NSK Dental introduces ‘dentistry’s most powerful air-driven handpiece’

According to the company, both the Ti-Max Z900L and Z800L series feature a new cartridge design to dramatically improve durability – and have smaller head sizes to enhance operational visibility. They also feature cartridges that can be replaced chairside to save time and maintain practice productivity. Both series feature ergonomic, solid titanium bodies and NSK’s new DURAGRIP® coating, which makes the handpieces easy to hold even when wet. To further enhance ergonomics, the handpiece body has a notch for resting the thumb and index finger for maximum leverage. A Quattro (four-port) water spray and 2.5-year warranty – NSK’s longest ever – complete the offering. Multiple back-end types are available to fit most competitor couplers, including Kavo and W&H.

As with NSK’s other air-driven and electric handpieces, 100 percent of the Ti-Max Z900L and Z800L series’ components are engineered, manufactured and assembled in house at NSK’s factory in Kanuma, Japan, to ensure quality and reliability.

Dental equipment manufacturer NSK Dental LLC has launched what it describes as the dental industry’s most powerful air-driven handpiece, the 26-watt, standard head Ti-Max® Z900L series. The company is also launching the 23-watt, miniature head Ti-Max Z800L series. “This is our biggest new product launch ever, as the Ti-Max Z900L is the first air-driven handpiece in the history of the dental industry that delivers 26 watts of power,” said Rob Gochoel, sales and marketing director for NSK Dental. “This unprecedented torque reduces treatment time and provides remarkably smooth handling because of the high power output and a unique new turbine design,” Gochoel said. “Equally impressive, the unprecedented 23 watts of power delivered by our new Ti-Max Z800L miniature head series exceeds the power delivered by most standard head handpieces on the market today.”

DiaDent Dia-Pen, Dia-Gun deliver root-canal success

By DiaDent Staff

The purpose of obturating a root canal is to fill the space three-dimensionally to eliminate any pathways through which bacteria might enter. Thanks to DiaDent, dentists can now have a bulletproof way to seal root canals to help ensure treatment success. Studies indicate that using the warm compaction technique increases the chance that no voids will be left behind in the obturation process.

Together, the Dia-Pen cordless warm vertical compaction device and Dia-Gun cordless backfill system enable you to obturate with confidence and precision. While countless methods and techniques are available for root canal, perhaps none is as easy and time-saving as DiaDent’s complete obturation system, according to the company.

Dia-Pen is a cordless warm vertical compaction device and Dia-Gun cordless backfill system enables you to obturate with confidence and precision. While countless methods and techniques are available for root canal, perhaps none is as easy and time-saving as DiaDent’s complete obturation system, according to the company.

Dia-Pen is then followed. Dia-Gun is a cordless obturation system that extrudes warm gutta-percha to backfill the yet unfilled portion of the canal. Dia-Gun comes with two types of disposable tips (23 G or 25 G). The tips can be bent to the desired shape and angle using the multipurpose wrench provided. Using the gutta-percha pellet included in the kit, load one into the loading slot and push it into the heat chamber with the hand plunger. Dia-Gun has three variable temperature settings (160°C, 180°C and 200°C) to enable precise control of obturation flow. Temperature reaches 200°C in just 25 seconds. The ergonomically designed 360-degree swivel tip provides improved access, while the thin tip eases narrow canal filling. Another benefit is a lid for the heat chamber that offers protection from dirt and debris. Dia-Gun is designed to provide reliability and precision while delivering a fast, continuous flow of canal sealing gutta-percha.

Both Dia-Pen and Dia-Gun are easy to clean and easy to use, according to the company. Ergonomically designed features reduce hand fatigue while offering tactile feedback. Instructional and introductory videos can be viewed at www.diadent.com.

Purchase Dia-Gun and Dia-Pen from your trusted dental dealers such as Henry Schein, Patterson and Bisco Dental. For more product information, you can call (877) 342-3368.
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Adjunctive devices serve critical role in comprehensive oral cancer exams

Visual and palpation exam crucial in early detection of oral mucosal diseases

By LED Dental staff

- You work hard to make your practice warm, inviting and professional for your patients, so choosing to introduce an adjunctive device for oral mucosal disease examinations raises some immediate concerns. How do you balance ease of implementation against patient needs when you introduce a new service within your practice?

  When it comes to selecting an adjunctive device to help you perform examinations for oral diseases, you no doubt want to deliver the same level of patient experience. This generally means you will look for a system that is not only well tolerated, non-invasive, and only takes a couple of minutes to perform, but one which is also clinically proven to help you discover oral mucosal diseases, including oral cancer, which might otherwise be missed.

Important considerations

Some other important considerations that will help you select an adjunctive device that fits with your practice philosophy might include the following:

1) Blend in with your workflow and complement your intraoral and extraoral head and neck examination with only nominal time added to the overall appointment.

2) Help you find things that may be hard to see otherwise, i.e. offer an imaging modality that is extremely sensitive to tissue changes.

3) Provide visual information that is bright and easy to observe within normal ambient lighting conditions in a dental operatory.

4) Allow for integrated and streamlined photo documentation — camera solution should be easy to integrate and tissue response should be bright in order to easily acquire digital images and video to be used for patient records or sent to referral partners.

5) Be clinically shown to be of use to specialists such as helping them establish lesion margins for surgical excision.

6) Come with full after-sales support, extensive training materials, as well as clinical support.

Talking about oral mucosal disease with your patients is not an easy task. In fact, many patients do not understand the reason for the head

and neck exam and as their dental care professional, it is up to you to explain your examination protocols when introducing an adjunctive device. Using a non-invasive device such as the VELscope® VX makes that discussion easier, especially once the patient understands that there is no discomfort involved. Once patients are introduced to the reasons behind the adjunctive exam, they often become advocates and support your practice by sharing the importance with their friends and family.

Oral exams using adjunctive devices provide dental practitioners with the ability to detect problem areas not visible under normal lighting, and dental professionals continue to implement the comprehensive clinical oral exam into their routine.

Patient-dentist relationships thrive on trust. With trust comes an openness to accept new treatments and comfortably refer family and friends to your care. Adopting new technology that clearly puts the health of your patients first is one way to enhance the patient experience and build trust while standing out from the rest. Investing in an adjunctive device such as the VELscope VX Enhanced Oral Assessment System delivers the message that:

1) You care — Adding an adjunctive device to your normal intraoral and extraoral head and neck exam enhances the level of care you already provide. By selecting a non-invasive, two-minute protocol, you place your patients’ health at the forefront.

2) You are on the leading edge — Adding a sophisticated and proven new technology allows you to distinguish your practice. It demonstrates a dedication to the well-being of your patients. The end result will be satisfied patients and a growing practice.

3) You are evolving — When you incorporate new technologies that are clinically proven to enhance the level of care for your patients, you earn their respect and trust. Patients will recognize that you are evaluating new technologies as they become available and bringing them the best possible care.

Unfortunately, oral cancer remains a threat not only for the conventional demographic of tobacco and alcohol users, but now, more recently, for a younger age group with oral cancer incidence now linked to the sexually transmitted HPV virus.

The VELscope VX Enhanced Oral Assessment System allows you to find abnormal areas that could otherwise have been overlooked. The device is extremely sensitive to abnormal tissue changes and helps ensure that a patient needing additional follow-up or referral to a specialist will not be missed. The number of testimonials from patients and professionals who have benefited from the VELscope VX oral assessment continues to grow.

“Adding an adjunctive device such as the VELscope VX, above, to your normal head and neck examination protocol helps to differentiate your practice and attract and retain patients. The added benefit of seeing what your unaided eyes cannot means that your exams are more thorough and suspicions can be quickly investigated. According to the company, use of the VELscope VX easily blends in with your workflow and complements your intraoral and extraoral (right) head and neck examination with only nominal time added to the overall appointment. (Photos/Provided by LED Dental)”

By LED Dental staff

“Patient-dentist relationships thrive on trust. With trust comes an openness to accept new treatments and comfortably refer family and friends to your care. Adopting new technology that clearly puts the health of your patients first is one way to enhance the patient experience and build trust while standing out from the rest. Investing in an adjunctive device...”

Tony Hewlett, DDS, Standwood, Wash.

“Finding a technology that clearly puts the health of your patients first is one way to enhance the patient experience and build trust while standing out from the rest. Investing in an adjunctive device such as the VELscope VX Enhanced Oral Assessment System allows you to find abnormal areas that could otherwise have been overlooked. The device is extremely sensitive to abnormal tissue changes and helps ensure that a patient needing additional follow-up or referral to a specialist will not be missed. The number of testimonials from patients and professionals who have benefited from the VELscope VX oral assessment continues to grow.”

Tony Hewlett, DDS, Standwood, Wash.
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**ALUMINUM BODY**
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Successful endodontic treatment depends upon maximal debridement and disinfection of the entire root canal system. The root canal system must be shaped to a convenience form that permits adequate cleaning and disinfection by elimination of microbes. The literature is clear that as much as 35 percent or more of the root canal system remains untouched by any instrument technique. Essentially no filling technique allows instruments to sculpt all aspects of the access preparation only. Ultrasound irrigation and mechanical debridement are used prior to obturation.

The efficacy of the irrigants to decongest the root canal walls has been significantly improved recently. Both negative and positive apical pressure irrigation techniques have been surpassed by ultrasonically activated irrigants, photoactivated disinfection and laser-activated irrigants in their ability to improve cleanliness and disinfection of the canal system.1,2

Using extremely short bursts of peak power, laser energy is directed down into the canal and the action actively pumps the tissue debris out of the canals while cleaning, disinfecting and sterilizing each main canal, lateral canals, dentinal tubules and canal anastomoses to the apex. This movement of irrigant is reaching the axial intertubular dentin and the intertubular dentinal walls. The use of a laser with a laser-activated irrigant is the best solution for the LAI technique that activates the liquid and enhances its cleaning of the smear layer. The use of a laser (PIPS) to activate sodium hypochlorite increases its antimicrobial activity.3,4

Recently testing, performed at the University of Tennessee by Dr. Adam Lloyd, chairman of the department for endodontics, objectively confirmed the improved cleaning and debridement of organic and inorganic tissue left by instrumentation. Microcomputed tomography scans were used to assess before and after volumetric change in the internal intaglio of first lower molars treated with PIPS protocol (Fig. 4). Sequential slicing beginning at 0 mm from the apex and moving down to the last 2 mm demonstrated that all slice images showed significant improvements after PIPS.

The importance of these findings is far reaching. PIPS now offers the dentist a less invasive and less time-consuming method for irrigating and preparing endodontic root canal systems. Because PIPS has demonstrated its ability to decontaminate and debride areas that files and instrumentation cannot reach, success rates rise and retreatment for past failures is possible.5

IPS is also helpful in locating and helping negotiate calcified canals. IPS is also a valuable additional tool in the treatment of endodontics regardless of the shaping and obturation system used.

Laser technology used in endodontics during the past 20 years has undergone an important evolution. Research in recent years has been directed toward producing laser technologies (such as impulses of reduced length, radial-firing and stripped tips) and techniques (such as LAI and PIPS) that are able to simplify laser use in endodontics and minimize the undesirable thermal effects on the root canal system. The use of chemical irrigants. EDTA has proved to be the best solution for the LAI technique that activates the liquid and enhances its cleaning of the smear layer. The use of a laser (PIPS) to activate sodium hypochlorite increases its antimicrobial activity.

References


Here at the PDC Learn more about the Lightwalker combined Er:YAG & Nd:YAG dental laser in the National Dental Inc. booth, No. 1319.

Photoacoustic shockwave with irrigant debrides areas of root canal files can’t reach

PIPS with laser activated irrigation

By Enrico Divito, DDS

Fig. 1: Left, apical third of root treated with PIPS. Note clean surfaces without any thermal damage. Right, SEM of apical third showing extremely clean dentin tubules post PIPS with no sign of thermal damage. (Photos/Provided by Enrico Divito DDS)

Fig. 2: Left, close-up of tapered and stripped PIPS tip used for laser activated irrigation. Right, position of the laser tip in the PIPS technique: steady in the pulp chamber and does not enter canal.

Fig. 3: Left, pre-treatment. Right, post-treatment obturation after PIPS. Tooth was filled to the A # 0606 taper. Note the conservative convenience form maintaining more original anatomy of root canal system and reducing the need to use larger file sizes, conserving more dentin tooth structure.

Fig. 4: Left, mandibular molar canal system showing isthmus before (A, red canal) PIPS laser activated irrigation. Areas of organic tissue and debris from instrumentation have been completely eliminated, as highlighted by post PIPS image (B, green canal). Right, mandibular molar with canal preparation to a size 30/.04 (A, green canal) obturated with nano-particle BC Sealer (Brasseler USA, Savannah, Ga.) and single cone obturation (B, blue).

About the author

Dr. Enrico Divito received his dental prac- tice in 1980 in Scottsdale, Ariz. In 2006, he formed the Arizona Center for Laser Dentistry. He is the founder and director of the state-accredited Arizona School of Dental Assisting (ASDA). In addition to teaching at ASDA, Divito is also a clinical professor at the Arizona School of Dentistry and Oral Health and is helping to create its depart- ment of laser dentistry. He earned his undergraduate degree from Arizona State University in 1980 and is a graduate of the University of the Pacific, Arthur A. Dugoni School of Dentistry with honors, receiving several clinical excellence awards. He can be reached at edivito@azcld.com.
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Sticking with giomer hybrids for fillings and restorations

‘Show-Me-State’ dentist has been a fan of Shofu for more than two decades

Jack D. Griffin, DMD, has been using Shofu Dental Corp. products in his St. Louis-area dental practice for more than 20 years, initially using the abrasive polishers that made the company famous — and more recently using Shofu products in restorative work.

He’s always been impressed with the results, but when Beautiful Flow Plus was released, the longtime fan became a super fan. “That changed everything,” Griffin said.

Before that, he said, composite hybrids were fine as a liner and as a base but were not strong enough to be used for restoration builds. Griffin immediately embraced Shofu’s proprietary giomer technology, which went beyond the other hybrids — as a flowable resin with the strength needed to perform as a restorative.

The material also has the ability to effectively fill voids and help protect teeth from decay through the release of high levels of fluoride.

Griffin was so pleased with the results he was achieving with his patients that he started demonstrating the Shofu materials for fellow practitioners around the country.

He will present an open session today at 1:30 p.m. and a limited-attendance workshop on Friday.

Creating regenerative fillings

Describing his use of Beautiful Flow Plus and Beautiful II to create regenerative fillings, Griffin said, “The flowable acts as a liner and seals margins. It covers all of the exposed dentin and margins while also reducing the voids.” He uses the products back-to-back to create a strong, aesthetic filling that also inhibits bacteria and plaque development.

Griffin also is a fan of the Shofu product, Ceramage (available in the U.S.), a zirconium silicate integrated indirect restorative for both anterior and posterior regions. Griffin confirmed the company’s description of the material as having “superior flexural strength, elasticity and unsurpassed polishability.”

Griffin has used Ceramage a number of times, including to cement a CAD/CAM-designed monolithic crown — polishing the material to replicate the natural appearance and light-diffusing properties of dentin and enamel. According to Shofu literature, Ceramage bonds to a variety of substructures, including nonprecious and high noble alloys. It has an extensive shade selection for natural tooth and gum colour reproduction.

The material can be used to create anterior and posterior crowns, veneers, implant-supported restorations and inlays and onlays. A full set of gum colours also enables the material to replicate gingival anatomy.

(Source: Shofu Dental Corp.)

Endodontic Photon Induced Photoacoustic Streaming (PIPS)

Treatment uses Lightwalker AT laser with contact H14-C handpiece and PIPS fiber tip

By Prof. Giovanni Olivi, MD, DDS
University of Genoa, Italy

A patient asked for the option to save her teeth that were scheduled for extraction by another dentist. The lower left first and second molars had high mobility (grade 2), were necrotic, with significant probing depths in the buccal aspect.

The teeth were diagnosed for endo/perio treatment. Difficulties with this case included complex radicular anatomy, long anatomical measurements (26 and 27 mm respectively for #36 and 37) and the presence of a deep vertical bone loss in the buccal aspect. After scaling and root planning, the teeth were scheduled for root canal therapy.

Before treatment: PIPS

Before each treatment, the PIPS™ technique was applied into the peri-odontal pockets of each tooth for refining the debridement, removal of biofilm from the root surfaces and pocket disinfection. The root canal treatments were performed using PIPS-specific irrigation protocols with 5 percent NaOCl and 17 percent EDTA.

Obturation with resin sealer

The canals were obturated with a flowable resin sealer (EndoRez Utralindent, South Jordan, Utah) and gutta–percha points. A final treatment of the pockets using PIPS for disinfection was performed after completing each root canal therapy to remove any extruded sealer or residual biofilm.

No post-op symptoms were reported and the mobility of the teeth progressively disappeared up to grade 0.

The follow up X-rays performed after one and four months showed healing in progress for both the teeth. Lightwalker AT laser device with contact H14-C handpiece and PIPS fiber tip was used for the treatment.

Lightwalker parameters:

• Laser source: Er:TAG;  
• Wavelength: 2940 nm;  
• Pulse duration: SSP;  
• Energy: 15 mJ; Frequency: 15 Hz.

Disclosure: Dr. Olivi has relationships with several laser companies (including AMD-DENTSPLY, Biolase, and Fotona) but receives no financial compensation for his research or for writing articles.

Editor’s note: See related article on page 118.

About the author

Dr. Giovanni Olivi is an adjunct professor of endodontics at the University of Genoa School of Dentistry and a board member and professor in its master course in laser dentistry. He completed the postgraduate laser course at the University of Firenze, and received laser certification from the International Society for Lasers in Dentistry. He earned advanced proficiency mastership from the Academy of Laser Dentistry and is the 2007 recipient of ALD’s Leon Goldman Award for Clinical Excellence. He has a private practice in endodontics, restorative and pediatric dentistry in Rome. He can be contacted at olivilaser@gmail.com.