"EMS office in Amman has equipped itself with a top training centre accredited by SDA"

By Kinga Mollov, DTMEA

Dental Tribune MEA recently interviewed Mr Ziad Al Asali, General Manager for IMEA region in regards to the opening of the new training centre in Jordan.

Mr Ziad, could you please briefly introduce yourself?
I completed my Master of Science in Biomedical Engineering back in 1990 and since then worked with several medical and dental companies in the MEA region. Last year I had the pleasure to join EMS as the General Manager for India, Middle East and Africa (IMEA) region.

Please share with us your vision as General Manager for IMEA of EMS.

What is your vision for the future in the region?
IMEA region is a very rich region in human resources with a very open mentality to new technologies and new clinical solutions, yet you can find big differences in dental practices from one country to another. Our mission here at EMS is simple, we want to spread the GBT (Guided Biofilm Therapy) culture in the area, as it is one of the greatest inventions in preventive dentistry.

Congratulations on having opened the new EMS office in Jordan. What was the thought process of choosing Jordan as the main location?
Jordan has a unique position in the area. It is located very close to Africa with equal distance from other Middle Eastern countries, also not far from India. At the same time Jordan is rich with human resources from neighbouring countries; additionally it has some additional beneficial facilities for international regional offices.

How will the dental professionals benefit from the new office in Jordan?
The mission of the office is not only to organise the relations with partners and end users but also to have a regional aftersales department who will take care of service issues in the area from training, maintenance and securing the right use of EMS equipment. We are proud to announce that the EMS office in Amman is equipped with one of the top training facilities and according to Swiss standards has been accredited by Swiss Dental Academy (SDA).

Can we expect EMS to organise more educational courses organised in the region?
Of course the presence of SDA training center in our Jordan office will heavily contribute in organising GBT courses on a weekly basis. We would love to transfer the great experience of our local KOL’s to the world through the great presence of EMS on the international tribune.

Can we expect EMS to open any other offices in MEA in the near future?
All options are open, however our mission is to be less bureaucratic and more practical with the customer. EMS is ambitious to open training centres for Swiss Dental Academy in every country.

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Web: www.ems-dent.com
The Dentsply Sirona Global Clinical Case Contest 2018-2019

By Dentsply Sirona

Every year, dental undergraduate and graduate students, with less than 2 years of clinical practice, are invited to participate by document-

ing a patient case with photographs and test. Since its inception in 2004-2005, more than 3,900 dental stu-

dents have participated, with the 2018-2019 competition drawing a total of about 2,124 entries, from 134 universities.

This year the regional winner for MENA was Rana Ali Al-Saadi from Ibn Sina National College, Saudi Arabia. Check out her winning case!

Introduction to the case

A 43-year-old male patient came to the clinic to solve his aesthetic prob-

lem related to incisors, canines 13, 12, 21, 22.

Treatment options


2. Build-up related to 11, 12, 21. Direct veneer #22 and class V composite restoration related to #13.

Treatment options were discussed with the patient and the patient chose the second option.

Student: Rana Ali Al-Saadi
Tutor: Dr. Gautam Singh
University: Ibn Sina National College
Country: Kingdom Of Saudi Arabia

Material and Method

The digital smile design approach is very beneficial in deciding the pre-
ferred ideal outcome. Interpretation was onto the diagnostic wax up. Af-

ter isolation with the rubber dam, teeth were isolated with the rubber dam, and light-

 cured. Reconstructions were made with (ceram.x® duo) using a multi-

 layering technique with dentin shade (ceram.x® duo D3) and enamel shade (ceram.x® duo E2). For finish-

ing & polishing firstly finished with a diamond bur, then with Enhance® PoGo system and Prisma

Gloss® pastes.

Discussion and Conclusion

By creating an aesthetic smile was a challenging task in the present case. The final restorations satisfied the patient’s expectations. Ceram.x® duo showed a remarkable final natural appearance in this case. Ceram.x® duo has excellent handling, finishing, and polishing characteristics which resulted in a highly aesthetic outcome.
Usability is my goal. And Primescan is my answer. «
Florian Sobirey, UX-Designer

Primescan
Engineered for superior performance.

Innovation requires commitment to ambition. Primescan sets new standards in dental technology, making scanning more accurate, faster and easier than ever. It is engineered to enable all kind of treatments, from single tooth to full arch. An increased field of view and the dynamic depth scanning technology ensure a high data density right from the first scan. The excellent results are immediately displayed on the wide format touchscreen of the new Acquisition Center. With Primescan, intraoral scanning is as easy as never before.

Enjoy the scan.
Learn more at: dentsplysirona.com/primescan
The next generation polyether: Superfast. Super detailed.

Taking outstandingly precise impressions in an efficient procedure – this is feasible for everyone using the new 3M™ Impregum™ Penta™ Super Quick Polyether Impression Material launched by 3M in April 2018. The material offers a working time of 45 seconds and an intraoral setting time of only two minutes.

It is thus as fast as or even faster than many quick-setting VPS-based impression materials and particularly suited for impression taking in the context of producing single-unit restorations or small bridges. In addition to the increased speed, it offers all proven polyether benefits that lead to a reliable clinical performance and highly accurate results. These include a great flow behavior and an intrinsic hydrophilicity, i.e. high affinity to water, which ensure that the material flows deeply into the sulcus and captures every detail. In addition, polyethers maintain their flowability consistently throughout the whole working time, meaning that a user does not need to be afraid of any premature setting reaction that may have a negative effect on the quality of the final impression.

The use of the new material developed for the monophase technique – 3M™ Impregum™ Penta™ Super Quick Medium Body Polyether Impression Material – is demonstrated showing two different patient cases.

The first patient had a fractured composite restoration on her lower first molar that needed to be replaced. The second patient had previously received an implant in the region of the upper first premolar. After the healing phase, the final prosthetic work needed to be produced and placed. A closed tray impression technique was used in this case.

Case 1

Fig. 1: Initial situation of case 1: Fractured old composite restoration on the lower first molar.
Fig. 2: Deep distal preparation with bleeding from inflamed gingival tissue.
Fig. 3: Challenging moisture control and bleeding managed by using a soaked retraction cord.
Fig. 4: Impression taken with the monophase technique. Syringing of 3M™ Impregum™ Penta™ Super Quick Polyether Impression Material (Medium Body) around the preparation with the 3M™ Penta™ Elastomer Syringe.
Fig. 5: Final monophase precision impression made of 3M™ Impregum™ Penta™ Super Quick Polyether Impression Material (Medium Body).
Fig. 6: Final situation: 3M™ Lava™ Esthetic Fluorescent Full-Contour Zirconia restoration cemented with 3M™ RelyX™ Unicem 2 Self-Adhesive Resin Cement.

Case 2

Fig. 7: Initial situation of case 2: Implant with healing cap six months after implant placement.
Fig. 8: Syringing of 3M™ Impregum™ Penta™ Super Quick Medium Body Polyether Impression Material around the impression coping with the 3M™ Penta™ Elastomer Syringe.
Fig. 9: Impression coping securely fixed in the impression that was taken using the monophase technique and a closed tray.
Fig. 10: Final veneered all-ceramic crown cemented on an implant abutment.

Be impressed.

Dr. med. dent. Gunnar Reich
gunnar.reich@web.de
Dr. Gunnar Reich attended the Universities of Munich and Berlin and obtained his Dr. med. dent. (DDS) degree in 1986. Ever since, he has been practicing dentistry in the South of Germany. Today, he is the owner of a private practice in Munich.
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Polyether Impression Material

Capture every detail in 2 minutes? Yes, it can.

The 2 MIN Polyether

Ideal for smaller cases with superfast 2-minute setting.

100% Polyether Formulation

A brand new chemistry unites world-class polyether precision with the speed of a VPS material.

A significantly improved taste and less time in the mouth make a better patient experience.

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Prosthodontist achieves same-day dentures with NextDent 5100

Dr. Michael Scherer transforms patient experience and expedites dental production with the NextDent 5100 3D printer

By running two NextDent 5100 printers simultaneously, Dr. Scherer can have a denture ready in 20 minutes.

The speed of the NextDent 5100 enables same-day dentures to enhance patient care.

According to Dr. Scherer, the speed, accuracy and esthetics of the NextDent 5100 3D printer contribute to shorter delivery times and achieve accuracy under 100 microns—a game changer for 3D printing in dentistry. "I am now able to accommodate patients with multiple appointments for patients like that, who need an appliance as soon as possible," Dr. Scherer says. "I couldn’t do before, and it’s having a real impact on my patients’ lives."

By 3D Systems

Dr. Michael Scherer is a prosthodontist in Sonora, California, located ten miles from the heart of the Stanislaus National Forest and 100 miles southeast of Sacramento, the nearest city. A long-time advocate of technologies that help him enhance patient care, Dr. Scherer transitioned to intraoral 3D scanning several years ago to save his patients the uncomfortable and messy experience of taking composite impressions. Eager to extend the value of these digital scans, he began experimenting with 3D printing. He ordered two 3D Systems’ NextDent™ 5100 3D printers for his office shortly after its launch and says they provide him with an all-in-one solution for producing actual 3D printed dental restorations at an efficient time point.

Due to Dr. Scherer’s rural location, his patients typically travel anywhere from 30 minutes to several hours to get to his office. For dentures, implants and bridgework, multiple visits are common practice to address various stages of traditional fitting and delivery. The need for multiple appointments to achieve a conventional restoration can make treatment time consuming and challenging for the patient; a burden Dr. Scherer hoped to alleviate through in-house 3D printing. Dr. Scherer reports that the addition of the NextDent 5100 printers to his office has accelerated his workflow and changed his patients’ experience, and says he can no longer imagine his practice without them.

Fast print speeds enable same-day dentures

The new capabilities in dental care enabled by the speed, accuracy and esthetics of the NextDent 5100 3D printer have helped Dr. Scherer deliver a superior patient experience. In particular, the ability to cut total denture delivery time from five to six appointments to a process that can be completed in a single patient visit. For elderly patients who rely on others for transportation to and from appointments, Dr. Scherer says this new capability makes treatment possible by removing logistical barriers. "The NextDent 5100 enables me to do things in my office—like expe- dited dentures—that I couldn’t do before, and it’s having a real impact on my patients’ lives."

3D Systems’ NextDent materials are biocompatible and CE-certified, and are available in a wide selection to address a broad range of clinical needs. This allows Dr. Scherer to use the NextDent 5100 not only for same-day, long-term dentures, but for expedited implants, crowns, bridges, bridge guards and more. "Combining intraoral scanning technology with fast, accurate and esthetic 3D printed teeth is the great, bring-it-all-together moment we’ve been waiting for in dentistry for years," Dr. Scherer says.

To illustrate his case, Dr. Scherer cited an anonymous example of a patient who was moved to tears after receiving their denture in a same-day appointment. "I got the NextDent 5100 for patients like that, who need an appliance for treatment that makes it feasible," Dr. Scherer says. Due to the loss of a loved one, the patient said Dr. Scherer could no longer make multiple long drives for sequenced appointments. Understanding that, Dr. Scherer assured them the denture could be done in a single visit using innovative methods.

Eager for treatment, the patient made an appointment and came in the morning for an intraoral scan. Dr. Scherer used the digital model to plan the denture, and his assistant ran the 3D printers, producing the denture teeth in the first and the denture base in the second for delivery by early afternoon of the same day. When the new denture was delivered, the patient saw her new smile and started crying, saying they never imagined how beautiful 3D printed dentures could be. "With the two NextDent 5100 printers I can have the denture teeth printing in one printer and the denture base printing in another printer, and have a denture ready in 20 minutes," Dr. Scherer says.

The NextDent 5100 printers have reduced wait times considerably for other restorations as well. Depending on the model to be printed, Dr. Scherer is experiencing print times of ten to forty minutes with the NextDent 5100 compared to two- to four-hour print times for comparable models on other 3D printers he has used. Dr. Scherer says this capability has led to a shift in word-of-mouth marketing because he is now able to accommodate patients with service that exceeds expectations. "I frequently have patients who break teeth right before a big trip or life event, and with 3D Systems’ NextDent printer I can now offer treatment in the same afternoon versus the temporary patches that are common practice using conventional techniques."

Accurate & aesthetic 3D printed outcomes minimize adjustments, maximize doctor time

According to Dr. Scherer, the accuracy of the 3D printer contributes to shorter delivery times and ensure he is delivering the highest quality care. With traditional molds and poured stone models, Dr. Scherer says fitting crowns, implants or bridges can take thirty minutes to an hour of adjusting to achieve the right fit. With 3D printing, fitting the same type of restoration takes significantly less time to adjust. "Doctor time on the computer is money well spent, because I find I am spending less time to fit prostheses due to the accuracy of the prints. Being able to shave off 20- to 50-percent of my clinical time more than pays for itself," Dr. Scherer says.

The NextDent 5100 is powered by 3D Systems’ Figure 4 technology and uses Digital Light Printing (DLP) with a non-contact membrane that delivers high quality, accurate outcomes on delicate parts. 3D Sprint® support structures are also simple to add and fast to remove with 3D Sprint® software, reducing the post-processing time substantially and helping ensure undamaged parts. According to Dr. Scherer, "On another printer, just to remove the supportings can take ten to fifteen minutes. On the NextDent 5100 it takes maybe 30 to 60 seconds. And that includes polishing!"

Improving the dental profession with digital dentures

In addition to his work at his practice, Dr. Scherer teaches courses on 3D printing and digital dentures that are open to other dentists, clinicians and laboratories interested in expanding their capabilities. He brings a patient from his practice and provides a step-by-step demonstration of his digital denture workflow. He is also active on social media with his group “Fast Track Dental CE” (https://www.facebook.com/fasttrackdentalce/) where he posts thought-provoking experiences for discussion and learning. "The opportunity to interact with clinicians all over the world and share the vision of 3D printing in dentistry helps make the profession better and improve lives everywhere," Dr. Scherer says. "3D printing has become so important to my clinical practice that I just can’t imagine going back."

To learn more about the NextDent 5100 3D printer, visit https://www.3dme.com/nextdent-5100.
ZirCAD MT Multi
The most esthetic high-strength, multi-translucent\textsuperscript{1} zirconia

\textsuperscript{1} Composed of different material classes
mectron multipiezo – a benchmark in the field of ultrasound scalers

By mectron s.p.a.

State-of-the art, self-etching adhesive systems are easy to apply and boost the success rate significantly, especially within restorations in the posterior area. Simultaneously they stand for predictable results, independent of the applied basis or the preferred application technique of the dentist. Coming to reliability and user-friendliness, research and development has now set new material standards.

Reliably adhesive agent on dentin and enamel!

The new ONE COAT 7 UNIVERSAL was developed on the basis of the favoured ONE COAT 7.0, and is a reliable All-in-One Bond for every indication. Whether self etch, selective or total etch technique, a single drop bonds light-curing filling materials easily, quickly and is long-lasting. ONE COAT 7 UNIVERSAL is an excellent adhesion promoter on enamel and dentin, thus is a guarantee for safe restorations even in extraordinary cases. With only a single bonding layer it provides consistently high bonding strength, excellent marginal sealing and excellent marginal integrity. These exceptional clinical values are convincing even when compared with conventional system adhesives.

In conjunction with ONE COAT ACTIVATOR it is optionally also possible to use a chemically cured product. You will always be making the right choice with the light-curing single-component adhesive One Coat 7 UNIVERSAL!

Ergonomic triangular bottle and single dose – Safe and easy

The universal bonding agent also comes with a new presentation form. The special triangular bottle, with its excellent ergonomic handling, is comfortably in the hand and the precision dropper allows precise and economical working. ONE COAT 7 UNIVERSAL is available as introductory kit with a 3ml bond bottle including etch gel and accessories. There are also practical single dose units for one-off use. These are also offered as refill packs in addition to the 3ml bond bottle.

For more information, please contact:

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Feldwiesenstrasse 20
9450 Altstätten SG | Switzerland

Tel: +41 71 757 54 40
E-mail: dietmar.goldmann@coltene.com
oc7universal.coltene.com

Guaranteed fast curing – even with the deepest cavities

No matter which filling depth is required, the light and chemical polymerisation properties of Fill-Up! rely on any filling size. In addition, the shrinkage forces are considerably less pronounced for chemical polymerisation, which supports the quality of marginal integrity.

Even the largest cavities can be filled with the Fill-Up! single-layer technique quickly and easily, making it a true bulk filling material. Following the application of Fill-Up! completion of the filling is possible immediately as light-curing only requires 5 seconds. The excellent mechanical properties make a covering layer superfluous. Due to the high self-bonding of the material, a single universal shade (Vita A2-A3) is sufficient for the posterior region. Presentation in the practical automatic syringe makes application easy and efficient.

Two working in perfect harmony – Fill-Up! and the multiple award-winning ParafonBond adhesive system are matched perfectly. ParafonBond accelerates polymerisation at the margins and thus improves the marginal integrity of the filling. Study results from the University Geneva confirm best marginal sealing values. This helps to avoid secondary caries and lays the foundation for a reliable long-term restoration.

The universal composite Fill-Up! is comes in the useful 4.5g automatic syringe. Due to the purpose-built colour, between A2 and A3, there is no need for complicated colour management within the posterior region.

For further information, please contact:

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Fill-Up! – The new dual-curing bulk composite

By Collene

Worldwide, dental practitioners are convinced of this innovative, efficient latest generation bulk composite. Overwhelming feedback since its launch only few month ago shows how great the demand has been for a solution like Fill-Up! This is COLTENE’s response to the disadvantages inherent to light-curing treatment methods and has resurrected the enthusiasm for direct filling materials. A solution like Fill-Up! This is Collenese S.p.A. – the new dual-curing bulk composite that was developed on the basis of the excellent adhesion properties of the self-etching systems are easy to apply and boost the success rate significantly, especially within restorations in the posterior area. Simultaneously they stand for predictable results, independent of the applied basis or the preferred application technique of the dentist. Coming to reliability and user-friendliness, research and development has now set new material standards.

Reliably adhesive agent on dentin and enamel!

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In conjunction with ONE COAT ACTIVATOR it is optionally also possible to use a chemically cured product. You will always be making the right choice with the light-curing single-component adhesive One Coat 7 UNIVERSAL!

Ergonomic triangular bottle and single dose – Safe and easy

The universal bonding agent also comes with a new presentation form. The special triangular bottle, with it’s excellent ergonomic handling, is comfortably in the hand and the precision dropper allows precise and economical working. ONE COAT 7 UNIVERSAL is available as introductory kit with a 3ml bond bottle including etch gel and accessories. There are also practical single dose units for one-off use. These are also offered as refill packs in addition to the 3ml bond bottle.

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By Collene

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**ONE COAT 7 UNIVERSAL**

One component light cured universal adhesive

- Self-Etch, Selective Etch and Total Etch, one bond for all adhesive techniques
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- Excellent shear bond strength to enamel and dentine

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**Deep. Fast. Perfect.**
The Red Dot Award Product Design for Primescan
Digital impressions and outstanding design

By Dentsply Sirona

Dentsply Sirona introduced Primescan in February – an innovation in digital impression technology. The new intraoral scanner has now been awarded the highly renowned Red Dot Award for Product Design 2019. This award acknowledges Dentsply Sirona’s goal of developing attractive and highly functional solutions for its customers that provide valuable results in everyday use.

Strong design and sustainable products – there were the emerging trends at this year’s Red Dot Awards Product Design Primescan, the new intraoral scanner from Dentsply Sirona, was one of the award winners. “We are very pleased to receive this award, which we consider to be an acknowledgement of our efforts to provide our customers with products that are of high quality in all aspects,” said Dr. Alexander Völcker, Group Vice President CAD/CAM and Orthodontics at Dentsply Sirona. “Thanks to its design, Primescan is easy to handle in the normal practice environment; it reliably delivers superb scan results, and it is just fun to use.”

Primescan features improved impressioning technology that scans with an impressive level of accuracy. This makes Primescan a remarkable response to an important requirement in modern practices. After scanning, the data from the digital impressions are available for many applications, both in restorative dentistry and in implantology and orthodontics.

The globally acknowledged Red Dot Award has been awarded to outstanding products, design concepts, and communication designs for more than 60 years. This year, the 39-member jury of independent designers, design professors, and journalists rated a total of 5,500 products from 55 countries in 48 categories. The most important criterion for awarding the coveted prize is high design quality.

The new Orthophos Society:
The perfect partner for your practice

By Dentsply Sirona

Developing solutions for the individual needs of a dental practice - at Dentsply Sirona, this also means providing both new users and specialists with tailored services for X-ray units. These ideas were very important for the new Orthophos Society, which provides solutions for different requirements with a clear functionality.

The three models in the Orthophos series, Orthophos E, Orthophos S and Orthophos SL each provide a different range of services that precisely cover every desire for imaging systems that dental practices have specified. All models function using the award-winning Sidexis 4 imaging software. They provide an outstanding image quality with a low dose and a high level of user comfort. Due to this diversification, both entry-level users and specialists will find the right service package for them.

Orthophos E – for a simple start to digital imaging

With Orthophos E, you can access the world of digital extraoral imaging for more efficiency in the daily practice routine. Thanks to its optional cephalometric arm, Orthophos E is also suitable for the orthodontic practice. Its panoramic, pediatric panoramic, staining and other exposure programs, it is equipped with all the basic programs for the diagnosis process in 2D. Its MultiPad enables the patient-friendly selection of the program. The motorised forehead and temple support helps to stabilise the patient. The integrated temple width measurement also enables the appropriate orbital curve to be selected automatically for results with outstanding image quality.

Orthophos S – the 2D/3D all-rounder in the practice

Orthophos S can be used either as a purely 2D device, or alternatively as a combined 2D/3D. The device can be equipped with a cephalometric arm. Orthophos S achieves its enhanced contrast in panoramic images using the auto-focus function. In addition, the shape of the jaw arch or the existence of tooth anomalies no longer needs to be selected manually. This is also true when setting a canine light localiser. The patented occlusal bite block assists with the automatic positioning of the patient and thus enables reproducible and perfectly positioned panoramic images. Depending on the clinical problem, there are comprehensive 2D programs or a number of volume sizes (8cm x 5cm to 11cm x 10cm) in high definition (HD), standard definition (SD) and low dose mode available to the user. MARS (Metal Artifact Reduction Software) automatically detects metals in every volume and reduces the artifacts for the best possible image interpretation. Users can select from 30 ambient light colors that provide background illumination appropriate for their practice for even more patient comfort. Its modern design was selected for the Red Dot Design Award and the iF Design Award.

“The new Orthophos Society, we are addressing the specialised needs of our customers and have developed an offer that simplifies both entry into the world of digital imaging and intensive use in specialised practices in several disciplines,” said Jörg Haist, Vice President Global Platform Management Equipment & Instruments. “In this way, even more dentists will receive access to high-quality X-ray technology and therefore to more reliable diagnoses and treatments.”

For more information about the Dentsply Sirona portfolio please contact your local representative.

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The Red Dot Award 2019

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**Speakers Highlights**

**Lecture 1:** How to Improve the Prosthetic Rehabilitation from the Aesthetic and Tissue Health Point of View  
Prof Domenico Bald, Italy

**Lecture 2:** Sinus Lift from Crestal Approach  
Prof Brian Millar, UK

**Managing Aesthetics and Tooth Wear the MI Way**  
Prof Attilla Horvath, Hungary

**GBR and GTR. The Magic Bullets for Implant and Perio?**  
Asst Prof Attila Horvath, Hungary

**True Bone Regeneration: What the Body Needs. Translating Biology into Successful implant Dentistry.**  
Prof Peter JM Fairbairn, South Africa

**Oral Rehabilitation Influencing Smile Design and Facial Aesthetics**  
Prof Jean-Marie Megarbane, Lebanon

**Implant Site Optimisation Using Osséodensification**  
Dr Costa Nicolopoulos, Greece

**Interdisciplinary v/s Multidisciplinary Treatment of Maxillofacial Trauma in the Aesthetic Zone**  
Dr Nadim Aboujaoude, Lebanon

**What Should we Assess Before Approaching with any Device or Debridement Instrument to Maintain our Restored and Healthy Patient?**  
Consolata Pejrone, Italy

**Innovative Periodontal Laser Treatment Concept with Additional Attention to Gingival Recontouring and Depigmentation**  
Prof Dr med dent Norbert Gutknecht, Germany

**Non-Invasive Teeth Discoloration Treatment. Modern Aspects of Enamel Remineralising Therapy**  
Prof Andrey Akulovich, Russia

**How to Achieve Long-term Aesthetic Success in Implant Rehabilitation**  
Dr Maurizio Martini, Italy

**Top Up Your Dental Plan with Facial Aesthetics**  
Dr Rami Haidar, UK

**Digital Implant Workflows Maximising Clinical Outcomes**  
Dr Marcus Dagneld, Sweden

**Zygomatic Implant Solutions to Treat Sever Atrophy of the Maxillary**  
Dr Nicolas Boutin & Dr Bernard Cannas, France

**Full Ceramic Restoration: The Art Meet Layering Ceramic Restoration**  
Mike Prosperino, Italy

**Injection Moulding Technique: Easy aesthetics, predictable outcome**  
Dr Simone Moretto, Brazil

**Non-invasive Teeth Discoloration Treatment. Modern Aspects of Enamel Remineralising Therapy**  
Prof Andrey Akulovich, Russia

**How to Achieve Long-term Aesthetic Success in Implant Rehabilitation**  
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**The future of dentistry will be driven by data**

By Aleksandra Nyholm, Planmeca

**HELSINKI, FINLAND:** Digital dentistry has been talked about as the future of the industry for nearly two decades, but as digital dental technology gradually shifts from new to normal in the dental clinic, where is dentistry heading next? The answer is likely to be found in one small four-letter word: data.

Digital dentistry has been the oft-cited future of dentistry for well over a decade—and with good reason. New digital technologies have enabled same-day restorations of patient smiles, simplified workflows and patient communication and, indeed, transformed diagnostic and treatment practices in the dental office. However, as digital devices gradually become standard in the dental clinic, where is the industry heading next? What is the new future of dentistry?

**Harnessing the Internet of Things in dentistry**

In the last few years, the Internet of Things (IoT)—essentially, devices exchanging data via a network—has become something of a buzzword in dentistry as elsewhere. Behind the buzz lies a real industrial shift towards ecosystems of network-based digital devices working side by side, hand in hand—generating large amounts of data as they go.

Solutions that depend on manual data entry to collect information on treatment content and the time used have long existed in the dental industry. Until recent years, the activities and operations during treatment, such as chair times and equipment use, have remained largely unrecorded. In order to access and collect this data, it is important to choose technology that is ready to go online.

Planmeca equipment has long been designed with this in mind. Our digital dental units, imaging devices and milling units have included network connectivity for more than a decade, relaxing data seamlessly to our powerful Planmeca Romexis software—all this well before IoT became a common talking point in the tech industry.

**Valuable insights through data analytics**

IoT-ready devices capable of producing and transmitting big data provide visibility into the treatment session. This visibility is essential to the evaluation of all aspects of a clinic. The sooner the right technology is brought into the practice, the more readily available data will become. However, in order to get the most out of this enormous amount of data, it must be collected into information in a way that is intelligent, centralised and automated.

The explosion of data in recent years has already led to data analytics becoming commonplace in fields such as marketing, modern education and business intelligence. In medicine, for example, operating room analytics enables monitoring of case and procedure volumes, operating room utilisation and scheduling efficiency. Dentistry is now also following suit. In 2017, Planmeca was the first manufacturer of dental equipment to launch a comprehensive IoT solution for dental clinics with Planmeca Romexis Insights.

Planmeca Romexis Insights is a web-based analytics service which combines data from Planmeca dental units, imaging devices and milling units to generate clear visualisations of equipment usage, device status and patient flows. From smaller clinics to larger clinic chains, the informative reports and interactive views enable identification of trends, patterns and areas of optimisation in order to maximise clinic efficiency. As the name suggests, it’s about gaining insights into how a dental practice is doing—anywhere, any time.

Hu-Friedy constantly works to further develop new partnerships with the very people involved in the industry,” says Giana Spano, Manager Key Opinion Leaders Strategy Europe at Hu-Friedy. “For example, key opinion leaders, specialists, private practitioners, universities and educators, with the purpose of always finding new ways to help clinicians to perform at their best.”

**From digital dentistry to data-driven dentistry**

There have been a number of innovations that have changed the course of dentistry. One major shift in the industry was the move towards digital dental technology, which led to the development of such concepts as same-day restorations and the paperless dental office. The emergence of analytics solutions for dental clinics is a clear sign that we are now in the middle of another shift, towards an era of data-driven dentistry.

Today, analytics services such as Planmeca Romexis Insights can produce comprehensive and relevant information about patient times, equipment usage and productivity. From the first appointment to the final check-up, analytics helps make comparisons and pinpoint best practices both over time and across clinical procedures.

This, in turn, can guide the entire dental team towards higher productivity, better outcomes and happier patients through continuous learning and self-improvement.

Tomorrow, we may see data analytics taken even further, for example, through highly personalised treatments informed by enormous amounts of consolidated patient, performance and quality assurance data. Combining data with artificial intelligence is likely to offer still more possibilities for the future—some of which are already being explored by the Planmeca R&D team.

What is the immediate future of dentistry? In such an ever-moving field, the possibilities are unlimited. If there is one thing that does seem clear, it is this: the future of dentistry will be driven by data.
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Continuous Perfection from the Perfect White Range

By Beverly Hills Formula

Dental professionals across the Middle East will have undoubtedly heard of Beverly Hills Formula, a brand that has successfully carved its name as unrivalled experts in oral care and at-home teeth whitening. The brand are the proud creators of the Perfect White Range, which has been making waves with both dental professionals and consumers since its launch in 2012.

Never before had the market seen such a range – with bold daring colours with bold statements to match.

Since the range hit the shelves, global sales have been increasing rapidly – notably in the Middle East where the brand has seen a huge demand for the colourful range of whitening toothpastes and mouthwashes as well as the popular whitening kit. Products in the range are non-abrasive, kind to enamel and remove up to 99% of surface stains so it is not difficult to see why the range has become a must have for consumers worldwide.

The range consists of Perfect White Black, the brand’s hero product. The toothpaste is scientifically formulated with Activated Charcoal – known for its love of tannins. The company were the first to bring such a formulation to the market and although copycat products have followed, they have never beaten Perfect White Black when it comes to effectiveness and popularity. The brand followed on from this, adding Perfect White Black mouthwash to the mix. The shake to activate formula helps eliminate the bacteria that cause bad breath and provides a long-lasting freshness whilst helping to remove surface and deep stains. Plans are currently underway to add to this increasingly popular range.

The brand has always been highly selective with their advertising, having never felt the need to heavily promote or push their products to consumers. Rather than expensive marketing campaigns, they have allowed the phenomenal success of the range to speak for itself. However, this year an opportunity presented itself that they simply couldn’t pass by and threw the Perfect White Black products onto the global stage.

In May this year, they announced their partnership with the iconic movie franchise Men in BlackTM International, collaborating with Sony Pictures for the much anticipated movie. They had dipped their toes in movie partnerships before, teaming up with Paramount on the recent Bay Watch movie. Having seen huge success off the back of this campaign, they were waiting for the right movie to come up again. Men in Black saw an ideal opportunity for the Perfect White Black products to take centre stage.

The movie was released on June 14th and to celebrate its release, the brand is offering consumers a once in a lifetime trip to London and New York City to carry out their own Men in Black mission. They have also launched three limited edition packaged toothpastes and one mouthwash which can be found in stores across the UK and ROI.

It is the massive success of the Perfect White Range that has allowed the brand to embark on such exciting collaborations and they are looking forward to further success in the second half of 2019.

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Review shows distraction techniques may reduce dental anxiety

By DTI

BELO HORIZONTE, Brazil: Dental anxiety is globally regarded as a public health concern owing to its effects on an individual’s oral health and quality of life. The prevalence of the condition in children ranges from 5% to 61%. A recent systematic review assessed whether distraction techniques reduce anxiety during dental treatments in children and adolescents.

Twenty randomized controlled trials (RCTs) of distraction techniques for the management of dental anxiety and dental fear in children and adolescents under the age of 18 were included. Among the distraction techniques used were audio and audiovisual techniques, instrument camouflage, biofeedback, a dental operating microscope and toys. Dental treatments provided were dental examination, oral prophylaxis, local anesthesia, dental restoration, endodontic treatment and extraction.

Qualitative analysis showed with very low certainty of evidence that distraction techniques effectively reduced anxiety and fear depending on the distraction type, instrument used to measure anxiety and fear, and procedure.

The authors thus concluded: “The heterogeneity of methodologies and findings in the studies, however, suggest more robust, and well-executed RCTs are needed.”

The study, titled “Use of distraction techniques for the management of anxiety and fear in paediatric dental practice: A systematic review of randomized controlled trials,” was published online in the International Journal of Paediatric Dentistry on March 25, 2019, ahead of inclusion in an issue.
The mock-up: A clinician’s everyday tool for aesthetic dentistry

By Dr Yassine Harichane, France

For a wax-up, also known as a diagnostic wax model, laboratory wax is used to create an aesthetic concept model based on the patient’s plaster model. However, its aesthetic and functional use is limited. From an aesthetic perspective, even though the wax does not reproduce the tooth shade perfectly, it facilitates visualisation of the shape and position of the teeth in the concept model. As far as function is concerned, even when a high-performance articulator is used, it is still difficult to replicate the full range of masticatory movements.

The mock-up, essentially a preview produced from composite, is a technique all too rarely employed by dentists, but that proves exceptionally practical in a wide variety of situations. It offers a preview of the intended aesthetic perspective, even though the wax-up data from the patient model directly to the mouth.6,7 The mock-up phase follows validation of the wax-up data from the patient (Figs. 2–5).11 A plaster model serves as the basis for production of the wax-up (Fig. 6). An impression is taken of the wax-up (Figs. 7 & 8), which is used in the mouth as a guide for the implementation of the mock-up.

The patient wanted to improve his smile considerably without resorting to invasive techniques (Fig. 10). The clinical case presented here illustrates the workflow was a consultation for aesthetic reasons. The patient plays an active role in the decision-making process, which considerably improves communication.8

Step by step
The guide is tried in the mouth and any necessary corrections made with a scalpel. The shade of the self-curing composite (in this case, Shade A6) is now selected in accordance with the patient’s expectations and the tooth shade of the natural teeth.

The impression is filled with the composite (Fig. 9) and inserted into the mouth (Fig. 10). The impression is removed, at the earliest, 1.5 minutes after mixing (Fig. 11). However, final processing can only be performed after 4 minutes. The shape is adjusted either by means of contouring in conjunction with water cooling, as in the case of conventional composites, or by filling defects with a flowable composite (Keranidio Flow, VOCO; Figs. 12–14). Finally, the structure and dynamics of the occlusion are verified.

Once all adaptations have been completed, the mock-up is presented to the patient. The mock-up is shown to the patient in order to determine the optimal tooth length and the general proportions of the new smile. It is still possible to make corrections at this stage. After any corrections, the dentist and patient approve the mock-up and an impression is taken, which is then sent to the laboratory, where it serves as a reference for the final production of the concept model.

The mock-up essentially a preview produced from composite, is a technique all too rarely employed by dentists.
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“Patient compliance increases, as he or she can follow the treatment plan more calmly and is better informed.”

The patient for his or her aesthetic approval regarding shape, position and tooth shade. If necessary, further adaptations can be effected in the same way, that is via contouring or filling with composite. The data is sent to the laboratory as photographs (portrait, smile and intra-oral, Figs. 15 & 16), along with an impression of the mock-up and the analysis of the smile. The dental technician in the laboratory then has the necessary and sufficient information at his or her disposal to produce the actual prosthetic restoration in accordance with the patient’s and dentist’s wishes. At the end of the treatment session, the question remains as to what to do with the mock-up. The dentist has the choice of two possibilities. One option involves removing the mock-up and permitting the patient to leave the practice with the restored initial clinical situation. No invasive or irreversible interventions have been performed and the patient is happy to have tried out his or her new smile to his or her nearest and dearest and to verify its acceptance in social situations. Furthermore, this enables the patient to test the articulation and masticatory loads in daily life. At this point, it must be reiterated that the material is suitable for situations of this type, as it was developed for the production of temporary crowns. It is up to the dentist to decide how long the mock-up can remain in the patient’s mouth, and it goes without saying that special attention must be paid to exceptional oral hygiene. From the perspective of the psychological period for visual acclimatization and functional aspects, one week appears to be a practical period.

Discussion

The mock-up technique offers a whole range of advantages. The quick, cost-effective method allows the patient to assess the desired result in his or her mouth. Until now, patients were often left at the mercy of dentists’ decisions without being actively involved in the treatment plan, and this occasionally resulted in unexpected outcomes and possible conflicts. A waiting period with temporary restorations makes it possible to assess the required result, but is not indicated in clinical cases with conservative or non-invasive approaches. In future, the patient will be able to try out his or her new smile in order to become used to it quickly and even go home wearing it to test it extensively from an aesthetic, functional and psychological perspective. Patient compliance increases, as he or she can follow the treatment plan more calmly and is better informed. In addition to improved patient communication, communication with the dental technician is facilitated. Owing to the impression and photographs of the mock-up in the mouth, the dental laboratory has at its disposal a wealth of invaluable information, which was not systemically provided in the past. The dental technician is then able to test the wax-up not only from a functional perspective (structural and dynamic occlusion, position of the free margins for articulation, lip support, etc.) but also from an aesthetic perspective (tooth shade, shape and volume of the teeth, smile symmetry, smile alignment with regard to facial aesthetics, etc.). The user friendliness of the material means this technique is suitable for use in routine clinical practice.

For the dentist, this technique is just as easy to perform as the production of temporary crowns. There is no need for a rubber dam, as the mock-up is produced under the same conditions as for a temporary crown. In addition, this non-invasive technique does not require preparation, retention, bonding or anaesthesia. The patient will certainly appreciate this tissue-preserving approach. As such, the patient will perceive the treatment as more of an adventure. Of course, however, mock-ups are not without their restrictions. Their indication is restricted to prosthetic restorations in the anterior region, with severe malformations representing a contraindication, as the teeth may be positioned outside of the shape of the wax-up. The technique is also not indicated in cases in which enameloplasty is required (too long or too severely curved teeth). As production of a mock-up requires a certain degree of dexterity, it should be initially practised on a plaster model before work is performed directly in the patient’s mouth. The therapeutic treatment of a patient may require a longer period, even though the mock-up phase can be very informative and useful for patient communication, it remains an additional, facultative phase. Furthermore, dentists who do not use self-curing composites for temporary restorations could view procurement of these materials as an additional cost factor. However, it is worth weighing up the fact that the mock-up could considerably improve patient acceptance in an extensive treatment and thus the investment could indeed be worth it. Nothing is more frustrating for a dentist than investing time and effort in the development of a long, complex treatment plan only for it to be rejected by the patient because it fails to meet his or her expectations.

From the dental laboratory’s perspective, this method provides the dental technician with additional information, which allows him or her to tailor his or her work precisely to the patient’s and dentist’s expectations. The improved communication reinforces the cooperation between the dentist, patient and dental technician.

Note: This article was originally published in the Dental Tribune Study Club France magazine, 03/2015. It is published here with the kind permission of the author and OEMUS ME-USA. A list of references is available from the publisher.
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<table>
<thead>
<tr>
<th>Proprietary Material</th>
<th>SmartTrack® material</th>
<th>Specially designed align material provides gentle, more constant forces to improve control of tooth movements.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precise control of movement</td>
<td>SmartForce® features</td>
<td>Attachments and features engineered to deliver the force systems necessary to achieve predictable tooth movements.</td>
</tr>
<tr>
<td>Aligner shapes to execute orthodontic movement</td>
<td>SmartStage™ technology</td>
<td>Advanced algorithms that generate the optimal path of tooth movement and aligner shape for greater predictability.</td>
</tr>
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Reliable planning for an optimal workflow

User case abstract

Matching of Orthophos SL 3D data with the prosthetic proposal in Galileos Implant.

Prosthetic alignment of the implant in planning.

By Dentsply Sirona

Part of creating an optimal workflow involves the ability to reliably plan for variables that differ with each patient. 3D imaging gives the clinician the ability to view anatomical structures not seen in two-dimensional images. The following case study involving a male patient in need of a restoration shows the advantages of utilizing 3D imaging and an integrated digital workflow.

Methods

In this case, an Orthophos SL 3D from Dentsply Sirona was used for both panoramic and DVT scans. Digital impressions of the patient were taken with a CEREC camera and implant planning took place within the Galileos Implant software. For guided surgery, the team used CEREC Guide 2 milled in-house at their dental laboratory on an inLab MC X5 milling machine.

Case Study

A 52-year-old male patient presented to our practice with gap in the area of teeth 45-47. He wanted this area restored. We used the Orthophos SL 3D to take a panoramic scan for planning purposes. The patient opted for a treatment plan involving the insertion of two implants and then an implant-supported bridge. Digital imaging, combining DVT with CEREC optical impressions were used to plan the implant surgery in Galileos implant software.

The software creates an implant proposal as well as enables planning of the alignment of the prosthesis. The ability to plan and perform virtual surgery allowed the team to maximize safety and minimize risk. CEREC Guide 2 was chosen in the treatment plan and then milled in our practice to use during surgery.

An additional DVT image was made in the Orthophos SL’s Low Dose Mode as a check post-implantation. We chose hybrid abutments on titanium base for the final restoration.

Summary

Reliable planning makes for an efficient treatment while helping to minimize risk. 3D imaging is an important part of creating a solid plan and the integrated digital workflow offered by using the Orthophos SL, along with relevant planning software saves time for the practitioner and is also efficient for the patient by reducing the number of times he/she has to come to the practice.

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Minimal invasiveness — maximal effectiveness

The paradigm of the present decade in restorative dentistry

By Dr Maciej Żarow, Poland

Introduction

This article describes a case in which severe tooth damage was presented and complex oral rehabilitation was planned. Part of the rehabilitation had been completed more than a decade before, and the rest only recently. Although there was only ten years between these two treatments (upper arch in 2005 and lower arch in 2015), a significant paradigm shift was evident concerning the treatment planning and with respect to the amount of tooth reduction.

Case report

A 25-year-old female patient reported to the dental office 12 years ago in order to improve her smile (Figs. 1–3). Her anterior maxillary and mandibular teeth were severely damaged owing to a past chronic eating disorder. In 2005, complex oral rehabilitation was planned for the patient, starting from the upper arch. For the maxillary posterior teeth, full-ceramic onlays were planned and placed, while for the maxillary anterior teeth, full-ceramic crowns were fabricated (Figs. 4–6). A decade ago, this was the standard procedure in such a case of structural damage. The patient, happy with the appearance of the maxillary teeth when smiling, did not present for the completion of the complex rehabilitation until 2015. During the past ten years, some of the full-porcelain crowns had sustained minor chipping (Figs. 7–9), which was a result of the unfinished rehabilitation. After a decade of advances in dental technology and treatment planning, we could propose to the patient a new option, one that was minimally invasive and without the extent of tooth reduction associated with the work carried out ten years earlier.

Treatment planning

The Kois deprogrammer was employed in order to register the centric relation and articulate the models in this position. A wax-up of the lower arch was obtained, and the vertical dimension of occlusion (VDO) was slightly increased, based on aesthetic analysis. The obvious benefit of the VDO increase was also the fact that there would then be enough space for the restorative material without additional tooth reduction. The appropriate mock-up procedure and phonetic analysis were performed to confirm this. In the posterior area, lithium disilicate onlays were used, while direct composite resins were planned for the anterior teeth.

Restorative phase: Posterior teeth

For the mandibular posterior teeth, minimally invasive preparation took place, generally only in order to produce sharp, visible borders for the laboratory preparation procedures. The entire preparation surface was meticulously polished, with the exception of the borders, to remain sharp and evident for the dental technician. In order to ensure sufficient occlusal volume for the restorative space, a pattern resin jig was fabricated on the articulated study models with increased VDO and transferred to the mouth for control (Fig. 10). Impressions were taken, and the lithium disilicate (IPS e.max, Ivoclar Vivadent) onlays were fabricated in the laboratory (Fig. 11). At the next appointment, the onlays were tried in for correct marginal adaptation and adhesively luted under rubber dam isolation (Figs. 12–20).

Restorative phase: Anterior teeth

The teeth were cleaned with pumice, and the incisal parts were abraded with 50 µ aluminium oxide particles. On the incisal vestibular edge, a 1 mm chamfer was obtained using a diamond ball tip (001-006-2, Olident), and the lower part of the chamfer was delicately elongated using an 80° bevel (around 0.5 mm; Figs. 21 & 22). The mandibular anterior teeth were found to be tight and crowded; consequently, the operator found it easier to restore the teeth without rubber dam isolation. The enamel and dentine were etched with 38% phosphoric acid for 20 seconds, then OlliBOND adhesive (a fifth-generation prime and bond adhesive, Olident) was meticulously applied to the dentine and enamel, rinsed with water, air-dried and light-cured for 20 seconds.
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FEATURES AND BENEFITS

- **Essential** method: having only three instruments makes restorative procedures straightforward
- **Plug&Sculpt** concept: The Posterior can plug and sculpt the composite by using its two different tips
- **Solid brush**: The Anterior models and spreads the composite easily, just like a brush
- **Different colours**: each colour helps to easily identify the instrument: RED for Anterior, BLUE for Posterior and GREY for Spatula
- **Black Line Collection instruments**: smooth surface reduces stickiness to composite material and the black colour has more contrast to the dental hard and soft tissues.
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The restorative phase of the anterior teeth consisted of creating an external box, placing inside a layer of inner composite followed by a final outer composite layer. The procedure does not have to be too complex to achieve a predictable result; one can obtain correct layering with only two syringes of composite resin (Fig. 23).

Based on the wax-up (Fig. 24), a silicone index was made and cut in the frontal plane. With the lingual part of the index, the back shell of the reconstruction was created using a thin layer of nano-filler composite (OliREVO, Shade A3, Olident). In the next stage, the approximal surfaces were built up with the same composite material, and by means of the BlueView Vastemp® (Garrison), which provides an anatomical shape mesially and distally (Figs. 25 a & 26). When all of the boxes had been prepared, the inner, more opaque layer (OliREVO, Shade OA2) was applied, and the mamelons were shaped before polymerisation in order to create natural internal characterisation (Figs. 25 b & 27). The inner layer was polymerised, and finally the outer layer of composite (OliREVO, Shade OA2) was applied in a thickness of more or less 0.5 mm (Figs. 25 c & 28). This layer was meticulously brushed with the modelling brush and finally polymerised with slight time extension (40 seconds for each of the surfaces). After minor bite corrections, the final characterisation was done. First, the primary anatomy was achieved by contouring the transition angles and incisal edge. The next step was to start reproducing the secondary anatomy—the division of the lobes. These were drawn in pencil (Fig. 30) and formed with a diamond bur (Komet Dental/ Brasseler; Fig. 23). Next, a rubber point was used to smooth the rough surface left by the bur. The rubber point was also used to give an initial gloss to the restoration. The restoration was polished with 1 µm diamond paste applied with a natural goat hair brush used at 1,000 to 10,000 rpm.

The satisfactory clinical result of the lower arch restorative rehabilitation can be seen in Figures 31 to 33. The 24-month clinical control showed excellent clinical behaviour with respect to the lithium disilicate onlays and anterior composite resin restorations (Fig. 34).

**Conclusion**

By increasing the VDO, it is possible to achieve additional space for the restoration, and in this way to minimise the tooth reduction and maximise the adhesion owing to residual enamel. Correct treatment planning and utilisation of a wax-up and silicone index allow predictable results for the final shape and shade of the composite restorations.

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Interview:
“Mouth cancer is a growing problem”

By Brendan Day, DTI

With oral cancer rates continuing to increase worldwide, it has become clear that more needs to be done to raise awareness and combat this issue. Dental Tribune International spoke with Dr Niall McGoldrick, Specialty Registrar in Dental Public Health with NHS Fife and the convener of the charity Let’s Talk About Mouth Cancer, about the charity’s origins, its mission and much more.

Dr McGoldrick, how did Let’s Talk About Mouth Cancer get started, and was there anything in particular that led to its creation?

It all started in 2013, soon after my colleague Dr Orna Ni Cholainn and I graduated from dental school. We were both working as dental foundation trainees at the Edinburgh Dental Institute and had a shared drive to raise awareness of oral cancer among the public. We had an initial idea and we were introduced to three other colleagues, Dr Ewan MacKessack-Leitch, Dr Stephanie Sammut and Prof. Victor Lopes, and from there the idea began to grow. We all could see first hand the impact the disease had on people’s lives and on the people around them and wanted to do something active, different and visible to bring change at all levels.

In the early days, we thrived on putting together public campaigns with few resources and little funding. We had to think outside the box and be thrifty to get our campaigns off the ground. We used lunchtimes, evenings and weekends to design leaflets, paint backdrops and persuade items in charity shops to find the things we needed. It was really fun, and we quickly began to get support from other dentists and dental care professionals as word spread about our work. All five of us went forward to found the charity in 2014 and we have grown year-on-year. We now provide training for undergraduates and continuing professional development for postgraduates, and run regular public campaigns throughout Scotland. We have partnered with national and territorial health boards across Scotland to spread our message about oral self-examination to help promote early detection.

Today, Let’s Talk About Mouth Cancer is a multi-award-winning charity about the charity’s origins, its mission and much more.

Dr Lopes, and from there Leitch, Dr Stephanie Sammut and colleagues, Dr Ewan MacKessack-Leitch, Dr Orna Ni Cholainn and I graduated from dental school. We were both working as dental foundation trainees at the Edinburgh Dental Institute and had a shared drive to raise awareness of oral cancer among the public. We had an initial idea and we were introduced to three other colleagues, Dr Ewan MacKessack-Leitch, Dr Stephanie Sammut and Prof. Victor Lopes, and from there

What is Let’s Talk About Mouth Cancer’s mission? How do you hope to achieve this?

Our mission is to improve the prognosis of patients with oral cancer through early detection and diagnosis. We are trying to tackle this in a number of ways. Our public campaigns are focused on empowering people with the skills and knowledge needed to carry out oral self-examination to identify this disease themselves and present early. We also counselled the public on reducing risk from well-known risk factors such as tobacco and alcohol. Secondly, we provide training for healthcare professionals at undergraduate and postgraduate level. This work is focused on improving the confidence of healthcare professionals when dealing with a suspicious lesion in primary care and ensuring they are up to date with signs, symptoms and urgent referral pathways.

Our third approach is through advocacy. We have lobbied the Scottish Parliament on issues related to human papillomavirus gender-neutral vaccination and our general work has been supported by a Scottish parliamentary motion.

How big is a problem is oral cancer in the UK and, more specifically, in Scotland?

Oral cancer is a growing problem in the UK, but especially in Scotland. Scotland has more cases of this disease per head of population than any of the other UK nations. Progress for patients remains poor, with 50 per cent of those diagnosed losing their lives within five years. Further to this, the inequalities that exist among those who develop the disease and those who do not are stark; the vast majority of people developing oral cancer come from more deprived communities.

There are issues of social justice that need to be addressed. Improving the environment that people live in, making access to services simpler, making the healthy choice the easy choice and empowering people to care for themselves are just some of the areas that need to be addressed in order to prevent a further rise in the cases of oral cancer. Society’s current approach of mitigating the circumstances when it is too late will not solve the wider issues.

What steps can individuals take to combat oral cancer?

On an individual personal level, we should all be aware of what is going on in our mouths. Being familiar with what is normal in your own mouth is important, so that if there is a change you can pick up on it early. We want everyone to be carrying out oral self-examination to help identify what could be the early signs and symptoms of oral cancer. Our website has details on how to carry out a simple five-point check in less than a minute. In terms of reducing risk in the first instance: if you smoke, stop; if you drink alcohol, do so in moderation, do not use chewing tobacco or areca nut. It goes without saying that leading a healthy lifestyle and having a balanced diet will do wonders for your general health, but it will also reduce the risk of developing oral cancer.

Our general work has been supported by a Scottish parliamentary motion.

Let’s Talk About Mouth Cancer will be hosting the Global Oral Cancer Forum 2020 (GOCF’20) in Edinburgh in March next year. What can dentists and other health professionals look forward to at this event?

GOCF’20 takes place over two days—6 and 7 March 2020—and the theme is “Reducing risk, prevention, early diagnosis and innovative treatments”. We have lined up a selection of high-calibre international speakers and expert panellists to inform the conversation with attendees and expert panellists to inform the conversation with attendees and expert panellists to inform the conversation with attendees

at the meeting on how to combat oral cancer.

Unlike other international events, GOCF’20 invites attendees from all backgrounds—dentists, doctors, nurses, public health practitioners, NGOs, charities, data science experts and patients to join the conversations and establish new thinking in the challenge oral cancer poses globally. Registrations for the conference will go live soon and all the info is available on the event’s website.

We want as wide and varied an audience as possible to join the conversation as we develop these ideas. Come along and be part of the action!
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### Biological Dentistry

**By Dr. Carla Schweer, France**

Biological dentistry is a more bio-compatible approach to oral health and offers alternative therapy to the conventional dentistry. It regards the human body and its robust immune system as the best way to diagnose inflammation and treatment with small molecules. Biological dentistry is a more biological approach to oral health. The mouth is seen as an integrative system and conventional medicine does not consider the mouth in isolation. What happens to the teeth and gingiva has an impact on the rest of the body, and conversely, a systemic condition can affect oral health. Teeth are often recognized as a general state of health. It involves a more organic approach to care, with less invasive protocols and materials. Biological dentists always seek the safest, least toxic way to accomplish the mission of therapy and all the goals of modern dentistry. Biological dentistry describes a philosophy that can apply to all facets of dental practice and healthcare in general.

**Oral ecology**

The human mouth contains around 500–1,000 different types of bacteria with various functions as part of the human flora and oral microbiology. Individuals who practice oral hygiene have 1,000 to 10,000 bacteria living on each tooth surface, while less clean mouths can have between 500 million and one billion bacteria on each tooth. Some of the bacteria in our mouths are harmful and can cause serious illness, while others are beneficial and prevent disease. Periodontal treatment is an essential part of biological dentistry to prevent diseases such as diabetes, cardiovascular disease, rheumatoid arthritis, multiple sclerosis, osteoarthritis and Alzheimer’s disease.

**Immune system**

The biological dentist will give the patient nutritional advice and prescribe vitamins and food supplements to enhance the immune system for a better outcome of therapy. For example, in biological dentistry, it is commonly known that a high vitamin D level and low LDL cholesterol are key factors for a better outcome for bone surgery and implant osseointegration.

**Dental mercury**

An amalgam restoration is of great value in biological dentistry. It is because 90% of it consists of mercury, which is one of the most toxic non-radioactive elements on the planet. Therefore, biological dentistry is committed to the principle that it has no place in the human mouth. Scientific evidence has established beyond doubt that amalgam continuously releases mercury in small amounts and creates measurable exposure in people where amalgam containing dental fillings are placed. Mercury exposure to mercury could be detrimental to their health. Mercury is stored within the brain and other parts of the central nervous system, as well as in the liver, kidneys, large intestine, fat tissue and thyroid gland.

Biological dentists follow science-based procedures, such as removing amalgam fillings during amalgam removal* and use special containers and collectors to avoid pollution of the environment. At Dr Roze & Associates, we use the Safe Mercury Amalgam Removal™ technique, a protocol designed by the International Academy of Oral Medicine and Toxicology (https://thehealthchoice.com/fig_1.png).

**Metals and oral galvanism**

Biological dentists believe that placing metal and other foreign materials in the teeth and gingiva may have unintended consequences. That is why biological dentists only offer metal-free alternatives such as ceramics or composites. Composites are also chosen with care, as they should be mercury-free and non-allergenic. Consequently, they are free of HEMA, bis-GMA and TEGDMA.

A bridge framework and titanium implants are replaced by a zirconia framework. This offers a high degree of accuracy, stability and great osseointegration and is biocompatible and ceramic-free metal. These types of implants promote complete assimilation into the jawbone and the surrounding gingiva.

Aside from their ability to provoke immune reactivity, metals are electrically active. Oral galvanism has been discussed for well over 100 years, but dentists have tended to ignore it or make light of it. Biologic macromolecules can influence the rate of corrosion by interfering in different ways with anodic or cathodic reactions. When combined with mechanisms (such as solid loading, dynamic loading or wear) and inflammation, corrosion is intensified.

The corrosion behaviour of a metal in non-physiological in vitro studies versus physiological in vitro studies and versus in vivo studies may vary dramatically. The corrosion control in vitro is currently limited to careful design, proper selection of materials and surface modification. The effectiveness of coatings may be limited in vivo due to wear (Fig. 2).

**Endodontic treatment**

Endodontically treated teeth are dead tissue left in the body. This type of procedure is not found in any other medical discipline. Inflammation is common at the root apex, as it is almost impossible to clean thoroughly in even. The best endodontic specialist can never achieve complete cleaning of a root canal. Accessory lateral channels and the endodontic-conduction pathway at the roots remain unsealed.2 Thus, bacteria harboured in root canal areas such as intraradicular, dentinal tubules and ramifications may evade detection.

These pathogenic bacteria produce toxic and potentially carcinogenic hydrogen sulfoxide compounds (thioperoxide and mercaptans) from the amino acids cysteine and methionine as by-products of anaerobic metabolism. Studies have reported several different strains of bacteria found in endodontically treated teeth with periapical periodontitis.1 Enterococcus faecalis and yeast, mainly Candida albicans, are very resistant and have been repeatedly identified as the species most commonly recovered from root canal degenerations. In cases of failed endodontic therapy and with persistent infections, it is common to see Gram-negative anaerobes associated with endodontic infections and evidence of cytokine production in inflamed pulp and periradicular granulomatous tissue. There has shown an elevation of systemic levels of inflammatory mediators, such as cytokines in endodontic patients which could have an impact on distant organs.

Recent work in the field of facial pain syndromes and NICO has led to the realisation that the jawbones are a frequent site of ischaemic osteonecrosis. This can be called aseptic necrosis of the head. As a result, many extraction sites that appear to have healed have not actually healed completely. It can trigger many other health problems in the family and head, and in distant parts of the body. Even though most of these sites present with no symptoms at all, pathological examination reveals a combination of dead bone and slowly growing anaerobic pathogens in a mixture of highly toxic waste products with there otherwise appears to be proper healing.

Blame for these infections has been placed on the periodontal ligament left behind after extraction. However, it is most likely that cavitation occurs as a result of a combination of initiating events, predisposing risk factors and environmental factors. Notably, if patients have infections after their extractions or experience traumatic events such as dry sockets, there is a higher likelihood of cavitation. Development. Usually in these cases, the wound has not been thoroughly cleaned and sterilized. An effective way to sterilize the extraction site is by using laser and ozone.

**Biological dentistry today**

Dentistry is a rapidly evolving field. Especially, biological dentistry is always seeking the latest research for a better and safer approach. In the past, it was revolutionary to be able to restore a tooth instead of just pulling it out; amalgam, gold and dental teeth were, at the time, innovative materials and a better option than extraction. But today, we can do better dentistry in a less toxic, more individualised, more integrated and more environmentally friendly way than ever. Biological dentistry is a mandate more than a specialty: it could also be called advisory dentistry first: a common sense dentistry. When dentists choose to put biocompatible first, they can look forward to practising effective dentistry while knowing that patients are provided with the safest experience for their overall health.

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**References**


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**About the Author**

Dr Carla Schweer

IAMT biological dentist and CAD/CAM specialist

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Editorial note:

A list of references can be obtained from the publisher.
HOW TO LOCATE, REGISTER, AND TRANSFER TO THE ARTICULATOR.

Stable temporomandibular joint (TMJ) allows stable occlusion. Thus, after the (TMJ) examination, the static and dynamic occlusion should be transferred and analyzed with cast models in the semi-adjustable articulator.

Occlusal adjustment by addition, decrease, orthodontic treatment and/or orthognathic surgery should be based, such as cast models fixed in the semi-adjustable articulator in the Centric Relation position. The use of the anterior deprogrammer device, AFR-MiniReg (dentrade.com), relined with Polyvinyl siloxane - PVS or stick compound is efficient and reproducible for this purpose.

The AFR - MiniReg technique, combines the deprogrammer device with the Gothic Arch. The lines inscribed in the graph represent the mandibular movements in the horizontal plane and the vertex represents the mandible centered in relation to the maxilla. Thus, the position of the Centric Relation is located.

The semi-adjustable articulator and the Interocclusal Record with the AFR MiniReg offers:

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2. Safety for the Dentist and the Dental Technician when carrying out the planning of each particular case.
3. The patient treated in this way will benefit with well-being and comfort.

This graphic recorded with the AFR - MiniReg allows the dentist to capture the mandibular position of centric and eccentric.

The wax of quality, shape and thickness can be used with the MiniReg.

This is the Interocclusal record to fix the lower cast model in the Centric Relation position.

The AFR - MiniReg is not transferred to the cast models.
FEFU scientists may have found way to grow new teeth for patients

By DTI

VLADIVOSTOK, Russia: A group of histologists and dentists from the Far Eastern Federal University (FEFU) have collaborated with Russian and Japanese colleagues and discovered cells that may be responsible for the formation of human dental tissue.

The findings could provide a basis for the development of bioengineering techniques in dentistry aimed at growing new dental tissue.

The scientists used human prenatal tissue to study the early stage of development of the embryonic oral cavity during the fifth and the sixth week of tooth formation. They recognized several types of cells that are involved in the formation of one of the tooth rudiments, namely the enamel organ. Additionally, they identified the chromophobe cells responsible for the development of human teeth in the first weeks of embryo growth.

Numerous attempts to grow teeth from only the stem cells involved in the development of enamel, dentin and pulp, i.e. ameloblasts and odontoblasts, were not successful: there was no enamel on the samples, teeth were covered only by defective dentin. The absence of an easily accessible source of cells for growing dental tissue seriously restricts the development of a bioengineering approach to dental treatment. To develop technologies of tissue engineering and regenerative medicine, promising methods of treatment in dentistry, the cells identified by us may become the key to the next level of quality dental treatment,” said Dr Ivan Reva, senior researcher in the Laboratory for Cell and Molecular Neurobiology at the FEFU’s School of Biomedicine.

The scientist noted that large chromophobe cells do not reside only where the teeth of the embryo form. They also exist at the border where the multilayered squamous epithelium of the oral cavity passes into the cylindrical epithelium of the developing digestive tube. This means that the new bioengineering approach is relevant not only for growing new dental tissue but also for growing organs for subsequent transplantation and will probably be applied in gastroenterology.

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The scientists have yet to understand how, in the earliest stages of human embryo development, different types and forms of teeth develop from the seemingly homogeneous and multilayered ectoderm which is located in the forming oral cavity. However, it is already clear that more kinds of cells are engaged in the earlier stages of human tooth formation than were previously supposed.

The study, titled “Embryonic development of human teeth,” was published in the March 2019 issue of the International Journal of Applied and Fundamental Research and is only available in Russian.

Oral Health Foundation launches new guidelines for denture adhesives

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ANN ARBOR, U.S.: Management of a patient’s pain during even the simplest of procedures can be difficult. In a development that may one day simplify the task, a team of scientists from the University of Michigan (UM) have created a technology to help clinicians “see” and map patient pain in real time, through special augmented reality glasses. Although it is still some years away from being integrated into dental offices, the researchers believe the technology is a good first step in the advancement of pain management technology.

“It is very hard for us to measure and express our pain, including its expectation and associated anxiety,” said Dr. Alex Datashvili, associate professor at the UM School of Dentistry and Director of the Headache and Orofacial Pain Effort Laboratory. A portable clinical augmented reality and artificial intelligence (CLARAi) platform combines visualization with brain data using neuroimaging to navigate through a patient’s brain while in the chair. The technology was tested on 21 volunteer dental patients, and the researchers hope to include other types of pain and different conditions in the future.

Patients were caps fitted with sensors that measure heart rate and oxidation. Their reaction to cold when applied to their teeth was then measured. While seated in the dental chair, patients were augmented reality glasses that allowed the researchers to view the subject’s brain activity in real time on a reconstructed brain template. According to the researchers, they used brain pain data to develop algorithms that, when coupled with new software and neuroimaging hardware, predicted pain or the absence of it about 70% of the time.

With CLARAi, practitioners could begin to understand a patient’s pain better while still remaining focused on the procedure at hand. “Right now, we have a one to ten rating system, but that’s far from a reliable and objective pain measurement,” noted Datashvili.

Children with autism often overlooked for dental care

By DTI

CHARLESTON, S.C., U.S.: Autism affects a child’s social skills. Even simple tasks, such as scheduling an appointment at a dentist’s office, may often be a challenge for children with autism spectrum disorder (ASD) and their parents. As a result, by delaying or missing early dental appointments, children with ASD develop an increased risk of dental caries and oral infections that could impact their entire body. They also miss out on the opportunity to develop a comfortable routine with a dentist.

Dentally magazine recently ranked South Carolina as one of the top states where children with ASD have a high risk of oral health problems. The ranking was based on data obtained from the National Survey of Children’s Health. The survey reported that more than 90 percent of children in South Carolina with behavioral and developmental disorders are not receiving services like behavioral, occupational and speech therapy. Autism Speaks, an advocacy organisation, lists behavior as one of the most crucial things parents of autistic children consider when thinking about receiving dental care.

“Everybody deserves a dental home,” said Dr. Cynthia L. Hipp, associate professor at the Medical University of South Carolina (MUSC). Hipp also works in MUSC’s Pamela Kaminsky Clinic for Adolescents and Adults with Special Health Care Needs and recalls going to great lengths to help patients feel more comfortable during their visit, even doing dental examinations on the floor or in cars. “You have to think outside of the box,” she said, while noting that it may often require great patience to ease a child’s fear of the dentist.

To facilitate the process, Hipp advises parents to contact a dentist before scheduling an appointment and to communicate what makes their children feel comfortable. It may also help to familiarize children with the office prior to the dental appointment, since it is important for them to establish routines. Finally, there are children’s books available for parents to help them educate their children about the visit. Resistant or combative patients may require a higher level of emergency care. Some dentists who are not familiar with patients with autism may refuse to treat them. Hipp explained. The Centers for Disease Control and Prevention has reported that each year an increasing number of children have been diagnosed with autism. “As our population is growing ... we really have to train our future dentists,” said Dr. Michelle Ziegler, Programme Director of Advanced Education in General Dentistry and Division Director for Special Care Dentistry at MUSC.

In a 2005 study of over 200 randomly selected dentists in Michigan, more than 60 percent agreed that dental school did not prepare them for working with patients with special needs. “I think it’s certainly not been a priority for dental schools to teach this,” Ziegler commented. Another web-based survey published in 2010 found that the 22 U.S. and Canadian dental schools chosen for the study used a vast number of approaches to educating predoctoral students about the issue, but reported curriculum overlook as the main challenge for implementing changes in curriculum.
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**Hands on:** Pigmentation on soft tissue, gingivectomy and gingivoplasty, frenectomy, fibroma removal, crown lengthening, depigmentation, endodontic procedure - canal irradiation performed on sheep heads | Patient treatments (demonstrations)

Module 2 | 11-14 March 2020 (4 days) | Module Erbium Lasers
Laser Safety Officer course | e-learning | Laser technique (Diode lasers) | High power Diode lasers (clinics) | Erbium Lasers (clinics) | Laser technique (Erbium lasers) | Er:YAG and Er,Cr:YSGG | Scientific background and clinical indications | Skill training every day of every clinical indication | Patient treatments (demonstrations)
**Hands on:** Preparation in enamel and dentine, generation of a retentive surface, canal decontamination, apicectomy, soft-tissue cut with short pulses, soft-tissue cut with long pulses, open curettage, crown lengthening and bone preparation performed on sheep heads. | Patient treatments (demonstrations)

Module 3 | 13-16 December 2020 (4 days) | Combined Wavelengths Therapy Concepts & Mastership Exams
Laser therapy concepts with the use of 2 different wavelengths | Written multiple-choice exam | Oral Exam (presentation of 5 patient treatments cases with diode or Erbium lasers) | Graduation Ceremony, after successful completion of an examination at RWTH Aachen University | 600 hours total workload | Over the complete course duration: case documentation & discussions

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The programme targets dentists who would like to specialise in certain wavelengths. Over the course of one year, participants are taught fundamental physical and technical knowledge, and how to recognise primary, secondary, and tertiary indications on 12 attendance days split into 3 modules held over 3 educational blocks. This programme concludes with an official certificate of RWTH Aachen University, and is offered in collaboration with the RWTH Aachen International Academy, the post graduate education wing of the University.

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Tipton Training awarded Royal College of Surgeons of England accreditation

By Tipton Training

The Royal College of Surgeons of England have awarded Centre Accreditation to Tipton Training for its Courses in UK and Ireland. With this Tipton Training becomes the first private post graduate dental education provider in UK to have an RCS England accredited centre. The provisional accreditation conferred on Tipton Training in December 2018 and was ratified by the RCS Council on the 19th of June 2019.

This means that, in addition to the valuable skills a Tipton Training course delivers, delegates can be rest assured of the quality of education and methods of training has been reviewed and approved by the Royal College of Surgeons.

To achieve accredited status, Tipton Training underwent a comprehensive review from RCS senior figures, including Professor Michael Escurier (Dean of the Faculty of Dental Surgery), Vanita Brookes (Board Councillor (Masters Level) status. This means that Tipton Training alumni possess a real advantage when applying for competitive positions, or when looking to expand the range of treatment options for their practice patients.

Otago University opts for Dentsply Sirona

Over 210 Sinius treatment centers are ready for training

By Dentsply Sirona

Building up a dental training facility from the scratch – this ambitious project is nearing completion at Otago University’s Faculty of Dentistry in New Zealand. Mid-March, 2019, so-called super-users have started training with the over 210 Sinius training centers that Dentsply Sirona installed on the University’s Dunedan campus by the end of 2018. Dentsply Sirona accomplished through the final steps by providing high-quality trainers from Germany and Australia.

New Zealand’s dental students and patients are about to benefit from an entirely new-built dental teaching facility at Otago University (Dunedan campus). As one of the last steps of this demanding construction project, Dentsply Sirona provided experienced trainers from Germany and Australia to teach the so-called super-users how to work with the new Sinius treatment centers. Mid-March 2019, they learned to use the full capability of the state-of-the-art treatment centers and their associated equipment. Henceforth, the qualified super-users will run on-going training sessions with small groups of the dental faculty’s staff and students to prepare them for putting the building into full operation in April/May 2019. The completion of the new training facility is the first part of a two-phase building project with a total volume of 190 million New Zealand dollars.

Supporting workflow-oriented dental training

Professor Alison Rich, Dean of the Faculty of Dentistry at Otago University, adds: “The fact that the Sinius treatment centers are installed and operational is an exciting milestone because it demonstrates clearly that we will be in our new facility soon. We designed the clinic with a dedicated focus on people – patients, students and staff – and thus chose Dentsply Sirona’s Sinius treatment centers.” The new building’s design is tailored to modern dental processes and workflows. Each bay offers adequate space for students, supervisors and patients. Every treatment center is equipped with a host of services – including power, data, water, drainage, compressed air, dental suction and a central dosing system that cleans internal pipework.

Over 210 Sinius treatment centers – completely digitised

Otago University opted for Dentsply Sirona’s Sinius treatment centers and additional equipment in the context of an international call for tenders in 2018. “Our offer met the Faculty of Dentistry’s needs and enabled all the services to be connected to New Zealand standards” explains Peter Rosasing, Director Sales International Special Clinic Solutions at Dentsply Sirona.

Each of the 211 Sinius treatment centers integrates various functions, for example:

• The patient’s records as well as digital x-rays and scans is displayed chair-side at a screen.
• Digital impression systems – Dentsply Sirona’s CEREC Omnicam – take dental images that are also accessible via the chair-side screen.
• A digital self-cleaning system ensures stringent infection control standards.
• Dentsply Sirona’s VIVIONEX software solution connects all Sinius treatment centers. So, their functioning can be monitored centrally via the Internet to immediately identify and address maintenance needs.

“The Sinius treatment centers are designed specifically for the Otago University’s requirements to fit perfectly to several areas of applications – for example in terms of general dental care as well as orthodontics, special care and pediatrics”. summarises Jörg Vogel, Vice President Sales International Special Clinic Solutions at Dentsply Sirona. Prior to the installation of all Sinius treatment centers, the Faculty of Dentistry performed rigorous tests with a sample unit in the mock-up of a typical clinic treatment bay to ensure that the real-life setup would work for staff and students.

Successful conclusion of an ambitious installation project by the end of 2018, Dentsply Sirona installed the Sinius treatment centers in eight different configurations:
• 21 intra oral imaging systems (Heli-odent Plus) as well as Orthophos 2D and 3D extra oral imaging systems and
• 2,000 instruments.

Besides the specialty and teaching clinics, the new building will house the Otago University’s Primary Care Unit, radiography and surgical suites. It belongs to a two-part building complex that includes the Walsh Building, which has been used hitherto for the new training facility’s purposes. Following its refurbishment, the Walsh Building will serve for research laboratories, academic offices, student support, and teaching laboratories.

For more information about the Dentsply Sirona portfolio please contact your local representative.

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Celtra® Duo (ZLS) blocks, Prime&Bond universal ™ Adhesive, and Calibra® Ceram Cement were designed to enhance and strengthen the individual benefits each of them provides, resulting in an easy-to-use system that streamlines the restoration process.

**Celtra Duo (ZLS) blocks**
- Restoration longevity of Celtra Duo (ZLS) is ensured when used with Prime&Bond universal Adhesive and Calibra Ceram Cement
- Firing is optional: choose either fire and seat or polish and seat

**Prime&Bond universal Adhesive**
- No need to use a self cure activator when used with Calibra Ceram Cement
- Low film thickness to allow passive seating of the crown

**Calibra Ceram Cement**
- One-step curing when used with Prime&Bond universal Adhesive
- 10-second tack cure window and 45-second gel phase ensures an easy, no-stress cleanup

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Project for improved root canal therapy launched

By DTI

ROSTOCK, Germany: In Germany, about 7.5 million root canal therapies are carried out annually. With the help of an innovative system, it may soon be possible to carry out ultrasonic preparation of the root canal and to monitor the condition of the file during treatment. In addition, protection against thermomechanical overloading will prevent the instrument from breaking.

Research teams from Rostock, Dresden, Leipzig and Lemgo in Germany have begun a new project aimed at improving root canal therapy. Sponsored by the German Federal Ministry of Education and Research’s (BMBF’s) funding programme Twenty20—Partnership for Innovation, and the smart3 consortium, members of the medical faculty at the University of Rostock and the Fraunhofer Institute for Ceramic Technologies and Systems are working together on the project.

“We are pleased to have strong partners at our side in this project and are working very closely and in an interdisciplinary way with them. We are counting on great benefits for our patients,” emphasised Prof. Emil Reisinger, dean and scientific director of the medical faculty at the University of Rostock. The aim of the IPUCLEAN joint research project is the development of a piezoelectric ultrasonic cleaning system to support root canal therapy with rotating super-elastic files made of shape memory alloys.

“The joint project is intended to improve the treatment process and patient safety during root canal therapy in the medium term—at the same time ensuring and increasing the quality of the treatment results achieved,” said Prof. Rainer Bader, head of the FORBIOMIT research laboratory for biomechanics and implant technology at Rostock University Medical Center.

The project is being funded by a BMBF grant of more than €1 million. The research is being supported by Komet Dental, Werner Industrielle Elektronik and Zahntechnik Leipzig.
Strategies for the treatment of extremely curved root canals

By Dr Bernard Bengs, Germany

One of the major challenges in endodontics is the enormous complexity of root canals. Among other things, a large number of difficulties must be overcome in terms of the number, position, possible branches and curvatures of the canals. Case studies are used to demonstrate how predictable treatment results can be achieved in adverse anatomies too.

The aim of root canal preparation is the complete removal of all vital and necrotic tissue, infected canal wall dentine, foreign matter and root filling material. Adequate chemical disinfection should be made possible and shaping should allow wall-to-wall obturation of the canal system.

As early as 1974, Herbert Schilder published guidelines on this topic, which have virtually remained unchanged, including the creation of a continuously conical canal shape from the access cavity to the apex, respecting the course of the root canal and maintaining the position of the apical foramen at a size as small as practicable.

In the presence of very pronounced curvatures, especially abrupt or even S-shaped canals, double curves or S-shaped (i.e. double) curvatures, it can prove extremely difficult to implement these guidelines. The angle of curvature is not the only factor here; the length of the distance after the curvature is also decisive for the preparability of the instruments. As the degree of difficulty increases, the risk of step formation, splitting and instrument fracture quite naturally increases.

Treatment planning

Initial information is provided by the preparatory radiographic image. In complex anatomies, such as those that often occur in the posterior region, a CBCT scan provides valuable information on 3-D curvatures and the confluence of canals. This information is extremely important for treatment planning, as it allows the dentist to determine a strategy regarding the instruments to be used and canal preparation in advance. For example, very narrow, strongly curved roots should, if applicable, be prepared with a smaller ISO size or a smaller taper, since even very flexible nickel-titanium (NiTi) file systems cannot always achieve such increasing dimensions, which entails unwanted transportation or even strip perforations as risks. Each case should be considered individually to allow sufficient removal of infected tissue without risking unwanted excessive removal of dentine.

In vital cases, the size of the preparation may be more moderate, and less removal of dentine will be required here. Ultimately, of course, the treatment size should be determined by apical guaging (apical measurement). As this is only practicable to a limited extent in the case of very extreme, even opposing curvatures, even more attention should be paid to tactile feedback during instrumental canal preparation. Sufficient preparation is always required for root canal irrigation and subsequent obturation so that a shape of at least size 30.04, or better of size 30.06 or 35.06 (usually larger in the case of strong curvatures), which is usually required in extreme cases, must be prepared manually using the step-back technique. Otherwise, it will not be possible to achieve sufficient disinfection and filling of the root canal.

Notes on preparation

The preparation of an optimal primary and secondary access cavity is extremely important, particularly in the case of strong curvatures. Therefore, a most straightline access to the pulp chamber, position, possible branches and curvatures of the brand-new PathFile illustrated (Fig. 3). The diagnosis was pulp necrosis (Dentsply Maillefer), then mechanically with Pathfiles of size 15.06 and 19 (Dentsply Maillefer). The more flexible Hyflex Gillex glide path files (COLTENE) were not yet available at the time of treatment. A detailed image of the brand-new PathFile illustrated how extremely the S-shaped canal configuration had stressed the rotary NiTi instruments after a single use (Fig. 3) It depicted the plastic deformation of the instrument, a clear indication that this instrument could only withstand the requirements with good fortune. A fractured instrument would certainly have been within the realms of possibility.

After radiographic confirmation of the working length, the canals were prepared with the Hyflex CM (controlled memory) NiTi files (COLTENE), Figs. 4 & 5. The following sequence was used: 15.04, 20.04, 25.04, 25.05, 30.04 and 30.06. Intermittent irrigation was again per-formed with heated 6% NaOCl.

Case 1: Pulp necrosis in an S-shaped canal

In November 2013, a 46-year-old emergency patient with acute symptoms of tooth #25 presented. The tooth had been restored with a composite crown, sensitivity to percussion and pressure. Following initial preparation close to the pulp, the only possible strategy was to carry out full canal preparation with heated NaOCl. Subsequently, a drug deposit was inserted by endodontic surgery and the tooth was finally restored. The pulp was able to heal and the tooth finally restored.

The glide path was first prepared manually with C+Files of ISO sizes 6 and 8 (Dentsply Maillefer), then mechanically with Pathfiles of size 15.06 and 19 (Dentsply Maillefer). The more flexible Hyflex Glidepath files (COLTENE) were not yet available at the time of treatment. A detailed image of the brand-new PathFile illustrated how extremely the S-shaped canal configuration had stressed the rotary NiTi instruments after a single use (Fig. 3). It depicted the plastic deformation of the instrument, a clear indication that this instrument could only withstand the requirements with good fortune. A fractured instrument would certainly have been within the realms of possibility.

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*Fig. 1: Pre-op radiograph of tooth #25*  
*Fig. 2: Preparation*  
*Fig. 3: The untwisted PathFile after use in the canal.*  
*Fig. 4: Radiographic measurement*  
*Fig. 5: The Hyflex CM file sequence*  
*Fig. 6: The master point image*  
*Figs. 7 & 8: Root canal filling and check of tooth #25*  
*Page A3*
After apical gauging, the final preparation was performed in steps of 0.3 mm from ISO size 35 to ISO size 60 using manual K/T files in the step-back technique for safety reasons. Thus, a cone of ten was created in the apical region. Although possible in principle, the use of a 35.06 HyFlex CM was deliberately abstained from, as while these instruments offer high flexibility in general, the stiffness might still have been too great for the S-shaped course of the canals. Finally, irrigation was performed with a 17% EDTA solution and 6% NaOCl activating the irrigation liquids by ultrasound.

After the master point try-in with configured gutta-percha points, warm vertical root canal filling was performed using the modified Schäfer technique (Figs. 6–8). The tooth was sealed adhesively with a glass-fibre pin and composite (Fig. 19). Postoperative radiographic checks after one year and approximately 4.5 years showed continued uneventful apical conditions (Figs. 20 & 21).

Discussion

These cases demonstrate that the safe preparation of even extreme curvatures is predictable owing to the use of highly flexible instruments such as the HyFlex CM.4

Meanwhile, additional instruments have become available in sizes 15.01, 15.02 and 20.02, as has HyFlex EDM size 10.05, which are superior to the files used at the time in terms of material properties and thus offer greater safety in difficult cases (Figs. 22 & 23). Furthermore, it can be seen that hybridisation with manual instruments can be helpful or even necessary to minimise the risk of fracture and to control abrupt curvatures. The file sequences used are of course material-intensive, especially since the files were discarded after use in each patient case. This procedure is costly, but offers the best possible safety to avoid cross-contamination and instrument fracture.

Conclusion

The postoperative radiographic checks after several years proved that even very complex anatomies can nowadays be treated safely, predictably and sustainably with suitable instruments. For the patient, this implies the long-term preservation of the natural dentition, even in challenging cases.

Editorial note: A full list of references is available from the author.

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SS White introduces Great White carbide lab burs

By SS White

COPENHAGEN, Denmark: SS White has announced the release of the 2019 version of its industry-leading design software for laboratories. The new and improved 3Shape Dental System 2019 includes significantly enhanced solutions for designing and producing dentures, splints and clear aligners, as well as improvements to core workflows.

“3Shape Dental System 2019 enables labs to do what they love, creating great aesthetic and functional dental art,” said 3Shape Vice President for Product Strategy Rune Fisker. He added, “With every new 3Shape Dental System software release and as a part of our 3Shape LabCare promise, we develop stronger software with increased productivity and new opportunities for labs to expand their business and unlock their potential.”

New 3Shape Dental System 2019 software now available

By DTI

New laboratory burs are available in cross-cut and spiral fluted blade configurations in a variety of shapes, sizes and grits. Dental professionals can choose the correct instrument for all applications, whether for bulk reduction, adjusting or fine finishing on all dental materials, including stone, acrylic, precious and non-precious metal, or any other material used in the dental laboratory.

“The Great White Lab Series burs offer excellent value owing to their industry-leading cutting efficiency, which leads to increased service life and lower instrument cost. With optimal material reduction, the laboratory cutters produce a high-quality surface finish, which helps reduce remakes,” reported Miles.

SS White invites anyone interested in adding Great White carbide laboratory burs to their SS White product line or becoming an SS White dealer to contact International Director of Sales Michael Schwartz at mschwartz@sswhitedental.com. By partnering with SS White and representing the 175-year-old brand, dealers will benefit from:

• a differentiated restorative and endodontic full product line
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For increased performance and durability in laboratories, SS White recently introduced its Great White Lab Series Carbide Burs with a patented proprietary zirconium nitride coating.

Great White carbide lab burs

By SS White

COLOGNE, Germany: When choosing a dental bur, the options seem endless, even for specialty burs like those designed for laboratory applications. The needs and requirements of dental laboratories have changed significantly over the past ten years, and today’s laboratories cut everything from plaster to titanium and require a product that offers great efficiency.

For increased performance and durability in laboratories, SS White recently introduced its Great White Lab Series Carbide Burs, with a patented proprietary zirconium nitride coating to increase the surface hardness of the bur and create an extremely efficient cutting instrument. According to Brant Miles, Director of Business Development at SS White, the Great White laboratory burs offer up to ten times increased durability and longevity compared with products not coated with zirconium.

With a tungsten carbide head, the burs cut a multitude of different dental substrates, and a stainless-steel Shank reduces unnecessary wear to the handpiece. The burs are abrasion-resistant, reducing surface heat and vibration for a cooler and more consistent surface finish.

With the versatility to cut all types of materials, the Great White laboratory burs are available in cross-cut and spiral fluted blade configurations in a variety of shapes, sizes and grits. Dental professionals can choose the correct instrument for all applications, whether for bulk reduction, adjusting or fine finishing on all dental materials, including stone, acrylic, precious and non-precious metal, or any other material used in the dental laboratory.

For more information can be found at www.sswhitedental.com

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inLab software update 19.0: organise and link digital processes efficiently

By Dentsply Sirona

The broad range of indications and the easy to use software interface make Dentsply Sirona’s inLab CAD/CAM software a central component of the digital workflow in many laboratories. The brand new inLab software update offers more design options, better efficient organization of processes and an embedded networking with the dental practice.

The continuous development and optimization of the inLab software strengthens professional application opportunities for more productivity in the laboratory. The inLab CAM SW 19.0 Model App now allows laboratories to use both milling and ELOS Medtech model analogs when designing implant prosthetic cases. Furthermore, Atlantis® Core Files that are received can now be made into a model, under consideration of the appropriate abutment geometry, so that an analog model is not required for such cases.

The cooperation between Dentsply Sirona and exocad®, which was announced earlier this year, represents a synergistic partnership that benefits the dental laboratory. exocad® users can now take advantage of a validated workflow that utilizes Dentsply Sirona’s high-precision extraoral scanner, the inEos X5. This workflow enables a case to be created in exocad®, then scanned with inEos X5 from inLab software version 19.0 or higher, and designed with the exocad® software in a fully integrated workflow.

inLab CAM software with new process options

inLab CAM software 19.0 provides even more efficient production processes, particularly when used with the 5-axis inLab MC X5 grinding and milling unit. For the first time, inLab CAM 19.0 contains an analysis tool that ensures a high level of reliability by providing a production simulation that previews the final production, on the basis of positioning, spurring and tool configuration. The thickness of the walls of the object can also be tested before processing.

For the manufacturing of Dentsply Sirona Digital Dentures, the software update offers freespaced milling of the Lucitone 199 Denture Base disk the provides easier access for the lab technician when bonding Portrait IPN Denture Teeth in place. Furthermore, 4mm disks in height (of all material classes) can now be processed in the inLab MC X5, including Lucitone 199.

In the case of restoration data from other CAD software, tool-compatible machining of the fitting surfaces is also possible with the inLab production machines. The inLab MC X5 can now also be used to produce crowns with screw access channels from grinding materials using the wet grinding process, e.g. Celtra Duo, for the manufacture of implant-based restorations.

It is a seamless inLab system integration with automatic data transfer or the import of open data regardless of which CAD data basis is used, the inLab CAM software has an intelligent query system, and guides the user safely through the manufacturing process depending on the type of restoration. In addition, the extended validated construction info interface with exocad® enables restoration data to be conveniently imported into the inLab CAM software for the first time in a compatible format, where it can be processed with inLab MC X5 or inLab MC XL.

The new Cercon® at SLI disk from Dentsply Sirona – the extra translucent zirconia with a natural color gradient for high-quality esthetic results – has also been validated for production with inLab MC X5. It can be selected directly in the inLab-CAM 19 software or higher going forward.

New Connect Case Center In-box for all dental lab oratories

inLab users still benefit from the ability to move digital impressions and order data transmitted through Connect Case Center, formerly Sirona Connect, directly within the inLab software. The Connect Case Center In-box is a new feature. This standalone application gives labs that also, or only, work with other CAD/CAM software flexible access to digital impression data that has been generated from a CEREC digital impression unit, such as Primessc or Omniscan. For further processing in the preferred laboratory software, the In-box not only generates the inLab format, but for the first time, also the dental project format validated for exocad®, providing model and case data, color information and preparation margins. Other common open data formats, such as STL and OBJ, are also available. Further functions can also be used, such as multiple downloading for the storage of cases in predefined work folders and linking to laboratory management software.

The Connect Case Center In-box is subject to license, but customers who upgrade to inLab software 19.0 will receive it for free with the current update. The application can be used on a separate Windows PC, independently of an inLab PC. For the first time, the inLab software 19.0 is also available for download (search ‘inLab software 19.0 online’). As usual, the inLab software update 19.0 license (CAD and CAM) can be ordered from specialist retailers.

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For more than 20 years, the use of zygomatic implants has been demonstrated to be a predictable and safe alternative treatment modality for complex dental restoration in the maxilla and has exhibited a high rate of success.

Study introduces new surgical guide for placement of zygomatic implants

By DTI

BOLOGNA, Italy/FORT LEE, N.J., US: Dental patients who show a deficiency of bone volume cannot be treated with root-form dental implants. Thus, new treatment modalities were sought for these patients. One of the therapies considered was the placement of zygomatic implants, which were introduced to the market over 20 years ago. A recent study has investigated a novel protocol for the placement of zygomatic implants using a specific surgical guide. The protocol relied on large field of view CT/CBCT scan for an accurate assessment of the maxillary arch to plan zygomatic implant receptor sites. A CT/CBCT-derived surgical guide of a novel design and an exact replica of the entire maxilla and zygomatic bone were fabricated using 3-D printing technology. Four patients with completely edentulous maxillary arches received a total of ten zygomatic implants. To evaluate whether the actual surgical placement of the zygomatic implants matched the computerised planning and simulation, the preoperative positions were compared with the postoperative positions by merging the pre- and postoperative scan data sets. The degree of accuracy of the superimposition was measured utilising sophisticated software. Apical, coronal and angular deviations were determined for each implant. Deviations from the computerised project to the actual implant positions ranged from 2 mm to 3 mm, and angular deviations ranged between 1.88° and 4.55°. The study found that the placement of zygomatic implants requires surgical experience owing to the close proximity of vital anatomical structures. It used methods of superimposition that illustrated satisfactory correspondence between inserted implants and the virtual plan. No adjacent vital anatomical structures were damaged. The novel surgical guide design afforded the surgeon visual control of the drilling protocol. Positioning the guide in close proximity to the entry point of the zygomatic body aided control of the drills up to the vicinity of the exit point, significantly limiting problems associated with angular deviation.

The researchers concluded, “Reducing errors and complications is essential for zygomatic implants to remain a viable treatment alternative, and further research on a guided approach to their placement is encouraged.”

The study, titled “Computer-guided approach for placement of zygomatic implants: Novel protocol and surgical guide”, was published in the June 2019 issue of Compendium.

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AD
By Straumann

BASEL, Switzerland: Straumann is pleased to report the very positive results of the first human case study to track the condition and progress of a patient treated for a missing molar with the new Straumann BLX implant. Straumann BLX is a next-generation implant system that combines an innovative design for optimized stability with the company’s high-performance Roxolid metal-alloy and SLActive surface and that offers new levels of confidence—for immediacy and beyond. Additionally, the improved usability in immediate protocols and streamlined surgical and prosthetic workflows translate into higher treatment efficiency and shorter chair time for the patient.

Dr Eirik Aasland Salvesen, a periodontist at Otta Dental in Stavanger in Norway and executive director of the Otta Dental Academy, was the treating surgeon. One year ago, he placed a Straumann BLX implant into a healed mandibular first molar site and restored the implant prosthetically through an analogue workflow in the temporary phase and digital workflow for the final restoration.

The patient, a 67-year-old non-smoking man without any relevant medical history, was referred to the office with a missing tooth (Fig. 6) due to persistent apical periodontitis. The tooth had been extracted more than one year prior to the procedure and the molar site was well maintained and fully healed (Fig. 6). A CBCT scan showed that the patient had favourable bone availability (Fig. 2), on which basis a one-stage placement of a 5.5 × 10.0 mm Straumann BLX implant was planned. After surgically installing the implant (Figs. 3–7), Salvesen allowed the surrounding soft tissue to mature and heal for six weeks (Fig. 8). He then removed the healing abutment to begin the prosthetic procedures for a temporary crown (Figs. 9 & 10). A stone master cast was made in the laboratory, and a temporary screw-retained PMMA crown was manufactured over a Straumann wide base temporary abutment for the crown (Fig. 10) and placed on to the implant (Figs. 12–14).

After 12 weeks, Salvesen removed the temporary crown, revealing that the soft tissue had healed very well (Fig. 15). He then began the digital workflow. For the final crown, a digital impression was taken with a 3Shape intraoral scanner, using a Straumann CARES scan body. A monolithic zirconia crown was then seated passively on to the implant in a healed and preconditioned soft tissue environment (Figs. 16–19).

One year after the treatment, the patient reports complete satisfaction with both his chewing function and the overall aesthetics (Figs. 20 & 21). Radiographs confirm that the molar site is stable and healthy (Fig. 22). In this first human case, use of the Straumann BLX wide base implant delivered efficient and reliable performance, even in soft bone with early loading conditions.

The risks of previous routine treatments

For many years, conventional fixed bridges were considered routine treatment for replacing a missing single tooth, according to periodontist and oral surgeon Dr Christian Rado Jarry of Straumann’s Global Medical Affairs Department in Basel. “However,” Jarry noted, “this treatment increased the risk of iatrogenic endodontic damage during the invasive preparation of otherwise healthy, undisturbed teeth, which decreased the survival of these teeth over time.”

The use and success of dental implants for rehabilitating the partially edentulous posterior jaw is well established. In addition to its high success rate, it leaves the adjacent teeth undisturbed. That said, Jarry added, successful use of dental implants depends on optimal conditions of peri-implant tissue. To determine implant dimensions, one must first do a 3-D evaluation of the patient’s bone condition and availability, a key step for the long-term stability of hard and soft tissue.

About single molar restorations

The success of single molar restorations is influenced by factors such as the clinician’s skills, arch morphology, proximity of adjacent teeth, vertical access, anatomy and patient-related limitations. Salvesen noted that the use of wide implants has been proposed as a successful option, with survival rates similar to those of standard-diameter implants.

While osseointegration remains the basis for success, patients’ increasing demands for esthetics, functional performance, even in soft bone with early loading conditions. Straumann is pleased to report the very positive results of the first human case study to track the condition and progress of a patient treated for a missing molar with the new Straumann BLX implant. Straumann BLX is a next-generation implant system that combines an innovative design for optimized stability with the company’s high-performance Roxolid metal-alloy and SLActive surface and that offers new levels of confidence—for immediacy and beyond. Additionally, the improved usability in immediate protocols and streamlined surgical and prosthetic workflows translate into higher treatment efficiency and shorter chair time for the patient.

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Dental implants are medically advisable for patients with Sjögren’s syndrome

By DTI

MALMÖ/GOTHENBURG, Sweden: Up until now it was not known whether dental implants were successful in patients affected by Sjögren’s syndrome. In fact, many professionals advise against them, as they believe these patients have a higher risk of implant failure. However, researchers at the universities of Malmö and Gothenburg in Sweden have found that dental implants are a viable option for people with Sjögren’s syndrome, even though these patients may experience a higher marginal bone loss around their implants than others.

Sjögren’s syndrome is a systemic disease characterised by the progressive destruction of some glands, particularly those around the eyes and mouth. “It is known to reduce the saliva flow, resulting in a dry and very sensitive oral mucosa,” said Dr Ann Wennerberg from the Department of Prosthodontics at Sahlgrenska Academy at the University of Gothenburg told DTI.

“The very small amount of saliva results in a lack of necessary lubrication,” continued Wennerberg. She explained that this would cause the patient soreness and pain. “For patients with Sjögren’s syndrome removable dentures may be impossible to wear,” she added. As a result, many affected patients turn to dental implants.

The researchers conducted the study in two parts. First, they reviewed a clinical series of 59 Sjögren’s patients who, together, had received 107 dental implants. Second, they conducted a review of published literature and assessed the cases of 186 patients who had received a total of 712 implants, of which 705 were followed up.

Through the clinical series, the researchers found that, out of 59 patients, two patients lost three implants, together, which led to a failure rate of 2.8 per cent. All failed implants were caused by a lack of osseointegra- tion. The implants were followed for a mean period of ten years. At the last follow-up, the mean marginal bone loss for patients was 2.39 mm. The research team estimated the marginal bone loss after 30 years at 4.39 mm.

From the literature review, the researchers found that, out of the 705 implants—which were followed up for approximately six years—29 failed, resulting in a failure rate of 4.1 per cent. After conducting statistical analysis, researchers found that the probability of failure was 2.8 per cent.

When stratifying patients based on primary or secondary Sjögren’s syndrome, the researchers found that those with primary disease had a lower failure rate of implants of 2.5 per cent compared with patients with secondary Sjögren’s syndrome. These patients showed a failure rate of 6.5 per cent.

“The results show that a treatment with dental implants can be done with a good prognosis, in contrast to what has been feared. However, the results also demonstrate the marginal bone resorption to be higher than for patients without the syndrome. This is indicative for the need for regular control visits to the dentist and short intervals between appointments to a dental hygienist,” concluded Wennerberg.


Long-term study investigates risk factors for short dental implants

By DTI

ANKARA, Turkey: The use of stand- ard dental implants has become a widely accepted treatment modal- ity for the rehabilitation of complete and partial edentulism. However, in severe alveolar resorption, standard-length implant placement is not possible without additional surgical in- tervention. For such cases, the use of short implants is considered a major contribution to the field of implant dentistry. Now, a recent study has determined the risk factors for short dental implant survival.

The study, conducted by the An- kara Yıldırım Beyazıt University in Ankara, the Cumhuriyet Univer- sity in Sivas in Turkey and a private dental practice in Ankara, aimed to identify the different independent- and patient-related risk factors for long-term short dental implant success. Through a retrospective chart review of three centres, patient information regarding demographic variables, smoking habits, history of periodonti- tis and systemic diseases, and med-

The use of standard dental implants has become a widely accepted treatment modality for the rehabilitation of complete and partial edentulism. However, in severe alveolar resorption, standard-length implant placement is not possible without additional surgical intervention. For such cases, the use of short implants is considered a major contribution to the field of implant dentistry. Now, a recent study has determined the risk factors for short dental implant survival.

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For the statistical analysis, univariate regression models were used at implant and patient levels. A total of 460 short implants — ranging from 4.1 to 9.0 mm in length — placed in 199 pa- tients and followed up for up to nine years were reviewed. Survival rates of the short implants were 95.86 per cent and 92.96 per cent and success rates were 90.00 per cent and 83.41 per cent for implant- and patient-based analysis, respectively.

Pen implantists were reported as the cause of short dental implant failure 17.93 per cent of the cases. Univariate regression models revealed that the female sex was strongly related to short implant success. In addition, smoking and a history of periodontitis were found to have a significant negative influence on short implant success at the implant and patient levels.

These results support the use of short implants as a predictable long-term treatment option, however, smoking and a history of periodonti- tis are suggested to be the potential risk factors for short implant success. According to the researchers, these outcomes are consistent with the findings of other long-term studies.

The study, titled “Risk factors associated with short dental implant suc- cess: A long-term retrospective eval- uation of patients followed up for up to 9 years,” was published online in Brazilian Oral Research on 1 April 2019, ahead of inclusion in an issue.
Smart Solutions for Composite Artistry

Photographs courtesy of Dr. Anand Narvekar
Full article on Dental Tribune Middle East & Africa Edition Issue Jan-Feb 2019 | No. 1, Vol.9
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Almost 6 million people have successfully straightened their teeth using Invisalign®, clear aligners, treated by Invisalign trained doctors.

Invisalign Q&A with Simon Beard, Senior Vice President and Managing Director, Align Technology EMEA

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Almost 6 million people have successfully straightened their teeth using Invisalign®, clear aligners, treated by Invisalign trained doctors.

By Align Technology

Invisalign Q&A with Simon Beard, Senior Vice President and Managing Director, Align Technology EMEA

Almost 6 million people have successfully straightened their teeth using Invisalign®, clear aligners, treated by Invisalign trained doctors.

The potential to grow the market for teeth straightening is enormous – according to our estimates, as many as 100 million patients in EMEA region could benefit from some type of teeth straightening. We would like to tap into this opportunity and make clear aligner therapy accessible to as many patients as possible, helping doctors create new, beautiful smiles. To make this happen, we are working closely with a growing network of Invisalign trained doctors - general dentists and orthodontists alike – to make clear aligner therapy widely available to patients in the region.

In the Middle East as well as in other markets there has never been more demand for a beautiful smile than these days. Thanks to the Millennial or “selfie” generation, we can clearly see more and more consumers proactively looking for a treatment option that will allow them to straighten their teeth and get that camera-ready smile they always wanted. The Invisalign system offers this opportunity.

This new trend presents a great opportunity for the doctors to leverage growing demand from consumers and embrace digital technology, such as clear aligner therapy or intracural patient scan. A more digital practice will allow them to see and treat more prospective patients visiting their clinic and asking for a treatment of their choice, but also to monitor more closely consumer buying behaviour and capture new patient interest and untapped segments.

Innovation in dental technology has prompted major growth in the dental health industry globally and how is it different in EMEA by 6.2% compared to the corresponding quarter last year. That said, there is definitely a growing appetite for the clear aligner treatment.

We can observe it in the Middle East region– which is still a relatively new market for straighter teeth. Can you give us a breakdown on demographics?

Invisalign clear aligners are an alternative to traditional braces and wires, and Align Technology has been driving the transformation in digital dentistry for 21 years now, offering a modern end-to-end approach to straightening teeth. Increasingly, more and more people see the many benefits of clear aligner therapy that can deliver aesthetic and orthodontic solutions without the need for using traditional, fixed braces. The Invisalign system is a unique combination of patented SmartTrack material that applies constant force and improves control of tooth movements, while utilizing data from conventional orthodontic treatment. As a result, we see strong interest from both groups also here in the UAE and Middle East. The interest is reflected in the overall market dynamics – it is estimated that the dental devices market will grow 6.5% per cent through 2023.

One of the benefits of the Invisalign solution is that it can be used by both younger people, even conscious of their looks, as well as adults, who may otherwise have refused conventional orthodontic treatment. As a result, we are strong interest from both groups also here in the UAE and Middle East. The interest is reflected in the overall market dynamics – it is estimated that the dental devices market will grow 6.5% per cent through 2023.

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The global orthodontic supplies market is expected to reach USD 6.69 billion by 2023 from USD 4.92 billion in 2018, growing at a CAGR of 8.9%, according to a recent report.

These market trends correspond to our business growth. In Q2 2018, we saw an increase in the number of Invisalign cases shipped international-
In-office welding by Nd:YAG laser

By Prof. Carlo Fornaini & Prof. Caroline Bertrand, France

Introduction
Just after the introduction of the first laser by Maiman in 1960, there was a very fast evolution of this new technology, characterised by constant progression in techniques and applications, increasing the possibility to have smaller and cheaper devices and introducing ever-new wavelengths. Laser welding was first introduced in the jewellery industry during the 1970s and soon after successively used by dental technicians as well. The first lasers used were the carbon dioxide and Nd:YAG lasers, but the market was rapidly conquered by the second, owing to the results that could be obtained with it.

Laser welding offers a great number of advantages compared with traditional welding. Firstly, the laser device saves time in the commercial laboratory because all welding is done directly on the master cast. Inaccuracies in assembly caused by transfers from the master cast along with investment are reduced. The laser device saves time in the commercial laboratory because all welding is done directly on the master cast. Inaccuracies in assembly caused by transfers from the master cast along with investment are reduced.

In our previous work, we demonstrated by in vitro tests on different metal samples, the good quality and high resistance of a joint welded by this device. While in this paper we demonstrate the clinical application of this technique.

Materials and Methods
The laser device used was, as already stated, the Fidelis Plus III, with a 900 μm fibre and a 2 mm spot handpiece (R32, Fotona), normally utilised in dermatology, or in some cases a prototype provided by Fotona itself. The parameters that we normally use for welding are:
- Wavelength: 1,064 nm
- Energy: 9 J
- Frequency: 1 Hz
- Spot diameter: 1 mm
- Pulse duration: 15 ms
- Fluence: 1,060 J/cm²
- Working distance: 8 mm

Clinical cases
Case 1
A 9-year-old female patient in orthodontic treatment in our office came urgently owing to damage to the appliance, and we saw that one of the Adam’s hooks had broken (Fig. 6). We welded it without filler metal (Fig. 7) and the plastic shield, although very close to the welding zone, was not damaged or modified (Fig. 8). We were able to reseat the repaired appliance in the patient’s mouth after only some minutes (Fig. 9).

Case 2
An 8-year-old male patient in treatment in our office with a Schwartz removable orthodontic appliance came to us for periodic checking of the appliance, and we saw that one of the Adam’s hooks had broken (Fig. 10). We welded it without filler metal (Fig. 11) and the plastic shield, although very close to the welding zone, was not damaged or modified. We were able to reseat the repaired appliance in the patient’s mouth after only some minutes.

Case 3
An 8-year-old male patient in treatment in our office with a Frankel removable orthodontic appliance came to us for periodic checking of the appliance, and we saw that one of the wires had broken (Fig. 12). We welded it without metal filler (Fig. 13) and the plastic shield, although very close to the welding zone, was not damaged or modified. We were able to reseat the repaired appliance in the patient’s mouth after only some minutes.

Case 4
A 14-year-old male patient came to our office with the lingual wire of his appliance broken. The appliance was an orthodontic appliance called De-laire consisting of two wires, one ven...
Orthodontic treatment not associated with overall happiness, study finds

By DTI

ADELAIDE, Australia: Research undertaken at the University of Adelaide has examined whether an orthodontic treatment has an impact on psychosocial outcomes. The study concluded that, contrary to popular belief, such therapy does not result in better psychosocial functioning later in life.

The study, the first of its type in Australia and the second in the world, investigated whether having undergone treatment with fixed orthodontic appliances led to a greater level of happiness or psychosocial outcomes later in life. The longitudinal study followed 448 13-year-olds from Adelaide who had previously participated in an oral epidemiology study between 1988 and 1989. By the time the participants turned 30 in 2005 and 2006, more than a third had received an orthodontic treatment.

“There was a pattern of higher psychosocial scores in people who did not have orthodontic treatment, meaning people who hadn’t had braces fitted were significantly more optimistic than the ones that did have braces,” said study co-author Dr Esma Doğramaci, lecturer in orthodontics at the university’s School of Dentistry. “Those who didn’t have braces had varying levels of crooked teeth, just like those who had brace treatment, ranging from mild through to very severe.”

The study looked at four psychosocial aspects. First, it examined how well the participants felt they coped with new or difficult situations and associated setbacks. Then, the researchers checked how confident they felt in taking care of their own health. The researchers also assessed the support the participants believed they received from their personal network and, finally, their level of optimism.

“These indicators were chosen because they are important for psychosocial functioning and are relevant to health behaviours and health outcomes, since the core research question was the impact of braces treatment on patients’ self-confidence and happiness in later life,” Doğramaci noted. “A lot of people are convinced that if they have braces, they will feel more positive about themselves and do well, psychosocially, in later life. This study confirmed that other factors play a role in predicting psychosocial functioning as adults—braces as a youngster was not one of them.”

The study, titled “The long-term influence of orthodontic treatment on adults’ psychosocial outcomes: An Australian cohort study,” was published online on 27 May 2019 in Orthodontics and Craniofacial Research, ahead of inclusion in an issue.
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Reducing plastic footprint with zero-waste toothpaste

By Monique Mehler, DT

LEIPZIG, Germany: The climate change caused by human influences—such as littering and overconsumption of non-biodegradable waste products—is a reality that concerns all of us. This is why dental care should not be exempt from environmental awareness. Bamboo toothbrushes, for example, have moved into many bathrooms in the last couple of years, since they are now more easily obtainable in most chain pharmacies. But what about sustainable toothpaste?

Sustainability in demand
The new generation is constantly on the lookout for environmentally friendly alternatives, ideally without, or with more sustainable packaging. That means thoughtfully designed packaging which is compostable or reusable.

Home-made toothpaste probably constitutes the easiest way to achieve a zero-waste oral healthcare routine. For this purpose, the Internet offers various recipes. Understandably, not everyone has the time or energy to experiment with ingredients, consistencies and flavours. This does not mean, though, that convenience and sustainability have to be mutually exclusive.

The environmental impact of disposable plastic
In general, plastic toothpaste tubes contribute to a throwaway society. It is estimated that about one billion toothpaste tubes are sent to landfill sites every year and it can take hundreds of years before they even start to break down. On top of that, the tubes that end up there are filled with ingredients like sodium lauryl sulphate, triclosan, artificial dyes and preservatives that can be harmful to our health and our earth.

According to an article by Ian Johnstone, environment correspondent of The Independent, “79 per cent of the plastic produced over the last 70 years has been thrown away, either into landfill sites or into the general environment. Just 9 per cent is recycled with the rest incinerated.” He continued: “With more than 8 million tonnes going into the oceans every year, it is estimated there will be more plastic than fish by 2050, and 99 per cent of all the seafood on the planet will have consumed some. It is thought the sea now contains some 33 trillion microplastic particles—9oo times more than stars in our galaxy.”

What are the alternatives?
Thinking about the unimaginable amount of waste that is being produced by such a standard routine as toothbrushing alone can be quite daunting. Luckily, many brands from around the world have recognised that plastic packaging is not the way forward and offer more sustainable alternatives. Toothpaste now comes in the form of powder or tablets, for example, without chemical additives and in glass jars with metal lids which are reusable and recyclable.

The list below includes a small range of companies and information on how their products are packaged:

- Georganics (glass jar, UK)
- Vitaltabs (paper laminated foil, Germany)
- Lamanuza (cardboard box, France)
- Zero Waste Beauty (glass jar, Australia)

The verdict
Plastic production, consumption and disposal contribute to the earth’s pollution. The Independent article explained: “With so many options on the market today, there is really no excuse not to make one or two small but impactful changes.”

Vital tooth bleaching has adverse effects on oral health, study concludes

By DT

DUNEDIN, New Zealand: A newly published systemic review has revealed that, while tooth bleaching treatment yields positive changes for young participants in aesthetic-related areas, such as smiling, laughing and showing teeth, without embarrassment, it causes tooth sensitivity and can affect quality of life and thus oral health.

Tooth discoloration is common these days and has resulted in the widespread popularity of tooth bleaching treatment. Hydrogen peroxide and carbamide peroxide are the bleaching agents most often used in the whitening processes. Despite the benefits of tooth bleaching, its side effects are of concern to dentists and patients. Therefore, scientists carried out a systematic review and meta-analysis of studies that had previously investigated the changes in perceived quality of life after vital tooth bleaching.

In total, 353 studies were identified, but only four met the inclusion criteria. Two of them showed a statistically significant improvement, one showed worsening and the last one was inconclusive. Within the studies, there was a pattern of improvement in aesthetic-related domains, such as smiling and psychological discomfort, and deterioration in function-related domains, such as hygiene and pain.

The authors concluded that tooth bleaching was not associated with improvements in the overall oral health-related quality of life (OHRQOL) in these heterogeneous populations. The dental procedure appeared to impact some domains of OHRQOL positively and some negatively, indicating the need for clinicians to treat patients receiving whitening treatment with the utmost care in order to obtain the best results in aesthetics with minimal side effects. The researchers also noted that clinicians should be aware of the potential impact caused by tooth sensitivity and either offer instruction to prevent it or recommend the right treatment to reduce its impact.

The study titled “Vital bleaching and oral health-related quality of life in adults: A systematic review and meta-analysis” was published in the May 2019 issue of the Journal of Dentistry.
Interview: “For most people, toothbrushing is an unconscious action. iTOP changes this.”

By Kasper Mussche, DTI

Although toothbrushing is the most decisive factor in preventing oral dis- ease, only a few patients and dentists understand how to keep their gingiva and teeth clean and per- form proper oral prophylaxis. To teach and the correct techniques on their own and with conscious thought, I say “conscious” because, for most people, toothbrushing is a purely unconscious action. iTOP changes this. The word “instructed” is very important to iTOP, as dental profes- sionals become a personal coach to their patients and, later, their patients are literally taken by the hand and indi- vidually instructed on how to brush their teeth perfectly.

ITOP is also based on the scientific statement that a clean tooth cannot become diseased, or at least that the risk of periodontal disease, caries or tooth loss is significantly reduced by mechanical prevention. ITOP has become a philosophy over the years, thanks to the hard work of all the people who believe in it and teach it.

HYGIENE TRIBUNE

New evidence confirms long-term benefits of electric toothbrush use

By Oral-B

SCHWALBACH, Germany/GREIF- SWALD, Germany: A new study has shown that the long-term use of an electric toothbrush shows a slow progres- sion of periodontal disease and helps to prevent tooth loss. As indicated by an 11-year observational study, electric toothbrush users demon- strate 20 per cent less tooth loss than manual toothbrush users do. For one market leader in electric tooth- brushes worldwide, Oral-B, the re- sults confirm its commitment to improve periodontal health by plaque removal.

Using data on 2,819 subjects from the Study of Health in Pomerania and the type of toothbrush as ex- positional variable, periodontal status, caries and tooth loss were analysed by researchers from the University of Greifswald in Germany. Overall, the study found that the use of power toothbrushes improves peri- odontal health by plaque removal, resulting in reduced pocket depth and clinical attachment loss. Subsequently, those users were found to have 20 per cent more teeth pre- sent than manual toothbrush users do.

The researchers concluded that widespread usage of powered tooth- brushes can be recommended. Besides the oral health benefits of power toothbrushes, their rising popularity is also indicated by the findings. At the start of the 11-year study, 8 per cent of the participants used an electric toothbrush. Towards the end, the figure had risen to 7 per cent. This trend is supported by the fact that the power brush market grew by 6 per cent from 2012 to 2016.

Dr Anja Carina Borer, Head of Pro- fessional and Scientific Relations for Europe, the Middle East and Africa at Oral-B, said in a statement: “We are very happy that our efforts to promote electric toothbrushing as a way to improve oral and especially gum health are now also scientifi- cally supported in the long-term. It proves what over 150 clinical studies have already indicated and will fur- ther drive the trend among patients to choose superior electric tooth- brushes with oscillating-rotating technology.”

As the market leader in this segment, Oral-B links the positive results to its proven oscillating-rotating tech- nology. Its effectiveness stems from movements in 3-D and a small, round brush head. This makes it pos- sible to remove up to 100 per cent more plaque in even hard-to-reach areas. For the third time, its supe- riorty over manual toothbrushes was confirmed by the renowned Cochrane organisation—an inter- national, independent institute which reviewed 31 clinical studies with 4,614 participants. The results confirmed that oscillating-rotating electric toothbrushes reduce plaque more effectively, improving oral and especially gingival health demonstr- ably, both in the short and in the long term compared with manual toothbrushes.

The study titled “Long-term im- pact of powered toothbrush on oral health 11-year cohort study”, was published online on 22 May 2019 in the Journal of Clinical Periodontol- ogy, ahead of inclusion in an issue.

What is touch to teach?

Touch to teach is the most important aspect of iTOP. If no one shows them how to do something, they cannot do it. It is impossible to understand how to brush your teeth from read- ing a book. What this means is that theory is not enough to develop the best skills. You have to do it yourself, practice, have an instructor correct you and try again. Because of touch to teach, patients can take the opportunity to truly learn and experience the sensation of having the feel of a CS 5400 working together in the sulcus.

For the professionals we teach, it is an exciting tactile experience and they can teach their patients in turn. If no one shows them how it is really done, then how can they achieve the best oral hygiene?

Is correct brushing a skill that is of- ten overlooked?

When clinicians start their careers, they already have many years of studying behind them and have been taught the best brush techniques, how to place an implant the best way and so on. However, what they have never been taught is how to brush correctly, although it is the most fundamental skill of all to pre- vent oral disease. More often than not, we have been doing it the same way since we were just old enough to hold a toothbrush. It is often just an automatic movement and we have never learnt exactly how to brush. In reality, however, brushing teeth is an art, it is a science. Brushing teeth properly, efficiently and atraumati- cally is not easy, nor it something you should do without thinking.

How can iTOP help patients and dental professionals?

ITOP helps patients because dental professionals can offer them the knowledge which they themselves have gained at a seminar. They can teach patients to control bleeding for- mation on their teeth and gingivae and how to do this in the most ef- fective and atraumatic way. Patients who incorporate the techniques taught at an ITOP seminar into their daily brushing routine can expect to achieve optimal oral health. The tools and techniques used at an ITOP seminar are really a gateway to life- long oral health, which in turn offers benefits to the whole body.

For dental professionals, the ac- quired ITOP skills can play a key role in their daily practice. For instance, as an essential part of therapy after oral surgery or periodontal treatment, ITOP gives professionals the skills to work to the best of their ability, and it is really personal teaching which allows clinicians to ally with their patients in order to obtain and main- tain good oral health.

How strong is iTOP currently in Italy?

In Italy, the interest of dental profes- sionals in ITOP is growing day by day. There are some professionals who have attended a seminar in the past but many are new to the concept and have only just heard about it. Moreover, ITOP is gaining importance at universities too, as there are more and more students participating in the seminars or student camps that take place around Europe and South America. For dental students these camps are a really good way to get in touch with their peers from other countries, exchange experi- ences, get to know a new culture or language, network, learn all about prevention and, of course, have fun. It’s a unique opportunity for stu- dents and ideal as an addition to the many other projects organised by uni- versities.

What is the main lesson partici- pants take home from an ITOP seminar?

The greatest lesson clinicians take home is the knowledge of how sig- nificant the impact of instruction is on their patients’ long-term oral health and how the iTOP skills can be used right away. From the very next day, patients can put prevention into practice and see how a change in their oral hygiene habits will help to improve their oral health.

For more info on an ITOP seminar near you, visit: www.itop-dental.com/en/seminars.
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