Dr. Aisha Sultan Al Suwaidi officially elected to lead the APDF for 2014-2015

By Emirates Dental Society

Dubai, UAE: In the presence of His Excellency, the Minister of Health, Dr. Abdulrahman Al Owais, Dr. Aisha Sultan Al Suwaidi, Head of Dental Services in Ministry of Health and Head of Dental Chapter of Emirates Medical Association, has been officially elected to lead the Asian Pacific Dental Federation for the year 2014-2015. Representatives of 52 countries attended the ceremony. Accordingly, the United Arab Emirates has hosted the Asian Pacific Dental Congress from 17-19th June 2014, with pre-congress workshop and a very rich scientific program.

Over 1,580 dental professionals attended the 9th CAD/CAM & Digital Dentistry Int’l Conference

By Dental Tribune MEA

Dubai, UAE: The 9th edition of the CAD/CAM & Digital Dentistry International Conference gathered 1,580 dental professionals, leading industrial players and visitors from 37 countries at the Jumeirah Beach Hotel on 09-10 May 2014 for the biggest Digital Dentistry Show.

Participants Feedback

We received great feedback from participants attending the conference, which can all be summarized into a message with their vast knowledge will show how fast the digital technology and science joined up unexpectedly in dentistry, faster than we ever imagined. All panelists will have debates after each presentation amongst each
Dental Wings integrates Neodent implants into guided surgery software

Neodent is one of the leading dental implant companies in Latin America and targets the nonpremium segment in the implant market, thus making its products accessible to a broader population. According to Matthias Schupp, Neodent’s executive vice president of sales and marketing, the company has sold over 5 million implants to 50,000 clinicians worldwide already.

Frank Stockmann, vice president of guided surgery at Dental Wings, said that his company is pleased to be able to give its customers access to products from one of the most rapidly expanding implant companies in the world through its coDiagnostiX software. “We are confident that Neodent customers will enjoy the benefits of a sophistication and user-friendly guided surgery solution,” he added.

Neodent was founded in 1993 and was the first Brazilian company in the implant segment to receive certification from the Brazilian ministry of health. Headquartered in Curitiba in Brazil, the company runs subsidiaries in the U.S., Mexico, Portugal and Spain. Today, Neodent employs more than 900 people, operates more than ten branches in Brazil and works with a wide network of distributors. In addition to coDiagnostiX, which was acquired from Straumann in 2013, Dental Wings offers an open CAD/CAM platform called DWOS, both of which are aimed at improving the quality of restorations and dental treatment, and increasing the productivity of laboratories and clinicians. The company announced that coDiagnostiX will be fully integrated with the DWOS platform by fall 2014.

By Dental Tribune International
CEREC Desert Fest

The Palace Hotel Downtown
12-13 September 2014
Dubai, UAE
www.cerecfest.cappmea.com
New treatment center from Sirona: Quality “made in Germany” at an attractive price

By Sirona

BENSHEIM, Germany: On May 12, Sirona, the global market and technology leader in the dental industry, has introduced a new treatment center: INTEGO offers top quality and flexible configuration options at an attractive price.

All dentists around the world share a common wish: To provide their patients with the best possible treatment. That’s why they ideally want to work with high-quality devices and systems which offer optimum support for their day-to-day work. The treatment center plays a key role here; after all, this is where they spend a large part of their working day. As the global innovation and technology leader in the dental industry, Sirona has developed a new product generation for the treatment center division. This new product line can be very flexibly configured to suit the needs of various practitioners – whether dental practices, laboratories or universities. The customer can choose the model (TS) or the Whip Arm (CS) in a wide range of shades. Both versions are based on a chair concept which takes the four dimensions of ergonomics into account – intuitive sitting, comfortable positioning, optimum visibility and integrated workflows – and thus ensures that practitioners achieve ideal results. The individual functions, the instruments and all the settings can be simply selected and controlled via the intuitive user interface. In comparison, INTEGO pro offers enhanced functionality. Some features, e.g., the 4-way foot switch and the automatic disinfection device, are even standard in the basic INTEGO pro model. Furthermore, INTEGO pro offers more optional functions: For example, the customer can choose features such as the Apex Locator.

INTEGO is the perfect complement to the product family Sirona. INTEGO is an ideal addition to Sirona’s treatment center product family and fills the gap between C8i and SINUS. With INTEGO TS and CS versions, the dentist element can be positioned above the patient. In contrast, TENEVO and SINUS feature a sliding track which positions the dentist element either automatically or manually. As high-end products, SINUS and TENEVO also offer motorized functions, for example an adjustable headrest, a massage function to ensure patient comfort as well as the option of hand-free operation of the center. As such, Sirona satisfies a wide range of the most diverse requirements made by dentists and patients alike. The treatment centers represent high-quality and proven solutions at an attractive price. As with all other Sirona centers, the INTEGO is also produced in Bensheim, Germany, where it is put through its paces. The long-lasting design, use of high-quality, robust materials, product quality “made in Germany” and a focus on ergonomic operating procedures and patient comfort make this a treatment center which is not only future-proof, but also facilitates the everyday working lives of dentists and assistants. INTEGO is available now from dental dealers. More detailed information on the functions and specifications of this treatment center can be found at the official Sirona company website. The price of the INTEGO will vary between 15,000 and 25,000 Euros, depending on individual configuration.

Dr. Bernd Reiss, teacher at the German Institute for Advanced Ceramics in Dentistry and Executive Director ISCD. Since 1987 he lectured at more than 400 seminars, congresses and workshops in more than 40 different countries worldwide. At CEREC Desert Fest he will bring a new dimension into CAD CAM Dentistry with CEREC 2014. Clinical possibilities in the Dental practice, integration of different digital systems and integration of time in different ways will bring you to the question: What can we expect?

“Digital advancements in dentistry are growing at a break-neck speed” - Todd Ehrlich, DDS

Dr. Todd Ehrlich, DDS, Co-founder of CEREC® and Apollo DI beta tester for Sirona Connect. Dr. Vasquez is an official Sirona company web site. The price of the INTEGO will vary between 15,000 and 25,000 Euros, depending on individual configuration.

By Sirona

Dental Tribune MEA was invited to the official Sirona presentation of INTEGO and Sirona Factory visit Bensheim.

Other on stage. Open discussions with CEREC followers from the public will be made available through live-stream feed and the audience onsite in Dubai.

Let’s look into what are our panelists are preparing for the delegates. Dr. Todd Ehrlich, while CEREC is called for a long time, said: “It is truly powerful this idea of a one visit dentistry – it’s awesome! The Omnicam from Sirona is by far the greatest invention in dentistry today. I love using this every single day.” And his suggestion: “Make sure you get a good demo of it and discover in how you can integrate CEREC Omnicam to your practice.” - Dr. Vasquez. Dr. Vasquez develops his passion for CAD-CAM dentistry leading him to be trainer for Patterson Dental and Sirona Dental Latin America. He has lectured nationally and internationally for Sirona Dental Systems on CEREC. The President of the Arabian Academy of Cosmetic Dentistry (ARAED). Will talk about the current aspect in contemporary implant dentistry. He has many publications focusing on implant therapy and basic science in the most respected journals in these fields. His research work about the discovery of biological aging and rejuvenation of implant surfaces was honored by listing under “Images of the Year” by Biomaterials journal. CEREC meets SMILE DESIGN
14-15 November 2014
Jumeirah Beach Hotel
Dubai UAE

6th Dental - Facial Cosmetic International Conference
Joint Meeting with
3rd Global Conference of American Academy of Implant Dentistry

Direct Veneers; The Shades Dilemma
Dr. Eduardo Mahn, Chile

Face & Smile Analysis No Software Solution, Clinical Photography
Dr. Eduardo Mahn, Chile

Indirect Veneers
Tutor: Dr. Munir Silwadi

Periodontal Instrumentation
Prof. Mary Rose Pincelli Boglione, Italy

Veneers vs. Crowns The Challenge In Smile Design
Dr. Eduardo Mahn, Chile

www.cappmea.com/aesthetic2014
Dental Photography Part II: Protocol for shade taking and communication with the lab

By Dr. Eduardo Mahn, DDS, DMD, PhD
Universidad de los Andes
Clínica CAPP Santiago, Chile

Part 1 of this article discussed the basic equipment that is necessary for dental photography. In addition, a few examples of pictures taken that were better than others for the same situation were also shown. In part II, a protocol of taking digital photographs will be presented which has been of great help to the author, specifically in achieving the right shade and value. It is based on standardized pictures that should be taken in order to show certain individual characteristics of the patient to be treated and standardized comparisons of the shade tabs and the natural tooth structures in order to give the technician more information than the usual A2 or A4 written on a piece of paper.

Introduction - Shade-taking

The evolution in digital photography and the possibility of taking pictures and evaluating them immediately as well as almost instantaneous access of the information by someone located off-site in the same city or even another country, we have a great resource available that can help us achieve the right shade of our indirect restorations. Standardized high quality photographs are also an advantage when the shade is taken for a direct restoration - for example a direct veneer or a class IV. In this case a picture can really help the clinician identify the opalescent areas and the halo effect of the adjacent tooth, before re-doing the restoration (Figure 1).

Dental shade taking at the dental lab or in the dental practice can be frustrating as most dentists do not really know how to use the shade guide when they finish their undergraduate studies. In particular, if work has to be redone, because the clinician does not know what was done incorrectly wrong or how to obtain the right shade. Dental shade guides are used by dentists, dental assistants and dental laboratory technicians to communicate proper tooth color, translucency, and brightness.

However, many variables come into play no matter what system you decide to use. Before even starting to think about shade taking, you need to answer an extremely simple and obvious question: are you using exactly the same shade system as the lab? There are many shade taking systems available, with variations in the shades between different manufacturers, even though the concept may be the same. They are also manufactured from different materials with different optical properties. For example, some labs are familiar with the Chromascope system, most of the dentists with the A-D shade guide, while the younger generation of dentists learned with the 3D master shade guide.

The role of a shade guide is to help standardize the perception and so facilitate the communication in order to match the shade of the natural teeth with the required restoration.

Shade guides are not a perfect representation of what is actually seen but are close enough to identify a range of tooth colors. Eyes are still the best tool for identifying and communicating the correct shade of a dental tooth. Tooth color can be referred to as being an A1 to A2, or between a B2 and B3 when describing the respective tooth closest to the one being restored. It is always best to get the patient to the dental lab and have a custom shade taken, if possible, particularly for the more difficult cases. However, in most of the cases this is not possible, due to unwillingness or ignorance of the patient to spend time going to the lab, or the location of the lab not being in close proximity.

The use of shade guides should be used in conjunction with digital photography. If no direct light is projected to the mouth and the shade tabs, the main light source will be the flash of the camera, which has always the same temperature (between 5500° and 6000° K) and can be used by the dentist in the clinic and the technician in the lab. When pictures are taken under different light conditions, the variations can be considerable.

A good photo for both the dentist and the lab technician can be achieved so that they both are looking at the tooth color under the same conditions. When the technician compares the color of the restoration with the shade guide, he can take a picture that will create an image to be used as a comparison under the same light conditions as the natural teeth in the image sent by the technician (Figure 6).

Due to the flash of the camera, the technician can then determine the restorations look similar to the original shade tab sent by the technician. (Figure 7, Venereys by CDT Jurgen Segreg, Liechtenstein)

Tooth Color Basics

Color has two basic characteristics: hue and chroma. Natural tooth color also displays these same characteristics. Hue can be defined as the actual color such as yellow or gray. Chroma is the intensity of that color and is sometimes called saturation. Hue and Chroma are typically represented by a shade guide in terms of which color comes closest to the actual tooth being measured. For example, shade guides will have a range of A1 to A4 or B1 to B4, plus C and D shades. (Figure 17c) Value is the brightness of a tooth. It is therefore given a separate classification than color when communicating shade. Teeth also exhibit an opalescent nature and can be measured by how much light can pass through different sections of a tooth. Shade taking problems arise because most natural teeth are not an exact match to a shade guide, nor do shade guides adequately express tooth translucency and value. In many cases, when it is decided that a tooth has a certain shade, the Hue and the Chroma are communicated to the lab, but never the value and this is where the problems arise. Very few crowns are accepted if the value is incorrect, while moderate inaccuracies in chroma and hue may go unnoticed. For this reason the shade taking protocol needs to be based on information being communicated to the lab in the most accurate way possible.

Before the shade is taken conventionally or a picture is taken for the same purpose, several factors need to be controlled:

1. If patient is wearing bright colored clothing, drape him or her with a neutral colored cover.
2. Have patient remove lipstick and other make-up, as well as eyewear.
3. Teeth must have been cleaned.
4. The shade taking should be done at the beginning of the appointment, so that teeth are moist (the patient must lick their teeth constantly to keep them moist) and your eyes fresh.
5. The operatory light should be turned off or pointed in another direction. This information must be reported to the patient.

> Page 7
6. The room light conditions should have a temperature of 5500-6500 K. (when pictures are taken, these parameters are no longer relevant, because the light of the flash will prevail).
7. Obtain value levels by squinting.
8. Women are far less likely to be color blind than men, so it is a good idea to have your assistant in shade taking decisions (assuming that the assistant is a woman and not color blind).

In Part 1 of this article, the necessary equipment and accessories for adequate introral pictures was discussed. Please refer to it for the necessary information if you are planning to purchase adequate equipment.

Once the patient is ready, place the shade tabs in front of the anterior teeth, before starting the treatment itself. The same applies for pictures with lips. It is important to repeat the same protocol introra1ly, as well as extrora1ly, because of the large influence of the reds in shade taking. (Figures 7-8) In addition to the points presented before, the following should be considered initially when photographs are taken: (Figures 9-15)
1. Avoid the large reflection areas of the metal parts of the shade guide as they reduce the detail of the pictures.
2. Take pictures using two different shade tabs.
3. The surface of the shade tab must be at exactly the same level of the buccal surface of the teeth, as even minor discrepancies can make a tooth look darker or brighter due to the power of the flash.
4. The incisal edge of the tabs should be at roughly 1mm distance from the natural teeth, or as close as possible, without touching each other.
5. Take pictures with and without contrasts. This is especially relevant in young teeth with opalescent areas and clear halo effects.
6. In cases where an all-ceramic restoration is planned, the shade of the stump should also be given to the lab, using a special shade guide, such as the natural die material shade guide of the IPS e.max system (Ivoclar Vivadent, Liechtenstein). This will help to identify and select the best shade guide for the crowns.

7. Consider taking some pictures in black and white. A black and white photograph will help show the value of the shade tab in relation to the patient’s tooth. (Figure 14)

Clinical case
A 27-year-old female patient came to our office unsatisfied with the appearance of her 2 anterior pfm crowns (Figure 15). The value of both crowns clearly did not match the other teeth and her smile line unfortunately also showed the discoloured cervical part of tooth 11 (Figure 16).

An overview picture of the stump shade was taken with a reference (Figure 17a). This reference should ideally be the natural die material A-D shade guide (Figure 17b). Both shade guides, the natural die material guide and the A-D shade guide have some similarities, for example, as a rule of thumb an ND2 looks quite similar to an A2 (Figure 17b). Obviously, the natural die material shade guide has shades that are dark, since its purpose is to correlate to artificially discolorated shades and not to recreate natural shades as the A-D shade guide (Figures 17c and 17d). Internal bleaching of the stump was then performed with 55% hydrogen peroxide (Figure 18) in 2 sessions of 20 minutes each. Figure 19 shows the final result after the composite build-up with Excite DSC and Multicore flow (Ivoclar Vivadent, Liechtenstein). An impression was taken and sent to the laboratory. The cast was scanned and an IPS e.max CAD LT block was milled (Figure 20). The retraction shade guide, such as the natural die material shade guide of the IPS e.max system (Ivoclar Vivadent, Liechtenstein). An impression was taken and sent to the laboratory. A retraction cord was placed prior to bonding the crowns (Figure 21). The stumps are etched with phosphoric acid (Figure 22) and Excite DSC was applied (Figure 23). Variolink N (base and catalyst, translucent shade) was mixed and applied to the crowns (Figures 22 and 23). After 4 weeks a natural integration of the crowns with the right hue, value, chroma and effects can be seen in Figure 24.

Acknowledgements
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Editorial note:
References are available from the author.

Contact Information
Contact Publisher for author’s information if needed.

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For Interaction with the Writers Find the Contact Details at the End of Each Article.
The diode laser as an electro surgery replacement

By Glenn A. van As, BSc, DMD

In 2008, Dr. Gordon Christensen wrote an article in JADA comparing the soft tissue cutting abilities of diode lasers to those of electro surgery (radio surgery) units. In comparing these two technologies against each other, he found that both dental lasers and the less expensive electro surgery units have advantages and disadvantages, and he summarized with several key points:

1. Although there was considerable overlap in their uses and both technologies were effective, Christensen found that diode lasers were able to be used around metal (amalgam and gold) as well as with dental implants.
2. He stated that lasers did not harm dental hard tissues (bone) or soft tissues (gums), and that the clinician could use the laser with less anesthetic, and finally he mentioned that lasers were antimicrobial (antibacterial).
3. The acceptance and use of lasers, especially the diode laser, was increasing in dentistry, and that lasers attract patients because of their recognized and accepted role within the field of medicine (LASIK eye surgery).
4. Electro surgery units were “far less expensive than the more expensive diode lasers” and he mentioned that lasers were able to be used around dental implants safely to remove and reconstruct.

However, there are two basic types of electro surgical units that can be purchased in dentistry:

- Monopolar, in which a single electrode exists and the current travels from the unit down a single wire to the surgical site. The patient must be grounded with a wire to the surgical site. The electrode exists and the current flows from one electrode to the other, thus eliminating the need for a grounding pad. Bipolar units, because of the two wires, create less of a precise cut than the monopolar or diode laser.

Although electro surgical units are inexpensive, require no safety glasses and can remove large amounts of tissue quickly, diode lasers have become much more common in dental operatories in the four years since Christensen’s article was published. The primary reasons for their increased popularity are that diode lasers have a small footprint, are reliable and durable lasers, and are portable. Where a few short years ago, diode lasers could cost in the range of $10,000 to $15,000, they are now cost effective and can be purchased for less than $2,900.

Advantages of the diode laser over electro surgery

Ability to work around metals intrinsically

Diode lasers in the range of 810–1,064 nm are well absorbed in hemoglobin, melanin (pigment) and to some degree water (Fig. 1). These mid infrared wavelength in the absorption spectrum of the dental clinician the ability to ablate soft tissues precisely while controlling hemostasis, providing the clinician with an excellent view of the surgical site with a reduced reliance on sutures. Diode lasers have features that make them attractive as mentioned earlier, but they also have several advantages in function over electro surgical units (Table 1).

Perhaps the greatest benefit of lasers is that they allow the clinician to work safely around metals. The literature has shown that monopolar electro surgical units can accidentally create catastrophic results when touching metal intranasally. Published reports have shown that contact for very short periods of time with the electrodes of a monopolar electro surgical unit can cause both pulpal and periodontal problems, bone loss, severe intrasulcular burns4,5 and that within three seconds of exposure to a dental implant electro surgical units can cause failure of osseointegration and loss of an implant.6

In clinical practice, with today’s emphasis on the more esthetic pleasing composite resins and newer porcelain, there are still many metallic materials used introrurally, including cast partial denture frameworks, gold, amalgam, orthodontic brackets and semi-precious alloys.

Diode lasers, unlike their electro surgical counterparts, show little interaction with metallic objects used introrurally. It is important to remember that due to the laser’s ability to reflect off mirrored surfaces and potentially cause eye damage, that all members of the dental team as well as the patient must wear laser safety glasses for eye protection if they are within the nominal ocular hazard zone (NOHZ) during laser operation. This zone is most often between 3 and 7 feet, but some diodes can have extended NOHZ ranges of 40 feet.

Orthodontic patients will often exhibit gingival hyperplasia when brackets that can make it difficult to work on them. This overgrowth of tissue can be due to poor oral hygiene, space-closing mechanics, excess cement or a combination of factors. The diode laser can be used for gingivectomy to safely remove and recontour the excess tissue and healing can be remarkable in a very short period of time (Figs. 2–4).

Ability to work around dental implants safely

Various laser wavelengths that are available today can offer the clinician who needs to expose an implant during second stage surgery an alternative to traditional methodologies. The ability of the diode laser to ablate tissue, at times without the need for local anesthetic, while controlling hemostasis, provides the clinician a great view of the surgical site. In addition, the diode wave length, like all laser wavelengths, provides for decontamination of the implant site through its anti-bacterial actions. However, in contrast with the diode laser that can lead to an almost sterile operative field (98 percent reduction of pathogenic bacteria). Finally, there is a growing body of evidence that suggests that lasers used at lower energy settings can have a biostimulatory effect on tissue, which can decrease patient’s postsurgical discomfort, improve healing and shorten healing times while even improving early osseointegration.8,9

As an aside, there have been clinicians who routinely use monopolar electro surgical units to expose implants. It is imperative to realize that although more expensive bipolar (two electrodes) electro surgical units can be used safely around implants, that the more commonly purchased single electrode (monopolar) units may damage the implant surface and potentially cause de-oseointegration with resulting implant failure with contact times as short as three seconds.10,11 Lasers, in contrast, can be used safely with tremendous coagulation and re-duction in pain postoperatively for the patient12 (Figs. 5,6).

In clinical practice when it comes time to the final abutment and restoration, tissue management around dental implant restorations can be difficult, be it for the initial cementation or, even worse, if an implant-restored crown comes loose. Tissue quickly slumps onto the abutment, and subgingival margins can be almost impossible to retrieve with traditional methods. The laser can truly be a “life-saver” for those situations where soft tissue must be safely and quickly removed to allow for ideal presentation of the implant retained crowns onto the abutments (Figs. 7–12).

Reduced need for anesthetic

Monopolar electro surgery units do not have the ability to be used routinely without local anesthetic. In contrast, diode lasers can often be used either with low wattages or in pulsed modes to remove minor to moderate amounts of soft tissue with only topical anesthetics. Although at times this may not seem significant to the clinician, there are many instances where soft tissue acts as a barrier to ideal restorative treatment, and if local anesthetic can be eliminated it becomes a big selling point to patients.

Many patients are looking for alternative to local anesthetic, and when the occasion allows for the procedure to be completed without the patient being numb, the overwhelming majority of patients are grateful for this. Situations such as laser gingival

Table 1: Comparison of diode laser versus monopolar electro surgery units.
sion of margins can be far less with a diode laser than with other techniques, particularly when ade-quate magnification (e.g., 4.0X loupes) and cautious settings (0.6-0.9 w continuous wave) are used for the recontouring.

When biologic width is respected, and adequate attached and keratinized tissue exists, then judicious recontouring of the ginv-a on the same day as the prepara-tions can yield stunning results (Figs. 17-19).

The diode laser has become a popular technology as an alternati for tissue management compared to the traditional methodology of placing a single or double recontouring cut in the sulcus. The diode laser can be used in almost all instances to produce ginv- ral retraction as an alternative to cord with excellent results both in terms of gingival retraction and margin delineation for the labora-tory.

Unlike electrosurgical units where recession can be an issue, as can postoperative pain, diode lasers offer the clinician the ability to precisely remove overhanging, inflamed tissue while creating a gingival trough that is not likely to cause damage to bone, cemen-tum or pulp tissue like electrosurgi-cal units can. In addition, there is research that suggests that the lateral thermal damage done with lasers is significantly lower than that with electrosurgery.

Ability to photocohes rough vascular lesions and treat oral lesions

One of the advantages of a diode laser is its ability to treat oral lesions, including: recurrent aph-thous ulcers (R.A.U.), venous lake lesions of the lips and herpetic lesions. Research has shown that lasers can be safely used to treat these lesions, and in addition it is possible that if caught early during the prodromal stage that herpetic lesions can be aborted or significantly reduced in terms of length of time they are pres-ent. In addition, it has been the artist’s experience that, once treated, recurrences of these lesions are less often to reappear in the same area. In fact some evidence suggests that herpetic lesions treated in the early stages with the diode laser can cut the healing time in half and create a remission period that is twice as long before it recurs.

Vascular lesions called venous lakes or hemangomas can occur on soft tissue-areas including the upper and lower lips, buccal mu cosa and palate. These lesions can be difficult to treat with traditional methods where significant bleed- ing in endemic can occur. The diode wave-lengths are rapidly absorbed by hemoglobin and therefore can be used to coagulate and eradicate these esthetically undesirable purplish lesions often with only topical anesthesia. Literature has shown that the diode can be used in almost 100 percent of cases to eliminate these lesions, most of- ten in only a single session lasting only a couple of minutes44,45 (Figs. 20, 22).

Anti-bacterial capabilities of lasers

Many articles in the literature have demonstrated the tremen-dous ability of all lasers with re- spect to the reduction of bacterial and even fungal infections.66,67 The excellent antibacterial ca- pabilities make lasers effective and desirable in many areas in the oral cavity where the risk of postop- erative infection may be reduced. Electrosurgical units do not typi-cally possess the same ability to provide bacterial reduction as la- sers do. Particular interest is now occurring with the role of lasers in endodontic, periodontic and peri-implantations cases where there is need to reduce bacterial loads without such a great reliance on antibiotics.

Although more research is needed on how the bactericidal ca-pabilities of the diode laser might be beneficial in these ar- eas, there is no debate that all lasers can help healing through decreasing the risk of infection through laser light alone (Figs. 25-29). In addition, growing research has demonstrated that the risk of high bacterial loads in peri- odontal pockets and in particular endodontically treated cases may be reduced by lasers.

This latest research has implications for improving traditional methodologies locally where used, and in helping to reduce the potential greater systemic health risks. The role of lasers continues to be researched today, but present research has shown that diode lasers can be used safely within root canals with minimal fear of developing latent vi- rologic complications when con- servative settings are used.46,47

Conclusion

The diode laser has become the “go to solution” in many dental offices. The advan-tages of being able to work around metals in including dental implants, a reduced need for anesthetics, a reduced risk of resection post-operatively, the ability to reduce bacteria, and to use the diode to photocoagulate vascular lesions with a new alternative for soft-tissue surgery.

Lasers have two added benefits in that they do not require a pad to be placed under the patient for grounding, and they can be used safely with pacemakers. Di- ode lasers have found their place in dentistry. Once considered an application looking for a purpose, these small, cost-effective and re-liable lasers have discovered their niche as the new go to solution for many soft tissue problems in our daily dental practices.
**Weightlifter grits his teeth – a case for VITA ENAMIC**

By Hermann Loos

Stress and high demands literally make us grit our teeth. On a colleague's homepage it says on the subject of teeth grinding and bruxism: “We can develop a weightlifter's strength just by using our teeth". The masticatory organ is exposed to forces of up to 800 newtons during teeth clenching. The normal pressure of mastication is generally around 20 - 30 newtons. Those affected are often people in certain professions, for example, those who work for long periods of time on the computer, as well as those whose work involves intensive physical exertion, like runners, cyclists, bodybuilders and, as previously mentioned, weightlifters.

During subconscious clenching of the upper and lower teeth, the limit of physiological function is far exceeded. Not only natural tooth substance, however, but also restorative materials reach their limit during mechanical overload. In the clinical case example described here, this led to the fracture of an old all-ceramic crown restoration.

**Patient case**

The patient was a weightlifter by profession. He sought treatment for a fracture on the vestibular wall of his all-ceramic crown on tooth 25 (Fig. 1). He wanted a new, metal-free restoration. For the sake of time efficiency, treatment was planned with the CEREC chairside system.

The material of choice

A suitable material in this case was the new VITA ENAMIC, whose material composition and mechanical and physical properties offer a combination of ceramic and composite. The hybrid ceramic is a completely new generation of ceramic materials. The unique, dual network structure consists of a dominant ceramic network reinforced by a polymer network. This follows the principle of compound materials, i.e. both networks penetrate each other mutually. Thus immense stability as well as extraordinary elasticity are guaranteed for the first time. In addition to classic, single tooth restorations (inlays, onlays, veneers and crowns), VITA ENAMIC's range of indications includes minimally invasive restorations and restorations exposed to high masticatory forces. VITA ENAMIC is available in the geometry (size) EM-14 (12 x 14 x 18 mm) and in the translucency levels HT (High Translucency) and T (Translucent) and in five VITA SYSTEM 3D-MASTER shades 0M1, 1M1, 1M2, 2M2 and 3M2. VITA ENAMIC can be processed with Sirona's CEREC or inLab MC XL systems, software version 4.0 or higher.

**The treatment procedure**

After removing the fractured crown, further preparation suitable for ceramic was carried out on tooth 25 (Fig. 2). The digital impression (Fig. 3) was performed using the CEREC AC acquisition unit and the Bluecam. The CEREC 3D-software's automatic biogenetic tooth modelling function was used for designing the crown restoration (Fig. 4). Occlusion registration was performed. The opposing jaw was not scanned. The biogenetic reconstruction of the occlusal surfaces is based on a mathematical procedure that allows the automatic reconstruction of the patient's individual tooth morphology based on the morphology of the patient's re-

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**VITA ENAMIC**

VITA ENAMIC® redefines load capacity.*

The first hybrid ceramic with dual network structure for unsurpassed absorption of masticatory forces

* In addition to a high degree of elasticity, this innovative hybrid ceramic guarantees particularly high strength after adhesive bonding.

---

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The [E] formula for success: strength + elasticity = reliability²
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Education
Participate in challenging CE courses that fit into your schedule and budget

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Research and purchase dental products and services at a discount

Connections
Mingle with colleagues from across the world
Cleanic®
A universal prophy paste with Perlite technology

By Dr. Fabio Cosimi D.D.S.
Dr. Susanna Giovannini D.I.
I-Ostia Lido, Rome

Cleanic® prophy paste by Kerr has a creamy and smooth consistency. It also has a pleasant fresh taste that is not too strong and is well accepted by the patient.

This creaminess and the clever use of binding agents have made the paste easy to use. Available in a tube, used with both cups and brushes, the paste stays more compact on the tooth surface, thereby avoiding the unpleasant sensation caused by coarse particles left in the patient’s mouth.

Within a few seconds after application (during the cleaning cycle), Cleanic® paste removes extrinsic discoloration caused by chlorhexidine or stains caused by cigarette smoke.

(If either of these are present in a patient at a recall of 6 months, the application should be repeated).

About 8 seconds after application, the paste automatically starts its polishing action thanks to Perlite technology making the tooth appear smooth and shiny.

After our usual professional oral hygiene procedures (debridement, scaling and root-planing), Cleanic® paste, compared with others on the market, seems to be less apparent in the gingival sulcus.

Pro-Brush™ new generation brushes are very suitable for patients with dental overcrowding or malpositioned teeth. Plastic replaces the traditional metal part and allows the brush to rotate more efficiently. This helps to prevent damage to adjacent teeth.

Pro-Cup® cups have been designed and developed to avoid pastes being splattered as with traditional cups.

Material benefits
Experience shows that the new VITA ENAMIC blocks can be milled very quickly from the digital design. This ensures milling results with high precision, edge

The VITA ENAMIC Polishing Set clinical and the VITA ENAMIC STAINS KIT are available for reworking chairside manufactured VITA ENAMIC restorations. The polishing set includes a total of eight polishers for the handpiece, four for high-glaze polishing. A staining set is also available. Beside six stains, this also includes VITA ENAMIC Glaze for sealing the surface. The stains and the glaze are light-curing and very easy to process. The definitive intraoral cementation of the marginally accurate crown (Figs. 6 and 7) was performed with Multilink Automix (Ivoclar Vivadent), since VITA ENAMIC has a high loading capacity after adhesive bonding with the residual natural dentition.

Clinical: Use of a recognised prophy paste with Perlite

Before

Procedure

After

< Page 10

> Page 29
Pulp protection in today clinical practice: what about the role of materials?

By Dimitrios Tziafas, DDS, PhD

Vital Pulp Protection and Therapy (VPPT) is the preferred treatment to preserve the pulp tissue in a healthy and functional state, whenever the dental pulp has been compromised by caries, trauma or restorative procedures. Pulp vitality in dentin-pulp complex is not essential for mature tooth survival. Mature permanent teeth with a vital pulp can survive for a long time after a successful endodontic treatment. However, the maintenance of pulp vitality in both mature and developing teeth provides benefits, in immaturity permanent teeth the vital pulp is the most important requirement for continuation of root development and strengthening of the root structure, in immature teeth with living pulp the capacity of the dentin-pulp complex of mature permanent teeth to repair dentin defects and to retain the damaged complex as a function of time, is important for continuation of root development and strengthening of the root structure. Whether the pulp is vital or not, good post-operative results depend largely on the dentin-pulp complex and the treatment modalities used to maintain or re-establish pulp vitality and function is not essential for mature tooth survival.

The reader of the present article is encouraged to study a number of papers published experimentally and clinical observations as well as the level of evidence in relative clinical research, which have been presented in the symposium held on 2007 in Chicago, Illinois, on "Emerging science in pulp therapy: new insights into dilemmas and controversies" jointly sponsored by American Association of Endodontists and American Academy of Pediatric Dentistry (see Pulp Symposium, Journal of Endodontics, July 2008, Volume 34, Number 7), It has been well recognized that the following critical factors are playing a role.

a. Treatment indications

As has been well demonstrated the VPPT is indicated for teeth with healthy pulp or reversible pulps. More particularly, pulp protection, where a material is placed on the pulpal surface of a dentinal cavity to act as a barrier between the permanent restoration and the sound dentinal base of the cavity, is indicated for: Carious or non-curiously tooth cavities with remaining dentin thickness less than 2 mm, history of lingering or spontaneous pain, negative percussion and palpation test and positive pulp vitality test, and ii. Young permanent teeth after luxation trauma and crown fracture exposing the inner third of the dentin, regardless of the presence of clinical symptoms.

b. Control of infection

It is well-known that the pulpal reaction to a microorganism is an inflammatory response of the pulp tissue. Whenever a pulp reaction occurs, it is necessary to control the infection. Although in many cases, an indirect pulp capping is performed to prevent the possibility of pulp exposure, the ultimate goal of this technique is to complete caries removal just before the pulp exposure, where the potential of pulp healing can effectively protect the pulp and stimulate tertiary dentin formation. The presence of symptoms of irreversible pulpitis, positive percussion and palpation tests, or radiographic appearance of apical lesion might assist absolute contra-indications for indirect pulp capping.

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of immature permanent teeth must satisfy different goals than treatment for mature permanent teeth, due to the central role of the pulp in the physiological continuation of root development and in further deposition of primary dentin which strengthens the root dentinal walls. Thus, preservation of pulp vitality is particularly important in the immature permanent teeth, even with very different treatment indications.

c. Remaining dentin
Effective protection from the chemical and bacterial irritants depends on the following two parameters (Smith 2002):

i. The remaining dentin thickness has been widely recognized as the main factor which determines the long-term success of the treatment, in absence of bacteria. In general, remaining dentin thickness more than 1 mm is considered to be a safe limit for adequate pulp protection.

ii. Situation and dimensions of the exposed dentinal surface in the cavity seem to influence the overall dentin permeability through the number of exposed and open dentinal tubules.

d. Operative trauma
The operative trauma has been also implicated with pulpal injury and subsequent pulp healing. Frictional heat due to uncontrollable mechanical cavity preparation, over-drying of the exposed dentin, direct damage to odontoblastic processes in deep cavities, and the chemical treatment of the dentinal surface due to acid-etching, may be associated with transient pulp damage and/or increased pulpal sensitivity, which can delay pulp healing, while also development irreversible pulps cannot be excluded.

The role of materials - In general similar materials are widely used in today clinical practice for both sites, pulp protection in deep sound dentinal cavities, and in active carious dentinal lesions, despite the facts that the objectives of the two techniques are clearly different. For many years the hard setting zinc oxide eugenol cements have been used under amalgam restorations, and the hydroxide-containing cements have been considered as materials of choice for pulp protection in deep dentinal cavities, especially in cases of indirect pulp treatment, while resin-modified glass ionomers, as well as resin-modified glass ionomers have been evaluated in deep carious lesions, while direct application of adhesive materials in the base of the cavities has also been proposed. Recently calcium silicate-based materials, acting as dentin replacement materials, are under preclinical and clinical evaluation.

Four criteria seem to be concerned to the characterization of an effective pulp protective material (see table):

- Physical properties
Adherence to dentin, resistance to dissolution, setting time, flow, and dimensional stability represent the most important physical properties of an ideal pulp protective material. The physical limitations of Ca(OH)₂-based materials, such as the non-adherence to dentin, dissolution in tissue fluids and degradation upon tooth fissure ranked them in the last position of the materials for use in pulp protection.

- Antibacterial activity
It is widely accepted that the ability of the pulp protective material to reduce bacterial leakage and to prevent post-operative growth of leaking bacteria and their invasion into dentinal tubules is the most critical requirement to avoid deleterious pulp inflammation and necrosis (Bergholz 2005, Smith 2002, Tzi-allas 2010). Furthermore several micro-organisms could be isolated from deep carious lesions and hence, the use of a material with antimicrobial activity under dental restorations has been highly recommended. Since bacteria can differentially affect the ability of odontoblasts to repair the dentine barrier function, the role of capping material in reduction of bacterial growth is important. Histological investigations have demonstrated prevention for bacterial growth in almost 100% of the restorations with glass ionomer-based materials, in caries free teeth of young adults for post-operative period up to one year. In a few recent studies the MTA and hydroxyapatite-based materials showed significantly better antibacterial activity than Ca(OH)₂.

- Biocompatibility
Absence of cytotoxic effects and biocompatibility of the restorative materials are reasonably of critical importance to reduce the possibility of pulp tissue irritation or degeneration. Various cell culture systems, implantation testing models in animals or usage tests in animal or human teeth have been repeatedly evaluated the biocompatibility of materials used as pulp protective bases. Calcium hydroxide-based materials have been much studied and represent the gold standard in the research of dental material biocompatibility. Conventional glass ionomers are highly biocompatible materials, while the resin modified glass ionomers, the resin composites and the adhesive systems have been shown to be considerably more cytotoxic, due to the release of non-polymerized monomers (BISGMA, UDMA, TEGDIA, HEMA). These monomers can cause direct pulp inflammation in toxic concentrations, or dramatic reduction of the desensitizing ability of the pulp in sub-toxic concentrations. However histological studies in deep cavities of human teeth are expected to confirm these issues.

- Biospecificity
It is associated with the capability of material to stimulate repair of denitinal permeability (barrier function). Systematic investigations on the ability of the use pulp protective materials, in reducing the risk of pulp inflammation, in the underlying pulp and to...
By Victoria Wilson, Dental Hygiene Therapist, UK

DUBAI, UAE: A truly remarkable day for Hygienists in the MENA, over 100 Hygiene delegates attended the first Dental Hygiene Day on Saturday, May 10th, 2014, which was a continuation of the 9th CAD/CAM & Digital Dentistry International Conference, May 09-10, 2014 at the Jumeirah Beach Hotel, Dubai, UAE. Hygienists practicing in the UAE and from other countries in the MENA attended the first of its kind in the Middle East.

The timetable included a variety of relevant topics tailored specifically to the Hygiene profession.

The exceptional speakers made it worthwhile for any hygienist to attend.

Prof. Crawford Bain delivered an interesting informative lecture on the maintenance of the dental implant patients, an extremely relevant topic for all Hygienist in light of the growing number of implants being placed and the crucial role of the Hygienist in the necessary maintenance.

Dr. Matthieu Gabriele gave a lecture on Oral Hygiene protocols and complications with various fields of dental treatment, a must-know-how for every Hygienist.

Dr. Rasha Ahmed presented the important topic on dentine hypersensitivity management. Hygienists face patients common complaints of hypersensitivity on a daily basis, and the well-presented topic by Dr. Rasha was much appreciated by the audience.

Victoria Wilson’s Lecture, the Editor of Hygiene Tribune, focused on communication within Dentistry, a topic essential for the delivery of oral health education and achieving long term compliance and maintenance of oral health.

The afternoon consisted of a hands-on course on periodontal instrumentation, with the renowned Prof. Mary Rose Pincelli Bogleone from Italy and the International Federation of Dental Hygienists IFDH. Due to the popularity and demand the course was extended to 2 days. We were honored to have such an expert in the profession join us on a revision of the essential skills of scaling and instrumentation. Hygienists are trained extensively on scaling and instrumentation in their education, however it is easy to fall into bad habits. This was an invaluable refresher course for Hygienists and we hope that Mary will join us in the future for more courses. Dr. Rasha Ahmed also delivered a very informative hands on continuing course in the afternoon on the practical application of the management of dentine hypersensitivity.

In the 7 years I have been living and working in the UAE I have never known for there to be such an extensive program for the profession on one day and for so many Hygienists to be in one room at one time.

The year 2014 is an exceptionally exciting time for the profession of Dental Hygiene in the MENA. Four months ago the Dental Tribune Middle East opened the Dental Hygiene Tribune section dedicated entirely to the Dental Hygiene profession. More and more dental and medical professionals are requesting to have a Hygienist on board. Following on from the Dental Hygiene Day we look forward to more Hygienists days by CAD/CAM with more hands on courses, and lectures tailored to the needs of hygienists professionals.

What we all have to keep in our mind is that a healthy periodontium is the backbone to all good restorative dentistry and medical treatment – not in the whole process an essential part in overall health and wellbeing.
New Philips Zoom WhiteSpeed Light-Activated Whitening System.
A better experience for your patients and your practice.

Philips Zoom In-Office Whitening kit makes treatments easier
Packed in procedural order, you get everything you need for each treatment, including Philips Zoom at-home whitening gel for follow-up and maintenance complete in a single package. The Philips Zoom Kit also includes simplified visual instructions.

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Each treatment comes with a Patient Post Care and Maintenance kit that includes the Relief ACP Oral Care Gel. This unique formula combines potassium nitrate for sensitivity relief along with Amorphous Calcium Phosphate (ACP) that helps create healthier smiles through advanced enamel protection. To ensure a more comfortable experience all around, instruct patients to use it for 10-30 minutes after treatment.

New Philips Zoom WhiteSpeed Whitening LED Accelerator
The advanced Philips blue LED technology provides approximately 50,000 hours of use—reducing operating costs, downtime and is 40% more energy efficient. The light also emits 100% greater light intensity* with no compromise to safety. Redesigned to be easier to position and more ergonomic, your patients and your treatment will be better than ever.

New support for your practice
Philips Zoom is funding a worldwide public relations campaign to drive patients to dental professionals, and new programs to help you quickly and easily integrate Zoom into your practice.

“With this new light the patient’s sensitivity is minimal, making the procedure much more pleasurable.”
— Juban Dental Care - Baton Rouge, LA

Reveal your patients’ most healthy, radiant smile with Philips Zoom WhiteSpeed

Give your patients the immediate white smile they want and the healthy white teeth they need, with the new Philips Zoom WhiteSpeed. The number one patient-requested professional teeth whitening brand* is clinically proven to deliver superior whitening results in just one office visit. WhiteSpeed is shown to whiten teeth up to 8 shades in 45 minutes; that’s 40% better than a comparable non-light activated system.†

The new Whitening LED Accelerator’s variable intensity settings allow you to customize the output to ensure each patient receives a more comfortable treatment. 91% of patients experienced little to no sensitivity with Zoom WhiteSpeed.‡

Now better than ever — Philips Zoom WhiteSpeed.

* In the U.S.
† Compared to Philips Dash
‡ Results based on 500-person study. Data on file.
Philips introduces its best brush yet, Sonicare DiamondClean, helping users achieve brushing brilliance every time

By Philips

Dubai, UAE - Philips is proud to present the new Sonicare DiamondClean – a brush that harnesses some sonic tooth brushing to its most sophisticated level and which delivers Sonicare's best clean yet removing up to 100% more plaque in hard to reach places than a manual toothbrush.

Sonicare DiamondClean harnesses Philips Sonicare’s patented sonic technology to produce a powerful dynamic cleaning action for a difference that users can see and feel. It is gentler on teeth and gums than a manual toothbrush, helping to keep teeth stronger and healthier for longer. Philips Sonicare gently whips toothpaste into an oxygen-rich foamy liquid and directs it between and behind teeth and along the gumline without damaging them.

Sonicare DiamondClean is clinically proven to remove up to 100% of plaque from hard to reach places and to improve gum health in just 2 weeks. It is also clinically proven to whiten teeth in 1 week; and its gentle technology actually helps protect against gum irritation and recession to help reduce sensitivity. Now is the perfect time to give your teeth the celebrity treatment and switch to Sonicare to really experience the difference.

The brush is able to deliver a unique whole mouth clean feeling thanks to its five brush modes that allow you to tailor your brushing according to your needs as well as your dental professional’s advice. The brush modes range from:

- Clean – the standard mode for a whole mouth clean
- White – removes surface stains to whiten teeth
- Polish – brightens and polishes teeth to bring out their natural luster
- Gum Care – gently stimulates and massages gums
- Sensitive – an extra-gentle mode for sensitive teeth

Highly charged DiamondClean’s chrome base also features a unique charging glass that can be used for mouth rinsing, but also incorporates the latest in inductive charging technology to charge the toothbrush as it rests in the glass – making it stylish enough to display in the most fashion-forward bathroom.

Not only is Sonicare DiamondClean Philips’ most advanced brush yet, it’s also our most easy to use and stylish. DiamondClean’s power handle has a ceramic finish and a chrome accent ring highlighting the elegant neck of the brush. The technology in the handle is hidden so that the sleek matte white finish of the brush is uncluttered by electronic visual displays. Only when the on button is pressed do the brushing modes illuminated to reveal the array of options. These are then simply selected by scrolling down using a one button action.

When travelling or on the go, Sonicare DiamondClean is designed for convenience with users being able to keep their brush fully charged using a revolutionary USB travel case that can be plugged into almost any lap top computer and saves the hassle of having to pack plugs and adaptors. But only the most intrepid travellers need worry about this advanced feature as Sonicare DiamondClean holds an impressive three weeks charge.

Blissful cut Sonicare DiamondClean brush heads also sport a new diamond-cut tuft formation to provide you with an even more efficient brushing experience. The uniquely designed diamond bristle heads have 44% more bristles than Philips Sonicare’s standard sized ProResults brush heads, providing you with both superior plaque removal and whiter teeth. The heads come in two sizes – Standard and Compact – for focussed cleaning in areas of special need, for orthodontic patients and those with smaller mouths.

How much do you care for your hands?

By Beverley Watson BDSH, Kings College, London

London, UK: It is understood that out of many professions, Dental Hygienists are in the high risk category of suffering from Repetitive Strain Injury RSI or Carpal Tunnel Syndrome CTS. This article aims to evaluate ways to reduce this risk.

Two widely used brands of Hand instruments are to be evaluated as a comparison, LM DuraGradeMax and American Eagle XP Technology.

Method: Online research publications.

Conclusion: After reviewing the information from both LM and American Eagle instruments, it was found that some parts of the LM information in Figure 5 was not able to clearly state what it was trying to prove. Yet with electronic microscopy photographs and the Rockwell hardness test proves the hardness of the cutting edge of American Eagle instruments.

Objectives: To determine the best ways a Dental Hygienist can avoid RSI or CTS throughout their career. This will include exercises' and what to be aware of when choosing ergonomic hand instruments for hand scaling, such as the comparisons LM DuraGradeMax and American Eagle XP Technology. The criteria will be judged on the handles lightness, weight quality, the best grip and the need for sharpening.
Help your patients eat, speak and smile with confidence with the Corega® denture care regime.

Are your patients’ dentures truly clean?

Dentures contain surface pores in which microorganisms can colonise.1

Corega® cleanser is proven to penetrate the biofilm* and kill microorganisms within hard-to-reach surface pores.2

SEM images of denture surface.
*In vitro single species biofilm after 5 minutes soak
Date of preparation: June 2014.
Ref: CHSAU/CHPLD/0008/14c
In ‘bleeding on probing’ trials over 4 weeks, parodontax® demonstrated significant effects in reducing bleeding gums by 22% (p<0.01)

Bleeding on probing increased after 4 weeks of brushing with the fluoride control toothpaste

Adapted from Saxer et al 1994. All interdental spaces from 6+ to +6 were tested at baseline and 4 weeks for bleeding on probing on the right side (buccal) and left side (lingual). Findings were recorded as 0=no bleeding; 1=slight/isolated bleeding; 2=marked bleeding. Mean scores were determined. N=22.

Baseline values [Mean SD]: Control (fluoride-containing toothpaste) group 24.75 (6.34); parodontax® group 25.40 (6.80). After 4 weeks: Control (fluoride-containing toothpaste) group 26.00 (9.14); parodontax® group 19.80 (7.38). *parodontax® vs control p<0.05.
Prevention: Take regular hand breaks to stretch and exercises the muscles, tendons and ligaments. See Figure 2 for some possible exercises.

Breaks don’t only include time away from scaling, but also time away from the computer and writing notes. Typing can also compress the nerves in the Carpal Tunnel.

Treatment: If it is not possible to take long term time out from the activity causing the repetitive strain on the small muscle groups, then it is necessary to take regular short breaks and stretch (Figure 2, 5).

A hand splint, the hand is held in a relaxed position to take pressure of the Median nerve running through the Carpal Tunnel and as a final resort surgery.

A brief history of Hygiene

The earliest recorded text associated with teeth cleaning dated 5000 BCE where tooth picks were used in Mesopotamia (early Iraq) according to the M dentistry. However, it was not until 1915 in USA, Connecticut that Alfred C. Fones trained 97 Dental Hygienists and the Dental Act set regulations stating their duties. Then in UK 1945 saw the 1st Dental Hygienists trained in the Women’s Auxiliary Army WAAF. Instruments: The 1st Dental hand instruments were very thin and heavy with smooth metal handles requiring a very tight grip. Later a cross hatch was scored into the metal handles for easier grip but were still very thin, wider lighter steel gripped handles were introduced and in the last 10 years a wider ergonomic soft silicone was used around a metal inner part then came into production, a very light completely resin handle with a grip for less wear on the muscles and tendons.

Ultra Sonic Scalers have dramatically improved the Dental Hygienists ability to remove hard deposits from the tooth surface by either working in a Magnetostrictive or Piezo electric capacity. This reduces the need for excessive forces applied by the hand over an extended period of time increasing the risk of strain and inflammation of the wrist muscles and tendons resulting in RSI or CTS (Figure 4). Shapening: Numerous articles state the different methods of sharpening instruments: Arkenstone different shapes round, flat, long, short, Different sizes, angles, grades course, medium, fine. Machines: The Hu-Freidy instrument sharpener, the LM Kondo- plus electrical disc sharpener

The Nevert Whittler to name a few.

The consistency of the precision of angulation is unpredictably and operator error possible. It is possible to affect the cutting edge, causing more strain on the fingers hand and wrist. It is human nature to not sharpen immediately when required. Figure 5 shows the different types of next generation hardened steel.

Results: LM handles present to be ergonomically superior with a wider silicone grip to help keep the Carpal Tunnel open, however they do still contain an inner metal handle with a grip for less wear on the tendons and wrist. It is possible however to see in the photographic evidence 15000 strokes to 1,500 from American Eagle instruments.

Regarding the hardness of the Steel alloy of the LM instruments there is no evidence to support this but the American Eagle XP instruments have the Rockwell hardness test to prove their claim.

Conclusion: In conclusion the Ultra Sonic Scaler should be used as much as possible to avoid excessive strain on the transverse carpal ligament and median nerve. It is clear that some calculus deposits remain after scaling alone is not sufficient and hand instrumentation is necessary for a complete treatment.

In conclusion the American Eagle XP technology tips becomes dulled less cost effective. Once the XP technology tips becomes dulled it is feasible to use their Quick tip® to replace the tip at less cost than the full instrument.

The statistics in Figure 7 do not clearly outline how the results were determined for LM instruments, it is not clear what numbers 9, 7, 5 and 5 represent, minutes, hours, Days, Strokes? It is possible however to see in the photographic evidence 15000 strokes to 1,500 from American Eagle instruments.

The correct choice of hand instrument is essential for a Dental Hygienist to help avoid RSI. It seems the American Eagle lightweight resin handle with the XP Technology blade will be of most benefit long term. Due to its superior strokes carried out 15000 to 1,500 before starting to dull.

For this reason it seems the American Eagle XP technology would be in the instrument of choice compared to the LM Ultra Sonic Scaler. The American Eagle XP will ensure less pressure is exerted on the median nerve, the transverse ligaments and the carpal tendons reducing the risk of RSI or CTS.

References:
1. NHS UK choices website May 2014
2. May 2012, RHI Feature. No more dull instruments, Diane Glasscoe Watterman RDH, BS, MBA
4. Figure 2/5/4: Google images
5. Figure 5: DG Double Gracey XP technology next generation http://www.lm-dental.com/sites/maininstruments.com/files/materials/duragrademax_en.pdf
6. Figure 6: DG Double Gracey XP technology next generation.

The XP Technology instruments require no sharpening at all, and will allow more repetitive strokes with minimal pressure on the tendons and wrist. The LM DuraGradeMax states a hardened steel alloy more durable than the XP Technology. It is advised to send the instruments back to the LM company for factory sharpening, requiring doubling of the instruments in order to continue a full working schedule, resulting in LM being less cost effective. Once the XP technology tips becomes dulled it is feasible to use their Quick tip® to replace the tip at less cost than the full instrument.
PRECISION CLEAN BRUSH HEAD PROVIDES

UP TO 5x

GREATER REDUCTION
IN PLAQUE BIOFILM ALONG THE GUMLINE

* vs. a regular manual toothbrush

continuing the care that starts in your chair
KaVo CAD/CAM workflow with the new products ARCTICA AutoScan, KaVo multiCAD Virtual Articulator and VITA ENAMIC

By KaVo

With the production of two monolithic posterior crowns, the KaVo CAD/CAM application technology demonstrates a practical case in which the new CAD/CAM products ARCTICA AutoScan, KaVo multiCAD Virtual Articulator and VITA ENAMIC for KaVo ARCTICA play a major role.

Described below are the following individual steps, which consist of:
1. Order preparation
2. Scanning
3. CAD construction
4. Preparation for manufacture
5. Manufacturing
6. Completion

Order preparation: 50 seconds

First, the practitioner, the patient and the respective technician are defined in the order entry form. The second step consists of the definition of the indication including all parameters. In the present case, this concerns the creation of two full crowns to be made of VITA ENAMIC Regis 46 and 47. The parameters for the respective practitioner can be referenced in the KaVo multiCAD software. This function guarantees consistent quality regardless of the originator of the order (Figure 1, 2).

Scanning: 180 seconds

This case is scanned with the new fully-automatic ARCTICA AutoScan. The scan process is very simple as the software guides the user step by step through the scan process. The individual scans are performed completely automatically. First, the upper jaw is scanned, followed by the lower jaw. If necessary, single stumps may then be scanned separately. This is followed by a vestibular scan allowing the correct positioning of the jaws by the software (Figure 5).

The next step consists of matching the individual jaw scans and the vestibular scan by marking three identical points on the respective jaw and vestibular scan. Afterwards, the software calculates the exact position of the upper and lower jaw scans (Figure 4, 5, 6).

Construction of the restoration in the KaVo multiCAD software: 180 seconds

In the KaVo multiCAD software, the contact relief of the corresponding jaw is displayed in the scan software. For analytical purposes, it may be displayed in color. The respective color and intensity indicate the distance to the antagonist.

Afterwards, the articulator KaVo PROTAR evo 5B is started in the KaVo multiCAD software. The respective patient-specific settings of the physical PROTAR articulator such as, for example, the condyle track inclination and the Bennett angle, are entered into an entry mask. The correct positioning of the models in the virtual articulator (KaVo PROTAR 5B) is done automatically. Based on the scan of the articulated models in the ARCTICA AutoScan and the positioning of the models by the KaVo Splitcast system, the correct positioning is automatically transferred to the CAD software. This positioning also applies to models that were inserted into the articulator by means of a facebow.

After the adjustment of the patient-specific parameters, the motion tracks are simulated and any interferences are corrected by the software (Figure 7, 8, 9).

The illustration shows a lateral protrusion to the left (Figure 10).

In the subsequent construction process, the movements of the jaws may be visualized at any time (Figure 11).

The manufacture of the two VITA ENAMIC crowns on 46 and 47 is performed quickly and easily by means of library teeth that are automatically positioned onto the preparations and may be loaded into the situation via a simple mouse click. Furthermore, the library teeth may subsequently be matched to the individual occlusal relief of the chewing surface. The user is able to adjust the suggestions of the software via a wizard (step-by-step assistant) at any time during the construction process. Various tools
Giomers are a remarkable class of bioesthetic restorative materials that exhibit the aesthetics, strength and durability of nano-hybrid resin composites, further enhanced with the benefit of fluoride and anti-plaque effect pertaining to S-PRG fillers.

These unique fillers are manufactured through Shofu’s patented PRG filler technology that imparts Beautifil II, Beautifil Flow, Beautifil Injectable and FL-Bond II with protective fluoride benefits and greater tissue tolerance.
Now is the time to consider investing in your own CBCT System

By Ernesto Jaconelli

This Century has seen the introduction of 3D imaging as a readily available dental diagnostic tool. This trend has been inspired by the development of both Cone Beam Computed Technology (CBCT) and PC storage capability making 3D imaging more convenient, easier to use, and affordable.

To be able to view the area of interest in all three dimensions significantly improves the accuracy of diagnosis and this in turn makes for faster better patient treatment. Each year new systems are becoming available such as the new CS 8100 3D System form Carestream Dental. These new systems are now significantly smaller, more versatile and user friendly than their predecessors. The CS 8100 3D has a “resting” width of 33cm (110cm when in use) and weighs only 92Kgm so will fit easily into most compact dental clinics.

A very important feature of all modern CBCT systems is that they provide the Dentist with a choice of volumes that will be right for the area of interest. These volumes are known as the Field of View (FOV). The CS 8100 3D for example gives choices from taking a 2D Panoramic to capturing a selection of 3D FOVs of 4 x 4 / 5 x 5 / 8 x 8 and 8 x 9 mm. As with all x-rays it is essential to minimise the dose to the patient - the larger the FOV the more dose to the patient. Each area of dental surgery will require a different FOV depending on the treatment being considered so it is essential to have a choice of FOVs to select from.

For a single implant a FOV of 5 x 5 mm will be sufficient and the dose to the patient in this case will be similar to that from a 2D panoramic scan. However for the preparation of multiple implants or surgical guides then a single arch FOV of 8 x 8 / 8 x 9mm FOV would be selected. Dentist who specialising in Implants were the first to fully appreciate the benefits of 3D imaging such that it is now unusual to find one who does a not have their own CBCT system.

For Endodontists, the key diagnostic tool is always their surgical loupes. But they are also adopting 3D image to reveal more clearly any additional canals that are present and possibly missed from a 2D image as well as their exact position and apical areas. A sectorial FOV of 5 x 5 mm will provide a very high definition image for an Endodontist to be able to examine the area in precise detail.

Until now Orthodontists have mainly been satisfied with a 2D panoramic view. However having a CBCT system that switches easily from a 2D panoramic to 3D image allows the Orthodontist to select a 3D view when required. Retention and angulation for example are more precisely diagnosed from an 8 x 5 / 8 x 9 mm FOV.

3D imaging will soon be the norm for dental diagnostics requiring all dentists to be familiar with the technology and capable of analysing 3D images. There has never been a more appropriate time to consider having your own CBCT System. Manufacturers are supplying more in depth training such as at the Carestream Dental Training Centre at Ajman University of Science and Technology, and now that CBCT systems are available from 40,000€, a return on the investment can be achieved within two years.
Simple, planned aesthetic orthodontics for the General Practitioner

By Dr. Tif Qureshi

Dr. Tif Qureshi shows how digital technology has moved progressive smile design on and the enormous benefits this will have on our day-to-day work and consent.

Digital Smile Design is making a come back in a very smart and intelligent form through the use of live video, cameras, and keynote presentations.

I commend the users of this technique as it is clearly a far better form of smile design planning than just using plain static before and after pictures with someone else's smile stitched into place.

However in cases where there are alignment issues, I would still argue that any patient who does not at least go down the pathway of alignment and bleaching, cannot really see their teeth change in a dynamic way.

I have found that patient's feelings about their smiles change or may think they want one thing but after they see their smile change a little they start to appreciate it in a different way. How can someone really be consented unless they are given the opportunity to bleach their teeth, perhaps with slight alignment and bonding.

This case is the perfect example and will show how progressive smile design also using digital technology can produce beautiful predictable results that often require far less invasive treatment.

We use digital technology in a different way of course and this is all to do with planning and consent. Previously with Inman Aligners, we had to use Resin models. These are effectively fairly crude stone models which take a cut and once repositioned in wax the aligner is then built on that model. As soon as the aligner is fitted into an uncorrected mouth the forces are there to push the teeth to the final position. The real downside of it at the wax creates quite large inaccuracies. Also it is very difficult to see how much adjustments have been made to the teeth to get them to fit within the curve. This is even more so of a problem for flared teeth which have been out of the arch for many more years. These teeth tend to be highly triangular and often need more targeted adjustment to get them to fit within the arch form. You can visualize the fits of these teeth, it is almost impossible to accurately know how much production is required to each.

Of course with digital 3-D printing this has all changed. The difference if you like is night and day. We can also use print-out intelligent models to show the patient the proposed outcome. This is excellent for the consenting process. Untreated patients will now see any compromises areas and the final outcome. If they are not happy they could reject the treatment before it starts.

A case
A 22 year old gentleman did not like the appearance of his teeth especially because the two centrals was so prominent. He had considered having porcelain veneers done just to improve his smile in one treatment. He did not like the appearance of his enamel and also the discrepancy in the shape of his front teeth. We showed him the occlusal view of his teeth and he could see that the upper anterior is one mildly misaligned. Indirect veneers would have been fairly aggressive towards the preparation of the upper central incisors. By showing examples of other cases where simple alignment had dramatically improved the aesthetic value the patient agreed to try to align his teeth first before having veneers done.

Consent part one
A full orthodontic examination was carried out. All orthodontic options were discussed and the patient understood the benefits of fully comprehensive orthodontics, and was also given a range of short-term techniques that he could have chosen. He declined comprehensive orthodontics on the basis that he only wanted to deal with his anterior teeth.

He chose to have an Inman Aligner because of the shorter wear time and the minimal cost impact on his overall treatment desires. Our first goal was to evaluate the aesthetics and function to decide on landmark or reference teeth. As part of the digital planning process, these teeth are not moved and ensure the setup accommodates these teeth to ensure the proposed curve is not flared out or over constructed.

In this case the patient also had a retained upper left deciduous tooth (no canine had developed). Fortunately this tooth was in the right position so it became the reference tooth and hence no orthodontic force would need to be applied to it. Both upper centrals needed to be retracted and both laterals advanced. It was important to visualize a chin up view to ensure this is viable for the patient from an occlusal and guidance point of view. All the movements were possible.

(figure 1) Occlusal showing landmark and desired movements.
(figure 2) Showing spacewise trace
In the chair the occlusal photo is taken and uploaded into the spacewise digital calculator.

The curve is set according to the landmark teeth and required movements. This showed a crowding result of 4mm which was within the easy limits for Inman treatment.

Impressions were taken and were sent to the lab with the spacewise trace.
Composite anchors were also placed in a timed and sequenced manner to ensure the forces could be directed at the right time. This allows for rapidly increased treatment times.

After only nine weeks the patient's anterior teeth had nearly improved in alignment already but with the improvement in color as well made him view his teeth in a different way. At this point he decided not to have porcelain veneers and instead to ask for composite bonding and bleaching. He had seen examples of this already. We used some mockup flammable material to show the patient what was possible and he was thrilled with the results. So an appointment was booked for 2 weeks to have this done.

Composite bonding was carried out on the 7.9 and 10. A composite veneer was placed on the 11. All these were carried out with only roughening and no prep or bevel. Venus Diamond composite from Heraeus Kulzer was used. I find that the Opaque shade allows superb blocking out of light meaning that if layered as dentine, it means a long bevel is not required to block out the join. Enamel shade can then be placed thicker towards the incisal edge.

A wire retainer was fitted and the guidance adjusted to ensure there were still balanced excursive contacts on the left side so the load was not focused on the deciduous tooth.

Roughening, total etch Opti-bond solo and Venus flow were used to bond the wire in place. A clear essix retainer was also given to the patient to wear at night initially then to use occasionally and to have as a back up if the wire de-bonded.

Discussion

On viewing the sequenced shots it is clear to see the changes. The patient was delighted that he had emerged from the treatment with his own teeth looking more attractive rather than having ceramic porcelain veneers. As good as ceramic restorations are, they will always require further treatment/maintenance and replacement.

On a 22 year old if alignment, bleaching and bonding can satisfy the patient that it has to be better than placing ceramic veneers. The problem with digital smile design is that the patient is not really given the opportunity to see the teeth change slowly and in situ.

It is fine if whitening, bonding and alignment are part of those protocols but arguably patients should not be shown images of multiple veneers until they can visualize their own teeth looking better.

You can see how very subtle changes can dramatically improve the appearance. Even though the colour is not truly homogenous and the teeth have a mottled appearance the most important thing here is that the patient was completely delighted with the treatment.

Ultimately a patient being happy with their own smile has to far outweigh the parameters that are set up traditional smile design.

Final images at the 6 month review are also shown.
may be used for this purpose, for example free forming, virtual wax knife, scaling, turning and shifting of teeth.

Interferences remaining after the construction will be displayed by the software and automatically removed in consideration of both static as well as dynamic factors (by means of the virtual KaVo PROTAR Evo 5B) including the previously identified motion tracks. This allows for a drastic reduction or even the complete omission of subsequent follow-up work in the mouth of the patient for the practitioner. Not only does this facilitate time and cost savings, the danger of chipping may be reduced as well (Figure 12, 15).

The following colour illustration shows the occlusal patterns after dynamic adjustment (Figure 14).

In the image, one can clearly recognize the deviations (color markings) between the static and dynamic structure and the adjustment of interferences in the chewing relief.

The dynamic adjustment may be displayed over the static one as wire netting. Any interferences to be expected are clearly recognizable (Figure 15).

After the dynamic adjustment, the finalized VITA ENAMIC crowns may be displayed in the KaVo multiCAD module TruSmile in a photo-realistic manner (Figure 16, 17).

Preparation for manufacture in the KaVo CSS: 60 seconds

The next steps for the completion of the dentures are performed in the KaVo CSS software, which is a job, material, tool and machinery management software by KaVo.

First, the manufacturing method is defined. This means that the user has the opportunity to send the produced,
open STL data of the restoration to his ARCTICA engine, his Everest engine or to other KaVo milling partners via the free KaVo Everest portal. The work to be manufactured and the predefined material to be used may be reviewed in a 3D view. If necessary, additional modifications such as, for example, a change of the material may be made.

After the selection of the KaVo ARCTICA engine as the production machine and a VITA ENAMIC for KaVo ARCTICA block, which was previously booked into the KaVo CSS via RFID technology, the nesting, i.e. the positioning of the restoration in the virtual material block, may be performed (Figure 18).

Now, the blanks are inserted in the block bracket of the ARCTICA engine and affixed with a torque wrench with a defined tightening torque (Figure 19, 20, 21).

Afterwards, the tool stack with the tools required for the VITA ENAMIC – in this case, 6 different grinding tools with diameters between 0.6 – 3.6 mm - is inserted.

These tools were also previously booked in the KaVo CSS software via RFID chip and assigned to the glass ceramic tool stack. The advantage is that the tool service times are precisely logged and that the ARCTICA engine uses a traffic light pattern (green, yellow, red) to show the user when a tool should be exchanged. This also helps to minimize application errors.

In case of an automatic tool change in the KaVo ARCTICA engine, the tools are once again inspected with a laser for breakage or faulty positioning once they have been removed from the stack.

The processing is started at the touch of a button on the touch-screen of the ARCTICA engine or, alternatively, directly at the PC (Figure 22).

Completion of the VITA ENAMIC crowns: 180 seconds each

After the successful production of the two restorations on the KaVo ARCTICA engine, the VITA ENAMIC crowns may be separated from the material block. The ARCTICA engine may be connected to a KaVo lab handpiece (ERGOgrip and POWERgrip) and used to further process the works. Prior to the start of the grinding procedure, there is also an opportunity to reduce the diameter of the connectors to a minimum at the end of the production process, so that the time expended for the separation of the restoration becomes negligible.

After the grinding procedure, the VITA ENAMIC crowns are polished in a time-saving manner with the tools from the VITA ENAMIC polishing set. An additional subsequent individualization of the work is possible with the colours of the VITA ENAMIC stains kits. In this case, an additional individualization was omitted upon the request of the patient (Figure 23, 24, 25).

Thanks to the use of the virtual articulator during the construction in the KaVo multiCAD software and the precise 5-axis technology of the ARCTICA engine, the work could be inserted directly into the mouth of the patient and corrections of the occlusal relief could be waived. As can be seen, precisely integrated process chains pay off.
stabilize directly tertiary dentin formation and intratubular mineralization, are entirely lacking from the literature. A few recent investigations at the preclinical level have shown that application of newly commercialized calcium-silicate based materials in deep dentinal cavities resulted in rapid stimulation of the biosynthetic activity of odontoblasts and dramatic reduction of dentin permeability. Again, all these data have to be confirmed clinically.

In conclusion, despite the fact that numerous scientific articles studied experimentally or clinically the pulp protective materials in experimental or clinical investigations (Björndal et al. 2010) and a number of critical and systematic reviews discussed their results, it must be emphasized that they have not been evaluated for the complete range of their effect. Given that application of a calcium hydroxide-based material in combination with a glass ionomer, seem to be the best choice according to the guidelines of American Academy of Pediatric Dentistry and the American Association of Endodontists, further randomized multi-centered controlled clinical research is needed to assess firstly the overall role of capping material in the VPPT, and then the ability of today used and/or newly developed materials to provide long-term pulp protection.

### References


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**Table:** A schematic overview of the pulp protective materials’ performance in clinical and experimental investigations.

<table>
<thead>
<tr>
<th>Material Type</th>
<th>Application</th>
<th>Success Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>calcium hydroxide</td>
<td>pulp capping</td>
<td>high</td>
</tr>
<tr>
<td>glass ionomer</td>
<td>pulp capping</td>
<td>moderate</td>
</tr>
<tr>
<td>calcium-silicate</td>
<td>pulp capping</td>
<td>low</td>
</tr>
</tbody>
</table>

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**Fig. 6:** The marginally accurate crown after etching with hydrofluoric acid gel.

**Fig. 7:** ... was adhesively cemented and seated.

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The personalization offered by Ormco Custom can reduce treatment time on average by 37% with 7 fewer office visits per case! With the unrivaled efficiency that Ormco Custom provides, you’ll have a little more of that priceless “you time” to hit the back nine. It’s your world – Ormco Custom is just here to help you maximize it.

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Dr. Josef Kunckela of the Czech Republic is an innovative Czech dentist with extensive experience in prosthodontics, restorative dentistry, preventative care and dental marketing. He currently presents his research in Czech Republic, USA, Germany, France, Ireland, Malta, Poland, Hungary and Slovakia. He also organizes practical courses in prosthodontics and CAD/CAM dentistry in the Czech Republic. His studies are published in the dentistry journals Quintessence, International CAD/CAM Magazine, Dental Tribune and DentalCare Magazine.

Five table clinics will operate from 11th to 13th September in groups. Outstanding CEREC trainers will run a premiere extensive training for future and advanced CEREC users. Participants will have the opportunity to interact immediately and ask their personal questions of interest. The practical demonstrations will, at the same time, provide inspiration and other means of trouble shooting.

Dr. Todd Ehrlich, USA - Summer of CEREC
“If you are a current CEREC user wanting to hone your skills, or someone curious about the technology, this narrative instruction will guide you for the best outcome.”

Dr. Daniel Vasquez, USA - Explore CEREC Omnicam
“It’s incredible how easy and fast new user learn to operate the new Camera CEREC Omnicam. Come learn and engage in this One day lecture/hands-on and discover in how you can integrate CEREC Omnicam to your practice.”

CEREC InLab Basic & Advanced Training is featuring Dental Technicians. Mr. M. Al-Zubi, Canada Mohammad Al-Zubi-RDT, owner of Optimus Dental Lab Inc; a Crown & Bridge lab which focuses on Digital Dentistry and CAD/CAM Technology. How the InLab system works for non users. Digital work flown in Dental Laboratories. Material used with the system. Utilizing the system to the fullest potentials! Mohammad is a Sirona Beta Tester, Sirona fullest potentials! Mohammad Al-Zubi is a Sirona Beta Tester, Sirona beta testing and training and Sarah Brightman. We look forward to spend a wonderful two days with you at the dynamic Emirate of Dubai in UAE. There will be plenty of opportunities for socializing with your colleagues at our special Social Program. On the second day there will be a special encore finish with CEREC Night – a special event overlooking the Majestic Dubai Fountains which are dancing to the sound of the angelic voices of Andrea Bocelli and Sarah Brightman. We look forward to spend a wonderful two days with you at the dynamic Emirate of Dubai in UAE.

Almost 50 years ago, the first Chairside Indirect Ceramic Restorations were introduced; a posterior tooth Bonded Ceramic Inlay was digitally imaged, designed, and manufactured using CEREC Chairside CAD/CAM equipment. Nowadays, the system is capable to digitally produce almost every type of single tooth restorations as well as bridges both on natural teeth and implants.

Dr. Munir Silwadi with his table clinic presentation “Chairside Indirect Veneers, Inlays, and On-lays A-Z” will make a demonstration on models created out of simulated results. Participants will be able to use the full capabilities of the system to practice all steps required to produce and bond Veneers and Partial Crowns, especially to restore Endodontically treated teeth.

Social Program
Work hard, play hard is the motto of the CEREC Desert Fest. With a content rich Scientific Program it is only fair to have a suitable social program. On the first day there will be an opportunity for a sponsored DESERT SAFARI for the interested – a must for everyone who is visiting UAE. A memory to share with your family and friends back home. Be sure to bring a camera when going to a desert safari in Dubai as the views are breathtaking. There will be plenty of opportunities for socializing with your colleagues at our special Social Program. On the second day there will be a special encore finish with CEREC Night – a special event overlooking the Majestic Dubai Fountains which are dancing to the sound of the angelic voices of Andrea Bocelli and Sarah Brightman. We look forward to spend a wonderful two days with you at the dynamic Emirate of Dubai in UAE.

It’s fun to be part of such an amazing team of speakers”
- Dr. Daniel Vasquez, USA

Almost 30 years ago, the first Chairside Indirect Ceramic Restorations were introduced; a posterior tooth Bonded Ceramic Inlay was digitally imaged, designed, and manufactured using CEREC Chairside CAD/CAM equipment. Nowadays, the system is capable to digitally produce almost every type of single tooth restorations as well as bridges both on natural teeth and implants.

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Management Of Ectopically Erupted First Permanent Molars

By Dr Manal Al Halabi, BDS MS; Postgraduate Pediatric Program Director at Dubai College of Dental Medicine

Ectopic eruption of the first permanent molar occurs due to the abnormal meandering eruption path of the molar resulting in an impaction at the distal prominence of the primary second molar’s crown. It can be suspected if asymmetric eruption is observed or if the mesial marginal ridge is noted to be under the distal prominence of the second primary molar. Ectopic eruption can be diagnosed from bite-wrings or panoramic radiographs, Fig 1, 2. The prevalence of this condition is reported to be up to 0.75%1.

Ectopic eruption is more common in clef lip and palate patients2.

Ectopic eruption of permanent molars is classified into two types. There are those that self-correct or “jump” and others that remain impacted. In 60 percent of the cases, the molar jumps2. In most of these self-corrected cases, the condition goes unnoticed and is discovered later by evidence of resorption of the distal root of the second primary molar in routine radiographs. A permanent molar that presents with part of its occlusal surface clinically visible and part under the distal of the primary second molar normally does not jump and is the impacted type3. Non-treatment can result in early loss of the primary second molar and space loss, molar impaction, undetected caries and abscess formation4.

Aetiology
The aetiology of this condition is multifactorial, some of these factors might be:
- Alteration in the chronology of bone growth at the tuberosity region.
- Small or posteriorly positioned maxilla.
- Larger second primary molars and first permanent molars.
- Unfavorable second primary molar crown morphology.

Abnormal eruption angle “mesial” of the first permanent molar.
- Heredity
- Cleft lip and palate

Treatment considerations
Treatment depends on how severe the impaction appears clinically and radiographically. For mildly impacted first permanent molars, where little of the tooth is impacted under the primary second molar, elastic or metal orthodontic separators can be placed to wedge the permanent first molar distally4. Figure 3. For more severe impactions, distal tipping of the permanent molar is required. Tipping action can be accomplished with brass wires, removable appliances using springs, fixed appliances such as sectional wires with open coil springs, Figure 4, or surgical uprighting7.

After the distal tipping of the permanent molar, attention should be given to the condition of the second primary molar. Distal root resorption might lead to early loss of the tooth. Close monitoring of the situation is necessary and the provision for space maintenance by means of an upper bilateral Nance appliance should be considered if the second primary molar is lost.

In instances where the distal tipping of the first permanent molar is not possible due to lack of patient’s cooperation or other limitations, the distal prominence of the second primary molar can be reduced to alleviate the problem. Some loss of space will occur in this situation. Full coverage by a stainless steel crown might be needed if the primary second molar is compromised.

References
7. Terry BC. Herbst appliance is placed to attempt to correct a mild ectopic eruption of the upper right first permanent molar.
that the event was like all other editions of CAD/CAM & Digital Dentistry Intl Conference before, a great success, well organized, with a lot of benefits for all dental professionals - amazing, grand and successful conference. We received many thanks from the participants. We wish to take this opportunity to thank all the participants for so many extraordinary feedbacks and thank you notes. Thank you and see you soon on 14-15 November 2014 at the Jumeirah Beach Hotel for the 6th Dental Facial Cosmetic Intl Conference!

Scientific Session

The conference was organized by Emirates Dental Society and Center For Advanced Professional Practices (CAPP) with co-organizers Saudi Dental Society and Lebanese Dental Association. Supported by 12 sponsors (Sirosa, Ivoclar Vivadent, Planmeca, KaVo, MT ESPR, VITA, GSK, Amann Girrbach, Carestream, Dentsply, Wrighty and MPP) and 25 other industrial players who showcased the latest in digital dentistry – CAD/CAM system, scanners, 3D printing, digital imaging, digital orthodontics and all related materials from milling to bonding. We would like to thank again to all who supported our efforts to create this amazing conference.

The Scientific Program included 28 international Key Opinion Leaders from Germany, France, UAE, USA, UK, Italy, Greece and Lebanon all presenting the latest hot topics in the dental field. The conference also saw the introduction of a new parallel session, the Dental Hygiene Day which gathered over 120 dental hygienists from the region. Delegates enjoyed in total eight hands on courses throughout the two day event.

Presentation Highlights

“The Management of Missing Teeth (Part 1) - Fixed Partial Dentures.”
Dr. Andreas Kurbat, Germany

“The Management of Missing Teeth (Part 2) - Implant Supported Restorations.”
Dr. Andreas Kurbat, Germany

“The Digital Diary - “A Day in the Life of The Digital Team.”
Lee Culp, CDT, USA

Dr. Lida Swann and Lee Culp, CDT

“High Performance CBCT and Intraoralscanners In Modern Implantology - A State of The Art Review.”
Dr. Kurt Dawirs, DMD, DD, Germany

“Management and Clinical Workflows in Complex Cases in Light of the new Technologies.”
Dr. Andrea Mastrorosa Agnini, Italy & Dr. Alessandro Agnini, Italy

“Computer Assisted PeriodontalProbing and Diagnosis.”
Ron D. Joos, USA

“Accurate digital impression of multiple implants.”
Mr. Adrian Hernandez Gutierrez, Spain

“Do You Have All the Pieces of the Puzzle?”
Dr. Maria Hardman, UK

Dr. Nicolas Boutin, France and Dr. Bernard Cannas, France

“High Performance CBCT and Intraoralscanners In Modern Implantology - A State of The Art Review.”
Dr. Kurt Dawirs, DMD, DD, Germany

“Creative Esthetic Solutions In Veneers, Crowns & Bridges.”
Adham Farah, CDT, Syria

“CAD/CAM Screw Retained Implant Prostheses.”
Dr. Petra Varvaroglu, Greece

“3D Bone Defect Treatment in the Esthetic Zone.”
Dr. Elah Bashsh, UAE

“Advanced Innovations In Dentistry of the Most Revolving Dental Patients. How To Treat The Beast?”
Dr. Rasha Ahmed, UAE

Dr. Matthieu Gabriele, France

“Lost in Translation” Enhanced Effective Communication in Dentistry.
Victoria Wilson, UK

“Computer Assisted Periodontal Probing and Diagnosis.”
Ron D. Joos, USA

“Accurate digital impression of multiple implants.”
Mr. Adrian Hernandez Gutierrez, Spain

Keeping up with the fast moving technology Though the dental CAD/CAM industry has reached quite a very high level of development and become a major trusted player in Dentistry, it continues to improve on a fast pace. Statistics tell us that by the year of 2050, more that 50% of dental services will be done through CAD/CAM technology. This serves only to highlight the importance in keeping up with this fast moving technology through such highly specialized conferences.

10th Anniversary

In May 2015 CAPP will celebrate the 10th Anniversary of the CAD/CAM & Digital Dentistry International Conference. We will continue to bring to our audience the most recent updates of technology in the CAD/CAM field with few “surprises” as well.

Make sure you subscribe to the CAPP / Dental Tribune newsletter in order to get all the updates on the coming conference and regional news as soon as the first information will be released.

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Modern life can be challenging.

Modern, healthy lifestyles and dietary habits often mean an increase in the consumption of acid-rich foods and drinks. However, experts believe that as few as 4 acidic challenges a day can put patients at risk of Acid Wear.\(^1\)\(^2\)\(^3\) In addition to giving behavioural advice (e.g. diet and brushing), your patients may also benefit from a daily toothpaste that can protect enamel from these multiple acid challenges.

Pronamel is proven to reharden acid-softened enamel and provide ongoing protection from the effects of Acid Wear.\(^4\)\(^5\)\(^6\)

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Sensodyne® Complete Protection, powered by NovaMin®, offers all-round care with specially designed benefits to meet your patients’ different needs and preferences. With twice-daily brushing, Sensodyne Complete Protection:

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- Contains fluoride to strengthen enamel
- Helps to maintain good gingival health

Sensodyne® Complete Protection, powered by NovaMin® – an advanced approach to dentine hypersensitivity relief

- NovaMin®, a calcium and phosphate delivery technology, initiates a cascade of events on contact with saliva which leads to formation of a hydroxyapatite-like restorative layer over exposed dentine and within dentine tubules. In vitro studies have shown that the hydroxyapatite-like layer starts building from the first use and is up to 50% harder than dentine.

The hydroxyapatite-like layer binds firmly to collagen within exposed dentine and has shown in in vitro studies to be resistant to daily physical and chemical oral challenges, such as toothbrush abrasion and acidic food and drink.

In vitro studies show that a hydroxyapatite-like layer forms over exposed dentine and within the dentine tubules.

Adapted from Earl et al., 2011 (A). In vitro cross-section SEM image of hydroxyapatite-like layer formed by supersaturated NovaMin® solution in artificial saliva after 5 days (no brushing).

**Sensodyne® Complete Protection helps maintain good gingival health**

Good brushing technique can be enhanced with the use of a specially designed dentifrice to help maintain good gingival health.

In clinical studies, NovaMin® containing dentifrices have shown up to 16.4% improvement in plaque control as well as significant reduction in gingival bleeding index, compared to control toothpastes.

![Image of Sensodyne Complete Protection toothpaste with text](image-url)

**Significant reduction in gingival bleeding index (GBI)**

<table>
<thead>
<tr>
<th></th>
<th>Mean GBI*</th>
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</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>1.4</td>
</tr>
<tr>
<td>NovaMin®</td>
<td>0.5</td>
</tr>
<tr>
<td>Placebo control</td>
<td>1.2</td>
</tr>
</tbody>
</table>

58.8% reduction from baseline in 6 weeks with a NovaMin® containing dentifrice

Adapted from Tai et al., 2006. Randomised, double-blind, controlled clinical study of 95 volunteers given NovaMin® containing dentifrice or placebo control (non-aqueous dentifrice containing no NovaMin®) for 6 weeks. All subjects received supragingival prophylaxis and polishing and were instructed in brushing technique. GBI scale ranges from 0–3.

**References:**

For full information about the product, please refer to the product pack.

For reporting any Adverse Event/Side Effect related to GSK product please contact us on contactus-med@gsk.com.

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