impressed with Argen HT+ and HT+ Multilayer. It has it all."

- **Predictability:** Can consistently achieve the requested shade. No need to compensate for hue and value when finishing restorations.
- **Strength:** Can confidently use it with implants and anterior or posterior crowns for all types of fixed prosthetics – from a single unit to full arch restorations.
- **Esthetics:** The multilayer structure and levels of translucency allow us to produce monolithic and layered restorations that accurately mimic natural dentition. In addition, it is very easy to handle it in the green stage where hand adjustments are made.
- **Versatility:** *"The unique combination of strength and translucency eliminates the need to carry multiple types of ZR in inventory."*
  — Vadim Vainer, CDT, Director of Integrated Solutions, Research and Education, Shikosha Dental Laboratory

With an accurate shade match, labs can expect fewer remakes and less labor effort, saving them both time and money.

Argen
(800) 255-5524
argen.com

Journal of Dental Technology's WOW! 2023

DentalCAD

exocad's DentalCAD is an industry-leading dental CAD software, selling thousands of licenses each year. Specifically designed for dental technicians, DentalCAD offers productivity, flexibility and the ability to create outstanding dental restorations. From quick volume production to the most complex, customized solutions—exocad's modular CAD software offers a wide range of possibilities. Thanks to exocad's extensive portfolio of add-on modules, dental laboratories can easily and cost-effectively expand their range of services according to their needs.

In what ways does it save time and money?

DentalCAD 3.1 Rijeka offers users more efficiency, enabling them to reuse custom tooth setups for multiple indications along the patient case journey. The same shape and setup can be easily used for a mock-up model, a clip-on smile, a temporary restoration, and the final work. With this release, exocad also speeds up the design of both single-unit restorations and complex, upper and lower restorations. Articulator movements can now be recalculated and visualized on the fly.

DentalCAD 3.1 Rijeka also expands the functionality of Instant Anatomic Morphing, allowing faster design of single-unit restorations with fewer clicks. When a pre-op scan is available, users benefit from an even more highly automated generation of crowns; the previous anatomy copies automatically, making it faster and easier to preserve function and anatomical shape for the patient.

The same shape and setup can be easily used for a mock-up model, a clip-on smile, a temporary restoration, and the final work.

How is quality improved?

Smile Creator, exocad's add-on module for smile design, includes more visualization options, such as improved color adjustment for more realistic preview images, and a new slider-based before-and-after view. The new "Smile Design" PDF report provides comprehensive documentation of the esthetic planning process to improve communication between dentists and labs. Additionally, the new "Smile Window" offers instant in-face visualization throughout the CAD workflow. Users see the result of the design within the patient photo in real time.

In the FullDenture Module, posterior setups can now be customized as well, providing more control over denture setups. Users can easily expand libraries by saving individual presets, now also in single-arch dentures. The Model Creator module introduces new "Quick Models" for highly automated model creation, to further save time and minimize the need for user interaction during model design.

What do customers say is the WOW factor?

"I love that I can change the implant library while designing in DentalCAD 3.1 Rijeka, and it doesn't affect my designs. Instead of needing to start over, I can stay in the flow."

— Magdalena Kotula, ceramist and CAD designer, Harrogate, UK

"exocad is like a Swiss Army knife for digital dentistry." — Dr. August de Oliveira dentist and implantologist, U.S.

"I like that with DentalCAD 3.1 Rijeka I have smoother model builds, a big variety of model articulators and attachments, easy-to-reuse digital wax-up setups, and that I can change the implant library without affecting abutment or crown design."

— Kristina Vaitelytė, CAD/CAM designer, Chester UK

exocad America
(855) EXO-4CAD (396-4223)
www.exocad.com/https://exocad.com/our-products/dentalcad-rijeka

Harvest EasyGum™

Journal of Dental Technology's WOW! 2023

Harvest EasyGum™ is a patent pending light cure Gingiva Composite material that achieves fast and esthetic tissue characterization in minutes. The material is sold in a malleable 'strip' form and is easy to apply. This revolutionary product works on all printed or milled PMMA dentures and temps and comes in five shades.

In what ways does it save time and money?

Harvest EasyGum™ offers substantial time savings in comparison to the conventional syringe application. Simply apply the strip by hand, cut away the papillas, light cure, and you're done!

Thoughtful packaging allows you to save the excess material that is cut away for extended use, ensuring no waste, and saving you an abundance in precious time and money!

How is quality improved?

Harvest EasyGum™ brings speed, efficiency, and beauty wherever 'pink' is needed. The patent-pending material provides a standardized workflow that can be instituted in any lab with minimal time spent in training. EasyGum™ is not merely a system, but a streamlined gingiva esthetics in a simplified composite solution! You go fast, esthetics will follow; denture or hybrid, printed or milled, EasyGum™ has you covered.

What do customers say is the WOW factor?

"The Harvest EasyGum™ is brilliant. There is a tremendous need for a material like this - conversion dentures, transitional prototypes, acrylic hybrids, prototype hybrid try-ins, and long-term provisionals. Sasha and team Harvest nail it again!" — Jack Marrano, CDT, Absolute Dental Services, N.C.

1. Harvest EasyGum™ Strip

2. Works on milled and printed polymers

Harvest EasyGum™ offers substantial time savings in comparison to the conventional syringe application.

Harvest Dental Products
(800) 706-7599
www.harvestdental.com

3. Apply EasyGum™ by hand.

4. Cut-out papillas with instrument.

5. EasyGum™ esthetics in 10 minutes flat!

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NobelProcera® Zirconia Implant Bridge

We can offer a solution that reduces complexity and eliminates failure points found on every comparable product.

NobelProcera® Implant Bridge offers extensive flexibility. We've added some state-of-the-art innovations to this product, making it stand out from all other products in the industry. The bridge starts with our angulated screw Omnigrip tooling that prevents screws from falling intra-orally and makes it easy to handle in the posterior area of the mouth, especially for patients with minimal mouth openings. The 25 percent smaller angulated screw channel with the new Omnigrip Mini Screwdriver provides improved occlusal esthetics. A new combination of angulated multi-unit abutment and angulated screw channel provides restorative freedom up to 55 degrees.

Our implant bridge combines strength and precision with the ability to move a screw-access hole to achieve optimized esthetics and excellent occlusal fit. All implant bridges are available in full-contour and partial cut-back, recommended for short-span to full-arch implant bridge restorations.

In what ways does it save time and money?

NobelProcera Zirconia Implant Bridge simplifies the partnership between clinicians and technicians thanks to restorative freedom. It saves time in the short term by avoiding the need to bond titanium bases and, in the future, by eliminating the need for long-term maintenance and repair of those bonds. Further, it's backed by a 10-year warranty in case of implant or prosthetics failures/complications, saving consumers money from costly repairs.

How is quality improved?

NobelProcera Zirconia Implant Bridge supports long-term clinical success. A recent retrospective study demonstrated an excellent 98.2 percent long-term prosthetic survival rate among 111 NobelProcera Zirconia Implant Bridges during a follow-up period of up to 12 years. NobelProcera Zirconia Implant Bridge provides a reliable long-term treatment option for partial and complete edentulism with no framework fractures.

Patients and practitioners can also expect predictable outcomes due to our FDA-cleared, entirely cement-free, and Ti-base-free implant bridge. By focusing on engineering innovation, manufacturing precision down to the micron, and product quality, we can offer a solution that reduces complexity and eliminates failure points found on every comparable product.

What do customers say is the WOW factor?

"Working with the Nobel Biocare's Procera Implant Bridge represents the pinnacle of accuracy in full arch dental restorations. Every bridge we construct gives us confidence in restoring smiles with unsurpassed quality and precision."

— BJ Kowalski, CEO at ROE Dental Laboratory

"Complete digital workflow without compromising function and esthetic."

— Sean Han, Founder and CEO at Master's Arch

Nobel Biocare
(800) 322-5001
www.nobelbiocre.com

PrograMill® PM7

Journal of Dental Technology's WOW! 2023

The PrograMill PM7 is a state-of-the-art dental milling machine designed to provide high-end solutions for the precise and efficient production of dental restorations. The PrograMill PM7 is engineered by Ivoclar, a leading dental technology company. PrograMill PM7 caters to the evolving needs of modern dental technology and is favored by dental technicians and labs alike.

PrograMill PM7 offers high-end solutions for the precise and efficient production of dental restorations. Equipped with an integrated PC and touch screen monitor, the modern design offers intuitive and easy operation. The PrograMill CAM software automatically recognizes the design parameters and allows the user to fully rely on the processing strategies that have been developed for use in conjunction with our PrograMill tools, removing any need for human intervention. Labs benefit from value-added workflows, intuitive RFID technology, state-of-the-art software and equipment that allows them to opt for innovative materials to achieve high-quality restorations and impressive esthetics.

In what ways does it save time and money?

Dental labs benefit from value-added workflows and intuitive RFID technology, which facilitate seamless material management. The PrograMill PM7 is designed to accommodate a wide range of materials and applications, making it a versatile choice for different dental restorations. Its five-axis kinematics enable precise milling and outstanding surface quality, delivering high-quality restorations with impressive esthetics.

The PrograMill PM7 offers several other advantages for dental technicians and labs. Effortless cleaning is facilitated by the built-in ionizer and automated self-cleaning function, reducing maintenance time and ensuring optimal performance. The machine's autonomous operation capabilities, such as hybrid mode, an automatic tool changer, and RFID-based material management, contribute to organized job handling and increased productivity.

How is quality improved?

With its dynamic servo drive technology, high-performance spindle, and 970-watt power, the PrograMill PM7 achieves precise results and maximum performance. The zero-point clamping system ensures perfect alignment during milling, guaranteeing accurate and seamless fits for dental restorations, especially for dentures.

The PM7, like the PM5, can hold eight discs and boasts an increased tool capacity with its 20-position tool changer, offering ample flexibility for various jobs. The PM7 is equipped with an ionizer, essential for denture processing. It removes electrostatic charge from PMMA material, preventing very fine shavings from scattering and making cleanup hassle-free.

The PrograMill PM7 is a cutting-edge dental milling machine that caters to the evolving needs of modern dental technology.

What do customers say is the WOW factor?

Our customers consistently say that they are most impressed with the efficiency that the PM7 provides. With the eight-disc changer and the fact that it can mill overnight, it is an additional resource that works while everyone else is sleeping.

Overall, the PrograMill PM7 is a cutting-edge dental milling machine that caters to the evolving needs of modern dental technology. Its high-end capabilities, user-friendly interface, and automation features provide dental technicians and labs with the tools they need to deliver top-notch restorations with precision and efficiency. With the PrograMill PM7, dental professionals can confidently achieve outstanding results and elevate their practice to new heights in the field of dental technology.

Currently, dental labs can avail of special promotions, featuring low financing options and the season's lowest pricing, making it an ideal time to invest in Ivoclar's PrograMill PM7. Contact an Ivoclar sales rep today to maximize savings and secure a mill with unmatched quality, reliability, and efficiency during this limited-time opportunity.

Ivoclar
(800) 533-6825
www.ivoclar.com/en_us/products/digital-equipment/programill-pm7

Journal of Dental Technology's WOW! 2023

Zimbis Smart Cabinets

From zirconia discs to implant components, Zimbis is a smart inventory cabinet solution that can handle anything your lab needs to manage. Your inventory will be neatly organized, correctly invoiced, and re-ordered when stock runs low. With automated ordering, Zimbis effectively eliminates overnight shipping costs associated with last-minute, unanticipated stock-outs.

In what ways does it save time and money?

Get ready to give your staff hours back each week by eliminating time-sucking inventory audits, while electronic parts billing increases your revenue, and automated lot number tracking improves your FDA compliance. Stop the hassle of administrative paperwork and turn to the #1 solution for helping dental lab professionals solve their inventory challenges.

- Reduce or eliminate expensive overnight shipping thanks to automated ordering when stock runs low.
- Increase cashflow immediately due to reduced on-hand inventory requirements.
- Get the invoice right every time via integration with your lab management software.
- Automate time-consuming administrative tasks, including FDA lot number tracking.

How is quality improved?

Let's face it – there are some tasks that machines just do better than people. Why have your employees count, manage, and invoice inventory when it's faster and more accurate to automate those tasks, and give your staff more time to focus on what they do best? Two-way integration ensures each part is billed accurately and is always available when needed. Zimbis is made in the USA and is backed by a full, five-year parts-and-service warranty so you won't need to worry in case something goes wrong.

Stop the hassle of administrative paperwork and turn to the #1 solution for helping dental lab professionals solve their inventory challenges.

What do customers say is the WOW factor?

"Our business is based on service," said Josh Marotta, owner of Marotta Dental Studio, a third-generation family-owned business and a Zimbis customer. "So we're very careful about where we spend our time and our money. Zimbis saves us both."

"Since entering the dental lab industry 18 years ago, I've seen a lot of new technologies enter the space," said Zimbis' National VP of Sales Michael Reina. "Zimbis brings so many of these technologies together and helps ensure they stay profitable. That's especially important for small, independent lab owners who need to keep getting creative in order to grow profit margins right now. I love being able to help those labs thrive, and to see the results of smart inventory pay off for them. And the bigger labs—they now have a solution to help fully understand what they are spending, right down to the penny! That's what led me to join Zimbis, and I'm so glad I did."

Zimbis
(480) 780-3200
www.zimbis.com

Zubler 3:45 Zirconia

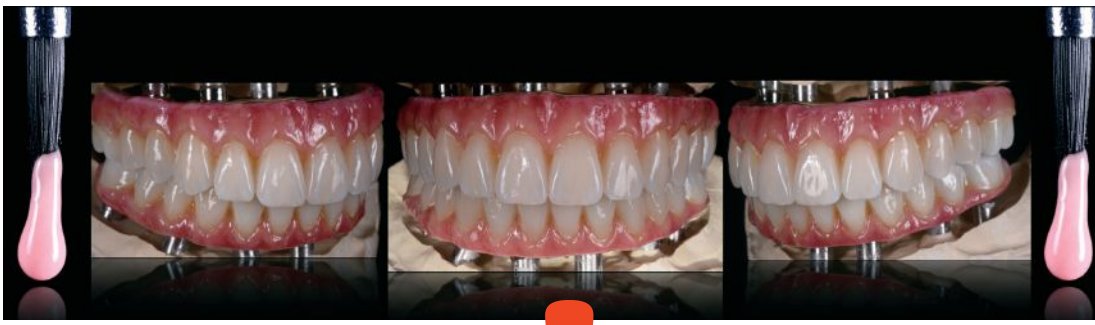
Journal of Dental Technology's WOW! 2023

Zubler 3:45 zirconia was originally designed to address a bottleneck. Four years ago, a lab and milling center using Zubler USA's line of zirconia, milling machines, sintering ovens, and ceramic ovens told Zubler USA that they loved the equipment but wanted to fix the bottleneck created during the sintering process. Zubler USA had already helped speed up their milling times and reduced waste by providing them the ability to sinter without support structures, but sintering times were still way too lengthy.

Zubler USA utilized their premium line of equipment: Zubler Z-mills, Zubler, Mihm-Vogt sintering ovens and Vario ceramic ovens and started development. During this time, countless arches were milled, sintered, and run through glazing cycles repeatedly to ensure reliability, fit and esthetics. Speed sintering without support structures was an important goal, but color, chroma and translucency were equally important. It had to work, and it had to look good! Finally, after years of research and testing, it did! The fastest sintering time capability without support structures was found to be three hours and 45 minutes. Thusly the zirconia was named "3:45".

In what ways does it save time and money?

Zubler 3:45 zirconia became the first material to provide dental professionals the ability to sinter highly esthetic full arches (including implant supported arch constructions) in less than four hours without sacrificing reliability or esthetics! Multiple arches can be sintered in a single speed sintering cycle and no bases or support structures are required during the speed sintering process. Not having a need to mill support structures and bases allows multiple arches to be milled in a single disc, saving massive amounts of zirconia!



How is quality improved?

Since the release of Zubler 3:45, thousands of discs have been sold, over twenty-five thousand arches have been manufactured with it, and the success keeps building.

Zubler 3:45 zirconia comes pre-shaded (mono) and white. Pre-shaded in the following shades: A1, A2, B1, BL1 and BL3. Available sizes include: 98mm x 25mm and 98mm x 30mm. Zubler 3:45 zirconia White (A0) for use with color liquids, include these available sizes: 98mm x12mm, 98mm x 14mm, 98mm x 20mm, 98mm x 25mm, 98mm x 30mm, 98mm x 35mm.

More pre-shaded colors may be released soon. For now, Zubler USA is busy working on their new multilayer esthetic speed zirconia for single units and small bridges that should be released soon!

What do customers say is the WOW factor?

"Barksdale Dental Lab loves Zubler 3:45! The shades are consistent and beautiful!! We now sinter up to four implant supported full arches in less than five hours in a single oven and sintering frames are a thing of the past. This material is a MUST for any full arch laboratory."

— Blake Barksdale

Over twenty-five thousand arches have been manufactured with it, and the success keeps building.

"Zubler 3:45 can be used for full-arch implant restorations and single crowns or bridges and provides the right degree of translucency for a monolithic/stain technique. Another great advantage is the sintering technique. In three hours and 45 minutes arches (without support structures) are completely sintered and ready to be finished! As you can understand, we save not only in milling time but also material! Finally, the right balance in translucency and chromaticity allows you to create highly aesthetic works."

— Domenico Cascione, B.S., CDT, MDT

Zubler USA
Georgia Office (770) 921-2131/
Texas Office (972) 600-9187
www.zublerusa.com

Today's Entrepreneur: Tomorrow's Mentor

Brooke O'Neil Harris, CDT, TE, MPM, has been the director of dental technology at Indiana University Fort Wayne (IUFW) since 2013. Before that, she served in the IUFW dental technology program as a clinical assistant professor, program director, visiting faculty, and graduate teaching aide, for a total of 15 years. She also played a key role in developing the program from an associate level to a bachelor's degree. Throughout this time, much has changed in the overall environment, in the dental laboratory technology (DLT) industry, and with her students. As an educator, she considers it her primary job to adapt to those changes in the student learning styles in order to see her students succeed as tomorrow's leaders. One of the biggest changes to hit the education world was, of course, COVID-19.

"It all comes down to internal drive"

—Brooke O'Neil Harris, CDT, TE, MPM

"The most recent classes have been quite different than what I experienced in years past," said Harris. "I call them the COVID kids. They are different types of learners, who are not surprisingly very adept at online learning but at times are awkward during in-person classes. They ask a lot of questions and seem to have a greater need to get instant confirmation that what they are doing is correct. They are super hard on themselves even though they are just learning, and that is why having a mentor is critical for this generation. They need to have that personal connection with someone to talk through scenarios as they learn."

At IUFW, students have the opportunity for an externship for a minimum of 196 hours in the dental lab, with many developing strong relationships that continue to be career mentorships. IUFW strives to provide mentorship in multiple ways and offers programs for tutoring and pairing senior students with freshmen. The DLT class is small, which limits access to these programs, however, the small classes tend to form tight bonds within their own graduating class. Also, as a small program, students can form more personal relationships with the instructors resulting in collaboration and open communication. Although all of these opportunities are cultivated to prepare students for success, Harris says it boils down to one thing.

"It all comes down to internal drive," she said. "I see the most success with students who are driven to do something, even though they might not get the benefit they think they should. 'What do I get for it' is a major issue. Even if a technician is formally educated, they still need to prove themselves, and many come out with high expectations and get disappointed. Being a successful entrepreneur mandates an internal drive that you can't teach, and they don't all have it. For example, Nick Kajmakoski blew my mind as a student. It was well under a year after graduation when he sat for his CDT in complete dentures, and he passed. It's a difficult task to do it that quickly and that well, and I know much more experienced technicians who didn't pass. He just has it in him and that's what has helped him to become successful."

Nick Kajmakoski, CDT, owner of Radiant Dental Laboratory located in Merrillville, Indiana, graduated from the dental technology program at IUFW, where he gained invaluable knowledge and practical experience. After graduating, he further honed his skills by working in various dental labs, acquiring comprehensive insights into different facets of the business. This hands-on experience bolstered his confidence and led him to take the entrepreneurial leap and establish his own dental lab in October 2018. It was his passion for the industry that drove him, and his desire to contribute by providing innovative solutions and outstanding customer service. Mentorship helped him throughout this process.

"I have been fortunate to have mentors throughout my journey," said Kajmakoski. "Their indispensable guidance and industry expertise played a vital role in navigating the challenges of entrepreneurship and shaping my business decisions. Their unwavering support and advice contributed significantly to my personal growth as a leader."

Kajmakoski drew upon his education, mentorship, experience, passion, and most notably, his character, to become the type of leader he wanted to be.

He said, "I believe that what sets me apart as a leader is my commitment to creating a positive and collaborative work environment for my team. I strive to be approachable, open to feedback, and supportive of my staff's professional growth. My focus on quality, innovation, and building strong relationships with clients has also helped differentiate my dental lab from competitors. Traits such as perseverance, keen attention to detail, and a strong commitment to customer satisfaction are indispensable for success. Additionally, adaptability to industry changes, staying abreast of cutting-edge technology, and effective team leadership have been instrumental in driving the growth of my dental lab. My unwavering passion for the field and relentless pursuit of delivering the highest quality products and services have been the driving forces behind my dedication to this profession."

Over the next five-to-ten years, he envisions his lab will continue to grow and expand services. He aspires to broaden his client base, reaching beyond state boundaries, and prioritizes investment into cutting-edge technology. Through his success, he has always appreciated the value of learning from previous challenges in order to continuously refine his leadership approach. He shares the following advice for those looking to branch out on their own.

"To aspiring entrepreneurs in the dental lab industry or any field, I offer the following advice: Conduct thorough market research and analyze industry trends to develop a clear and realistic business plan," said Kajmakoski. "Surround yourself with knowledgeable mentors or supportive colleagues who can provide guidance and wisdom throughout your journey. Be prepared to work diligently and remain resilient, as the path of entrepreneurship may present challenges but ultimately rewards perseverance. Above all, prioritize delivering unmatched quality and customer satisfaction, as they form the bedrock of a successful venture in the dental lab industry."

"Surround yourself with knowledgeable mentors or supportive colleagues who can provide guidance and wisdom throughout your journey."

—Nick Kajmakoski, CDT

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"Network whenever the opportunity arises to develop and strengthen mentorships."

—Megan Sparks, CDT, TE

Harris was quick to recommend another graduate as a great example of an entrepreneur and leader.

Megan Sparks, CDT, TE, learned about the DLT industry while taking an introduction to dentistry course at IUFW, and knew instantly that DLT was ideal for her to help others in need by utilizing her skills in art. She graduated from the DLT program at IUFW in 2014, specializing in orthodontics and complete dentures. After being in the field fabricating dentures for four years, she decided to further her education by achieving her certification in complete dentures and recently became a certified TE. She worked for a corporation as well as private practice and during that time, and experienced both being a solo technician and training new technicians. She is now opening her own laboratory, Denture Dust Dental Laboratory, and is grateful to the mentors she has had the opportunity to learn from over the years.

"My biggest mentor is Lori Perrin, CDT," Sparks said. "She pushed me toward being the technician and lab owner that I am today. Lori was one year ahead of me in college and was always available to answer any questions I had and provide insight on developing my skills. She served as past president of the Association of Indiana Dental Laboratories and influenced me to become a board member myself. Becoming a lab owner is something I've wanted to do for years, so having the support from my mentors, especially Lori, has helped me make this dream a reality. Not only has Lori guided me to where I am today, but she's also provided an abundance of lab equipment and materials to kick-start my lab."

When it comes to what it really takes to be a successful entrepreneur, Sparks emphasizes the importance of staying current with skills and education.

She said, "Open-mindedness and the ability to use your education to determine your own method or process while still achieving the correct result are necessary in this profession. Time management and the ability to multitask are also essential to being successful. My biggest drive into entrepreneurship was realizing the need to help people feel confident in their smile and realizing there is a lack of DLT opportunities in my area. I also value my family and having my own lab gives me the flexibility to spend more time with them."

Most people who know Sparks would say she's easy going, laid back, and approachable. These character traits have likely helped people to relate to her and feel heard, whether it's a patient, co-worker, or dentist. She strives to have an open line of communication to facilitate collaborative outcomes. In the next five to ten years, she would like to expand to a bigger facility and become a full-service lab. This will allow her to provide services for more people in her community and hire other experienced technicians. Throughout this process, she shares only one thing that she wishes she had done differently, which ties into a recommendation for future entrepreneurs.

"I wish I would have started my own lab sooner," said Sparks. "I had the opportunity in the past, but at the time, I was hesitant knowing how much goes into owning your own lab. Now I realize the only thing standing in front of my dream was myself and my excuses for why I wasn't ready. I would tell others to just do it! Be willing to go outside of your comfort zone and challenge yourself to make strides toward the career advancements you wish to achieve. Network whenever the opportunity arises to develop and strengthen mentorships."

There is an undeniable connection between mentor relationships and the emergence of future industry leaders. It is the responsibility of today's leaders to continue that cycle. Many challenges face those who are in the DLT field, and it is with help from each other that solidarity and success will arise.

Harris said, "I encourage everyone to get involved in state and national organizations and to go to meetings. In the greater community of DLT, there's a great generation of people willing to teach and share. They are not worried about getting a doctor stolen, but rather, they love the field, and they want to share that passion. If we can instill that same passion with the up-and-coming technicians, only then we will see the industry flourish." **JDT**

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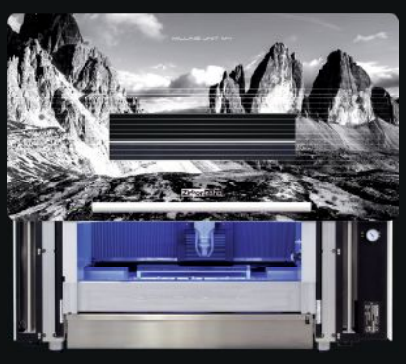

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By Jamie Stover, CDT

Four Unique 3D Printed Workflows for Removable Partial Dentures

The number of patients in the United States with full or partial edentulism is surprising. According to the American College of Prosthodontists, 36 million people have no teeth and 120 million more are missing at least one tooth. By the year 2037, the number of partially edentulous patients is estimated to grow to over 200 million. Some of these patients will choose to restore their missing dentition with implant-based restorations. Although implant dentistry is consistently growing, it is procedurally more complex, is an overall longer process, and can be cost prohibitive for some patients. This means that a large number of partially edentulous patients will utilize a removable partial denture (RPD) to replace missing teeth. If only 10 percent of the current U.S. partially edentulous population was prescribed an RPD this year, labs would need to produce 12 million, with that number growing in the future.

Fabricating a processed acrylic RPD is time and labor intensive, requiring skilled technicians to complete many steps. A recent NADL demographic survey showed that 60 percent of dental lab technicians are age 55 or older, and only 24 percent are listed as the "most experienced" removable technicians (https://nadlonlinestore.payscapecommerce.com). The combination of a high volume of RPD cases and a shortage of experienced technicians creates production bottlenecks for labs and drives the cost to produce these cases higher as labor rates continue to rise, which further shrinks already tight profit margins. Some labs have chosen to combat these challenges by utilizing additive technology and materials and have transitioned production of RPDs to a digital workflow on 3D printers with impactful benefits. In this article, the author will explore four different 3D printed workflows for RPDs, outlining the hardware, software, materials, and production steps used for each.

Workflow #1- 3D Printed Partial Frames for Casting

The team at Custom Arts Dental in Shreveport, La., fabricates cast metal partial frameworks for their clinical customer base, as well as provides frames for labs. The cases originate mostly from traditional PVS impressions and articulated models, which are scanned using 3Shape scanners and imported into the design software (www.3Shape.com). From that point the frames are designed and printed in their Carbon M2 3D printer (www.carbon3d.com) using the Dreve FotoDent Cast resin (www.dentamid.dreve.de). Ashley Doyle oversees the design, printing and casting of partial frames at Custom Arts and says that the team has learned how to produce very accurate printed castable partial frames through a lot of trial and error and the development of strict SOPs.

She said, "We have found that it is critical to design the partial frameworks correctly, but equally important, to make sure they are protected from anything that can cause them to warp prior to casting."

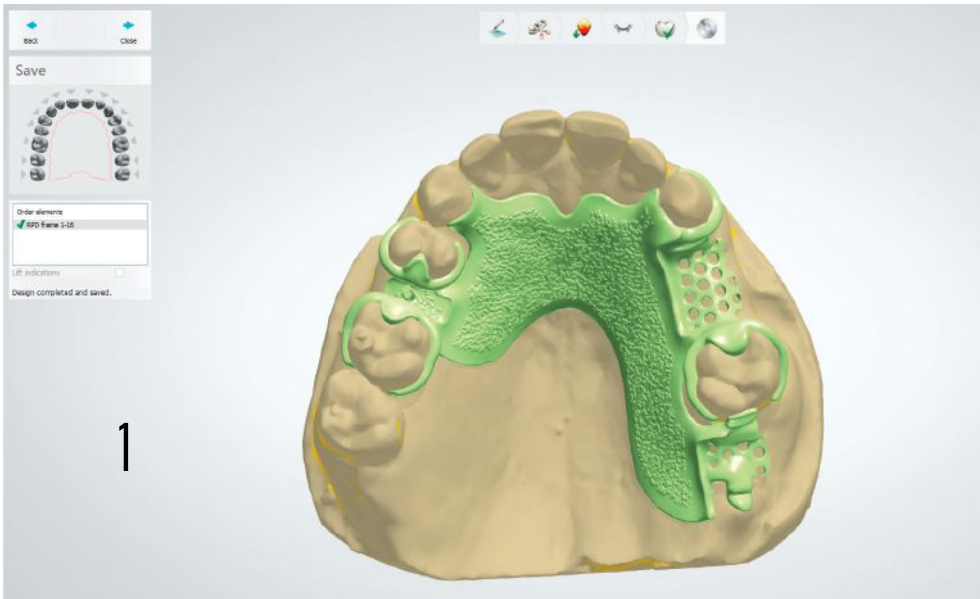
When designing partial frames, the lab utilizes 3Shape's Removable Partial Design software and Doyle recommends that labs pay special attention to the blockout feature, both to ensure undercuts engage correctly for clasp placement, and to provide adequate blockout around the clasp shoulder areas to eliminate excessive adjusting due to overly tight fit (**Fig. 1**). Prior to printing and during the nesting steps, Custom Arts utilizes the material-specific training and IFUs provided in Carbon Academy to ensure the frames print without any distortion.

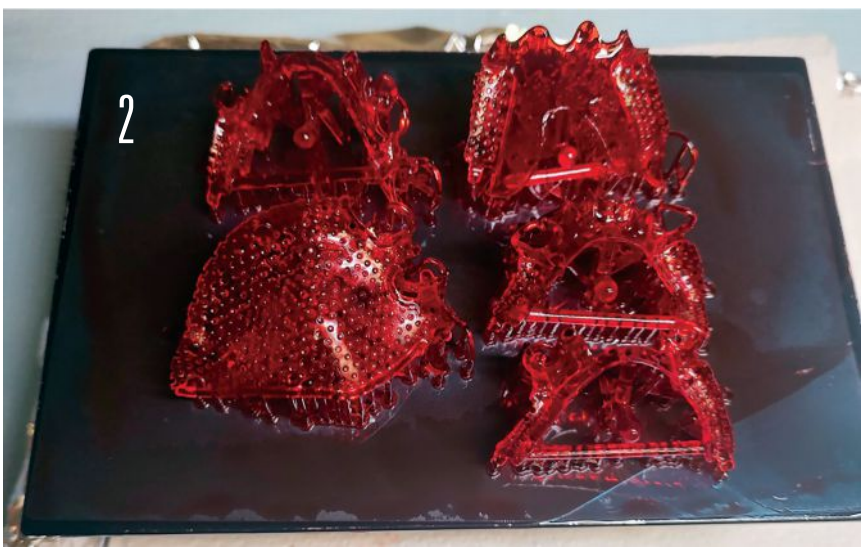
Doyle said, "We follow the SOPs in Carbon Academy strictly for supporting the frames and nesting, which is critical to make sure the frames print accurately without warping, and we pay special attention to our nesting procedures to ensure the clasps are supported adequately."

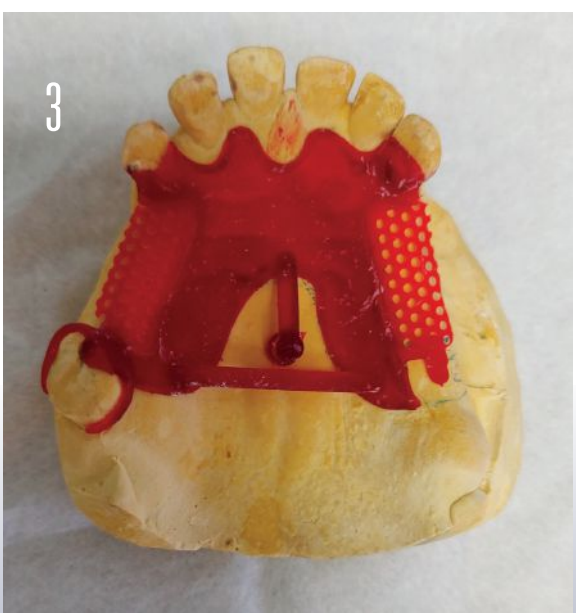
Doyle and her team also developed a post-processing workflow that eliminated distorted and warped frames. She shares that they use the release film for the Carbon M2 build platform, which makes it much easier to remove the frames from the platform without warping them or breaking any of the parts (**Fig. 2**). After washing the printed frames in isopropyl alcohol and doing the final UV cure, the team checks the fit on the model and makes any necessary adjustments prior to casting.

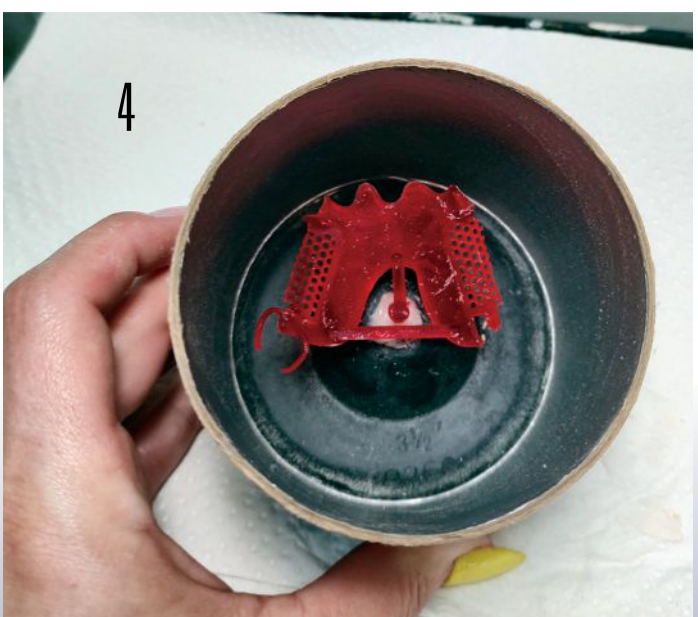
"It is more efficient for us to make minor adjustments to the cured resin than to adjust the cast metal frames," she said. "This speeds up the finishing process and means we have happier metal finishers too (**Fig. 3**)."

The next steps are investing and casting the frames, followed by divesting and polishing (**Fig. 4**).









The team checks the fit on the model and makes any necessary adjustments prior to casting.

SLM is a 3D printing process when a high-powered laser melts individual layers of metal powder to form parts.

Doyle recommends that labs test and experiment with investment brands that are specifically designed for 3D printed parts and select the one that provides the best results. Custom Arts uses Varseovest P Plus from Bego (www.Bego.com), which is a phosphate-bonded investment material designed specifically for casting 3D printed partial frames. After investing the frameworks, the rings bench set for 30 minutes, and then go into a 1350 F oven for one hour and 15 minutes, with an additional 15 minutes added per each additional ring in the oven. They are then cast in Arloy, a nickel-chromium based alloy from Arro Rosenson (www.arosenson.com).

Custom Arts Dental owner Ben Hart said, "Transitioning from analog production of partial frames to digital with 3D printing has not only improved the quality of our product, but has drastically reduced labor, production costs, and production time."

Workflow #2- Utilizing SLM to Print Metal Frames

Another innovative workflow that moves the fabrication of metal partial frameworks from an analog to digital workflow is to 3D print, otherwise known as Selective Laser Melting (SLM). SLM is a 3D printing process when a high-powered laser melts individual layers of metal powder to form parts. As the laser beam hits each thin layer of metal powder, it selectively welds the particles together, and after one complete print cycle, the part lowers by the precise amount of the thickness of one build layer. This process repeats until the part forms completely.

Drake Dental Lab in Charlotte, N.C., currently fabricates partial frames successfully utilizing this production method. Drake was founded in 1956 as a lab that only fabricated partials, and in the 24 years that VP/CFO Bob Savage has been at the lab, he has not only seen their product portfolio grow to a full service menu, but has seen every production process for partial frameworks utilized.

Savage said, "Our path to SLM production of frameworks has been a journey with the evolution of materials and technology, originating with hand waxing and casting in-house, and included briefly trialing the casting of frames in titanium, which proved very challenging and somewhat problematic due to the chemistry of the alloy."

The team at Drake first moved partial frame production to a CAD/CAM workflow by designing them in 3Shape software, 3D printing in a castable resin, and then casting the frameworks in-house, but faced challenges with the fit of the frames due to accuracy issues with the 3D printers they were using at the time. They continued with digital production of frames but switched to an outsource workflow.

"To maximize efficiency while searching for a viable in-house digital fabrication method, our team opted to outsource the SLM production of frameworks, with our goal always being to bring the production in-house digitally as soon as we could invest in a reliable solution," Savage said.

Drake has found a digital solution that works well, which consists of printing cobalt-chrome (Co-Cr) partial frameworks on three SLM machines from 2OneLab (https://2onelab.com/en). The frames are designed and printed at the lab and use a combination of 3Shape CAD and Oqton CAM software (https://oqton.com/dental). Regarding the design of the frames, Savage shares that the team learned a lot about designing specifically for the SLM process through R&D, and developed SOPs which include strategically building thick clasps, paying special attention to adequately supporting the parts, and adding cross-arch support bars to prevent warping when necessary.

After the parts are designed (**Fig. 5**) the team drags and drops the files into a folder and uploads them to the Oqton software, where they are automatically nested and arranged on the build platform and the

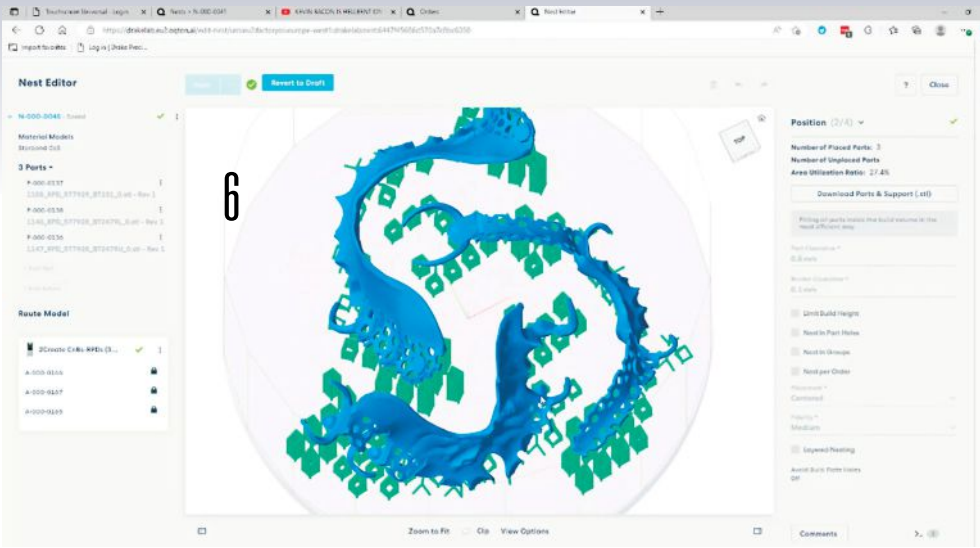
print jobs are auto-queued (**Fig. 6**). The print jobs take approximately six hours to complete, with an average of 6-7 frames produced per build cycle depending on the geometry of the frames (**Fig. 7**). After printing, the supports are removed and the frames undergo an annealing step, which takes approximately one hour to complete. Annealing is a process of heating the alloy to a specified temperature, holding it, and then cooling, and is required after SLM fabrication of Co-Cr parts to obtain homogeneous metallic structures. Annealing also increases the ductility of the frames, accelerates relief of internal stresses, and softens the material slightly. The final step is polishing the frames, which the team does using an electropolisher from DLyte Industries (https://www.dlyte.com/industries/dentistry). This eliminates the need for technicians to polish the frames individually by hand and further reduces the cost to produce (**Fig. 8**).

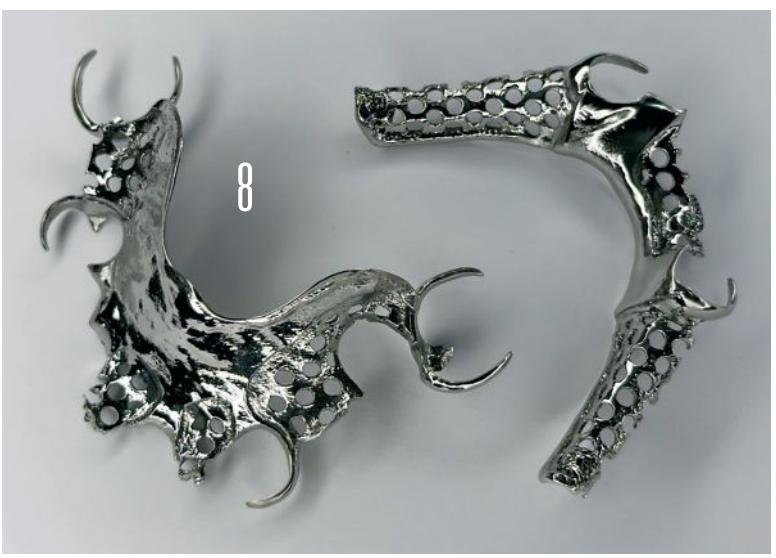
Savage says the fit of their SLM frames is excellent, with the desired amount of flexibility, and that SLM fabrication has created dramatic increases in both efficiency and profitability. The Drake team eliminated two-to-three days in the overall fabrication process which decreased the turnaround time for their RPDs, increased production bandwidth without adding skilled removable technicians, and created new internal job opportunities by moving technicians between departments and training on the new process. He said the lab has seen a 40-50 percent profit margin increase compared to producing partial frames with the analog workflow, and a 30 percent increase in profitability compared to outsourcing the SLM frames.

"Drake Dental Lab's journey with SLM metal printing for partial frames has been a remarkable one, marked by precision, efficiency, and unparalleled quality," he said. "This cutting-edge technology has not only streamlined our lab's workflows but also consistently delivered exceptional results. We are excited to continue pushing the boundaries of what's possible."

Workflow #3- 3D Printed Gingiva and Teeth Over an SLM Metal Frame

Trey Ford, owner of Design Dental in Lancaster, Ohio, made it his mission to utilize digital technology to improve all areas of their workflow, and developed a strategy for fabricating RPDs which combines an SLM laser sintered metal framework with 3D printed gingiva and teeth. Fulfilling clinicians' prescriptions





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CONTINUING APPROVED EDUCATION

NADL National Association of Dental Laboratories

who ask to incorporate the Lucitone Digital Print (LDP) denture materials in conjunction with RPD cases, the team works from traditional PVS and IOS impressions. The lab currently outsources the design and printing of the metal frames and Ford says this benefits business in two main ways.

He said, "Outsourcing the design and fabrication of partial frames is beneficial for our lab because it is difficult to find qualified technicians with the experience required to properly design and/or finish frames. In a lab of our current size, bringing digital manufacturing of frames in-house would require a significant investment in hardware, such as the SLM machine and associated equipment. In the future as we grow and scale up it may make sense to make that investment."

Once the SLM frames arrive in the lab, scanning them with the models is the starting point of their unique workflow. He prefers to use 3Shape's Denture Designer software for designing the partials and feels designing partials in Denture Designer for this workflow is simpler because he really likes and saves time with the Gingivator feature. He also finds it is easier and quicker to access the tooth libraries, as well as manipulate the teeth and bridge than in the Removable Partial Design module.

For simple cases with adequate existing teeth and easily verified occlusion, the frames are placed on the model and scanned, along with the bite and opposing model. The technician applies a thin layer of Wonderfill putty (www.dentalcreationsltd.com) to the saddle areas of the model before placing the metal frame on it to create some space for the acrylic, and to fill the mesh and create a smooth surface to scan. Ford prefers the putty for its simplicity to be easily removed compared to traditional wax that needs to be steamed off (**Fig. 9**).

On more complex cases with less existing teeth when bite blocks are used to establish the occlusion, the team skips a few steps ahead in the software and scans the models with the bite block as the first step, and saves that scan. This allows them to return to this bite scan as a starting point should it become necessary. Next, the bite blocks are removed and the metal frame is placed on the model and scanned. The team then designs the gingiva and teeth to fit over the metal frame (**Figs. 10-11**), and prints them in the Lucitone Digital Print base resin and the Lucitone

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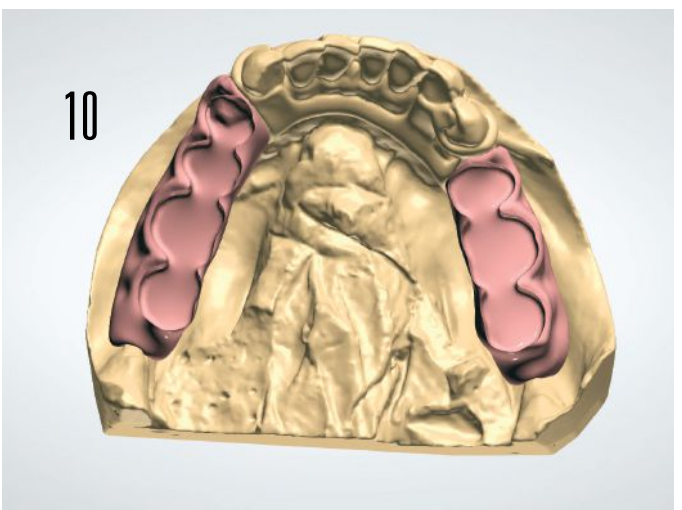
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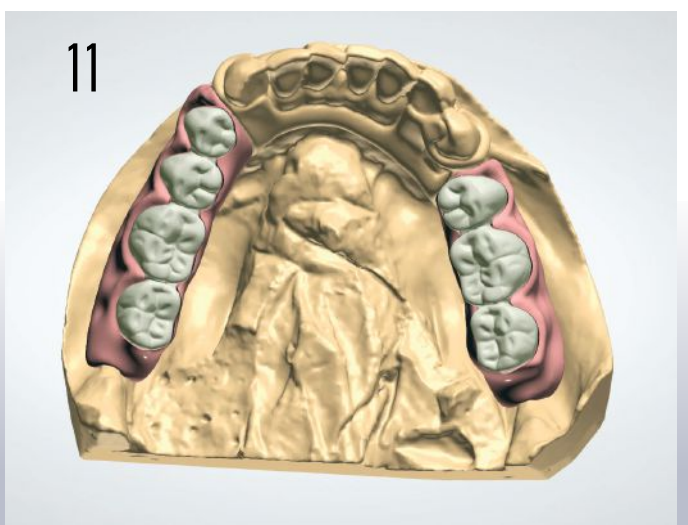
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Premium IPN tooth resin in the desired shades on one of three Carbon printers. Ford adds that if a try-in is required, they will print a monolithic try-in (frame, gingiva base and teeth) and send for verification prior to printing the final parts, but that less than 20 percent of their RPD cases are complex enough for clinicians to prescribe a try-in.

After printing, the saddles and teeth are post-processed (supports removed, parts washed in isopropyl alcohol), and then the teeth are fused into the gingiva base with the Lucitone Digital Fuse 2 resin, and a UV cure cycle is completed. Dentsply's Lucitone HIPA – High Impact Pourable Acrylic resin (www.dentsplysirona.com) is applied to the LDP gingiva which is placed on the metal frame and then into a pressure pot, bonding the gingiva bases and teeth to the frame, before the final polishing steps are done (**Fig. 12**).

"For me, my focus is always about scalability and repeatability, and this workflow is a game changer when it comes to reducing mess, increasing productivity and having a scalable removable department," Ford said.


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Workflow #4- 3D Printed Temporary RPD

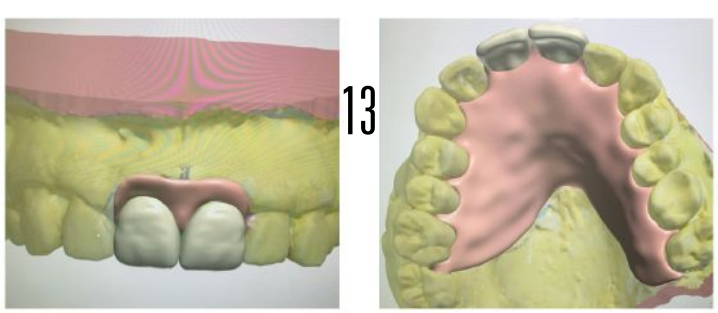
Another innovative workflow some labs incorporate is the digital fabrication of temporary partial dentures entirely out of 3D printed denture base/teeth with no metal framework, both with and without metal clasps for retention. Just five years ago, this was not a reliable solution due to the lower strength and the lack of realistic esthetics provided by the 3D print denture resins on the market at the time. With the launch of 3D print denture resins such as Lucitone Digital Print (LDP) and Flexcera (www.health.desktopmetal.com), labs now have access to high-impact, strong, and esthetic 3D printable materials. 3D printing temporary RPDs lowers the production cost by eliminating analog labor and improves the ROI on 3D printers for labs that are also producing 3D printed dentures, as RPD bases and teeth can be added to existing print jobs throughout the day.

Nakanishi Dental Lab in Bellevue, Wash., moved a significant portion of their denture production to a 3D printed workflow, and experienced similar benefits with their printed temporary RPDs. For 3D printed RPD cases the Nakanishi team accepts traditional PVS and IOS impressions, and either converts the traditional impressions and bite records to digital by scanning them with one of their 3Shape E4 scanners or imports the IOS impression files into the 3Shape Denture Designer software, where a technician designs the RPD. Like Trey Ford, Kaila Nakanishi, CDT, owner and VP of laboratory operations, says she prefers this software module to the 3Shape Removable Partial Denture module for the ease of accessing and manipulating the tooth files, and finds the design of partials to be a quicker and simpler process overall (**Fig. 13**).

The lab produces 3D printed RPDs following clinician prescriptions requesting LDP as the material both without metal clasps and with metal clasps when required for adequate retention.

Nakanishi said, "Because the LDP material is a little more flexible than traditional temporary denture acrylic, we can achieve an excellent fit and it's less necessary to need metal clasps for retention. Only about 15 percent of the temporary RPDs we produce digitally have metal clasps."

When metal clasps are not required for retention, after the partial is designed the team prints in the Lucitone Digital Print base resin and the Lucitone Premium IPN tooth resin on one of their Carbon M Series printers. The next production steps are post-processing the parts (supports removed, parts washed in isopropyl alcohol) and the teeth are tack-cured into the gingiva base with the Lucitone Digital Fuse 2 resin before a UV cure cycle is completed. The final step is polishing the RPD before delivery (**Fig. 14**).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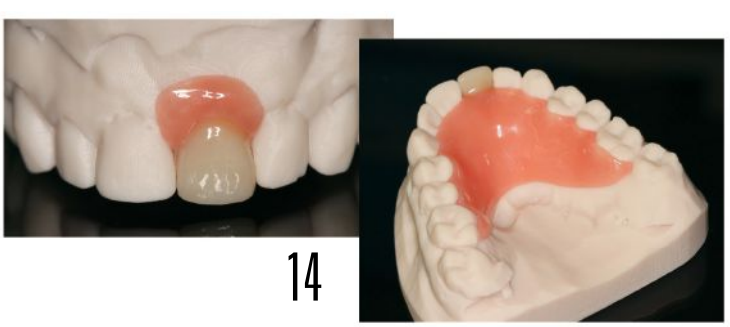
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When it is necessary to utilize metal clasps for retention, the team incorporates them into the design by bending the wire clasps and gluing them onto the model in their precise location around the desired teeth. Nakanishi notes that applying some blockout material under the wire makes it easier to design the RPD to fit. Next, the model with the clasps is scanned and the RPD is designed, printed and post-processed. The technician then removes the metal clasps from the model, applies some acrylic separator to the areas of the model where the clasps fit, and replaces the clasps into position. Next, the Lucitone Digital Fuse 2 Resin is applied to the intaglio of the RPD base, in the channels designed for the clasps, and the RPD is placed on the model, with the clasps sitting in the channels, and tack-cured with a handheld UV curing light. The RPD is removed from the model, the printed teeth are tack-cured in with the Lucitone Digital Fuse 2 resin, and the RPD is placed in the UV cure chamber for a final curing cycle before being polished (**Fig. 15**).

"Megan Nakanishi, owner and VP of business operations, said, "Utilizing this 3D printed workflow, we have been able to double our throughput of temporary RPDs with existing staff, which has been incredibly beneficial."

The digital evolution of the production processes and materials for the removable products and services labs provide is moving rapidly, and will continue to provide solutions to the challenges labs face to source skilled technicians, while meeting the growing number of patients in need. **JDT**

Quotes from design outsource providers on trends:

"As labs look for more efficient workflows, we find more and more labs reaching out to us for help with digital RPD design. The shortage of experienced removable technicians and the lack of knowledge on how to transfer these workflows from analog to digital is making it hard for labs to keep up. At evident, we have seen this demand growing for the past few years, so we have been building and training our CAD team to be able to keep up with demand."

—Guy Menziees, Vice President of Design, Evident

"One notable advancement within the realm of dental prosthetics is the rise and demand of digital partial dentures. Laboratories that have made this shift from traditional to digital gain the benefits of reduced turnaround times, long-term cost savings on materials and labor, and precise, consistent manufacturing outcomes. 3Shape Design Services offers a full range of design indications to assist you with your digital design needs, including various options for RPD design under our "RPD" design type indication."

—Cole Bishop CDT, Director of Design Quality, 3Shape Design Services

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About the Author:

Jamie Stover, CDT, is the Senior Manager of Dental Lab Applications at Carbon and has been a dental laboratory technician for over 24 years. Stover oversees dental application support globally and is a consultant for labs and dentists on streamlining production with the digital workflow and implementing strategies for business growth/development and utilization of new applications. He is a member of The Dental Technician Alliance of the American College of Prosthodontists, a member of the NADL business management committee, and is the NBC vice chair. Jamie has dozens of articles published domestic and internationally, lectures regularly on a myriad of topics for dental professionals, and was awarded the 2021 NADL Merit Award for Outstanding Achievement. Jstover@Carbon3d.com

See the next page for for a bonus 3D printing case study ▶

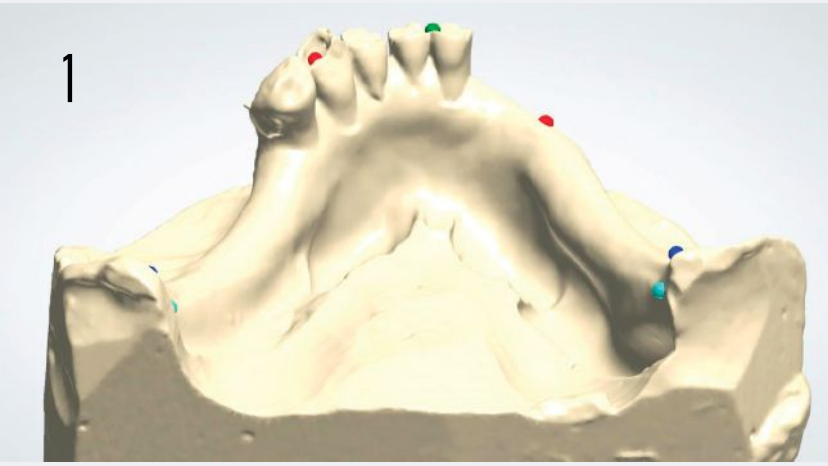
Brandon Smith, CDT

Bonus Case Study:

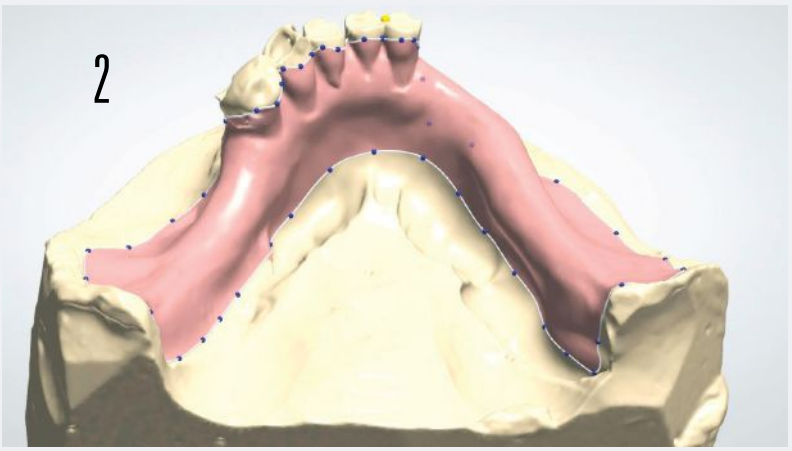
Fabricating a **Claspless 3D Printed RPD**

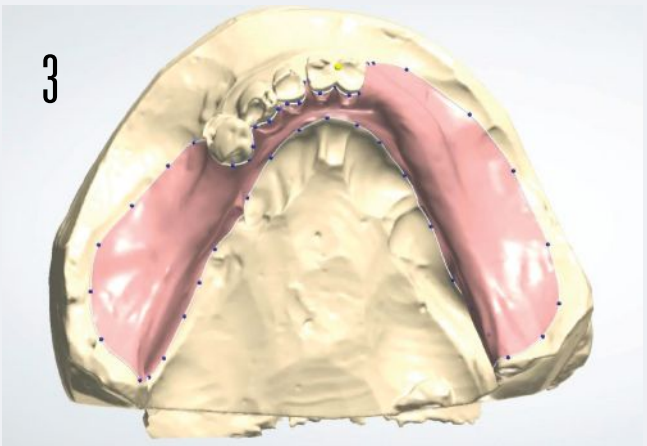
With the introduction of second-generation 3D print denture materials such as Lucitone Digital Print (LDP), and the accuracy of new printers such as the Carbon M Series, we are finally at a point when dentures can be done successfully with digital processes. We are all familiar with the various analog production techniques for dentures and partials, and most have the same things in common: they are all labor intensive, time consuming, and most of all, inaccurate. Digital processes allow us to increase our productivity, keep our labs cleaner, and reduce our hands-on time. The second generation of denture resins also set the bar higher in strength. For example, a denture fabricated in the LDP system is almost three times stronger than a traditionally processed denture. That is impressive.

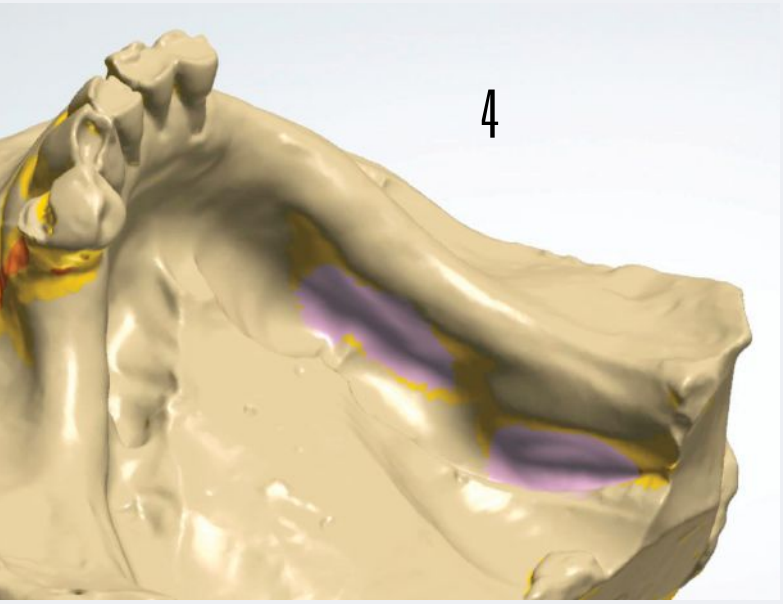
You may be asking why I am talking about dentures, when the article is about fabricating partials. The simple answer is that I asked myself, if an LDP denture can be that strong, shouldn't a 3D printed partial in LDP be as well? Since they are that strong, do I really need to make partials with metal frameworks? Since digital is so much more accurate, will the 3D printed partial fit more accurately in a patient's mouth? Will I need to add metal clasps? How thick should I make it? I asked myself these questions before trying my first 3D printed Lucitone DLP partial.

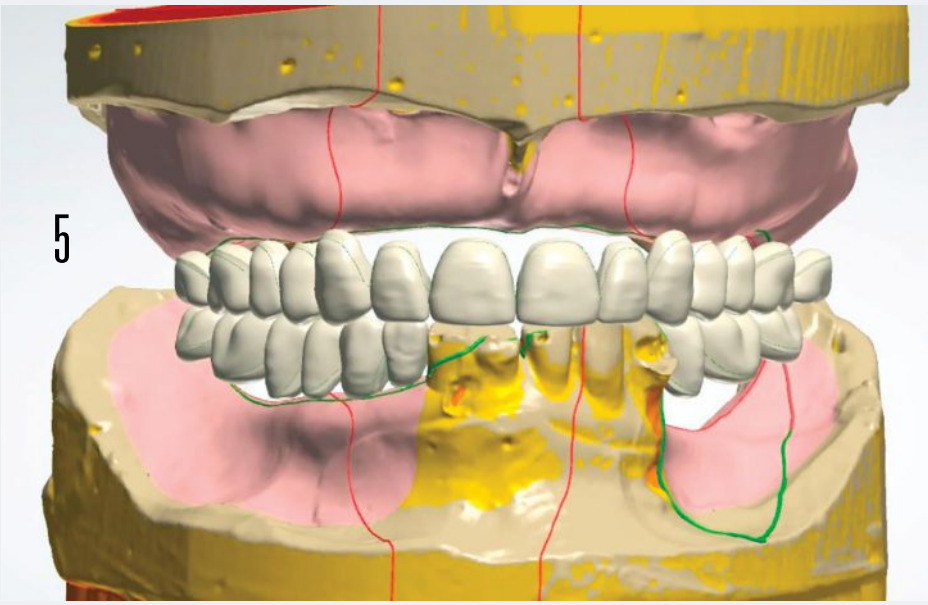


The case I am showing was a live case where the prescription requested LDP as the material, and the partial is still in use at the time of this article. The main issue I had was whether it would have enough retention. The patient only had #22-26, so this was a tough case from the beginning. I also dealt with poor impressions and the proverbial "just go with it" response when I asked for new ones. Luckily, this patient did have some natural retention in the form of undercuts (**Fig. 1**). I used this to my advantage by engaging them and using the lingual undercuts of the teeth to give myself extra retention (**Fig. 2**). The last item that really helped with the design was extending the borders as far as I could in the saddle areas. The impression was short and distorted in a few areas there, but I had enough to help with the retention (**Fig. 3**).





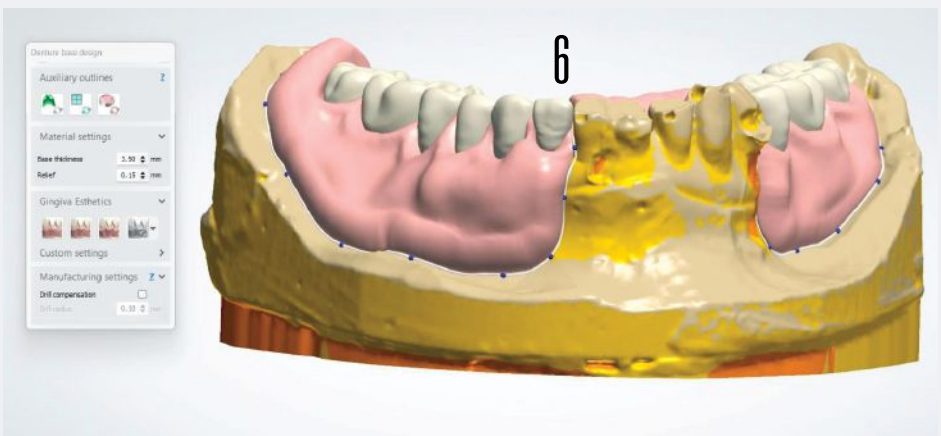




The doctor stated that the fit was better than most traditional acrylic partials he seated.

From there, I used some block out wax on the cast, but only to lessen the depth of some of the deeper undercuts (**Fig. 4**). I wanted to make sure there were plenty of retentive elements to the design. This gave the partial a nice snap when placed in the mouth. When I set the teeth, I used a lower plane of occlusion to prevent any tipping forces that may have been present from normal function. This case was a full denture opposing the partial, so I used 3Shape Dental System (www.3Shape.com) to design it. This software is nice for designing dentures and partials as the upper and lower teeth start in perfect occlusion with each other and you just have to fit them to the space provided (**Fig. 5**).

The last thing I did was ensure that the partial would be thick enough, as Dentsply recommends 2.5mm for uppers and 3.5mm for lowers for minimum thickness of the LDP base. Since this case was a partial, I made sure to set its minimum thickness to 3.5mm; I would do this regardless if it is an upper or lower (**Fig. 6**). From there, I completed the denture design, printed it on my Carbon M2, and finished it. When I first sent the case to the doctor, he called and inquired about the lack of clasps on the partial. I had to spend some time discussing how retention would work without it and he was very skeptical. The delivery appointment went well with minimal adjustments and good retention. The appointment was in February 2023 and the patient is still wearing the partial and is happy with the result. The doctor stated that the fit was better than most traditional acrylic partials he seated, that the occlusion was spot on, and that he wants to try more of these in the future. I would say that is a success! **JDT**



About the Author

Brandon Smith, CDT, is a certified dental technician specializing in Implants with 16 years of experience. He has worked for various labs including Dental Associates Lab and Triad Dental Studio. He has also worked for the Whip Mix Corporation and 3Shape Inc. doing technical support, training, R&D, and lecturing. He was also key in creating education plans and content for large DSO organizations. He is currently the Technical Advisor for Dental Associates Lab and owns his own consulting business offering training, education courses, design services and R&D.

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V21

2024 NADL VISION 21 MEETING

JANUARY 18 – 20, 2024

CAESARS PALACE HOTEL & CASINO | LAS VEGAS, NEVADA

The theme for the 2024 NADL Vision 21 Meeting is **Innovation: Looking Through a Different Lens.** Innovative processes and constant change are necessary to increase efficiency and profitability in the dental laboratory industry. Make plans now to attend the 2024 NADL Vision 21 Meeting to gain insight on building core competencies of innovation mastery for organizational excellence!

FRIDAY KEYNOTE SPEAKER

Nick Webb

Nick Webb is a world-renowned strategist, bestselling author, and futurist. He is also the CEO of Leader Logic, a management consulting firm that provides consulting and training services to the top brands in the world. Nick has been awarded over 40 patents by the U.S. Patent and Trademark Office for a wide range of cutting-edge technologies, including one of the world's smallest medical implants. He has served as a Chief Innovation Officer and an Adjunct Professor at a top medical school and was awarded his Doctorate of Humane Letters (hon.) for his contributions in healthcare.

In a time of "chaotic innovation" and hyper-complexity, organizations need to build a core competency of innovation mastery. In Nick Webb's keynote, "The Future of Innovation," he will provide actionable insights on leveraging the new body of science around chaotic innovation to drive sustainable growth and organizational excellence. Join us for this Friday morning keynote to kick off the V21 Meeting.

PRELIMINARY SCHEDULE OF EVENTS (AS OF 9/14/23)

THURSDAY – JANUARY 18

11:00 a.m. – 1:00 p.m. Lunch on Your Own

11:00 a.m. – 7:30 p.m. Registration Desk Open

12:00 p.m. – 1:00 p.m. Vision 21 Kickoff Meet & Greet Beverage Break
Sponsored by: ASIGA

1:00 p.m. – 3:00 p.m. **Engaging Teams for Change**
Speaker: Jeff Tobaben – Evolve Performance Group
(CDT: 2 Hours Professional Development Credits)

1:30 p.m. – 4:30 p.m. Sponsor Marketplace Setup Only

3:00 p.m. – 3:30 p.m. Afternoon Beverage Break
Sponsored by: Glidewell Dental

3:30 p.m. – 4:30 p.m. **H.I.I.T. Sessions: High Intensity Innovative Topics**

Topics / Speakers:
- **Artificial Intelligence in Dentistry: Rob Laizure, Jr.**
- **Cybersecurity in the Dental Laboratory: Lynn Haag – Engineer Austin**
- **Succession Planning: Ira Rosenau**

(CDT: 1 Hour Professional Development Credit)

6:00 p.m. – 6:30 p.m. Foundation Donor Reception (All Attendees Invited)

6:30 p.m. – 7:30 p.m. President's Reception
Sponsored by: Zahn Dental

FRIDAY – JANUARY 19

8:00 a.m. – 6:00 p.m. Registration Desk & Sponsor Marketplace Open

8:15 a.m. – 9:00 a.m. Breakfast Buffet
Sponsored by: Ivoclar

9:00 a.m. – 9:30 a.m. Welcome & Announcements

9:30 a.m. – 10:30 a.m. **Opening Keynote: The Future of Innovation**
Speaker: Nicholas Webb, CEO – Leader Logic, LLC
Sponsored by: Nowak Dental Supplies, Inc.
(CDT: 1 Hour Professional Development Credit)

10:30 a.m. – 11:00 a.m. Morning Beverage Break
Sponsored by: Aidite (USA) Technology Co., Ltd

11:00 a.m. – 12:00 p.m. **Utilizing the Latest Printing & Milling Technology & Materials to Increase Efficiency & Profitability**
Speaker: Chris Kabot – Affordable Care, LLC
(CDT: 1 Hour Scientific Credit)

12:00 p.m. – 12:30 p.m. Installation of NADL, NBC & FDLT Leadership

12:30 p.m. – 1:30 p.m. NADL Networking Luncheon
Sponsored by: Argen Corporation

1:30 p.m. – 2:00 p.m. Coffee & Desserts in Sponsor Marketplace
Sponsored by: Upcera Dental America

2:00 p.m. – 3:00 p.m. **Panel: Innovative Processes for Managing Your Dental Laboratory**
Panelists:
Randi James – Renstrom Dental Studio, Inc., CDL
Dory Sartoris – DCS Dental Lab, Inc.
Chris Waldrop, CDT – Burdette Dental Lab, Inc., CDL
Moderator:
Michael Farago – Concord Dental Laboratory, CDL
(CDT: 1 Hour Professional Development Credit)

3:00 p.m. – 3:30 p.m. Afternoon Beverage Break
Sponsored by: Preat Corporation

3:30 p.m. – 4:30 p.m. **The Evolving Relationship Between Dentists & Dental Labs**
Speaker: Lori Trost, DMD
(CDT: 1 Hour Professional Development Credit)

4:30 p.m. – 5:15 p.m. NADL Awards Presentations

5:15 p.m. – 6:15 p.m. NADL Awards Reception
Sponsored by: DGSHAPE, A Roland Company

SATURDAY – JANUARY 20

8:00 a.m. – 11:45 a.m. Registration Desk & Sponsor Marketplace Open

8:15 a.m. – 9:00 a.m. Bloody Mary & Mimosa Beverage Break
Sponsored by: BEGO USA, Inc.

8:15 a.m. – 9:00 a.m. Breakfast Buffet
Sponsored by: Keystone Industries

9:00 a.m. – 10:30 a.m. **Business Roundtables: What Keeps You Up at Night? Part 1: Table Talk**
Sponsored by: Benco Dental
(CDT: 1 Hour Professional Development Credit)

10:30 a.m. – 11:00 a.m. Morning Beverage Break
Sponsored by: Amann Girrbach

11:00 a.m. – 12:00 p.m. **Business Roundtables: What Keeps You Up at Night? Part 2: Strategic Solutions**
(CDT: 1 Hour Professional Development Credit)

12:00 p.m. Meeting Concludes / Lunch on Your Own / Sponsor Marketplace Breakdown

Attendee Lanyards Sponsored by: Carbon, Inc.
Attendee Notepads Sponsored by: Garland Dental Equipment Services
V21 Meeting Microsite Sponsored by: Zimbis

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Sterngold Dental, LLC | Strategy GOLD Milling | Whip Mix Corporation

V21 HOTEL INFORMATION

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www.caesars.com

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To receive the NADL discounted rate of **$209** plus resort fee of **$45.95** plus taxes per night, please make your reservations directly with Caesars Palace through the online reservations link: **https://book.passkey.com/go/SCVIS4**

Telephone reservations will be assessed a $15 fee. Be sure to make your reservation by **Tuesday, December 26, 2023**, to receive this discounted rate. This NADL rate is subject to availability of guest rooms at the time of reservation.

THANK YOU 2024 NADL V21 SPONSORS

NADL would like to extend our sincere appreciation to the companies who support the 2024 Vision 21 Meeting. This meeting would not be possible without their generous support and participation.

(AS OF 9/14/23)

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The Foundation for Dental Laboratory Technology is excited to be racing again for the future of dental laboratory technology at its Race for the Future 10.0 event, scheduled for August 2024. All revenue raised from this event will provide direct grant funding for dental laboratory technology programs, for dental technicians to attend advanced education, and for scholarships to become certified as well as the development of educational programs and other workforce needs in the profession. Sponsor this event and support your favorite racer all while helping to shape and support the future of dental laboratory technology!

The Foundation For Dental Laboratory Technology

Learn more at www.dentallabfoundation.org/race-future-10.0

2024 NADL VISION 21 MEETING

January 18 – 20, 2024 | Caesars Palace Hotel & Casino | Las Vegas, NV

(One registrant per form. Please photocopy for additional registrants.)

ATTENDEE REGISTRATION

Name _____ ❑ CDT ❑ RG ❑ DMD ❑ DDS ❑ Other _____
(Name as you would like for it to appear on name badge.)

Organization _____ ❑ CDL

CDT/RG Number _____

NOTE: For CDT/RG registrations, you MUST include your number to receive CE credit for attending sessions.

Address _____

City _____ State _____ Zip _____

Phone _____ E-mail _____

NADL LABORATORY / EDUCATION MEMBER – FULL REGISTRATION

Includes: Thursday President's Reception, all Thursday, Friday and Saturday presentations, Thursday, Friday & Saturday meals & breaks, Friday Awards Reception.

Before 12/26/23: ❑ **$645 – First Member** ❑ **$545 – Each Additional Member**
After 12/26/23: ❑ **$695 – First Member** ❑ **$595 – Each Additional Member**

Sub Total $_____

NADL SUPPLIER MEMBER – FULL REGISTRATION

Includes: Thursday President's Reception, all Thursday, Friday and Saturday presentations, Thursday, Friday & Saturday meals & breaks, Friday Awards Reception.

Before 12/26/23: ❑ **$995** **After 12/26/23:** ❑ **$1,045**

Sub Total $_____

NON-MEMBER LABORATORY / EDUCATION – FULL REGISTRATION

Includes: Thursday President's Reception, all Thursday, Friday and Saturday presentations, Thursday, Friday & Saturday meals & breaks, Friday Awards Reception.

Before 12/26/23: ❑ **$995** **After 12/26/23:** ❑ **$1,055**

Sub Total $_____

NON-MEMBER SUPPLIER – FULL REGISTRATION

Includes: Thursday President's Reception, all Thursday, Friday and Saturday presentations, Thursday, Friday & Saturday meals & breaks, Friday Awards Reception.

Before 12/26/23: ❑ **$1,435** **After 12/26/23:** ❑ **$1,495**

Sub Total $_____

ADDITIONAL REGISTRATION OPTIONS

❑ **$75 – Thursday President's Reception – Guest** (Thursday Reception included in Full Registration Fees) Name: _____

❑ **$75 – Friday Networking Luncheon – Guest** (Friday Luncheon included in Full Registration Fees) Name: _____

❑ **$75 – Friday Awards Reception – Guest** (Friday Reception included in Full Registration Fees) Name: _____

❑ **Saturday Business Roundtables – Please indicate YES or NO if you are planning to attend:** ❑ **YES** ❑ **NO**

Sub Total $_____

PAYMENT INFORMATION

❑ **Check Enclosed** (Payable to NADL) **Check #:** _____ **Check Amount $** _____

GRAND TOTAL $ _____

Credit Card: ❑ **Visa** ❑ **MC** ❑ **Amex** **Charge Amount $** _____

CC# _____ Exp. _____ Sec. Code* _____

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* This is the 3 digit number on the reverse side of your credit card. For Amex cards only, this is the 4 digit number on the front of your card.

3 WAYS TO REGISTER:

1. ONLINE:
www.nadl.org/v21

2. EMAIL:
meetings@nadl.org
(with registration form and credit card information)

3. MAIL:
(with check or credit card information)

NADL Meetings
325 John Knox Rd., #L103
Tallahassee, Florida 32303

Refund Policy: Written notification is required for all refunds. Refund requests received by Tuesday, December 26, 2023 will receive a full refund less a $50 administrative fee. No refunds will be paid after Tuesday, December 26, 2023. Registrations are transferable.

ADA: If you have needs that require special accommodations or assistance, please notify NADL no later than Tuesday, December 26, 2023 at 800.950.1150 or email to meetings@nadl.org.

Need additional information? Contact the NADL Meetings Department at 800.950.1150 or by email at meetings@nadl.org.

SPECIAL FIRST-TIME ATTENDEE DISCOUNT! Never attended an NADL Vision 21 Meeting?
Special first-time dental laboratory attendee registration discounts available! Contact meetings@nadl.org for more information!

RACE FOR THE FUTURE 9.0

The Foundation for Dental Laboratory Technology (FDLT) wishes to thank our many sponsors and individuals who donated to support individual racers and race teams in support of Race for the Future 9.0. Once again, FDLT linked up with the 40th Chicago Triathlon.

Individual Racers:

Barb Warner, CDT, AAACD – Individual Triathlete – Barb has raced in every event and placed third in her division this race!

Emily Davisson – Individual Triathlete, first-time racer

Branko Bosnic – Individual Triathlete, first-time racer

The Race is the FDLT's largest single fundraiser each year. This year over $92,000 was raised, which is the second highest total raised in the history of the race. There were a considerable number of first-time racers in 2023 as well as first-time cheerleaders. The relay TEAM names were also very creative! *(See page 44.)*

Nearly fifty racers, friends, and family, as well NADL, NBC and FDLT board members attended a pre-race dinner at Gino's East to "carb up" for the Sunday race.

The Abutments won the FUN RAISING competition amongst relay teams, raising just shy of $4,000.

A special shout-out goes to Mark Williamson, CDT, who is not only a board member for the Foundation, but who also had major heart surgery in 2022 and competed in the bike portion for his relay team this year.

Relay Teams:

Argen +1

Kelley Reinfelds

Marlin Gohn, CDT, TE

Lindsey Kallstrom, CDT

Curve of Speed

Jed Miller, CDT

Frank Frost

Jenni Brown, first-time racer

Dental Tech Tri-Hards

Nina Rapuano, first-time racer

Derek Jackson

Nicole Jackson, CDT, TE, FDLT board member

First Impressions

Vince Silva, first-time racer

Joshua Silva, first-time racer

Beth Collington, FDLT board member

Tom Love

Lithium TRI Silicates

Shawn Nowak

Denisse Padilla, first-time racer

Carolynn Capps, MBA, CDT, first-time racer

The Abutments

Bobby Kenney, first-time racer

Mark Williamson, CDT, first-time racer, FDLT board member

Elvis Dahl

For information on The Race sponsors see page 51.

For more information and to donate visit: Race for the Future 9.0 - The Foundation for Dental Laboratory Technology. (**dentallabfoundation.org**) **JDT**

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OCTOBER

Oct. 6
WSDLA Roundtable 2023: "Unlocking Your Lab's Potential"
Tulalip Casino www.wsdla.com

Oct. 14
NBC All CDT Practical Exams
Medical Education and Training Campus
San Antonio, Texas

Oct. 20
NBC November Window Practical Examination Deadline
NBC November Window Written Examination Deadline
www.nbccert.org

Oct. 20-21
OADL 2023 Annual Conference
Sheraton Airport Hotel, Portland, Ore.
www.oregondentallabs.org

Oct. 27
NADL Virtual Fall Daze
https://nadl.org/events/nadl-fall-daze/2023/

NOVEMBER

Nov. 4
Ga. Dental Laboratory Association Annual Meeting
www.gdla-online.org

Nov. 17
NBC All CDT Practical Exams
LSUHSC School of Dentistry, CDL
New Orleans, La.

Nov. 20
NBC December Window Written Examination Deadline
www.nbccert.org

DECEMBER

Dec. 20
NBC January Window Practical Examination Deadline
NBC January Window Written Examination Deadline
www.nbccert.org

JANUARY 2024

Jan. 18-20
NADL Vision 21 Meeting
Caesars Palace, Las Vegas, Nev.
www.nadl.org/V21

Jan. 20
NBC February Window Written Examination Deadline
www.nbccert.org

FEBRUARY

Feb. 20
NBC March Window Practical Examination Deadline
NBC March Window Written Examination Deadline
www.nbccert.org

MARCH

March 20
NBC April Window Written Examination Deadline
www.nbccert.org

APRIL

April 4-6
Dental Laboratory Association of Texas Meeting
Westin DFW, Dallas, Texas
www.dlat.org

April 20
NBC May Window Practical Examination Deadline
NBC May Window Written Examination Deadline
www.nbccert.org

MAY

May 20
NBC June Window Written Examination Deadline
www.nbccert.org

JUNE

June 6-7
Southern States Symposium and Expo sponsored by FDLA
Orlando, Fla.
www.fdla.net

June 20
NBC July Window Practical Examination Deadline
NBC July Window Written Examination Deadline
www.nbccert.org

JULY

July 20
NBC August Window Written Examination Deadline
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AUGUST

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NBC September Window Practical Examination Deadline
NBC September Window Written Examination Deadline
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www.nbccert.org/certificants/certified-dental-technician

RG Applications
www.nbccert.org/certificants/recognized-graduate-dental-technician

CDL Application and Information
www.nbccert.org/certificants/certified-dental-laboratory

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www.nbccert.org/education/providers.cfm

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Joseph Young is the marketing manager and dental CAD/CAM technologist at Young Dental Laboratory, Inc., CDL, located in Philadelphia, Pa. He shares with the JDT more about the way of life in the family lab.

A challenge, but also a benefit, of a family business is that you cover for each other all of the time. We all wear multiple hats throughout the day.

Tell me a little bit about the history of your lab – where it started to where it is today.

At just twenty-two years old, my father, Michael Young, attended a vocational school for dental technology while working another job. In his after hours, he managed a small laboratory and started his growing family. In 1980, my parents officially opened their orthodontic lab in a spare room of our home. It was just the two of them, but the lab slowly grew to employ a handful of technicians. I joined my parents after college as marketing manager, but really tackled administrative duties including customer service, billing, logistics, finances, payroll, etc. As we grew more, we built and moved into our current facility. About ten years ago, my younger brother and his wife joined the family business. After 43 years in business, we have a family of 26 team members offering a true multidisciplinary suite of solutions.

How and when did you know you wanted to be a part of the legacy business?

Growing up as a child, it was just the way of life. My parents worked extremely hard with very long hours. After a couple of years working with them and being able to see their challenges firsthand, I felt obligated to support the family business, and in a way, provide a ROI for their investment in my education.

What are some of the challenges you have experienced in working with family? What are some of the benefits?

A challenge, but also a benefit, of a family business is that you cover for each other all of the time. We all wear multiple hats throughout the day and if a family member has a scheduling

conflict or is overwhelmed with something, another one of us steps in, and usually, it's without question or request. Another challenge is decision making. A sole owner can make decisions quicker than a collective. Opinions are shared and debated until a resolution is reached; consistency is maintained in the process and the family is kept informed as a unit. A benefit is that our team members and customers are getting consistency in policies, procedures, and other responses to their questions and concerns.

How do you envision your role in evolving the lab in the years to come?

After there is a full transition when my parents retire, officially, my role will be COO. As for now, I see my role as more business development. **JDT**

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