Riyadh, KSA: The Saudi Dental Society recently held its most important and the largest scientific gathering in the Kingdom. The 28th Saudi Dental Society International Dental Conference was held last 10-12 January 2017 (12-14 Rabi’II 1438H) at the Riyadh International Convention and Exhibition Center in Riyadh, Saudi Arabia. The conference was attended by over 6,000 participants (dental specialist, dental technicians and assistants) from various governments and private sectors, universities, hospitals and institutions.

The 12 scientific sessions featured lecture presentations given by 25 international keynote speakers from USA, Canada, Germany, France, Italy, Brazil, Greece, Netherlands, Portugal, Norway and Ukraine including local speakers on various dental specialties, in addition to the 26 Continuing Education Courses and Workshops conducted during the three-day conference.

The highlight of the conference was the Research Award’s Competition for Young Dentists, Graduates and Poster Presentation Competition including 148 posters offering the opportunity for other participants to present their research through poster sessions.
The scientific program was also complemented by 70 well-organized exhibitions of numerous leading medical and dental companies featuring the latest equipment, materials and devices in the medical and dental world.

CAPPмеча – Dental Tribune MEA once again attended as close partner to the Saudi Dental Society for a 12th consecutive year. The event continues to prove year on year to be the leading scientific conference and exhibition in the Kingdom attracting world-class keynote speakers discussing the latest hot topics in dentistry.

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Dentsply and Sirona have joined forces to become the world’s largest provider of professional dental solutions. Our trusted brands have empowered dental professionals to provide better, safer and faster care in all fields of dentistry for over 100 years. However, as advanced as dentistry is today, together we are committed to making it even better. Everything we do is about helping you deliver the best possible dental care, for the benefit of your patients and practice.

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Diastema closure using the 3M Esthetic Restorative Solution: Time-tested materials with a modern spin on polishing

By Dr Marcos Vargas, USA

Introduction

Given my primary research interest in the area of dental materials—bonding, composite resins and esthetic dentistry—I’m always examining products with an eye toward simple techniques and patient-pleasing esthetic results. Recently, I was greatly impressed to discover a high-gloss finishing and polishing system that is effective for both anterior and posterior, direct and indirect restorations. The Sof-Lex™ Diamond Polishing System from 3M introduces a two-step approach that achieves a paste-like gloss with the convenience of a rubber-based system. The flexible shape adapts to all tooth surfaces, producing a lifelike, high-gloss finish for the dental restoration. Used with Filtek Z350XT Universal Restorative, the polishing system delivered excellent results while maintaining the integrity and anatomy of the restoration. When a young patient presented with a small anterior diastema, I used Filtek Z350XT restorative to close the diastema, then completed the case using the Sof-Lex Diamond Polishing system, delivering beautiful esthetic results with a high gloss shine that greatly impressed the patient.

As a complete system, the Esthetic Restoration Solution from 3M combines the time-tested Filtek Z350XT restorative with the new Sof-Lex Diamond Polishing system to impart a very natural looking gloss in a technique that is kinder to gingival tissues when compared with conventional discs. It brings together the diamond paste-like polish in the convenience of a rubberized system, which I can appreciate in my practice.

Case Presentation

A young female patient presented, after orthodontic treatment, with a small anterior diastema, mesial to the right lateral incisor. The patient’s main esthetic concern was to eliminate the space and increase the size of the lateral incisor. Additionally, to ensure optimal stability of the orthodontic treatment, proximal contact among all anterior teeth is desirable. Isolation with a rubber dam pushed the gingiva apically to provide accessibility to the cervical area and allowed me to create proper anatomical contour and emergence profile (Fig. 2). The patient presented with a small anterior diastema. (Fig. 1)

Pre-operative

Step 1

The patient presented with a small anterior diastema.

Step 2

A mylar strip was used to protect the adjacent tooth from etching. The mesial proximal, facial and lingual areas were etched. (Fig. 3) Then, I etched the selected teeth with a rubber cylinder to ensure complete etching and placed a selective etch enamel technique with Single Bond Universal Adhesive from 3M to increase the bond strength.

Step 3

To prevent contact of the adhesive with the adjacent tooth, another mylar strip was placed and adhesive was applied. The manufacturer’s instructions for use states that you should rub in for 20 seconds, use a gentle stream of air for about 5 seconds, and light cure 10 seconds.

Step 4

The first increment was placed over the mesial proximal, facial and lingual areas and each increment light cured for 20 seconds. The first increment was placed over the facial aspect of the tooth #7.

Step 5

This increment was then spread and feathered towards the middle of the tooth to improve blending. After this, I started contouring and polishing. The second increment was placed to fill the palatal aspect of the diastema with the help of a mylar strip. This completely closed the diastema.

Step 6

To begin the contouring and polishing process, the proper length was established with a Sof-Lex™ XT Contouring Disc. Second, an initial facial line angle was formed. Third, the mesio-facial line angle, as well as the initial, facial and palatal embrasures were defined. Once contoured, the surface characterization of the adjacent tooth was copied onto the restoration using a fine diamond. In my experience, a speed of 1,000 RPM using the diamond is ideal to create micro-smoothness.

Step 7

The patient presented one week later for a final post-operative appointment. She was very satisfied with the final restoration.

Step 8

I utilized the Sof-Lex™ Diamond Polishing System, which consisted of two steps. First, a beige pre-polishing spiral smoothed and removed scratches in the restoration to prepare the surface for high-gloss polishing.

Post-operative Restoration

Fig. 1. The patient presented with a small anterior diastema.

Fig. 2. Isolation with a rubber dam pushed the gingival apically to provide accessibility to the cervical area and allowed me to create proper anatomical contour and emergence profile.

Fig. 3. A mylar strip was used to protect the adjacent tooth from etching. The mesial proximal, facial and lingual areas were etched. (Fig. 3) Then, I etched the selected teeth with a rubber cylinder to ensure complete etching and placed a selective etch enamel technique with Single Bond Universal Adhesive from 3M to increase the bond strength.

Fig. 4. To prevent contact of the adhesive with the adjacent tooth, another mylar strip was placed and adhesive was applied. The manufacturer’s instructions for use states that you should rub in for 20 seconds, use a gentle stream of air for about 5 seconds, and light cure 10 seconds. My preference is to rub for 30 seconds, dry for 30 seconds and light cure for 10 seconds.

Fig. 5. A Sof-Lex™ XT Universal Restorative shade XE was placed in two increments and each increment light cured for 20 seconds. The first increment was placed over the facial aspect of the tooth #7.

3M Oral Care at Saudi Dental Society Exhibition

By 3M

On 10-12 January 2017, 3M Company traditionally participated in one of the largest annual events devoted to oral care in Saudi Arabia. The 28th Saudi Dental Society Exhibition, which took place in Riyadh and attracted professionals of various specializations from all across the region.

This year 3M Oral Care was presenting innovative procedure solutions and techniques for dentists and orthodontists that help oral care professionals achieve greater clinical, professional and personal success. Esthetic Restorative Procedure solution with Filtek Z250XT Universal Restorative, Single Bond Universal adhesive, Elipar DeepCure curing light and newly introduced Sof-Lex Diamond Polishing System is allowing to make it simple to create natural-looking restorations with a gorgeous paste-like gloss. Thanks to 3M’s unique, patented nanotechnology, Filtek Z250XT Universal Restorative is easy to polish and also offers unsurpassed polish retention. The same nanotechnology that makes Filtek Z250XT Universal Restorative beautiful makes it strong, too, giving you the option of using it in any place and for any Class.

With the Efficient Restorative Procedure solution 3M helps to simplify posterior restorations, one of the most common and complicated procedures. By using four 3M innovative technologies together (Filtek Bulk Fill Posterior restorative, Single Bond Universal adhesive, Elipar DeepCure curing light and Sof-Lex Diamond Polishing System) dentists can now move through a posterior restoration with speed and simplicity. Essential to this simplified procedure is Filtek Bulk Fill Posterior Restorative, designed to improve productivity by enabling fast and easy posterior restorations placing it in one convenient increment up to 3mm.

Posthocodontists could learn more about the Indirect Procedure solution which is allowing to simplify and improve every step of the crown and bridge clinical procedure, in-costume with the restorations shown at the 3M Oral Care at SDS.

Fig. 6. This increment was then spread and feathered towards the middle of the tooth to improve blending. After this, I started contouring and polishing. The second increment was placed to fill the palatal aspect of the diastema with the help of a mylar strip. This completely closed the diastema.

Fig. 7. Upon finishing the restoration, the patient was very satisfied by the ideal contour, surface smoothness and life-like luster.

Fig. 8. Next, I utilized the Sof-Lex™ Diamond Polishing System, which consisted of two steps. First, a beige pre-polishing spiral smoothed and removed scratches in the restoration to prepare the surface for high-gloss polishing.

Fig. 9. Second, a pink diamond polishing spiral then imparted a smooth, high-gloss polish (Fig. 9). These specks easily adapted to all surfaces. Finally, the provisional surface was polished with finishing strips.

Fig. 10. Upon finishing the restoration, the patient was very satisfied by the ideal contour, surface smoothness and life-like luster.

Fig. 11. The patient returned one week later for a final post-operative appointment. She was very satisfied with the final restoration.
There are things in life worth sharing …
and now, her smile can be one of them.
Restore with beautifully strong
Filtek™ Z350 XT Universal Restorative—
and polish with the Sof-Lex™ Diamond
Polishing System. Together, they can
produce a diamond paste-like gloss with
the convenience of a rubberized system.
Oh, don’t be surprised if word of your
great work gets around … because she
shares everything she thinks is amazing.

www.3MGulf.com/espe

A beautiful smile
she can’t wait to share.

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Filtek™ Z350 XT Universal
Restorative polished with Sof-Lex™
Diamond Polishing System (left) vs.
TPH Spectra® Universal Composite
polished with Enhance® Finishing
System and PoGo® Polishing
System (right).
New universal adhesive with active moisture control

By Dentsply Sirona

Dentsply Sirona is proud to introduce Prime&Bond universal™ universal adhesive. Designed for all etching methods and indications, Prime&Bond universal features patented Active-Guard™ Technology – a significant advancement in adhesive chemistry that actively controls moisture on the prepared surface. Even if dentin is overly wet or dry, Prime&Bond universal is simple to use and provides consistent results for a strong, reliable bond.

Most dental adhesives are rather hydrophobic: they separate from water. With too much water on the prepared surface, these rather hydrophobic adhesives fail to cover the prepared surface uniformly. During air-drying, adhesive gaps can form as embedded pockets of water evaporate, increasing the risks of post-operative sensitivity and bond failure.

Active-Guard Technology with active moisture control is exclusively designed to protect against these risks.

The patented Active-Guard Technology balances hydrophobic and hydrophilic features and helps to achieve an optimized surface tension. Thus, Prime&Bond universal can overcome the surface tension of water, allowing the adhesive to spread evenly across the dentin and into the dentinal tubules to form a uniform, homogeneous layer. When the adhesive is air-dried, solvent and excess water evaporate uniformly to leave a thin, consistent coating of adhesive across the entire surface. The result is a strong, reliable bond, with virtually no post-operative sensitivity or bond failure.

Active-Guard technology is simple to use, delivers consistent results and helps ensure a strong bond even when dentin is overly wet or dry. To learn more and try a sample, contact your Dentsply Sirona representative or visit www.dentsply.eu.

Prime&Bond universal with patented Active-Guard technology is simple to use, delivers consistent results and helps ensure a strong bond even when dentin is overly wet or dry. To learn more and try a sample, contact your Dentsply Sirona representative or visit www.dentsply.eu.

FDG – 45 years of better care through innovation

By Planmeca

2016 marks the 45th anniversary of Planmeca. Founder and President Heikki Kyöstilä attributes the company’s success to a strong commitment to R&D, as well as a clear vision for the future. Planmeca’s steady ascension to the top of the dental industry has been a shining example of the power of innovation and Nordic fortitude.

The story of Planmeca began in 1971 in a garage in Finland’s capital city Helsinki. "Starting the company was like skydiving without parachute," Heikki Kyöstilä illuminated. "The jump paid off – today Planmeca is a global leader in health care technology."

Indeed, the company that Kyöstilä started from nothing now boasts an extensive product portfolio that covers everything needed at a modern dental clinic – from high-tech dental care units to world-class CAD/CAM equipment and powerful software solutions.

Planmeca’s products are still designed and manufactured in Helsinki, at the company’s headquarters. Using the latest technology and best materials, they are tailored to meet the unique needs of dental professionals in different markets. Planmeca is the largest family business in its field today, with over 98% of its products exported abroad to over 120 countries worldwide.

According to Kyöstilä, the secret behind his company’s success and never-ending innovation is a strong and unwavering commitment to Research and Development. Up to 10% of the Planmeca’s annual turnover is invested in R&D. The company also works closely with renowned dental universities and leading experts in forming its product portfolio.

"At Planmeca, we always operate with the future in mind. I strongly believe that we will guide dentistry into the future like no one else can," Kyöstilä concluded.
Guy Leaver, Neoss Chief Financial Officer, talked to Dental Tribune about the company’s history, products and future plans

By DTI

Neoss was founded in 2000 by CTO, Fredrik Engman and Professor Neil Meredith and is head quartered in Harnage, North Yorkshire, in the United Kingdom. The business has operations in Australia, Austria, Germany, Italy, New Zealand Sweden and the USA. In recent years the expansion has been via appointed distributors in Europe, Asia and now the Middle East. This continued expansion has propelled the business forward with sales in constant currency increasing year on year since it was founded.

Guy Leaver stated “We are very proud of our business, our European heritage. Neoss products are all manufactured in Europe, Switzerland and the UK and are manufactured to the highest quality”. Neoss products are developed by its Product Development and Research team and they always aim to develop products which are innovative and market leading. Neoss ProActive® Implants are manufactured in Sweden and are protected by 3 patents, the macro geometry, thread forming and cutting, abutment connection and ProActive surface. The Neoss ProActive surface was introduced in 2009 and creates a surface with dual roughness yet it is also superhydrophilic. This surface enhances protein aggregation and can accelerate fibrin network formation. Studies show the etched and blasted ProActive surface stimulates bone to form more rapidly and with a greater strength at the implant interface. Neoss launched its Neoss ProActive® Tapered Implant in 2012, to add to the Neoss ProActive® Straight Implant.

Surface: The Neoss ProActive surface was introduced in 2009 and creates a surface with dual roughness yet it is also superhydrophilic. This surface enhances protein aggregation and can accelerate fibrin network formation. Studies show the etched and blasted ProActive surface stimulates bone to form more rapidly and with a greater strength at the implant interface. Neoss launched its Neoss ProActive® Tapered Implant in 2012, to add to the Neoss ProActive® Straight Implant.

Neoss states its objective is to “Advance the Science of Dental Implant Treatment” and that the “Neoss Dental Implant System is the most efficient dental implant system in the market. It combines market-leading functionality for the patient with the lowest level of complexity available for the Surgeon.”

Neoss aims to continue its expansion in the Middle East and has built a strong team in a short time, which should enable the business to support more Distributors and Clinicians in the region.

If you are interested in finding out more about Neoss and its products please contact: Mr. Ahmed El Ghandour
Area Sales Manager
Middle East & Africa
Ahmed.Ghandour@neoss.com

Visit www.promedica.de to see all our products

By EMS

This year the visit of the EMS stand at the AEEDC is particularly worthwhile: At EMS booth 8E06 we present the Guided Biofilm Therapy (GBT) This clinical protocol ensures a high standard in dental maintenance and facilitates the complete removal of subgingival as well as supragingival biofilm. GBT was developed in close cooperation with universities, dentists, dental hygienists and EMS specialists. It is safer, more comfortable and more efficient than conventional methods.

Furthermore, as part of the trade fair promotions, EMS grants special conditions. These offers are supported by all retailers in the Middle East.

Don’t miss this outstanding occasion! In addition, you have the opportunity to win an AIR-FLOW® HANDY 50 PERIO at EMS booth raffle. The AIR-FLOW® HANDY 50 offers extreme flexibility and an ergonomic design for maximum comfort. The spray handpiece AIR-FLOW® Porto is suitable for treatment in periodontal pockets of up to 9 mm. The replaceable and flexible PERIO-FLOW® nozzles have a step-by-step Millimeter scale -3mm, 4mm, 5mm and 6mm. Come to EMS booth to experience the remarkable advantages of all EMS devices and to find out how they can support and facilitate your daily business.

Another highlight of this year’s AEEDC: At Al-Hayat booth, patients will be treated with the state of the art technologies AIR-FLOW® and PI-EZON®. Don’t miss this unique possibility to learn more about these forward-looking treatments of EMS.

Visit EMS at AEEDC 2017, 7-9 Feb. – booth 8E06

Mr Ahmed El Ghandour
Area Sales Manager
Middle East & Africa
Ahmed.Ghandour@neoss.com

Guy Leaver, Neoss Chief Financial Officer and Ahmed El Ghandour, Area Sales Manager

Visit EMS at AEEDC 2017, 7-9 Feb. – booth 8E06

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New Technologies to improve root canal disinfection

By Drs Gianluca Plotino, Nicola M. Grande & Prof. Gianluca Gambini, Italy

Introduction
The major causative role of microorganisms in the pathogenesis of pulp and periapical diseases has clearly been demonstrated.1 The main aim of endodontic therapy is to disinfect the root canal system, which requires the elimination of microorganisms and their components and the prevention of their reinfection during and after treatment. This goal is pursued through chemomechanical debridement, for which mechanical systems are used with irrigating solutions.

Standard endodontic irrigation protocol
Sodium hypochlorite (NaOCl)
Sodium hypochlorite (NaOCl) is the most widely used irrigant, owing to its antibacterial properties and its relatively low cost.2 However, NaOCl is used during the instrumentation phase to increase its time of action within the canal as much as possible without it being chemically altered by the presence of other substances.3 Its effectiveness of this irrigant has been shown to depend on its concentration, temperature, pH solution and storage conditions.4 Heated solutions (45-60 °C) and higher concentrations (6-8 %) have greater tissue-dissolving properties.5 However, the greater the concentration, the more severe the potential risk, if some of the irrigant is inadvertently forced into the periapical tissues. In order to reduce this risk, the use of specially designed endodontic files and an injection technique without pressure is recommended.6

EDTA
The main disadvantage of NaOCl is its ability to produce cavitation and acoustic streaming. For this reason, combination of NaOCl with EDTA (ethylenediaminetetraacetic) is recommended.2 EDTA layer. For this reason, combination of NaOCl and EDTA is recommended.5

Ultrasonic activation of NaOCl
Ultrasonic activation of NaOCl has been shown to depend on factors equal to 17 %.

Manual agitation techniques
The simplest technique of mechanical activation of irrigants is manual agitation during the preparation phase.9 The use of a system of ultrasonic continuous irrigation and activation of the irrigant in the root canal is essentially complete.

New Technologies—Dental Tribune Middle East & Africa Edition
HAAD as having educational content for 1 CME Credit Hours
DHA awarded this program for 1 CPD Credit Points

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mCME
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mCME articles in Dental Tribune have been approved by HAAD as having educational content for 1 CME Credit Hours
DHA awarded this program for 1 CPD Credit Points

When it is activated in a limited volume of liquid, the high absorption
of the laser in NaOCl combined with the vacuum pump. The short pulse duration employed (50 μs) determines a photomechani-
ical phenomenon. A study showed that there was no difference in bacte-
rial reduction achieved by NaOCl at
60 s to allow the solution to come into con-
tact with the bacteria and spread through any structures, such as biofilms.

The system endodontic tip is then inserted into the root canal up to the depth that can be reached and irrigation is performed for 5 s in each canal (Fig. 4). This technique has proven to be effective in labo-

ratory studies, including high concentrations of bacteria present in artificially infected root canals.32 Care should be taken to ensure maxi-
mum penetration of the PS, since it is only dependent of each other; it is only possible supplement to standard proto-
colos of root canal disinfection already in use.

Laser

One of the main disadvantages of the current endodontic irrigants in this technique is the variability in the pain associated with the procedure. The use of laser energy for dental applications is a viable alternative to traditional irrigation methods. The use of laser energy has many advantages over traditional irrigation methods, including:

1. The use of laser energy can improve the penetration of the irrigant into the root canal system, which can lead to more effective disinfection.
2. Laser energy can be used to ablate non-vital tissues, such as dentin and bone, which can aid in the removal of biofilm and debris.
3. Laser energy can be used to activate disinfectants, such as sodium hypochlorite, without the use of heat or mechanical agitation.

Bioactive glass

Recent studies have shown that bioactive glass or bioactive glass ceramics have been effective in the treatment of root canal infection. The use of bioactive glass or bioactive glass ceramics can promote the formation of a new bone-like tissue, which can aid in the healing of root canal infections.

Conclusion

The use of endodontic lasers in root canal treatment is a rapidly evolving field. The use of lasers in endodontics can improve the disinfection of root canals, reduce procedural pain, and promote healing. Further research is needed to determine the effectiveness of lasers in endodontic treatment and the optimal settings for their use.
Beverly Hills Formula has become more active in the MEA region in recent years. With a strong evidence based scientific foundation and a snapshot of the product portfolio you provide dental professionals?

The new Professional White range offers improved whitening as it contains safe levels of Professional Whitening ingredients and activated charcoal to help remove stains from beneath the surface of teeth. The full range includes Black Pearl whitening toothpaste, Pink Pearl sensitive whitening toothpaste, Precious Pearl remineralising toothpaste and our new Professional mouthwash that contains chlorhexidine and xylitol to combat bad breath and neutralize the bacteria. Another new brand in the range will be the Professional White whitening kit with strips and a whitening pen which will help people achieve a whiter smile. Safely and easily with the power of safe levels of Professional Whitening ingredients.

What is your reading on the dental professional market in the Middle East? Are there any countries in particular you are focusing on?

The Middle East is a fantastic emerging market for oral hygiene brands and we’ve been established here for over 18 years, which is testament to the effectiveness and success of our products. You now see all premium brands launching new products in the Middle East, which is not an easy nut to crack, because its consumers demand only the best quality and this was one reason why we chose to launch our new Professional White range to the professionals at AEEDC Dubai. The Middle East is one of our largest markets alongside UK, Russia and Poland and therefore very important to us as a business. In 2017, we plan to continue investing and expanding throughout the Middle East, particularly in the UAE, Jordan and Iran.

Could you share with our readers some important facts and data about the vital aspects of dentistry specifically in relation to the launch of Beverly Hills Formula?

The dentistry business has changed dramatically in recent years and dentists are very much the pioneers of new technology and products that can provide people with beautiful, healthy teeth. BHF have concentrated on producing new safe whitening products for removing stains, helping remineralise the enamel and give the customer/patient a long term healthier smile, not just a whiter smile. With the launch of the new Professional White range we would like to work closely with dental professionals and look forward to their feedback and hopefully their support.

With toothpastes being such a competitive market, how does the Professional White range differ from other products available on the market?

I would like to see more choice in oral hygiene products being opened up to patterns and consumers and not just the brands with the deepest pockets to spend on huge advertising campaigns. We’d love dental professionals to try our new Professional White range and hopefully champion it as one of the established and leading brands which offer great oral care, with the emphasis being on people caring for their teeth and using the safest most effective products available to them at home.

Could you comment on the future of the brand? What does Beverly Hills Formula have planned for the next couple of years?

We have had over fifteen years’ experience in the oral hygiene market and previously been involved in retail IO joined Beverly Hills Formula in 2014 as CEO. Since taking over the helm the main focus for Beverly Hills Formula is to introduce innovative products into the range and develop the brand into worldwide markets.

Beverly Hills Formula oral care brand has been established for over 20 years and currently sells in Europe, the Middle East, North Africa and Asia Pacific. From inception, the company aim was to make the “Hollywood” smile attainable for everyone with their safe, affordable and effective toothpastes and award-winning mouthwash. The brand is well established and has loyal consumers, but it hasn’t rested on its reputation as one of the first whitening products in the UK market and is constantly evolving and producing new and exciting formulas and products. Just over four years ago BHF launched the Perfect White Black toothpaste which contains activated charcoal and was the first ever black whitening toothpaste to hit UK shelves. Since then it has become our hero product and it’s on its heels other brands have followed to try and capitalise on the dramatic new black toothpaste trend. Following the launch of Perfect White Black toothpaste, BHF introduced a version for sensitive teeth and also a Black toothpaste, BHF introduced a new black toothpaste trend. Following the launch of Perfect White Black toothpaste, BHF introduced a version for sensitive teeth and also a Black toothpaste.

Beginning 2017, Middle East will see the launch of the new Professional White range. What can you tell us about this event, new features and clinical evidence on the formula?

We are very excited about our new Professional White range which has taken over two years in development, but it’s been well worth it because we have created the best teeth whitening products which aren’t harmful to enamel and are aimed at consumers who expect superior results from a whitening toothpaste. The new Professional White range will be launched at AEEDC Dubai and we can’t wait to speak with some of our distributors and peers to see how it’s received. At Beverly Hills Formula we are committed to supplying only the finest ingredients to produce high quality products which really work, and we pride ourselves on offering the best stain removal and low abrasive whitening toothpastes currently available. But don’t just take our word for it, you can see the results from leading independent scientific laboratories.

Beverly Hills Formula has a strong point of difference to other brands which offers great oral care, with the emphasis being on people caring for their teeth and using the safest most effective products available to them at home.

Toothpaste Abrasivity 22/09/2016 Independent Testing Laboratory (USA)

Toothpaste Stain Removal 04/09/2016 Leading Dental School (UK)
New Cutting-Edge Oral Care Products From The Teeth Whitening Experts

- Formulated with professional teeth whitening ingredients
- Developed to help you achieve professional results in the comfort of your home

Toothpaste Abrasivity 21/09/2016
Independent Testing Laboratory (USA)

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Abrasivity Index RDA
A USA-based independent testing laboratory
Smart sensors and innovation are the future of oral healthcare at Philips

By Philips Sonicare

Dubai, UAE: Royal Philips will be launching its latest innovation in oral healthcare that uses Smart Sensor technology to help patients identify the areas of the mouth missed in their current brushing routine. The advanced toothbrushes synchronize with the Philips Sonicare app via Bluetooth® to track brushing habits in real time.

In a world where there is a building threat that periodontitis (gum disease) plays a role in increasing the risk of diabetes, cardiovascular disease and stroke – amongst other conditions - Smart Sensors enable patients to take control of their oral health.

Dr Germán Gómez (DDS, MD, PhD), founder of the European Institute of Dental Education, explains: “There is growing evidence showing that the mouth is the main entrance to the body for a number of destructive diseases and there is a correlation of medical and oral health.” He continues “When looking for indicators, you can’t go past the gums, among other indicators they are known to have a strong correlation with heart disease. This is due to the gums being made of living tissue that connects the teeth to the mouth, so it’s vitally important that they are kept free of diseases such as gingivitis and periodontitis.”

“Motivating patients to maintain good oral health habits in between checkups has always been difficult. New innovations like these connect propositions from Philips means that advice and guidance shared with patients are now easier to implement with coaching and real-time data supporting them as part of their daily routine.”

The new Smart Sensor technology provides personalized feedback on brushing habits every time it is used. These sensors identify missed regions, when brushing with too much pressure, and how to achieve better coverage. It is then able to map user’s mouth through the Smart Sensors, with sophisticated detection technology.

“People are seeking more and more information about their personal health and wellbeing. The rise of health apps and wearables demonstrates the desire for personal data, and Philips plans to harness its heritage in developing meaningful health technology innovations to improve people’s lives.”

The Philips Sonicare connected devices will launch in the Middle East midway through the year.

Photograph (Philips Sonicare)

Prevention in dental practice – Focal theme of IDS 2017

By DTI

COLOGNE, Germany: Held annually, the International Dental Show (IDS) in Cologne is the largest and most important event for the dental profession and industry. Next year’s IDS, which will take place from 21 to 25 March, will focus on prevention, professional and home prophylaxis, as well as imaging and microbiological diagnostics, the organisers have announced.

Over the last decades, the global dental market has seen a shift from restorative-based treatment to a preventive approach in dental practice, mainly driven by an increasing awareness of the likely implications of untreated dental disease for overall health, as well as the growing number of older populations worldwide, and consequently, the need for maintaining natural dentition for a lifetime.

Oral prophylaxis, including home prevention measures and professional dental scaling, and education is thus one of the most important pillars of long-term oral health. During IDS 2017, dental professionals will be updated on the most recent techniques and product innovations in this area.

Participants will receive information on the latest oral hygiene products for use at home and on a large variety of new manual curette instruments, as well as sonic, ultrasonic and air polishing devices and air-scalers. In addition, innovative diagnostic tools for targeted oral prophylaxis and interdisciplinary collaboration, such as high-resolution intra-oral cameras, camera-supported fluoroscopy, and infrared technologies, as well as analogue and digital radiographic and computer tomography systems, will be on display at IDS.

During the event, participants will have the opportunity to enter into discussion with distinguished prophylaxis specialists and representatives of various dental companies.

“Prophylaxis is a dental core competence. IDS offers the entire team a unique opportunity to dialogue with specialists of exhibiting companies, discuss with experienced users, the entire spectrum of modern prophylaxis concepts, current diagnostic and therapeutic trends in one location. Every two years, it offers a unique experience, which I am personally most looking forward to,” emphasised Dr Markus Heibach, Executive Director of the Association of German Dental Manufacturers.

Study: Bacteriocin inhibits P. gingivalis and stimulates tissue healing

By DTI

ÖREBRO, Sweden: In investigating novel methods for diagnosis and prevention of periodontal disease, a Swedish study has examined the potential ability of these agents to demonstrate the therapeutic application of antimicrobial peptides in clinical trials.


Bacteriocins are proteinaceous toxins that are secreted by bacteria and are able to kill cells of other susceptible and frequently related bacterial strains. In light of growing numbers of infections caused by antibiotic-resistant bacteria, bacteriocins could be considered an effective alternative to traditional antibiotics and may help to solve the major problem of antibiotic resistance, research has suggested.

In the current study, Sravya Nakka, a doctoral student at the School of Medical Sciences at Örebro University, investigated the potential of PLNC8 αβ to inhibit the growth of P. gingivalis, while stimulating the release of growth factors from cells involved in tissue and wound healing. Moreover, she observed no cytotoxic effects on human cells in the study.

“The anti-bacterial and proliferative effects of PLNC8 αβ suggest a potential ability of these peptides in prevention and treatment of P. gingivalis infection,” Nakka concluded. However, further studies are needed to clarify the mechanisms involved and to demonstrate the therapeutic applications of these agents in clinical use, she emphasised.

Expanding on her research, Nakka now plans to investigate the bacteriocin’s effects on other types of infections. In addition, she will start testing the application of antimicrobial peptides in clinical trials.

Photograph: (Philips Sonicare)
Ultimate clean.
Superior results.

Philips Sonicare DiamondClean removes 7x more plaque than a manual brush\(^1\) and eliminates surface stains to whiten smiles in just one week.\(^2\) And with accessories like an innovative glass charger for home use and a portable charging case, it’s the jewel of our collection for good reason.

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**Qatar**: Masar Medical Pharmaceuticals, Hospital, Laboratory, Dental, Equipment & Supplies, Tel. +974-40160552

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\(^{1}\) Versus a manual toothbrush

\(^{2}\) Delauerits M. e. al. An Evaluation of Two Toothbrushes on Plaque and Gingivitis. Journal of Dental Research, 2012, 91(Special Issue 8):522

Data on file, 2010
The root canal system of the human dentist consists of a complex anatomical and highly variant network of pulp spaces as seen in micro-ct studies of root canal anatomy (http://rootcanalanatomy.blogspot.com/) (Fig. 1). The thorough cleaning and shaping of this complicated system is considered mandatory for the successful endodontic treatment. The subsequent complete obturation of the cleaned and shaped root canal system with an inert material followed by the appropriate coronal restoration are two important parameters for the longevity of the endodontically treated tooth. Failure to adequately clean, shape and fill this anatomic system to all its dimensions is a major cause of post-treatment disease.

Walton & Vertucci, introducing concepts of internal pulpal anatomy, stated that lack of thorough knowledge of root canal morphology ranks second as a cause of treatment failures, only to errors in diagnosis and treatment planning. This means that having a working knowledge of the number of roots, number of canals per root and their location, longitudinal and cross-sectional shapes, most frequent curvatures and root outlines in all dimensions is essential in order to provide high standard endodontic treatment.

Historically, the evaluation and diagnosis of the anatomy of the root canal system in a clinical set up was achieved mostly with conventional intraoral periapical radiographs. Nevertheless, they weren’t completely reliable because of their inherent limitations associated with the two-dimensional imaging. For the clinician, two-dimensional imaging provides only a two-dimensional view of the internal anatomy of the tooth. Therefore, it is possible that a three-dimensional anatomical feature remains undetected. In the last decades, CBCT scanning has provided three-dimensional imaging of unusual root canal morphology and has hence changed the standards of assessment and diagnosis of the cleaned and shaped root canal system in a clinical set up was achieved.

CBCT three-dimensional imaging of the maxillary molar tooth (Images from the root canal anatomy project were developed at the Laboratory of Endodontics of Ribeirao Preto Dental School - University of Sao Paulo for educational purposes)

Intraoral CBCT images were acquired for the evaluation of the root canal anatomy of the left maxillary molar using a CBCT scanner (NewTom, Ver 4.0, NewTom, Verona, Italy). The CBCT images were reviewed and compared with the intraoral periapical radiographs. The digital examination revealed three additional canals (Fig. 2c). The third canal in the mesiobuccal root was not found. The initial negotiation of the missed MB2 canal was established and purulent drainage was evident through the access cavity. A longitudinal section of the root indicated that a fragment was pushed into the isthmus. The missing MB2 canal was enlarged until an apical file (size 25) was reached. The double palatal canal system was evident in the sagittal slices as well (Fig. 2e). The canals were filled with AH Plus sealer (Dentsply) and IRM cement (Dentsply). In order to ensure complete obturation, the access cavity was sealed using Endo Acctis (Dentsply) and a rubber dam was placed.

Conclusively, the application of a new endodontic diagnostic tool such as CBCT imaging for the assessment of the root canal morphology has provided three-dimensional imaging, aiding the correct endodontic management, especially in the most challenging cases. The CBCT data has become a particularly useful tool in assessing the root and canal morphologies of complicated cases. In the present paper, the endodontic treatment of a first maxillary molar with complicated root canal anatomy is reported. The pre-surgical use of CBCT imaging in combination with the surgical operating microscope led to the detection and negotiation of 7 root canal systems in a single tooth. The aim of the present case report is to highlight the importance of CBCT imaging in assessing the root canal morphology of complicated cases. The use of the surgical operating microscope is also discussed.

Case report

A 6 year old Caucasian male was referred to our Endodontic Private Practice Clinic for the endodontic treatment of his right maxillary first molar. At the time of the appointment, thermal and electrical vitality tests were negative, suggesting a pulpal abscess was made. The patient was referred for endodontic therapy and a rubber dam was placed. Access to the pulp cavity was performed using H16 file and Vertucci reamer. The pulp was removed and the root canals were enlarged until 30/04 was reached. Rotary instrumentation (Coltene, Whaledent). Initial enlargement of the root canal system of the maxillary molar was achieved by using 6% NaOCl solution with surface modifiers (CanalPro Extra, Coltene/Whaledent). Initial enlargement of the root canal system of the maxillary molar was achieved by using the Hyflex Controlled memory rotary instrumentation (Coltene/Whaledent). The MB1, MB2 and DB canals were enlarged until 30/04 was reached to working length, while the palatal canal until an apical 40/04. The canals were dried and calcium hydroxide (Ultracal, Ultradent) was used as an intracanal dressing. Temperature was avoided by using RCM cement (Dentsply). In order to evaluate the situation a decision was made to perform a CBCT imaging of the tooth and the associated periapical lesion. The treatment of large periapical lesions is very likely to demand a combination of conventional and surgical techniques. The CBCT three-dimensional imaging of a large periapical lesion is mandatory for the proper pre-surgical evaluation and planning, especially when the outline of the periapical lesion exceeds the limits of the periapical radiograph. An informed consent was obtained from the patient and the patient was referred for a CBCT evaluation and rescheduled.

The multi slice CBCT evaluation of the maxilla (NewTom, VG, 3D, high resolution, slices every 1mm, voxel 0.025mm) revealed the extent of the periapical lesion (Fig. 3a-d). Interestingly, when the involved tooth was focused and the morphology was obtained in transverse axial and sagittal sections, a canal was achieved which was identified as an additional canal in the mesiobuccal, two palatal and two distobuccal slices (Fig. 3a-d). In the transverse axial and sagittal slices, the remnants of the calcium hydroxide dressing were evident. In the axial slice 25 (Fig. 2f), the calcium hydroxide dressing was evident inside the palatal canal. Furthermore, the DB1 canal couldn’t be identified, devoid of calcium hydroxide. This finding was consistent with a missed distobuccal canal. Moreover, a second distobuccal canal without calcium hydroxide dressing was evident (Fig. 2f) (size 25). The double palatal canal system was evident in the sagittal slices as well (Fig. 2e). The canals were filled with AH Plus sealer (Dentsply) and IRM cement (Dentsply) and IRM cement (Dentsply). In order to ensure complete obturation, the access cavity was sealed using Endo Acctis (Dentsply) and a rubber dam was placed.

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Matherne et al. investigated the use of cone beam computed tomography scanners to reduce radiation exposure in endodontic flexed root-end surgery. The large cone beam (CB) imaging source and reciprocal detector around the patient’s head resulted in a significant reduction in radiation exposure when compared to alternative conventional imaging. This is because with CBCT scanning the raw data are acquired in the course of a single sweep of a cone-shaped x-ray source and reciprocal detector around the patient’s head. The efficient use of the radiation beam and the elimination of the need for conventional image intensification systems used in conventional computed tomography scanners resulted in a huge reduction in radiation exposure. Cone beam imaging is used as a diagnostic and therapeutic aid and the optical properties of Zirconia-Reinforced Lithium Silicate (ZLS) blocks are responsible for the development of Celtra® Duo. Developed to provide a natural vitality and lifelike appearance, Celtra Duo (ZLS) is a Zirconia-Reinforced Lithium Silicate (ZLS) block that provides a natural vitality and lifelike appearance. Celtra Duo (ZLS) is the only material block that provides a natural vitality and lifelike appearance as CBCT scanning, to get additional anatomical information in endodontic practice.
Inclined Central Incisors: The Use of a Straightforward Aligner for a Simple Case

By Dr Nishan Dixit, UK

Demand for adult orthodontics has grown enormously in recent years, with an increasing number of people wishing to straighten their teeth in pursuit of an improved smile. As a result of the various time and financial restrictions faced by many patients today, anterior alignment orthodontics has become particularly popular, offering a safe, highly effective and efficient solution.

Case Presentation

A healthy 33-year-old female presented to the practice with concerns about the appearance of her central incisors – which had become partially inclined following poor retention after previous orthodontic treatment. Her main intention was to align the anterior teeth, without using fixed braces again. The patient was a non-smoker, non-drinker, regularly attended dental appointments and followed a strict oral care regimen that included brushing twice a day and flossing. Her dental notes also revealed that her upper premolars were extracted at the time of her previous orthodontic treatment.

Orthodontic Assessment

Assessment confirmed good oral health with no signs of periodontitis, though the patient did show signs of discoloration as a result of tooth consumption. There were no signs of a cleft lip and palate were competent at rest.

An orthodontic assessment was also carried out (Table 1).

Digital Case Planning

Once the necessary examinations were complete, the patient was presented with the various treatment options – these included clear aligners, fixed orthodontics, veneers and the IAS Inman Aligner removable appliance. As the patient was desperate not to undergo comprehensive orthodontic treatment again and veneers are considered to be the more invasive option, she opted for the IAS Inman Aligner – much more ideal for tipping the incisors than clear aligners. She was also made fully aware that there would be an increase in overjet following proclination.

To confirm suitability of the treatment method, I utilised the IAS Academy’s SpaceWise™ arch evaluation software. The results of the crowding calculator concluded that approximately 0.75mm of space would need to be created, ensuring that the IAS Inman Aligner was appropriate for the patient’s needs. After subsequent photographs and radiographs were taken, study models were put to good use. The patient was able to see the expected results, which was a great tool for boosting motivation and ensuring compliance.

Treatment (Table 3)

Self-Assessment

As we managed to address the patient’s concerns and improve her smile with minimal tooth reduction, I am pleased with the outcome of the case. We had aimed to do the case without any tooth reduction, but in order to close or reduce the black triangle towards the interproximal area of the upper central incisors, a small amount of IPR was necessary, which the patient consented to. The patient was very happy with the final result and can now smile confidently.

In a review, ten days after the completion of the treatment, the patient had adapted to the fixed retainer well and had not reported any complications or discomfort. Because of past problems, we will continue to monitor the patient’s retention, that way she can ensure that no further orthodontic treatment is needed in the future.

Table 1

<table>
<thead>
<tr>
<th>Problem List</th>
<th>Compromised Treatment Aims</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild upper incisor crowding</td>
<td>Correct upper incisor crowding</td>
</tr>
<tr>
<td>Mild lower incisor crowding</td>
<td>Correct deep overbite</td>
</tr>
<tr>
<td>Class II division II incisor relationship</td>
<td>Correct molar relationship</td>
</tr>
<tr>
<td>Reduced overjet</td>
<td>on right-hand side</td>
</tr>
<tr>
<td>Increased overjet</td>
<td></td>
</tr>
<tr>
<td>Molar relationship – Class II on the right</td>
<td></td>
</tr>
</tbody>
</table>

Table 2

<table>
<thead>
<tr>
<th>Proposed Treatment</th>
<th>Accepted molar relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accept upper incisor crowning</td>
<td></td>
</tr>
<tr>
<td>Accept overjet</td>
<td></td>
</tr>
<tr>
<td>Corrected upper incisor crowning</td>
<td></td>
</tr>
<tr>
<td>Compromised treatment</td>
<td></td>
</tr>
</tbody>
</table>

Table 3

<table>
<thead>
<tr>
<th>Appointment Stage</th>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>• Upper and lower impressions taken. • Bite registration taken.</td>
<td></td>
</tr>
<tr>
<td>Two</td>
<td>• Started IAS Inman Aligner treatment – patient shown how to insert and remove appliance and advised to wear between 16 and 20 hours a day. • Oral and appliance hygiene instructions were given. • Placed composite anchor on the buccal surface of the upper right lateral incisor with the aim to keep the aligner in place for more efficient tooth movement. • No interproximal reduction (IPR) at this stage.</td>
<td></td>
</tr>
<tr>
<td>Three</td>
<td>• Patient was seen for a check-up to review compliance and monitor tooth movement – models were used as a reference to show progress. • Aligner bow and springs were checked for function.</td>
<td></td>
</tr>
<tr>
<td>Four</td>
<td>• Function of the appliance and movement checked again. • IPR carried out distally on UL1 and maxillary and distally on UL2 using yellow strips (0.06mm), followed by polishing and application of topical fluoride.</td>
<td></td>
</tr>
<tr>
<td>Five</td>
<td>• The patient was informed of the protocol for retention. • Upper and lower impressions were taken in putty/wash material for a custom made fixed lingual retainer. • A record of the bite was also taken.</td>
<td></td>
</tr>
<tr>
<td>Six</td>
<td>• Composite anchor removed from upper right lateral incisor. • Fixed lingual retainer fitted with composite. • Guidance given on the importance of retention and advised to keep the IAS Inman Aligner appliance in case relapse occurs in the future. • Appointment made with the hygienist.</td>
<td></td>
</tr>
</tbody>
</table>

Dr Nishan Dixit is the Founder and Principal Dentist of Blue Court Dental in Harrow, Middlesex. He is also the current Scientific Director of the British Academy of Cosmetic Dentistry (BACD). With a special interest in smile makeovers and cosmetic orthodontics, Dr Dixit债务s a case using the IAS Inman Aligner.

By Dr Nishan Dixit, UK

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¹ Data on file.
“Plaque, Sugar, Diabetes and Smoking – Reassessing Risk Factors”

By Prof. Crawford Bain, UAE

Introduction

Many people base their practice on an understanding of various risk factors thought to contribute to the collection of Dental Tribune. It has been taught that Dental Plaque (Biofilm) plays a role in the development of caries and periodontal diseases, the former requiring the added ingredient of frequent sugar exposure and the latter, if it is to progress to significant bone loss, needing the presence of one or more confounding factors such as Genetic Susceptibility, Smoking and Diabete.

Accordingly dental prevention has focused on effective regular plaque removal and a reduction in the frequency of sugar exposure and cigarette use, as well as the overeating/under-exercising combination which predisposes to the type 2 Diabetes. Twice daily brushing with a fluoride containing toothpaste combined with biannual Surrogate Outcomes for caries, as well as measures, while twice yearly checkups have been recommended to facilitate early detection and management of dental problems. It is the purpose of this paper to review the existing justifications for these commonly held beliefs and, with due respect to the evidence based approaches to the effective prevention and ideally prevention of Dental Caries and Periodontal Diseases.

Measuring the Effectiveness of Preventive Measures

Webster’s dictionary defines an OUTCOME as “Something that occurs as a result or consequence of an action” (7). Surrogate Outcomes to measure effectiveness of preventive and treatment interventions. These include a Plaque Index; less bleeding on probing (BOP), ease of detecting/eradicating gingivitis. These surrogate outcomes are relatively fast and cheap giving simple practical reasons for this. Manual toothbrushes, but seldom are used. Fluoride applied annually. The reason is in fact a testament to the conclusions of Ccahuana-Vásquez since they lead many dentists to prefer the finding of Ghae-Vásquez-Vásquez to the conclusion that. The findings of Preshaw et al. (15) described both a clear relationship between de- crease in type 2 diabetics. This is consid- ered equivalent to the type 2 diabetic reducing one drug for glycemic control to 0.96 with no additional benefit for 20 years (20 pack/years) they are 6.6 times less likely to suffer heart failure and 43% less likely to suffer amputation or death due to peripheral vascular disease. Clearly these are enormous potential health benefits.

Discussion

It seems apparent that many of our traditional approaches to preven- tion, while thoroughly well intentioned, have a weak evidence base. It is chal- lenging for any health care profes- sional to be asked to question the veracity and benefits of a long used set of preventive recommendations and to accept that smokers progressively increase the risk of tooth loss, and that by the time they have smoked 20 cigarettes a day for 20 years (20 pack/year) they are around 700% more likely to lose teeth due to periodontal disease (OR 6).

Smoking cessation counseling should thus be as fundamental to dental prevention as it is to heart disease prevention.

Table 1: Factors contributing to the increase in root caries

<table>
<thead>
<tr>
<th>New Lesions</th>
<th>2021</th>
<th>2020</th>
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<tbody>
<tr>
<td>0</td>
<td>2.5</td>
<td>2.0</td>
</tr>
<tr>
<td>1</td>
<td>1.9</td>
<td>1.3</td>
</tr>
<tr>
<td>2</td>
<td>0.9</td>
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Table 2: Root caries reduction using various topical agents (Tan et al 2010)

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<td>1.3</td>
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<td>3) OHI + 5% NaFl varnish 3/12</td>
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<td>0.7</td>
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<tr>
<td>4) OHI + 38% Ag diamine fl 12/2</td>
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In a systematic review and meta-analysis Egelberg and Kocher (2010) (6) found a mean treatment effect of a reduction of HbA1c of 0.96% after periodontal treatment in type 2 diabetes. This is consid- ered equivalent to the type 2 diabetic reducing one drug for glycemic control to 0.96 with no additional benefit for 20 years (20 pack/years) they are 6.6 times less likely to suffer heart failure and 43% less likely to suffer amputation or death due to peripheral vascular disease. Clearly these are enormous potential health benefits.

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Smoking cessation counseling should thus be as fundamental to dental prevention as it is to heart disease prevention.

In a recent controlled study in pre- diabetics through surgical periodontal treatment reduced the HbA1c levels of the participants by over 4% (15). According to Diabetes UK, if such a reduction could be sustained in Diabetic patients it might result in a diabetic living 97% less likely to suf- fer cataracts, 69% less likely to suffer heart failure and 43% less likely to suffer amputation or death due to peripheral vascular disease. Clearly these are enormous potential health benefits.

Discussion

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to address the relationship of the various risk factors to Peri-Implant diseases and implant failure. In view of the rapid increase in the use of dental implants and the self-evident truth that the vast majority of implant patients lost their teeth due to Caries or Periodontal Disease, it is equally important that dental health care professionals appreciate the relative importance of the risk factors outlined above on peri-implant diseases. In a very recent extensive retrospective study Derks et al (15) identify moderate to severe peri-implantitis in 15.3% of implant patients examined and report on the Odds Ratios of the various influencing factors. In a commentary on this study Tarnow (19) points out that even a modest incidence of 10% of patients with Peri-implantitis equates to 100,000 new cases of Peri-implants every year based on current numbers of implants being placed. It might be appropriate to consider this in a future review article.

Conclusions

Our understanding of the relative importance of the various major risk factors for Caries and Periodontal diseases should be evidence based and current. At present it is reasonable to conclude the following:

1. Recent research has indicated that the total amount of sugar consumption is more important than the number of sugar exposures per day in the development of carious lesions.

2. It is little to support the use of dental floss as a preventive measure for dental caries or gingivitis.

3. Effective toothbrushing, using a fluoride toothpaste and a power brush, is by far the most effective preventive measure to minimize dental caries and periodontal diseases.

4. To minimize the incidence of root caries in the elderly oral hygiene must be supplemented with periodic application of a fluoride or chlorhexidine mouthrinse.

5. While oral hygiene is important in controlling Periodontitis in the susceptible patient, compliance with a comprehensive Supportive Periodontal Maintenance Recall regimen is likely even more critical in preventing progression and tooth loss due to Periodontitis.

6. To achieve the best outcomes in periodontally susceptible patients who smoke, smoking cessation programs must accompany traditional “Hygiene” phase therapy.

7. To achieve the best outcomes in diabetic patients with Periodontitis the dental professional must work closely with the medical clinician responsible for diabetes care. Improvements in one disease are likely to be complemented by improvements in the other.

8. When assessing the relevance of clinical research more credence should be given to longer term studies which use SURROGATE outcomes.

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Advanced restorative techniques and the full mouth reconstruction: Duralay Bonnets. Part 7

In part seven of the series, Paul Tipton reviews using Duralay Bonnets or copings as an impression technique and suggests circumstances where the technique would be most appropriately used.
taken and the copings picked up using im-
pregnum impression material (Fig. 11). The de-
finitive crown and bridgework was then con-
structed and cemented (Figs. 12, 13).

Mobile Teeth
An additional difficulty when taking impres-
sions is if the teeth or some of the teeth are mo-
ible. The force of seating the impression mate-
rial onto the teeth even with light and medium
body polyvinyl siloxane material can move the
teeth into positions that are not in a neutral po-
sition. Thus the master model will not replicate
the natural position of the teeth and inaccura-
cies will arise in the final restoration.

In order to alleviate the discrepancy between
the master model and the natural position, du-
ralay bonnets are used. If not, then bridgework
will often not fit passively; the occlusion will be
incorrect and need major alteration; contact
points may be open or tight and margins will
not fit.

Case study 2 shows a case of a lady with mobile
teeth who opts for a Lindhe/Nyman bridge
rather than implants (Figs. 14-23). A full descrip-
tion of this type of bridge will follow in the next
part of the series.

Teeth and Implants
A further use for the duralay bonnets is when
there are teeth and implants in the same jaw
that need restoration. The standard way of
restoring implants is by the use of pick up im-
pregnum copings onto the head of the implant.
In order that the crowns on the implants and
on the teeth can be made together (rather than
risking problems of colour matching if mak-
ing the crowns first on the natural teeth and
then at a later stage matching the crowns on
the implants) duralay bonnets can be made on
the teeth as previously described. These are fit-
ted onto the prepared teeth and standard im-
plant pick up impression copings placed onto

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the implants. A pick up impression is then taken as before. Case study 3 shows the technique where both teeth and implants are restored with crowns in the same arch (Figs. 24-34).

Conclusions

Whilst this technique of duralay boning requires two lots of impressions (two stages) and appears to increase the clinician’s time, the benefits of having excellent fit, occlusion etc. far outweigh the extra time taken. ■

Acknowledgements

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• Dr Ibrahim Hussain, BDS, MMed.

Challenge

A natural tooth is composed of different layers of tissue. This plays a particularly important role in the restoration of anterior teeth.

To obtain a natural-looking vibrant restoration, the natural tooth has to be replicated in fine detail. In addition to the anatomy, the optical characteristics of the natural tooth structure should be reflected in each composite layer. These properties include brightness, saturation, hue, translucency, opalescence and fluorescence. A well-considered layering technique and accurate shade selection contribute towards an optimal outcome.

Solution

IPS Empress Direct is a well-designed composite system consisting of 32 shades, five levels of translucency and seven characterization shades. With its versatile range of shades, IPS Empress Direct meets all conceivable requirements that could be placed on an esthetic composite. Additionally, the material is characterized by an exceptionally low sensitivity to ambient light, affording dentists sufficient time to layer the composite and mould the restoration to give it a natural shape.

The case presented below provides an example of how an optimal restoration can be achieved with IPS Empress Direct.

Clinical case presentation

A 37-year-old female patient presented with fractured maxillary central incisors. Approximately one third of the mesial area was fractured on both teeth. The patient requested a fast and minimally invasive restoration of the broken teeth. She did not want healthy tooth structure to be cut, which meant that crown restorations were not an option.

A detailed clinical examination showed that the pulps of both teeth were exposed but the periodontal issues were undamaged (Fig. 1). After informing the patient of the treatment choices, we decided to perform endodontic treatment on tooth 21 and then reconstruct tooth 21 and 22 using a composite layering technique (IPS Empress Direct). A lingual sinter core key would help in establishing the correct tooth shape.

A polarization filter assisted in evaluating the internal and external colour distribution of the natural teeth (Fig. 3). On the basis of the values measured and the natural tooth colour, we selected the appropriate shades for the restoration, including A2 and A3 for the dentin, A2 for the enamel as well as Trans 30, Trans Opal and suitable characterization shades.

To reconstruct the translucent enamel area, Trans 30 was mainly applied, while Trans Opal was mostly applied to imitate the structural features of the incisal ridge.

To ensure a high bond strength, I applied the total-etch technique using Tetric N-Bond®. In addition, I recommend using the OptraSculpt® modelling instruments. Fillings can be shaped more easily – the Optraculpt Pad is particularly handy when contouring anterior restorations. A rubber dam was applied to provide absolute isolation and adequately expose the tooth surfaces to be restored.

Step by step

With a minimally invasive technique, wave-shaped bevels were prepared on the teeth. This preparation design generally results in an increase in bond strength and enhances the intrinsic vibrancy of the restoration (Fig. 3). Once the teeth were prepared, 37 % phosphoric acid was applied. The bonding surfaces were etched for 20 seconds (Fig. 4). The adjacent teeth were covered with Teflon tape to prevent the phosphoric acid from coming in contact with them during the etching procedure. Subsequently, Tetric N-Bond was applied to the enamel surface and allowed to react for 10 seconds.

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As a result, the adhesive was able to evenly penetrate the enamel. Excess adhesive was then dispersed with compressed air. The resulting thin adhesive film was light-cured for 10 seconds using the High Power mode of the curing light (1,200 mW/cm², Bluephase N).

The layering procedure was begun by building up the lingual contours with the help of the silicone key. First, I applied IPS Empress Direct Enamel A3 followed by Tetric N-Flow (Fig. 5). It should be noted that Tetric N-Flow is particularly suitable for reconstructing the lingual anatomy. Once the lingual walls were rebuilt, the dentin and enamel areas were layered. IPS Empress Direct Dentin A3, Dentin A2, Enamel A2, Trans 30 and Trans Opal were used for this part.

It is advisable to work from inside out – from the dentin towards the enamel – to facilitate the layering procedure. After light-curing the composite material, I contoured the restorations to give them a natural shape and created a textured enamel surface using a diamond bur. As a result, the restorations demonstrated a lifelike and vibrant appearance and faithfully reflected the optical properties of the natural teeth (Figs 6 to 8).

Finally, I polished the restoration to a natural looking gloss using the As-tropol® and Astrobrush® polishing sets (Fig. 9). Two weeks later, tooth 21 showed an undesirable change in shape.

We therefore decided to remodify the restoration. The retreatment resulted in a restoration that met the expectations of both the patient and my own (Fig. 10).

**Result**

A lifelike and functional restoration was achieved in the case presented above with the help of the IPS Empress Direct composite system, combined with solid dental skills. Six months after the placement, no imperfections or changes in shade or shape were noted – neither from the frontal nor from the lateral view (Figs 11 to 13). Even when evaluated with a polarization filter, the restoration met all the requirements (Fig. 14).

**Conclusion**

The case described above shows that healthy tooth structure can be protected and preserved by using minimally invasive technology, satisfying both the preferences of the patient and the requirements of the dentist. On balance, superior restorative outcomes can be accomplished.
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Adhesive cementation of partial veneers

By Dr Eduardo Mahn, Chile

The desire for esthetically pleasing, minimally invasive and perfectly matching anterior restorations has existed since the beginning of dentistry. Only recently, however, has it become possible to translate this desire into reality. For many years, dentists were struggling with the opacity of PFM crowns before all-ceramic crowns became available. However, these ceramic materials were not resistant enough to be suitable for less invasive indications. Finally, ceramic veneers were launched. Veneer preparations are far less invasive than crown preparations - some preparation was nonetheless still needed. In addition, the veneers had to be designed in such a way that they covered the entire buccal surface.

However, given the advancements in ceramic technology and the luting composites available today, it is now possible to use partial veneers and to insert them without any difficulty. Partial veneers are ceramic veneers that only cover that part of the tooth that is missing, broken off or abraded. As a result, the tooth warrants only partial preparation or none at all.

This approach has become feasible for two reasons:
1. New ceramic materials are available. Dental technicians have now the option of layering any ceramic restoration. They can choose to use a fluorapatite ceramic material such as IPS e.max Ceram or to press the restoration from a highly translucent ingot such as the Opal or HT ingots of the IPS e.max Press range.

2. Luting composites have improved. A wide range of modern esthetic cements have become available. They are offered in several degrees of brightness to match them to the brightness of the natural teeth being restored with a veneer or partial veneer. In addition, these luting composites contain newly developed photoinitiators which improve their curing capabilities and long-term shade-stability.

The ceramic material selected for a restoration depends on the size of the defect and/or the optical effects and stability that the dentist intends to achieve. The layering technique is likely to be the first choice for teeth featuring multiple optical effects. If large partial veneers that do not warrant special effects but include the entire incisal edge are required, a high-strength ceramic such as lithium disilicate is a likely choice.

When it comes to selecting a luting material for veneers and partial restorations, Variolink Veneer from Ivoclar Vivadent is bound to be the first choice for many dentists. Not long ago, the successor product, Variolink Esthetic, has been launched. This luting material is available in several degrees of brightness to match them to the brightness of the natural teeth being restored with a veneer or partial veneer.
a dual-cure and light-cure version. The effect shade concept on which the five shades of the product are based enables the dentist to adjust the shade effect of the restoration to make it appear warmer or brighter, as required. In addition, the shade effect can be checked prior to the final cementation with the help of trial-in pastes in the corresponding effect shades. The composite comprises the newly patented light initiator Ivocerin, which provides the cement with long-term shade stability. In addition, Variolink Esthetic is easy to use due to its flexible situational consistency and easy clean-up characteristics.

Clinical case

A 46-year-old male patient visited our practice with the request to have his 20-year-old Mirage partial veneer replaced. He was convinced that the veneer needed replacing because of the wear of the adjacent central incisor (Figs 1 and 2). It was decided to use partial veneers to improve the situation. Figure 3 shows the preparation performed on the teeth. Once we received the veneers (IPS e.max Press HF) from the lab, we used the Variolink Esthetic Try-In pastes to determine a matching cement shade for the final cementation. In this specific case, we achieved the best result with the shade “Warm” (Figs 4 and 5). Next, the neighboring teeth were covered with Teflon tape. Then, a Mylar strip was placed between the teeth (Fig. 6). The enamel was etched for 20 seconds and the dentin for 10 seconds (Figs 7 and 8), followed by rinsing with water (Fig. 9). Then, Adhesive Universal was rubbed in and allowed to react for 10 seconds (Figs 10 and 11). Variolink Esthetic LC “Warm” was applied to the partial veneers before they were seated (Figs 12 and 13). Excess cement was carefully removed using a brush before light curing (Fig. 14). The veneers were first illuminated simultaneously from both sides for five seconds using two Bluephase Style lights (Fig. 15). To save time, final curing was also conducted as required from both sides for three seconds using two Bluephase Style curing lights (Fig. 16). To save time, final curing was also conducted with the help of two Bluephase Style lights as each side had to be light cured for 30 seconds (Fig. 16). Since light curing for this length of time with two curing lights operating at a light intensity of 1,100 mW/cm² may result in a considerable heat build-up, there is a potential risk for causing damage to the pulp. It is therefore prudent to cool the teeth with water spray, as shown in Fig. 15. After light curing, any remaining excess cement was removed using a scalpel (blade no. 12) (Fig. 17). The final result after four weeks is shown in Pictures 18 and 19.

RESTORATIVE

Clinical case

A 46-year-old male patient visited our practice with the request to have his 20-year-old Mirage partial veneer replaced. He was convinced that the veneer needed replacing because of the wear of the adjacent central incisor (Figs 1 and 2). It was decided to use partial veneers to improve the situation. Figure 3 shows the preparation performed on the teeth. Once we received the veneers (IPS e.max Press HF) from the lab, we used the Variolink Esthetic Try-In pastes to determine a matching cement shade for the final cementation. In this specific case, we achieved the best result with the shade “Warm” (Figs 4 and 5). Next, the neighboring teeth were covered with Teflon tape. Then, a Mylar strip was placed between the teeth (Fig. 6). The enamel was etched for 20 seconds and the dentin for 10 seconds (Figs 7 and 8), followed by rinsing with water (Fig. 9). Then, Adhesive Universal was rubbed in and allowed to react for 10 seconds (Figs 10 and 11). Variolink Esthetic LC “Warm” was applied to the partial veneers before they were seated (Figs 12 and 13). Excess cement was carefully removed using a brush before light curing (Fig. 14). The veneers were first illuminated simultaneously from both sides for five seconds using two Bluephase Style lights whilst cooling the teeth with water spray, as shown in Fig. 15. After light curing, any remaining excess cement was removed using a scalpel (blade no. 12) (Fig. 17). The final result after four weeks is shown in Pictures 18 and 19.
The Newest Generation of Aesthetic Dentistry – Digital Smile Design

By Dr. Natalia De Rabago, Spain

Digital Smile Design is part of the new digital revolution in Aesthetic Dentistry, helping dentists to approach cases more easily and accurately as well as create a better communication between the rest of the team.

Digital Smile Design (DSD) is a diagnostic tool for planning a treatment procedure. A diagnosis from the dental chair is often no longer enough to make a proper analysis and correct diagnosis.

Today, it is necessary for these procedures to begin with the use of digital technology with digital pictures and impressions. You can then transfer everything to the computer and work on the overall treatment procedure from there rather than directly from the patient. DSD allows you to be more accurate, precise and create a better communication between the rest of the team.

The following steps can then be used to complete your DSD restorations:

1. It is first-off important that you have a good knowledge of Aesthetic Dentistry basics in order to create a DSD. You should be able to recognise the correct position and proportion of all elements involved in a beautiful smile, including:
   - Teeth exposure during rest position and smile according to the age of the patient
   - Smile line - high smile, medium smile or low smile, i.e. how much of and how many teeth show when smiling
   - Profile - convex or concave
   - Gum exposure – identifying a gummy smile

2. Once you have transferred all of the records to your computer, you can then analyse the patient’s pictures and work in all of the above parameters, both extracranial and intracranial (see Fig. 2a, Fig. 2b).

3. Using the suitable programme, you can then design the appropriate smile for the individual patient. (See Fig. 2a, Fig. 2b, Fig. 3)

4. Once the DSD has been created, you can transfer all of the information to the lab technician allowing him/her to build the wax-up and finally proceed to the mock-up (a prototype of restorations that will be created).

5. After the mock-up has been tested and adjusted as necessary, you should then check that the DSD matches what has been created. You are then able to carry on with the restorations as planned.

You will find a DSD is a remarkable tool for planning a treatment procedure digitally as well as creating the wax-up and future mock-up, temporaries and final restorations. It is the best way to work closely with the laboratory (see Fig. 3), saving time and further patient visits and you are able to show the patient actual approximate results with the computer image you have created.
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12. Esthetics and smile characteristics from the layperson's perspective, A computer-based survey study. A.J. Ker, DDS, MS; Richard Chan, DDS, MS; Henry W. Fields, DDS, MS, MSD; Mike Beck, DDS, MA; Stephen Rosen-
stiel, BDS, MSD ■

Dr. Natalia De Rábago
Dr. Natalia was graduated from the "Alfonso X el Sabio" dental school in Spain. Since then, she has been working as a general and aesthetic dentist. She built her career between England and Spain, before moving to New York to complete a post-graduate program in "Aesthetic and Cosmetic Dentistry" at the New York University, NY. She is a speaker collaborator in Aesthetic programs at CEDDONT, Spain, and has been the director of the NYU Inter dental-considerations. Stephen J Chu, DMD, MSD, CDT, Mark S. Hochman, DDS, Paul Hatcher, DDS. Esthetics and smile characteristics from the layperson's perspective. A computer-based survey study. A.J. Ker, DDS, MS; Richard Chan, DDS, MS; Henry W. Fields, DDS, MS, MSD; Mike Beck, DDS, MA; Stephen Rosen-
stiel, BDS, MSD ■

Dr. Natalia is currently working in Dubai, as an Aesthetic and Cosmetic Dentist.
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AMD LASERS Award-Winning Picasso and LiteTouch Dental Lasers will be on Display at ADEEC Dubai

INDIANAPOLIS, USA: AMD LASERS, the global leader in affordable dental lasers and dental laser education, will be displaying the award-winning line of Picasso dental lasers at this year’s ADEEC-UAE International Dental Conference & Arab Dental Exhibition, Hall 7, Booth #62, February 7-9th at the International Convention & Exhibition Centre in Dubai.

Picasso and Picasso Lite have been the number 1 choice of doctors worldwide since 2009 and continue to dominate the soft-tissue dental laser market. Dr. Ron Kaminer of Hewlett, NY commented, “I am excited to lecture at ADEEC again at the AMD LASERS booth and show everyone the amazing capabilities of these lasers to all of the attendees. The Picasso can perform soft tissue surgeries among many other procedures. This is a huge benefit to doctors and patients and AMD LASERS is leading the way to make these technologies affordable for the entire world.”

Alan Miller, Founder and CEO of AMD LASERS, expressed his thoughts about this year’s show, “AMD LASERS’ culture is based around providing affordable lasers with the best education available. We are the only company to offer free laser certification through our website and amazing iPad app. Our award-winning world-class, professional customer service and cool culture keeps dentists coming back to AMD LASERS. We are thankful to the dental community for supporting us year after year.”

Picasso lasers are used for a variety of soft-tissue procedures and have won more awards than any other dental laser including the Townie Choice Award 7 years running! Both Picasso and Picasso Lite will be on sale at ADEEC.

AMD LASERS will be in Hall 7, Booth #62 with their distributor partners. AMD LASERS is lucky to have great partnerships around the world by our side at the show. Globe will be there to represent Egypt, Tamer Levant represents Iraq, Tamer Droquerie represents Lebanon, and Dubai Medical Equipment represents the United Arab Emirates.

Alan Miller, CEO and founder of AMD LASERS stated, “Our goal is to equip every operatory in every dental practice around the world with one of our award-winning lasers. So it just makes sense to have our distribution partners there to further this goal.”

To learn more about AMD LASERS laser technology, please visit www.amdlasers.com

For more information, contact: Pamela@amdlasers.com

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Over 40 percent would like to see dentist more often

OAK BROOK, IL, USA: The results of a recently published survey have indicated that a considerable number of U.S. adults would like to visit the dentist more often. The survey, which was conducted among more than 1,000 participants, showed that dentists top the list of health practitioners that people do not see as often as they would like to. For the survey, 1,025 Americans aged 18 and over received an email invitation to complete an online survey. More than 40 percent (194 males and 230 females) reported that they do not go to the dentist as often as they would like to, compared with other health practitioners.

Dermatologist and general practitioner came second and third in the survey, with 28 and 23 percent, respectively.

The 2014 figures from the Centers for Disease Control and Prevention show that 62 percent of adults aged 18–64 and 83 percent of children aged 2–17 visit the dentist once a year. According to the American Dental Association, approximately 23 percent of adults indicated that they were unsure of whether they would be visiting or definitely did not plan to visit a dentist in the next 12 months in 2014. Over 40 percent of adults indicated that they would forgo dental care owing to financial barriers, and 14 percent said that they did not have the time to see a dentist.

The results of the DDPA Adults’ Oral Health and Well-Being Survey were published on Jan. 4. It was conducted between December 2015 and January 2016 by insights firm Kelton Global on behalf of Delta Dental Plans Association, a not-for-profit organization and America’s largest dental benefits carrier.

The newly formed Oral Reconstruction Foundation is proud to present the 2017 Global Symposium. With topics that include digital workflow, immediate loading, tissue regeneration, esthetics and full arch solutions, the Global Symposium will address a wide range of contemporary issues in implant dentistry. Led by experts such as Pat Allen, Sonia Leszy, Tomas Linkevićius, Craig Misch, Michael Pikos, Marius Steigmann, Dennis Tarnow and Tiziano Testori, the Symposium features 29 dental implant opinion leaders sharing perspectives from around the world. It’s the perfect opportunity to stay current on the latest treatment techniques while enjoying time with colleagues in a beautiful resort environment.

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Dentsply Sirona successfully introduces Celtra® 
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milling Block in Dubai

By Dental Tribune MEA/CAPPmea

NEWSPHOTO: DUBAI, UAE: Dentsply Sirona successfully launched Celtra® Duó, the new Zirconia-Reinforced Lithium Silicate(milling block) for end-users in the Middle East. On 20th of January 2017, around 25 VIP end-users were invited to the Park Hyatt Hotel Dubai Creek to find out more on the new block from Dr. Bob Conte, USA [Advanced CEREC Trainer, Sirona Beta tester and Dr. Markus Vollmann, Germany](Head of Alloys and Ceramics at Dentsply Sirona and the inventor of Celtra® Duó).

Dentsply Sirona’s new fully crystal- 
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contains high glass content and fea-
tures a zirconia-reinforced lithium 
silicate microstructure. The block is 
invented to produce natural-looking 
restorations through its durability, 
translucency and opalescence. Cel-
tra® Duó ZLS is the only milling block 
material that can be processed in two 
different ways providing the dental 
professional complete control for in-
dividual restorative cases.

The newly launched milling block is a 
threeway functional zirconia rein-
forced lithium silicate (ZLS) indicated 
for single-unit restorations such as 
veneers, inlays, onlays and crowns. 
It can be processed in two ways – 
milled and fired or milled and pol-
ished. This allows dental profession-
als to be in complete control over the 
solution they apply for individual 
materials. The Celtra® Duó ZLS can 
be used with the same milling 
units as all-ceramic restorations.

During the launch in Dubai, Dr. Markus Vollmann, Dentsply Sirona 
Head of Alloys and Ceramics in Germany introduced the technical 
overview on the newly launched milling block. This inspired several 
interesting discussions between the VIP gathering and Dr. Vollmann 
who quickly guided questions to the appropriate evidence whilst con-
cluding the morning session. In the afternoon, Dr. Bob Conte, a senior 
clinician from Rhode Island, USA who has over 20 years of CEREC ex-
erience, showcased several clinical cases and provided hands-on dem-
onstrations on case-based proper application including tips and tricks.

“Celtra® Duó was specifically de-
signed to provide doctors and pa-
tients with unique benefits that no 
other block holds,” remarked Dr. 
Markus Vollmann. “Optimized aes-
thetics combined with a two-path-
way option in one fully crystalized block enables clinicians to place a 
durable, naturally shaded, beautiful restoration. With an ultra-fine mi-
structure, the blocks are milled to a final crystallized state, possess-
ing outstanding polishing proper-
ties and allowing the clinician the 
ability to shade match directly from 
the milling unit. We have already 
received remarkable feedback from 
both clinicians and patients on this 
revolutionary new restorative solu-
ton.”

Dental professionals in the Middle 
East are now able to start using Cel-
tra® Duó ZLS milling block for their 
restorative cases. Contact your near-
est Dentsply Sirona representative 
for more information on the new milling block.

SPEAKERS

Dr. Bob Conte, USA

Dr. Bob Conte graduated from the University of Connecticut School 
of Dental Medicine in 1993 and has been in private practice in Warwick, 
RI for the past 23 years.

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restorative-based with CEREC at the 
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• Faculty CERECDoctors.com
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As a CEREC Trainer, Dr. Conte has educated thousands of dentists on the 
CEREC process, lectured extensively on CEREC and restorative dentistry, 
and has several articles published on the subject.

Dr. Markus Vollmann, Germany

Dentsply Sirona Head of Alloys and 
Ceramics in Germany. More than 14 
years experience in dental materi-
als in the area of Industrial Research & Development. He studied at the 
University of Aachen (RWTH) with a 
major focus in all-ceramic, alloys 
and new materials and is an engineer 
and physicist by training.

New research suggests sleep bruxism 
might be genetically linked

By DTI

TEMUCO, Chile: New research from 
Chile suggests that some forms of 
bruxism might be genetically deter-
mined. Investigating genetic poly-
morphisms and certain mutations in 
the genotype of patients with sleep 
bruxism, awake bruxism and patients 
suffering from both condi-
tions, the study showed that sleep 
bruxism was more than twice as 
common among carriers of a muta-
tion in a serotonin receptor gene.

Previous research suggested that 
noreceptors of the central 
nerveous system and their genes 
could be involved in the genesis of 
bruxism. For example, medication 
with selective serotonin reuptake 
inhibitors have shown to trigger epi-
sodes of bruxism in some individu-
als, leading to shed light on a con-
nection, a group of researchers from 
the University of the Frontier (UFRO) 
in Chile the launch of Celtra® Duó 
ZLS indicated for single-unit restorations such as veneers, inlays, onlays and crowns. It can be processed in two ways – milled and fired or milled and polished. This allows dental professionals complete control over the solution they apply for individual materials. The Celtra® Duó ZLS can be used with the same milling units as all-ceramic restorations. The Celtra® Duó ZLS milling block is the only milling block material that can be processed in two different ways providing the dental professional complete control for individual restorative cases. The newly launched milling block is a three-way functional zirconia reinforced lithium silicate (ZLS) indicated for single-unit restorations such as veneers, inlays, onlays and crowns. It can be processed in two ways – milled and fired or milled and polished. This allows dental professionals to be in complete control over the solution they apply for individual materials. The Celtra® Duó ZLS can be used with the same milling units as all-ceramic restorations. The Celtra® Duó ZLS milling block is the only milling block material that can be processed in two different ways providing the dental professional complete control for individual restorative cases. The newly launched milling block is a three-way functional zirconia reinforced lithium silicate (ZLS) indicated for single-unit restorations such as veneers, inlays, onlays and crowns. It can be processed in two ways – milled and fired or milled and polished. This allows dental professionals to be in complete control over the solution they apply for individual materials. The Celtra® Duó ZLS can be used with the same milling units as all-ceramic restorations. The Celtra® Duó ZLS milling block is the only milling block material that can be processed in two different ways providing the dental professional complete control for individual restorative cases. The newly launched milling block is a three-way functional zirconia reinforced lithium silicate (ZLS) indicated for single-unit restorations such as veneers, inlays, onlays and crowns. It can be processed in two ways – milled and fired or milled and polished. This allows dental professionals to be in complete control over the solution they apply for individual materials. The Celtra® Duó ZLS can be used with the same milling units as all-ceramic restorations. The Celtra® Duó ZLS milling block is the only milling block material that can be processed in two different ways providing the dental professional complete control for individual restorative cases.
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The Dental Company
WASHINGTON, D.C., USA: According to U.S. News & World Report, which releases a list of the top 100 jobs in America every year, the profession of dentist is the best in 2017, with regard to growth potential, work-life balance and salary. Overall, health care jobs dominated the rankings.

The analysts found that, among the 100 best jobs, 52 were in a health-related field, including seven professions in dentistry. Overall, dentist ranked as the best job, followed by nurse practitioner and physician assistant.

By 2024, the employment growth in the profession of dentist is estimated at 18 percent, amounting to about 23,500 new jobs. On average, dentists earned $187,200 in 2015, with the best paid earning more than $197,000 and the lowest paid earning less than $68,350.

The profession of orthodontist, which topped the list of best jobs last year, is now ranked the fifth best job in the U.S. Driven by increasing demand for specialized dental care, employment in the profession will grow by a forecast 18 percent from 2014 to 2024, translating to 100 new jobs.

At ninth place in the list of best jobs in 2017 is the profession of oral and maxillofacial surgeon, with a median salary of $187,200 in 2015 and a predicted employment growth rate of 18 percent, or 1,200 new jobs, from 2014 to 2024. Oral and maxillofacial surgeons ranked third in the list of best-paying jobs in 2015, however.

The increasing demand for dental restorative work as a result of the growing aging population in the U.S. is now ranked the fifth best job of 2017. On average, these dental professionals earned $152,700 in 2015, with employment in the profession expected to grow by 18 percent, or 1,200 new jobs.

The analysts ranked the profession of dental assistant 100 in the list of best jobs. It is expected that more than 58,000 new jobs will open for dental assistants by 2024, translating to growth of 18 percent, or 1,200 new jobs. The average dental hygienist in the U.S. earned $72,330 in 2015. The median salary of a dental assistant was $35,980 in 2015.

Of this year’s 100 best jobs, about half fall in the healthcare category. The profession of dentist topped the 2017 list.

*By DTI*

**Dentist is No. 1 job of 2017**

U.S. News & World Report compiled the list, taking into account the ten-year growth volume and percentage with the projected number of openings from 2014 to 2024, the median salary, employment rate, future job prospects, stress level and work-life balance of various professions across 15 industries and businesses in the country. Data for the analysis was obtained from the Bureau of Labor Statistics.

FDA bans most powdered gloves

The Food and Drug Administration has banned a number of powdered gloves owing to the risk of allergic reactions and other negative side effects. (Photograph: jarmoluk/Pixabay)

*By DTI*

**Silver Spring, Md., USA:** The Food and Drug Administration (FDA) has issued a final rule banning the use of most powdered medical gloves in the country. The rule, which goes into effect on Jan. 18, applies to patient examination gloves, powdered surgeons’ gloves and absorbable powder for lubricating surgeons’ gloves.

“The use of these gloves is decreas- ing, they pose an unreasonable and substantial risk of illness or injury to health care providers, patients and other individuals who are exposed to them, which cannot be corrected through new or updated labeling,” the agency said when proposing the ban in March 2016.

In its summary of the rule, the FDA noted that the ban does not apply to powder used in the manufacturing process of nonpowdered gloves, where that powder is not intended to be part of the final finished glove. Furthermore, it stated that finished nonpowdered gloves are expected to include no more than trace amounts of residual powder from these pro- cesses and that the agency encourag- es manufacturers to ensure finished nonpowdered gloves have as little powder as possible.

The powder that is sometimes added to natural rubber latex gloves to make them easier to put on and take off can carry proteins that may cause respiratory allergic reactions, the FDA said. It explained that “although powdered synthetic gloves do not present the risk of allergic reactions, these devices are associated with an extensive list of potentially serious adverse events, including severe airway inflammation, wound inflam- mation, and post-surgical adhesions, which are bands of fibrous scar tissue that form between internal organs and tissues. These side effects have been attributed to the use of glove powder with all types of gloves.”
But it’s different here
An international perspective on the business of dentistry

By Chris Barrow, UK

As a business consultant, I have been providing training, coaching, and mentoring services to UK and Irish dentists and their teams for the last 20 years. Additionally, I have had the opportunity to work with clients in a number of European and other countries, including Turkey, India, the US, Canada and Australia. I consider myself a bit of a rebel and love to talk about innovation in business and how it applies in dentistry and the wider health care environment.

In this article for DTI I want to take you back to the mid-1990s and my first experience of working with UK dentists, providing team training workshops all across the country. Inevitably, there would come a point in one of those early workshops at which an attendee would raise his or her hand and, instead of asking a question, make a statement that came down to something like “Chris, this is all very good and exciting, but you need to understand that here in (insert place name) things are different.”

Candidates for “insert place name” ranged from the valleys of southern Wales to the West End of London, from north to south, from crowded to thinly populated areas. References were made to cosmopolitan, suburban and rural communities. The speaker would elaborate and suggest that whatever idea I was proposing would fall on stony ground because of the idiosyncrasies of the local population or macro- and micro-economic circumstances.

As a speaker, one learns to deal with such objections and concerns with empathetic listening and compassion, but I gradually realised that, in each of those locations, there were dentists who were just getting on with the job and enjoying great success, because they were either oblivious of or immune to those self-limiting beliefs. Now, do not get me wrong here, if your dental practice is situated in a town where a significant proportion of the population is dependent on one major employer that then closes down, even the greatest optimism and positive thinker would have to take a reality check and respond. Thankfully, such economic disasters are relatively few in number. Most of the time, the aforementioned statements of difference are a self-fulfilling prophecy on the part of the conference questioner.

The caring speaker will try to engage the attendee in meaningful dialogue, but experience shows that, sadly, the critic rarely wants to be persuaded away from his or her unshakable hypothesis. Bringing this phenomenon into the second decade of the twenty-first century, the most frequent use of the phrase “ah, but it’s different here” relates to the digital marketing landscape. Whenever I comment in writing or at a conference on the explosive growth of digital marketing, there will inevitably be a listener who wants to tell me that people in his or her postcode are not on the Internet, do not use social media and do not have e-mail addresses. Mirroring my earlier experience, I then meet dentists in the same location who are happily generating digital sales.

A recent internal survey of my top clients (located across diverse geographical and economic locations) revealed the startling fact that almost 66 percent of their website visits were from mobile devices—smartphones and tablets—thus demonstrating that website appearance on a 27-inch iMac screen is no longer as important as how it looks on mobile.

If I now refer back to the international locations in which I have had the opportunity to work, I can think of not one of the listed countries in which I would argue that the situation is different. Perhaps the most notable of these is Pune in northern India, where I was privileged in February to deliver a two-day workshop to 30 dentists from that city and nearby Mumbai. Halfway through the morning on my second day there, an attendee rose to his feet and requested a hand mike and I knew what was coming. “Chris, we have all enjoyed your lecture so far, but you need to understand that here in India things are different,” he said.

I listened, acknowledged and then simply carried on, in the knowledge that Mumbai is now regarded as the health care tourism capital of the world, that technology is influencing society as rapidly as anywhere and that the traditional Indian business model of sole-trader dentists with no nurse, no hygienist and no associate is rapidly being replaced by dental corporates and retailers, as is the case everywhere. In my original list of countries, there is not one excluded from the information and connecting revolution that is reshaping all of our lives.

People are people. The independent trader of 50 years ago would have commented on diverse cultures. In 2016, the same traveller will comment on similarities, whether good or bad. The global village contains dental patients and they have similar needs and expectations of value. So if you are looking for tips on how to improve your dental business, you now gain a global perspective when observing best practice.

I have visited and worked with the best in all of the countries listed and found that no nation is behind the curve when it comes to innovation in the business of dentistry and we can all learn from each other. Except, of course, in your place—it’s different!
Eleven tips for success in your dental clinic

Part II: CAPS & CLIMB

By Dr Anna Maria Yiannikos, Germany & Cyprus

After the last issue of laser international magazine of laser dentistry, we have begun a new journey with our brand new series “Eleven tips to gain desirable success in our dental clinics”. In this publication, we are going to continue exploring different parameters that can reinforce our success and professional development as dental practitioners. Today I will share with you the knowledge I have gained within the past 25 years of managing and evolving my clinic so you can always be one step ahead and avoid mistakes I have made in the past.

The third very important tip that I am going to share with you today in order to be and remain successful at your clinics is how to regain your power.

We learn a lot of things during our studies in the dental schools. We learn how to make the best fillings with great contours and biocompatible materials, how to treat a tooth that needs a root canal therapy, but do we really learn anything on how to find the best employee that will make our life and daily routine easier?

Firstly we should make a job analysis by listing the CAPS of the candidate. If we do not take the time to complete this process, we will not know from the beginning exactly what we are looking at and by this we will increase the risk of making the wrong choice. If, for example, we go to the supermarket without our shopping list, what will we end up doing? We will probably buy unnecessary things or even forget the things that we went in the beginning there for. My point here is that when we decide that we need to hire an employee we should know upfront what we are looking for, otherwise we might make mistakes that will cost us money and time!

Let’s have a look now what does CAPS stand for:

- **Capacities**: The mental and physical abilities required to do the job. How smart and how strong (physically capable) must the successful applicant be?
- **Attitudes**: such as customer service, orientation, team player, reliability, honesty, willingness to follow rules, problem-solving, loyalty, safety consciousness, ability to follow through—Imagine having a receptionist who, although she is doing the job without a mistake, complains about everything all the time. Is that a person that you would love to have as part of your team?
- **Personality**: traits such as competitiveness, assertiveness, attention to detail and socialability—Also search whether the person will manage his or her personality to get the job done, since as social scientists declare about 60 per cent of our personality traits are inherited and most of them are set by age nine. In other words personality can’t be taught and it doesn’t change much over time.
- **Skills**: Expertise required to do the job—Skills are the easiest job requirements to identify. We could do that by asking the candidate to perform certain tests. For example, if we are trying to find a receptionist we could ask her to translate an article, or through role playing to check how she responds in certain scenarios.
- **Investment**: How to retain the best employees and now what do we have to do in order to keep them? If we do not take the time to complete this process, we will not know what we need to hire an employee or through role playing to check how she responds in certain scenarios.

Have always in mind the quote ‘we hire them for the skills but we fire them for their attitudes!’

So finally we found our A-star employees and now what do we have to do in order to keep them?

The fourth very essential tip of today’s article that I would love to share with you is the different ways that we can use to retain our A-star employees.

Apply CLIMB to retain your team! How let’s explain a little what does exactly the acronym CLIMB stands for.

- **Challenge**: Studies have shown that the main reason that our employees resign is that they are dissatisfied with their tasks. That’s why we should give them challenging duties to accomplish. And what will the result be? They will feel useful and they will find it difficult to leave from a job that offers them different and unique experiences.
- **Loyalty**: Be human with your employees and do not be afraid that you will lose your power. Show interest in their problems and lay back in times that they cannot handle any more pressure.
- **Investment**: Invest time and money to them so they will feel appreciated. During my lectures I get regularly the question that we reward them by giving them bonus and still they are not motivated enough, what shall we do? My answer here is that you must renew your reward system regularly. Sometimes you can give them cash (as bonuses) or maybe you can offer them other kind of incentives, like buying them a free trip for vacation on Christmas, for example. Research has proven that the more powerful and effective incentives are the ones that are specific, tangible and non-cash.

Also please remember to ‘reward not the best in sales but the best’ A major mistake that we usually do is to only reward the ones that bring money to our clinics. Instead we should reward the best in our practices, the ones that are completing their tasks in excellence unconditionally.

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2. La Torre G and Greenspan DC. J Clin Dent 2010; 21(3): 72-76.
5. GSK Data on File, ML498.
6. GSK Data on File, ML584.
7. GSK Data on File, ML589.
8. GSK Data on File, RH01422.

Recommend Sensodyne Repair & Protect to help your patients live life more free from the impacts of dentine hypersensitivity**
Tooth notation: Upper right first permanent molar

By Prof. James Prichard, UK

Patient Symptoms
Severe pain (Visual Analogue Scale 9 out of 10). Poorly localized on the right hand-side. Always starting on the upper right hand side of the face. Pain radiates in to the ear and the cheek on the right hand-side. Pain is spontaneous and not responding well to over the counter analgesics (ibuprofen 400mg qds). Pain has been gradually getting worse over the last 48 hours. The patient was experiencing sleep disturbance and the pain came on in waves. Extreme sensitivity to cold stimulus, not so painful with hot.

Examination
Upper right first and second molars are restored with amalgam. No pocketing or mobility and no tenderness to percussion. No tender-ness in the buccal or palatal sulcus. Sensitivity testing with EndoFrost: UR7 ++ and triggered the patients toothache.

Pre-operative radiograph
Upper right first molar has a pin retained restoration, 25% bone loss medially and distally, no obvious caries, a possible furcal radiolucency but no obvious peri-apical radiolucency at the root apices. The pulp chamber is reduced in size and the canals are not obviously visible. The mesial root exhibits severe curvature in excess of 90 degrees (Figure 1[b]) towards the distal aspect. The sinus outline appears to be low and in close approximation to the roots.

Diagnosis
Acute irreversible symptomatic pulpitis from the upper right first molar.

Treatment Options
Root canal treatment or extraction. The patient opted for root canal treatment.

Treatment
Anesthesia was achieved with 1x 2.2 ml Lignospan (2% Lidocaine 1:80,000 adrenaline) via buccal and palatal infiltration and isolation achieved with non latex dam (3M) and sealed with Oraseal (Optident) caulking agent.

Access was performed with a short tungsten carbide bur and the pulp chamber de-roofed with a safe ended tapered tungsten carbide bur (FKG). There was a pulp stone present in the chamber over the palatal root canal (Figures 2[a] and [b]) which was removed with a CAP [1] Canal Access Preparation ultrasonic tip (Acteon UK) and 3 canals were immediately identified with a DG16 endodontic probe. Before canal shaping was performed the coronal 2/3rd was explored with a size 10 K-flex file. Shaping was performed as follows: "ScoutRace" (FKG Dentaire) sizes 10/02, 15/02 and 20/02 (Figure 3) were used in an NSK Endomate (NSK) running at 1000 rpm to estimated working length using 3% Sodium Hypochlorite-NaOCl (FKG) as the lubricant and irrigant. The irrigant was delivered with a 3ml syringe attached to a 27G side vented Monoject needle.
The canal lengths were determined electronically with an Apex NIR apex locator (Medic NRG) using a single-to-file file (Dentsply Maillefer) and shaped with BioFile (FGK Dentaire) BR3, BR4, BR5, BR6 and BR7 sequenced to length irrigation with 3% NaOCl between each file.

After shaping, the root canals were cleaned with the Imapassive Ultra- sonic irrigating tip (Acteon UK) for 3 cycles of 20 seconds per canal re-plenishing the irrigant between each cycle (Figure 4). Following which a soak was performed with 17% EDTA (FGK) for 20 seconds before drying and the final flush was made with 5% NaOCl.

Obturation was performed with To- talfill BC Sealer (FGK Dentaire) and size 35/40 Tootal fill Points, gutta percha cones impregnated with bi- oceraam. The cones were sized to fit each individual canal with good tug back in canals still wet with 3% sodium hypochlorite. The canals were dried with 35/40 paper points (FGK), the canals were coated with Totalfill BC Sealer (Figure 5) and sealed into the canals, withdrawn half way and resealed. The coronal portion of the obturation was placed with a heated instrument and packed gen- tly into the canal orifices (Figure 6 and Figure 7), and the access cavity cleaned by washing with a 3:1 v/v tit- rine syrup.

An amalgam Nayar core was placed, the dam removed and the exclusion checked. A final radiograph was taken (Figure 8) showing a well-con- densed root canal filling in all 3 ca- nals extending to length with a well-adapted coronal restoration.

Discussion

The diagnosis of acute symptomatic irreversible pulpitis can sometimes be difficult, however by repeating the patients’ sensitivity to cold it soon became apparent which tooth was causing the trouble. The best way to treat this was to remove the inflamed tissue as quickly as pos- sible; antibiotics have no place, as there isn’t an infection.

The narrowness of the canals and the severe curvature on the mesial root can make instrumentation challeng- ing. Scissors of canals takes place as a result of deposition of secondary dentine and progressive deposition of calcified masses that originate in the root pulp (Bernick & Nedelman 1973), and true pulp stones are made of dentine and lined by odontoblasts (Johnson & Beulander 1966).

Pulp stones are common, ranging from 4% of first molars Chandler et al. 2005 to 78% of primary molars

...
Laser Enhanced Endodontic Treatment

By Dr Gregorio M. Kurtzman, USA

Endodontic success is predicated on the ability to debridge and clean the canal system. That canal system is a complex array of accessory and lateral canals, and other anatomic areas inaccessible to endodontic files. (Figure 1) As practitioners, we are able to clean the main canals with files, either hand or rotary. But can not mechanically remove pulp tissue and bacteria within the canal system itself. The canal system is a complex array of accessory and associated bacteria from this anatomy, so that it can be sealed during obturation. Treatment success requires elimination of the pulp tissue and associated bacteria from this anatomy, so that it can be sealed during obturation. Treatment success requires elimination of the pulp tissue and associated bacteria from this anatomy, so that it can be sealed during obturation. Treatment success requires elimination of the pulp tissue and associated bacteria from this anatomy, so that it can be sealed during obturation. Treatment success requires elimination of the pulp tissue and associated bacteria from this anatomy, so that it can be sealed during obturation.

irrigation and Er:YAG laser. (Illustrations: courtesy of Dr Parvan Voynov, Plodiv, Bulgaria)

Intracanal smear layer removal.1 As irrigation has demonstrated better clinically. When compared to traditional treatment. The smear layer contributes to the success in endodontic treatment. The smear layer containing bacteria is not effectively enhanced to more effectively remove associated bacteria from this anatomy. That concludes as accepted as a key factor of treatment to achieve those goals.

Yet, complete cleaning of residual bacteria especially in the apical portion of the canal system has been difficult to achieve with traditional methods using even sodium hypochlorite (NaOCl).2 Studies have demonstrated that addition of an Er:YAG laser to activate the irrigation solution greatly enhances not only the efficiency of the irrigation solution to remove debris from the canal walls. NaOCl is still the accepted irrigant due to its tissue dissolving ability and antibacterial nature. Yet, it can not effectively reach far beyond the main canals to remove the residual tissue. Tissue dissolution can be enhanced to more effectively remove postoperative debris and bacteria more effectively further into the accessory anatomy to allow better sealing of the canal system improving treatment success.

Smear layer within the canal system plays a factor in success in endodontic treatment. The smear layer contains bacteria which when left within the canal system may result in the occurrence of infection endodontically. When compared to traditional irrigation methods, laser enhanced irrigation has demonstrated better intracanal smear layer removal. As illustrated, Figure 6 shows the smear layer present in this anatomy has been cleared with the use of the LiteTouch™ Er:YAG laser. (Photo courtesy of Prof. David Guex, Lyon, France)

Irrigation the key to Endodontic success

Although, instrumentation with files is important to enlarging the canals and ready them to be obturated, debris consisting of pulp tissue and associated bacteria is not effectively removed by files. Irrigation with an appropriate solution and the use of a rubber stop to remove debris from the canal walls. NaOCl is still the accepted irrigant due to its tissue dissolving ability and antibacterial nature. Yet, it can not effectively reach far beyond the main canals to remove the residual tissue. Tissue dissolution can be enhanced to more effectively remove postoperative debris and bacteria more effectively further into the accessory anatomy to allow better sealing of the canal system improving treatment success.

Anatomy evident in the apical portion of the canal that has been filled with Laser Irrigation. (A) Placement of the LiteTouch™ into the intracanal and the activation of the Er:YAG laser (B) Placement of the LiteTouch™ into the intracanal and the activation of the Er:YAG laser (Illustrations: courtesy of Dr Parvan Voynov, Plodiv, Bulgaria)

Figure 2: SEM showing bacteria and pulpal debris in the apical 2/3 that was not removed fully using standard irrigation protocol. (Courtesy of Georgi Tomov, Plodiv, Bulgaria)

Figure 3: SEM showing complete removal of bacteria and pulpal tissue in the apical 2/3 after irrigation using Laser Irrigation protocol. (Courtesy Prof. Georgi Tomov, Plodiv, Bulgaria)

Figure 4: SEM cross-section showing complete removal of bacteria and pulpal tissue in the apical 2/3 after irrigation using Laser Irrigation protocol. (The LT-IPI™ protocol: laser tip used to deliver laser energy to the tip of the file, NaOCl used for irrigation) (Courtesy Prof. Georgi Tomov, Plodiv, Bulgaria)

The smear layer is defined as a layer of debris composed of bacteria, necrotic tissue, and other debris. The smear layer is composed of a mixture of cellular debris, bacteria, and extracellular matrix proteins. The smear layer can be divided into two main components: the intracanal smear layer and the extracanal smear layer. The intracanal smear layer is composed of cellular debris, bacteria, and extracellular matrix proteins that are present within the canal lumen. The extracanal smear layer is composed of cellular debris, bacteria, and extracellular matrix proteins that are present outside the canal lumen. The smear layer can be divided into two main components: the intracanal smear layer and the extracanal smear layer. The intracanal smear layer is composed of cellular debris, bacteria, and extracellular matrix proteins that are present within the canal lumen. The extracanal smear layer is composed of cellular debris, bacteria, and extracellular matrix proteins that are present outside the canal lumen.

Asnaashari M, Safavi N.: Disinfection of Contaminated Canals by Different Laser Wavelengths. When comparing these two studies, it is evident that the Er:YAG laser has a greater ability to debride and clean the main canals with files, as well as access to the pulp chamber, including the apical third of the canal system, as shown in Figure 6. This allows for better sealing of the canal system and its distal antibacterial effects. When instrumenting a dry canal, laser activation may also be performed, as shown in Figure 7. This allows for better sealing of the canal system and its distal antibacterial effects. When instrumenting a dry canal, laser activation may also be performed, as shown in Figure 7. This allows for better sealing of the canal system and its distal antibacterial effects. When instrumenting a dry canal, laser activation may also be performed, as shown in Figure 7. This allows for better sealing of the canal system and its distal antibacterial effects. When instrumenting a dry canal, laser activation may also be performed, as shown in Figure 7. This allows for better sealing of the canal system and its distal antibacterial effects. When instrumenting a dry canal, laser activation may also be performed, as shown in Figure 7. This allows for better sealing of the canal system and its distal antibacterial effects.
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Mastering the art of dental technology

By Marc Chalupsky, DTI

SINGAPORE/BAD BOCKLET, Germany: Singapore and Germany are about 10,000 km apart. As Singaporean dental technicians and dealers discovered at this year’s International Dental Exhibition and Meeting (IDEM), the world’s most comprehensive range of dental laboratory products can be found at DT&SHOP, located in the town of Bad Bocklet about 200 km north-west of Nuremberg. Owing to the company’s latest inventory and delivery systems, orders arrive in Singapore and other Asia-Pacific countries within three working days. DT&SHOP has big plans for this thriving dental technology market.

According to a recent Transparency Market Research report, the Asia-Pacific dental laboratory market is projected to expand at a substantial rate in the next five years. Driven by rising dental tourism and a growth in the number of dental laboratories, the domestic sector will also see an increase in export demand for dental prosthetics and systems have been developed and evolved in the last decade for fabrication of all-ceramic restorations. Dental CAD/CAM technology is gaining popularity because of its benefits in terms of time consuming, materials savings, standardisation of the fabrication process, and predictability of the restorations.

The number of steps required for the fabrication of a restoration is less compared to traditional methods (Fig. 1). Another benefit of CAD/CAM dentistry includes the use of new materials and data acquisition, which represents a non-destructive method of saving impressions, restorations.

Dr Nicolas Rohde, head of the Digital and International Division: “This will also include advanced marketing and educational support. The new digital possibilities allow us to work with partners and clients anywhere and anytime.” With a 96 per cent product availability, eco-friendly packaging and competent customer service, the company has proved itself to be a reliable partner for local dealers.

This year, DT&SHOP took the next step towards securing a major position in the Asia-Pacific market, by exhibiting at IDEM Singapore 2016. With a 90 m² booth, the company showcased its wide range of dental laboratory products from leading manufacturers. As a dental producer itself, DT&SHOP also presented the new FINOCAM A5 five-axis milling unit and the FINOSCAN RELATION high-quality optical 3D scanner. “Most dental technicians at IDEM were impressed by our FINO CAD/CAM solutions. In fact, our FINO brand covers most of the dental laboratory needs, including orthodontic boxes, partial denture alloys, duplicating and addition-curing silicone, modelling wax, relining units, porcelain brushes and much more,” explained Roer. “I think that we have quite successfully mastered the art of offering the complete range of dental technology.”

Artists and dental technicians share a talent for colour, aesthetics and technical complexity. It therefore comes as no surprise that DT&SHOP’s corridors are filled with masterpieces, inspirational and vivid artworks from around the world. Roer has had a passion for art for most of her life. Her latest acquisition, a set of paintings from Canada, is awaiting a suitable space in one of the company’s new course and laboratory rooms.

In 2010, she travelled to Vietnam and in particular are known for their lively art scene. “Art has always been very important to me,” said Roer. “Our visitors do not rush through the aisles of the building. They stop and see the beautiful work by artists about 10,000 kilometres apart.”

Materials and systems for all ceramic CAD/CAM restorations

By Drs. Christian Brenes, Ibrahim Duqum & Gustavo Mendonza, USA

Dental crowns have been used for decades to restore compromised, heavily restored teeth, and for aesthetic improvements. New Computer-Aided Design/Computer-Aided Manufacturing (CAD/CAM) materials and systems have been developed and evolved in the last decade for fabrication of all-ceramic restorations. Dental CAD/CAM technology is gaining popularity because of its benefits in terms of time consuming, materials savings, standardisation of the fabrication process, and predictability of the restorations.

The number of steps required for the fabrication of a restoration is less compared to traditional methods (Fig. 4). Another benefit of CAD/CAM dentistry includes the use of new materials and data acquisition, which represents a non-destructive method of saving impressions, restorations.

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**Fig. 4:** Full arch implant supported prosthesis milled from a block that was initially Vitablock Mark I (Vident); the first in-office ceramic material was introduced in 2015 in the market. Concerns about the processes involving restorations’ fit, quality, accuracy, and short and long-term prognosis.[1]

Gloss ceramics

The first one is a leucite based glass ceramic restorations; the crown is better because it avoids volumetric changes during the fabrication process. On the other hand, the partially sintered zirconia (Fig. 4) is easier and faster to mill and proponents of milling partially sintered blanks claim that milling is a direct process that promotes progression of cracks in the restoration, there is a localized expansion of area at the crack tip that increases the energy that opposes the crack propagation.[10]

Zirconia restorations can be fabricated from fully sintered zirconium oxide or partially sintered zirconium oxide blanks (green-state). Propagation of milling partially sintered blanks can impair the final phase, this crystallization step is usually associated with a 2 to 3 percent shrinkage accounted for the design software.[19] Nowadays, blocks of lithium disilicate are available for both in-office and in-laboratory fabrication of all-ceramic restorations, monolithic blocks require layering or staining to achieve good esthetic results.[8] Different in vitro studies that evaluate the marginal accuracy of milled lithium disilicate reveal that these restorations could be as accurate as 56 to 63 microns.[10]

According to the manufacturer specifications, the design principles for lithium disilicate are produced by default in the design software, so in full all-ceramic crown; it is necessary to adjust the minimum thickness must be applied in the preparation design (Table I).

During the crystallization process, the ceramic is converted from a lithium metasilicate crystal phase to lithium disilicate. Some commercial types of ceramics are Empress CAD (Vivadent) and IPS E-max. The first one is a leucite based glass ceramic with a composition similar to Empress ceramic. IPS E-max was introduced in 2006 as a material with a flexural strength of 560 to 600 MPa (two to three times stronger than glass ceramics); the blocks are blue in the partially crystallized state it achieves the final shade after it is submitted to the firing process in a porcelain oven for 20 to 30 minutes to precipitate the final phase, this final result is a glass-ceramic with a fine grain size of approximately 1 to 3 µm and 70 percent crystal volume incorporated in a glass matrix.[20]

In 2014, Vivadent released Suprinity, the first fully sintered zirconia with similar mechanical properties to de Alumina (Ivoclar Vivadent). In-Ceram Zirconia (Ivoclar Vivadent) and IPS E-max. The first one is a leucite based glass ceramic with a composition similar to Empress ceramic. IPS E-max was introduced in 2006 as a material with a flexural strength of 560 to 600 MPa (two to three times stronger than glass ceramics); the blocks are blue in the partially crystallized state and it achieves the final shade after it is submitted to the firing process in a porcelain oven for 20 to 30 minutes to precipitate the final phase, this final result is a glass-ceramic with a fine grain size of approximately 1 to 3 µm and 70 percent crystal volume incorporated in a glass matrix.[20]

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Table 2: Most popular dental CAD systems available for 2015.

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Table 3: Most popular dental CAD systems available for 2015.

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in different clinical situations. Lava Plus, for example, is a combination of zirconia and a nano-ceramic.

CAD/CAM systems

A number of dental manufacturer are providing CAD/CAM systems that generally consist of a scanner, design computer and a milling machine or 3D printer. Laboratories are able to receive digital impression files from dentists or use a scanner to create digital models that are used for producing crowns. CAD/CAM dentists vary in speed and accuracy. Milling machines vary in size, speed, axes, and also in which restorative materials can be milled; in this category milling machines could be classified as wet or dry depending if the materials require irrigation.

The development of dental CAD/ CAM systems occurred around 1978 with the introduction of the Sophie system developed by Dr. Francois Durst. A few years after that event, Dr. Werner Mormann and the electrical engineer Marco Brandt developed the Cerec system for the first full digital dental system created to allow dentists to design and fabricate in-office restorations. Since then, the continuous evolution of systems dedicated to this field has continued and has exponentially increased in the last decade [4].

CEREC systems have evolved into CEREC Bluecam scanners, accurates as 17 microns for a single tooth to 40 microns for any number of teeth. The system has been introduced offering true digital impressions with less work and time. This is a recent study by Neves et al. on the marginal fit of CAD/CAM restorations fabricated with CEREC Bluecam, they compared lithium disilicate single unit restorations to heat-pressed restorations and 81.8 percent of the specimens had a vertical gap of less than 50 microns.[5]

The CEREC InLab CAD software (Sienna Dental) was designed for dental laboratories for a wide range of dental capabilities that can be combined with the software. The system is designed for the operator to design the restoration, once this process is completed, the file can be sent to a remote milling machine or a milling centre for fabrication in a wide range of materials.

The Procera system, introduced in 1994, was the first system to provide restoration of a teeth using computer-aided design and computer-aided manufacturing (CAD/CAM). The system utilizes a CAD/CAM system to define the restoration form and size. Using this system, the Procera system is the first system to provide restoration of a teeth using computer-aided design and computer-aided manufacturing (CAD/CAM). The system utilizes a CAD/CAM system to define the restoration form and size. Using this system, the Procera system is the first system to provide restoration of a teeth using computer-aided design and computer-aided manufacturing (CAD/CAM).

Discussion

Some of the main concerns from clinicians about all-ceramic CAD/CAM restorations are accuracy and marginal fit. A study by Lown and colleagues [1] demonstrated that the difference of dental telescopes was not a good fit for integration between parts and probably leads to the incorporation of material to the restorative margin. The Procera system, introduced in 1994, was the first system to provide restoration of a teeth using computer-aided design and computer-aided manufacturing (CAD/CAM). The system utilizes a CAD/CAM system to define the restoration form and size. Using this system, the Procera system is the first system to provide restoration of a teeth using computer-aided design and computer-aided manufacturing (CAD/CAM).

The incorporation of new systems and materials brings a lot of concerns regarding system implementation, characteristics and mechanical properties of different materials. One of the most common problems is that still remain in CAD/CAM dental systems is the accuracy of each step in the CAD/ CAM chain, from digital impression to the milling step. Using computer-aided manufacturing is dependent on the calibration of hardware with software in the workflow. Further, the virtual configuration of the die spacer between the tooth and the restoration is essential for the accuracy of the marginal adaptation and has to be calibrated for each of the systems. Westman et al demonstrated that the difference of fit CAD/ CAM restorations is directly related to the gap parameters from the computer program and also related to the intrinsic properties of the CAD/CAM system [6].

Conclusion

This review of current and past literature regarding the evolution, characteristics, and marginal fit of all-ceramic CAD/CAM restorations materials and systems shows that it is possible to fabricate restorations with the same marginal fit expected from conventional methods and within the range of clinically acceptable restorations. When comparing both methods the advantage of using CAD/CAM technology is not to obtain the most precise level of fit, but rather to obtain a high level of re-fabrication in a large number of restorations; especially when high produc- tion levels are expected. However, there are a number of limited clinical studies and the diversity of the results between systems and protocols does not allow us to give a definitive conclusion.

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New NPM sintered metal disk inCoris CCB for the inLab MC X5 5-axis milling machine

By Dentsply Sirona

The extensive range of inCoris disks from Dentsply Sirona CAD/CAM has now been expanded to include the new inCoris CCB disk made of cobalt-chromium for the manufacturing of NPM restorations with the inLab MC X5 5-axis production unit.

LONDON, UK: Non-precious metal restorations still play a key role in the day-to-day life of a dental technician – according to estimates from Dentsply Sirona CAD/CAM, they contribute to around 65 to 75 percent of all work produced around the globe. However, the conventional manufacturing process, the NPM cast, is a more expensive and time-consuming production process that is more susceptible to errors due to the number of steps necessary. Integration in the digital workflow has provided an alternative approach for cobalt-chromium restorations that is faster, cleaner and safer. In addition, it additionally offers better material homogeneity and stability compared to cast work.

With the inCoris CCB disk, Dentsply Sirona can now provide the dental laboratory with a pre-sintered, non-precious metal for the inlab MC X5 5-axis milling unit. The disk with a standard size of Ø 98.5 mm is available in six different heights and can be very easily managed via the inLab MC X5’s own inLab CAM Software 16.0. As with all the other inCoris disks from Dentsply Sirona, each inCoris CCB blank has a QR code that can be conveniently scanned into the CAM software with a webcam. All material information such as disk name, color, height, lot no., enlargement factor and other information is thus automatically included in the workspace overview. Disks that have been partially machined can be found again later in the software via the QR code. Users save valuable input time and always have an optimal overview of their available inCoris disk inventory.

After the milling process, the NPM restoration is sintered in a protected argon atmosphere to achieve its final strength without any inclusions or voids. The prerequisite for this is the inFire HTC speed sintering furnace with the metal sintering option from Dentsply Sirona, which is already equipped with an integrated gas management system. All inCoris materials can be quickly and directly controlled via the preset programs. Existing customers with an inFire HTC speed without the metal sintering option can have this subsequently installed, depending on the serial number of their sintering furnace.

The inCoris CCB is now available from specialized dealers. More information at:
http://www.sirona.com/inlab

Fig. 1: The inCoris CCB from Dentsply Sirona is available in a standard size (Ø 98.5 mm) and in six different heights.

Fig. 2: The range of materials for the inlab MC X5 now includes the NPM sintered metal disk inCoris CCB from Dentsply Sirona.

Fig. 3: Each inCoris CCB disk has a QR code that can be conveniently scanned into the inlab MC X5’s inlab CAM software with a webcam.
Interview: “Our role with IFDH is to promote the profile of the dental hygienist across the globe”

By Dental Tribune MEA / CAPPmea

DUBAI, UAE: Following the long journey from Australia to the UAE, two hands-on courses and two hour lecturing at Dental Hygienists Semi-
nar, we finally had the opportunity to interview Robyn Watson – Presi-
dent of the International Federation for Dental Hygienists (IFDH).

DTMEA: Please if you could share with us exactly who is the famous Robyn Watson?

Robyn Watson: Thank you so much for inviting me, it has been a pleasure to be here. First and foremost, I have been a registered dental hygienist for many years. I have had a varied career in the field of dental hygiene. My experience includes clinical practice, teaching and education as well as politics, setting up pro-
grams and designing curricula, and consulting. Looking back I have had a wonderful, fun, long career and have been fortunate to have been elected as the President of the Inter-
national Federation of Dental Hy-
gienists which seems like sometimes I had to pinch myself as to how did I get here! However, I am really enjoy-
ing this role. I have had the role now since June 2016 prior to which I was the President-elect and I see it as an avenue to really raise the profile of hygienists and improve oral health globally.

How did you choose to become a hygienist as opposed to a dentist?

I chose dental hygiene after working in dental practices as a dental assis-
tant in high school. Some influence came from the fact that my father was an orthodontist. I was still a young teenager when I chose to go to dental hygiene school, and I would have to say that in those days more years of school seemed quite daunt-
ing! This was in the late 60’s when it was unusual for women to go to den-
tal school, and in fact there was only one woman in the dental school class at the university I went to.

I had considered whether to con-
tinue on to dental school later but found my career in dental hygiene to be very satisfying and challenging so due to some of the experiences I have described.

What advice would you give to young students looking into becoming a Hygienist or dentist?

It is indeed a fact that many students receive coming into the univer-
sity initially intend to use the degree as a ‘stepping stone’ into dentistry. After entering our program in Aus-
tralasia where we have a dual de-
gree program in dental hygiene and dental therapy, most of our students found it very satisfying upon comple-
tion as they are doing much more towards a career. A few continue to further their career in dentistry. The advice I would give young students looking into becoming a dental hy-
gienist or dentist is that the study is quite intense but worth it to be able to improve the oral health of their patients. The student needs to have a good work ethic and an attitude of wanting to help their patients to achieve optimal oral health, be good a good communicator and willing to commit to lifelong learning and net-
working with their colleagues.

What are some of the programs you are running at the IFDH?

We have several new programs involving social responsibility, re-
search grants, and education. Next year in July 2017, we are holding a conference to determine a Global Oral Health strategy for our country delegates to take back to their com-
nunities and create programmes to reduce caries and improve oral health for the children and the el-
derly. Many children are still suffer-
ing dental caries due to poor diet and lack of oral health education, and the rise in the elderly population retain-
ing their dentition is creating a prob-
lem of access to care for this group. Some community projects are being highlighted with the introduction of a ‘Social Responsibility Award’

We have a ‘Every Child has a tooth-
brush’ programme that enables members to receive a small grant and toothbrushes for oral health projects. We also have research grants available for students, and we have a new ‘Education Academy’ to promote webinars and continuing education.

We want to support our members to achieve oral health goals for their pa-
tients and communities.

As the president of the IFDH, what is the strategy going forward in terms of aware-
ness for the profession as well as awareness of the chal-
 lenges we face in oral health?

The strategy with the IFDH is to pro-
mote the profile of the dental hy-
gienist as part of an interdisciplinary team. This means really increasing the profile of the hygienists them-
selves which I do for instance when travelling to different countries to speak about the role of the hygienist. When I started doing this in Austral-
ia and particularly in New Zealand when we started up the hygiene pro-
gram, the concept was difficult for the local dental profession to under-
stand. The dentists had the idea that the hygienists would be economical-
ly detrimental to them which is cer-
tainly not the case. The goal is to edu-
cate the profession, the public and other health professionals that may not be as aware of what a hygienist can do which will raise the profile of the profession. On our website of the IFDH, our education committee is working on an educational page for the public which will also help raise the profile of the dental hygienist so we can be perceived as experts in prevention in oral health.

We face challenges of increased mi-
gration, social determinants of oral health, increasing elderly popula-
tion, increased availability of pro-
cessed foods and sugars. With our focus on social responsibility and promotion through our website we have the goal of helping to alleviate some of these challenging issues.

How do you encourage new partners to join you across the world?

It comes down to being visible, and our board works very hard to do that. One of my roles as President is to cre-
ate more visibility for the profession. We do that by visiting countries, and contacting people we know through our partners such as the Alliance for a Cavity Free Future and the Global Child Dental Fund. The dental hy-
giene profession is familiar in Eu-
rope, UK, United States, Australasia, South Africa, Japan and Korea and some others. Our International Sym-
poium in Dental Hygiene every few years attracts dental hygienists from countries that may not be members also, and we are able to network and encourage membership.

Recently we had our first members join from the Middle East, The Emir-
ates Hygiene Club. We are now en-
couraging participation from dental hygienists in India, Indonesia, and Bolivia to name a few.

The recent CAPD Dental Hygienist Seminar has been a great opportu-
nity in Dubai, it has been very suc-
cessful, and it has been wonderful to meet many colleagues from the Middle East. Thanks go to our treas-
urer Mary Rose Pincoli who has been visiting Dubai and creating partnerships with local hygienists and groups such as CAPD and Dental Tribune MEA.

Following your big exposure and well attended lectures and hands-on courses, de-
scribe your experience here at the Dental Hygienist Semi-
nar in Dubai?

It has been enlightening, it has been fun and we have made a lot of new friends from the region. I have come to appreciate what is happening in the Middle East and I am very im-
pressed with what I have seen. I am looking forward to more collaborations from the Middle Eastern countries becoming part of our global community. If I have been able to inspire them over the last two days at this conference, then I am very pleased!
In 2015, 2,199 exhibitors from 59 countries and around 139,000 trade visitors from 152 countries attended the show. “According to a representative survey, about 90 per cent of the exhibitors from IDS 2015 are planning to participate at IDS 2017,” said Dr Martin Rickert, Chairman of the Association of German Dental Manufacturers, which co-organises the event.

Koelnmesse announced further results of the independent exhibitor and visitor survey in 2015, according to which 99 per cent of the participating German suppliers had reached their key customers in their domestic market and 82 per cent their key accounts from abroad. Of the foreign exhibitors, 98 per cent had made contact with their international customers and 95 per cent with their German key accounts. About 95 per cent of the exhibitors established new contacts with potential German buyers during the show, while 79 per cent of the German and 98 per cent of the foreign suppliers acquired new international contacts.

Moreover, more than three-quarters of visitors interviewed indicated their intention to visit the 2017 IDS. About 80 per cent of German and foreign attendees rated the exhibition as either very good or good, mainly owing to the comprehensive product range and numerous new products showcased. Overall, 95 per cent of the visitors surveyed would recommend visiting IDS to business partners.

As in previous years, Dental Tribune International (DTI) will be keeping its readers around the globe up to date by providing the latest news from the show. In addition to a daily issue of its IDS today newspaper, which will be published in collaboration with DTI’s German affiliate OEMUS MEDIA, regular e-newsletters will be sent out during the five-day show to ensure comprehensive coverage. Exhibitors interested in print and online advertising for IDS 2017 may consult the DTI Media Kit or contact the DTI sales team directly for special offers.

A review of last year’s IDS can be found here.
Ten years ago, we introduced our EverEdge scaler to satisfy your desire for a sharper instrument that lasts longer. It quickly became, and remains, the top selling scaler in the world. And now, we have done it again – but better! Due to advancements in technology and metallurgy, and our investments in advanced manufacturing techniques, we have developed a new product which is EVEN SHARPER & LONGER LASTING!

Discover new EverEdge 2.0: special preview at Aeедc, Dubai. February 7th - 9th. Come and visit us at the stand: 6E14.
Guided Biofilm Therapy
A New Concept for Prophylaxis Professionals

By Dr Mathieu Deudon, France

The previous protocol for the removal of hard and soft deposits, which begins with hand instruments, continues with an ultrasonic device and ends with classical polishing (rubber cups, brushing, polishing pastes), is today still widely used in dentistry. However, recent clinical studies show that this method is obsolete. It leaves distinct marks on hard tooth structure and is aggressive on soft tissue.

EMS has developed a new systematic approach for professional prophylaxis under the name of Guided Biofilm Therapy. This prophylaxis procedure focuses not only on the removal of hard and soft deposits, but also on a different treatment sequence. The procedure guarantees complete cleaning, even in the most difficult-to-reach areas and at the same time preserves tooth substance and natural tissue.

The final polishing with a polishing paste can now be avoided.

The Procedure
For optimal results, it is first necessary to make a diagnosis of the soft tissue and mucous membranes, to raise patient awareness for the benefits of good oral hygiene, and to motivate them.

Because professional prophylaxis always has to be supported by individual prophylaxis, the primary common and widespread technique for the preparation of the tooth surfaces is brushing your teeth. It causes the disorganization of the biofilm.

Professional tooth cleaning then ensures the removal of biofilm in areas that are also difficult for patients to reach.

The Advantages of The New Concept of Guided Biofilm Therapy

This procedure guarantees efficient cleaning and a complete removal of biofilm, even in hard-to-reach areas, and preserves the tooth structure and natural tissue. The final polishing procedure using a polishing paste can thus be avoided. Furthermore, patients very much appreciate this gentle and totally painless form of treatment, and are thus happy to come to prophylaxis sessions.

The Protocol

STAGE 1 (Fig. 3 to 9)

Removal of Soft Deposits and Discolourations And Biofilm

This stage is carried out using the AIR-FLOW® method by EMS in combination with the AIR-FLOW® Powder PLUS. It is based on erythritol, a natural component, together with 0.3% chlorhexidine. Thanks to its fine grain size (14 µm), the tooth surface and the soft tissues are not affected. This powder enables the removal of biofilm and soft deposits in both supragingival as well as sub-gingival areas on natural teeth or implants. It is recommended to not eat any chromogenic food for 3 hours after the treatment.

2 – Rehabilitation of Deep Pockets

In the 5-9 mm deep pockets, biofilm is removed with the PIEZON® handpiece with vertical movements back and forth for 5 seconds per pocket. This technique is four times as fast as with a curette. Thanks to its soft disposable plastic attachment, the handpiece does not damage the surface of the root or the implant and adapts perfectly to the anatomic shape.

Fig. 1: Checking the attachment and the depth of the pocket

Removal of Hard Deposits with the PIEZON® No Pain Technology

The linear vibrations, which are aligned to the treatment area, stand in the center of the original PIEZON® method to ensure super smooth tooth surfaces. In combination with the intelligent No Pain technology, which automatically regulates the power and speed of the EMS attachments, this method provides maximum protection of the gingiva. Soft deposits, discoloration and biofilm are eliminated with the AIR-FLOW® technology and the hard deposits are now clearly visible.

The combination of the PIEZON® No Pain technology and the PS attachment guarantees effective, quick, tissue-sparing and virtually painless treatment. Since calculus removal is carried out only in the areas where it is really necessary, final polishing is not required. However, dental professionals can still quickly carry out air polishing with AIR-FLOW® Powder PLUS in the areas where calculus has been removed.

After the prophylaxis treatment, it is recommended to apply a fluoride solution for efficient protection against caries.

STAGE 2 (Fig. 10 to 12)

Removal of Hard Deposits with the PS attachment by EMS. The tip enables cleaning of implant, implant post and crown surfaces without damaging titanium or zirconium surfaces, and adapts perfectly to the anatomic shape.

Fig. 10 and 11: Calculus removal from natural teeth with PS attachment by EMS. This very fine instrument allows thorough cleaning even in hard-to-reach areas, below and above the gingiva (up to 10 mm depth). Recommendation: Set the power to 30-50%, water flow to 70-100%

Fig. 12: Calculus removal on an implant with PS attachment by EMS. The tip enables cleaning of implant, implant post and crown surfaces without damaging titanium or zirconium surfaces.

Fig. 13: AIR-FLOW® Powder PLUS

Technically correct work is indispensable for successful air polishing. Setting the power to 30-50%, water flow to 100%

Fig. 4: Removal of supragingival biofilm and stains, also in contact with the gingiva

Fig. 5: Removal of biofilm under the gingiva (sulcus < 4 mm).

Fig. 6: The optimal positioning of the suction tube

Fig. 7: The optimal positioning of the AIR-FLOW® handpiece

Fig. 8: Probing the pocket

Fig. 9: Removal of biofilm with the PERIO-FLOW® handpiece

Guided Biofilm Therapy provides a two-stage clinical protocol that is able to ensure complete cleaning of teeth while preserving tooth substance.
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practitioners have focused on the oral hygiene practices from dental interproximal plaque. According to various studies, conventional toothbrushing is not effective in removing interproximal plaque. Therefore, the concept of disruption of biofilm instead of interproximal cleaning is essential for achieving and maintaining good oral health. However, uncertainty remains about oral physiopathology and the concept of disruption of interproximal biofilm.

Sixteen billion bacteria in one interdental site
So why does interdental cleaning actually matter? The anatomy of the interdental space does not allow for an efficient self-cleaning mechanism and makes cleaning this area difficult. As a means of further understanding the mechanism of periodontal pathologies, Bourgeois was the first to use real-time polymerase chain reaction to quantify and qualify the interdental biofilm in healthy adults and explain the role of interdental biofilm management in preventative oral health.

In his study, an astounding approximately 16 billion bacteria were collected on average from each interdental site. Of the 19 major periodontal pathogens quantified in the study, bacteria of red and yellow complexes constituted the majority of interdental bacteria. In particular, red complexes such as Porphyromonas gingivalis, Tannerella forsythia and Treponema denticola were recognized as the most important pathogens in adult periodontal disease. P. gingivalis was detected in 19 per cent of healthy subjects and represented 0.02 per cent of the interproximal biofilm. As dental research has confirmed, P. gingivalis alone can induce alveolar bone loss, and in combination with T. denticola and T. forsythia, periodontal disease is likely to occur. This means that the interdental biofilm of even healthy individuals is composed of bacteria that could lead to periodontitis. "The effective presence of these periodontal pathogens is a strong indicator of the need to develop new methods for disrupting interproximal biofilm in daily oral hygiene," concludes Bourgeois.

Bleeding as a clinical reference
Despite good oral hygiene habits, many patients experience interdental bleeding. "As we have seen, the interproximal space is a source of bacterial contamination and has without doubt an effect on the width of the interproximal spaces," says Bourgeois. According to the latest research, 41 per cent of young adults with periodontal disease or clinical gingivitis have experienced interproximal bleeding at least once. This information should be considered critical for daily oral hygiene and interdental cleaning in particular. "There is a need to use interdental cleaning tools in order to achieve optimum oral health. If you do not use them, you could essentially stop using a toothbrush, as bleeding will occur otherwise anyway in the future."

In a study titled "Efficacy of interproximal brushes on bleeding reduction in adults: a month-long randomized controlled clinical trial," a test group was asked to use a standard manual toothbrush twice daily and an interproximal brush daily. Based on the hypothesis that interproximal brushes reduce interproximal bleeding, Bourgeois and his team instructed periodontally healthy and young individuals how to use interproximal brushes daily and correctly. In addition, a calibrated colormetric probe helped to effectively determine the interproximal space and right brush size. As the study suggests, the overall interproximal bleeding was reduced by 47 per cent after one week and 71 per cent after three months. Bourgeois and his team concluded that interproximal cleaning can be considered as "an effective means to help individuals maintain and/or achieve optimal oral health."

As the general access widths of interproximal spaces were mostly unknown in young adults, Bourgeois and his colleagues also assessed the dantinon extraction of the same group in a study titled "Access to interproximal space and clinical periodontal health in young adults. A cross-sectional study." Importantly, 40 per cent of the sites studied showed bleeding upon passage of an interproximal brush. An unexpected finding was that the high number of adults (69 per cent) with greater than 30 per cent of bleeding sites. It was observed that this did not have a significant effect on the width of the interproximal space. By measuring the interproximal space, the researchers concluded that the latest generation of interproximal brushes was not effective in 25 per cent of interproximal spaces. Over 80 per cent of the sites required a small-diameter interproximal brush (0.6–0.7 mm) from the Curaprox CPS Prime series. As a result, the study concluded that most interproximal sites can be cleaned using interproximal brushes, but accessibility of interproximal spaces would need to be established in the dental practice by the dental professional.

Interspace brushes prove to be superior
Conventional, interproximal brushes were only recommended for patients with large interproximal spaces, while dental floss was recommend for narrow spaces. Despite good oral hygiene habits, many patients experience interdental bleeding. "As we have seen, the interproximal space is a source of bacterial contamination and has without doubt an effect on the width of the interproximal spaces," says Bourgeois. According to the French professor, the interproximal brush currently represents the primary and most effective method available for interproximal cleaning. Interspace brushes are specifically designed to clean between the teeth in accord with the interproximal space access diameter. The method of choice for interproximal cleaning when brush space permits is to select the largest size that can penetrate into the interproximal space and then to fill this space completely without discomfort or trauma. By using a calibrated Curaprox IAP colorimeter, a suitable interproximal brush will help individuals achieve optimal biofilm disruption through careful and efficient cleaning with minimal trauma.

For all studies, Bourgeois and his team selected the CPS Prime series of interproximal brushes of the Swiss oral care brand CURAPROX. Patient acceptance of these interproximal brushes has proven to be very high during all studies.

More information can be found at www.curaprox.com.
HYPERSENSITIVITY DUE TO TOOTH EROSION CAN BE GONE WITHIN SECONDS* WITH COLGATE® SENSITIVE PRO-RELIEF™ TOOTHPASTE

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**INSTANT AIR BLAST SENSITIVITY RELIEF IN VIVO**

![Air blast sensitivity score chart](Ayad et al. 2009b, Mississauga, Canada)

* p < 0.05 compared to baseline • p < 0.05 compared to control

Recommend Colgate® Sensitive Pro-Relief™ to your patients suffering from hypersensitivity due to acidic tooth erosion – clinically proven to treat hypersensitivity and relieve pain fast.*²

---

* When toothpaste is directly applied to each sensitive tooth for 60 seconds.
† Containing 5% potassium nitrate and 1450 ppm fluoride as sodium fluoride.
‡ Containing 1450 ppm fluoride as MFP.

References:
PATIENT SENSITIVITY CAN BE GONE IN SECONDS.

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*When toothpaste is directly applied to each sensitive tooth for 60 seconds.
Augmentation and implant treatment

Two-stage surgery in the severely resorbed edentulous mandible

By Dr Marko Nikolic, Croatia

Introduction
An adequate bone volume at the future implant site is a prerequisite for a predictable outcome of the treatment and implant success. A residual bone with a vertical dimension less than 1 cm implies a cut-off point and imposes the need of additional augmentation procedures in connection with implant insertion, whereas higher values of the alveolar crest fit in cm are considered to be sufficient for treatment with standard-diameter implants without the urgent need of any horizontal bone augmentation. Distant donor sites like the anterior part of the mandible and posterior iliac crest and introral areas like the retromandibular and the interfossa marginalis of the chin are common sources for harvesting autogenous bone grafts. Depending from the donor site, patient and surgeon should be aware of the feasible confrontation with various advantages but also disadvantages when harvesting the bone. Harvesting bone from the iliac crest requires patient hospitalisation, and surgery under general anaesthesia, whereas introral bone harvesting can be performed ambulatory and under local anaesthesia.

The main problem with autogenous bone grafting is represented by the high risk of patient morbidity, causing pain, swelling, and healing problems at the donor site.

The aim of this case presentation is to demonstrate a predictable, two-stage operating protocol for the horizontal augmentation of the severely resorbed, edentulous anterior mandible with an autogenous bone graft harvested from the crestal alveolar ridge at implant site, in order to create a sufficient bone volume for the later implant therapy, without donor morbidity for the patient.

Patient data
The 47-year-old male patient visited our dental office in order to renew his old and poor fitting prostheses in the lower and in the upper jaw. The remaining five teeth 37-43 in the front of the lower jaw had been removed three months previously due to a chronic periodontitis in our dental practice. Nearly all remaining teeth in the upper and the lower jaw showed significant signs of gingival chronic periodontitis, insufficient root treatments and prosthetic suprastructure as well (Fig. 1). The medical history of the patient was without any significant pathological findings.

Diagnostic procedures
In cases of long-term edentulism, the dental surgeon is almost always confronted with a reduced bone volume, representing both a major challenge and a significant demand for the use of diagnostic imaging methods prior to augmentation and implant treatment. Conventional X-ray images contain only a two-dimensional information concerning the vertical height of the alveolar bone. Therefore, they represent an insufficient method for the appreciation of the horizontal bony dimensions.

In comparison, three-dimensional (3-D) diagnostic tools like cone beam computed tomography (CBCT) offer the advantage of the visualisation of the so-called ‘z-axis’, representing the bone volume in the horizontal, i.e. buco-lingual dimension of the alveolar crest respectively. A proper treatment planning and the use of 3-D diagnosis are therefore crucial parameters for a predictable and sustainable final treatment outcome in implant therapy, especially in patients with severe resorption of the jawbone, like in our presented patient case.

The oral examination and the CBCT-scan (SCANORA, Soredex, Schuttern, Germany) revealed a distinct bone resorption in the lower jaw, showing a more pronounced horizontal atrophy in the anterior part of the mandible (Figs. 2 & 3).

According to the clinical measurements and the values of the 3-D CBCT scan, the interforaminal vertical bone height was between 22.0–25.1 mm.

The horizontal bone volume amounted to between 1.0–5.0 mm in the implantation zone.

The CBCT-scan revealed a horizontal crestal bone thickness of 1.0 cm in region 32 and 1.7 cm in region 44.

Treatment planning and augmentation procedure
After patient-consultation, we opted for a twostage surgery with an introraly harvested autogenous bone-graft and a delayed implant treatment after a healing period of at least four months. As the vertical dimension of the implant region appeared to be sufficient enough for placement of implants with a standard length, we decided to cut off 5.0 mm of the thin and sharp-edged alveolar ridge by osteotomy, in order to create an autogenous lateral onlay bone-graft for horizontal augmentation in the anterior alveolar ridge. This protocol was used in our view the advantage of the avoidance of donor morbidity, because the donor site was the receptor site as well. After creation and mobilisation of the mucoperiosteal flap, the very thin and sharp edge of the atrophied alveolar crest became visible (Fig. 4).

The osteotomy of the bone was performed with a saw (Bone splitting system, Helmut Zepp Medizintechnik GmbH, Setingen-Oberlacht, Germany, Fig. 5).

Subsequently, the graft was detached from the anterior mandible with chisel (Bone splitting system, Helmut Zepp Medizintechnik GmbH, Setingen-Oberlacht, Germany, Fig. 6) and a cortico-cancellous bone block was obtained (Fig. 7). The bone graft was fixed at the buccal side of the anterior mandible (re-Site) with titanium screws.

Figs. 2a & b: Pre-operative panoramic X-ray: poor periodontal and prosthetic conditions.

Fig. 3: Pre-operative CBCT: aspect of the extremely horizontally resorbed alveolar ridges of the anterior part of the mandible.
of 3.75 mm and a length of 11.5 mm were moved, the four implants with a diameter of 3.9 mm in region 44 and 3.3 mm in region 32 respectively, representing a mean bone gain in horizontal defects of 3.9 mm, as reported in a systematic review of the literature.\(^9\) Thus, resorbable screws seem to be the method of choice when using a barrier membrane.\(^9\) This procedure avoided donor site morbidity, and resulted in less operating time and a reduced patient discomfort.

The dimensions of the graft were ideal for lateral augmentation, so the alveolar bone ridge appeared sufficient enough for implant placement (Fig. 10). The CBCT data confirmed the assumption, demonstrating a significant gain of bone volume in the interforaminal region of the mandible after augmentation.

The horizontal thickness of the crestal alveolar bone was 3.5mm in region 42 and 4.4mm in region 32. The augmentation procedure resulted in a horizontal bone gain of about 3.9 mm in region 44 and 3.3mm in region 32 respectively, representing a mean bone gain of 3.6mm (Fig. 10). After elevating the flap, the sharp-edged alveolar ridge becomes visible.
Bioactive implant coating stimulates healing process

By Dr Frank R. LaMar Jr, USA

When patients seek dental implant treatments, not only do they bring specific needs, they also bring hope. Health care marketing today has only increased these expectations, and has set up more doctors to fail to meet them. Not because they aren’t capable, but because they haven’t reset their patients’ expectations at the beginning. Many dentists end up struggling to fulfill their own promises, and it can ultimately impact their reputations for years to come.

The Promise of Great Teeth, Right Away

One of the biggest challenges we face as dentists is our patients’ expectations of immediacy. Throughout their lives, consumers have been delivered things fast. Fast food, overnight deliveries, two-day gift deliveries from across the globe. People have been trained to believe that fast is best. This has become true in the dental implant / full arch delivery space as well, despite the fact we know that the human body requires time to heal and adjust. Biology just hasn’t kept up with the 24-hour-turnaround promise as simply as they had envisioned. That first denture conversion? It was just step one of what turns out to be a multi-step process. Teeth right away... plus more time. A little bit longer than the patient had originally thought.

In addition, healing and prosthetic failures are more common in urgent, immediate load cases. The lost time and patient inconvenience often creates a lesser than ideal sense of a dentist’s satisfaction with this part of the practice. By taking the fast track, patients ultimately spend more time taking care of their chair, reducing your profitability. You end up married to an unhappy patient, working hard to satisfy them – every extra minute in your chair leading to additional frustration for you both.

The Risk to Our Reputations

When we first meet with patients – regardless of why they saw us come to the office – we should ask what their ultimate goals are. Their hopeful expectations with honest and expert guidance. For us, it is important not to be pressured to make unrealistic promises based on manufacturers’ generalized marketing strategies. Instead, get smart about the implant protocol you want to specialize in – understand the entire process, well beyond the initial loading. Embrace the entire continuing education available and seek out other practices that have had success.

Choose your implant protocols based on the resources made available to you. Until you have seen your first dozen patients through the process, having other experts available for advice and direction is invaluable.

With a depth of resources and expertise at your disposal, you will be in a better place to make the ultimate promise to your patients: that you will see them through to the finish line, creating a healthy mouth and lasting smile that will match all their most important expectations.

By DTI

TOMSK, Russia: One of the reasons for dental implant failure is rejection of the implant owing to the body’s immune response. Immune cells identify the implant as a foreign body and cause inflammation and finally rejection. A new biomimetic coating for medical implants, developed by Russian scientists, may be able to invert this immune mechanism and encourage healing around the implant.

Scientists at Tomsk Polytechnic University have proposed solving the issue of implant rejection by coating implants with a biologically active compound that is an analogue to the cytokine interleukin-4. This substance can change the behavior of the innate immune cells, the macrophages, forcing them to stimulate the healing process instead of rejecting the implant.

“A feature of macrophages is their enormous plasticity: under different conditions the same immune cells can either fight the implant or, conversely, stimulate the healing process. We are trying to synthesize these compounds, which could force macrophages to differentiate into a positive phenotype,” said project manager Ksenia Stankinch, a PhD student at the Department of Biotechnology and Organic Chemistry at the university’s Institute of High Technology Physics. According to the researchers, the coating could be used for polymeric and titanium implants, which are employed in implant dentistry, as well as orthopedic and oral surgery.

Therefore, the Russian scientists hope that their development will be universally applicable in implantology. Currently, they are at the stage of synthesizing the compound and are conducting experiments to determine its optimal composition.

The research project has received the support of the Russian Foundation for Basic Research and was a gold medal at the RusBioTech international exhibition in 2016, according to the university.

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Novel implant coating could facilitate bone integration

By DTI

LEIOA, Spain: Oral infections are regarded as one of the most common reasons that dental implants fail. Spanish researchers are currently developing antimicrobial coatings that are capable of preventing and eliminating potential bacterial infections while providing the implants with osseointegration properties.

The quest for surfaces that are capable of preventing bacterial colonisation and adherence in the areas surrounding the implant “is a subject of undoubted interest, born out of the huge number of studies that have been undertaken in this field,” according to Beatriz Palla, researcher at the Biomaterials Group of the Department of Polymer Science and Technology at UPV/EHU, University of the Basque Country. “About 10 per cent of implants have to be removed due to osseointegration problems or because of the onset of infection," she explained.

When designing strategies to combat these problems, the challenge is to give the surface of the titanium implant antibacterial properties, while simultaneously overcoming the tremendous resistance that bacterial strains are capable of developing against conventional antibiotics. “We have already created coatings that facilitate bone generation around the implant, thereby facilitating anchoring to the bone. In a bid to go a step further, we looked at how we could turn these coatings into bactericides,” said the Palla.

The Spanish researchers used sol-gel synthesis to tackle the problem. This method starts with the preparation of a precursor solution (sol), which, if left on its own for a while, turns into a gel that can be used to coat the surface of the titanium screw. After heat treatment at a high temperature in the kiln, it adheres to the surface of the titanium screw. “We used silica as the precursor, because it is left on its own for a while, turns into a gel that can be used to coat the surface of the titanium screw. After heat treatment at a high temperature in the kiln, it adheres to the surface of the titanium screw,” said Palla. In the coatings that were designed to eradicate an infection that has already taken hold, however, “a rapidly degrading material is needed so that it can release the antibacterial agent as quickly as possible to attack the infection”. Furthermore, one of the coatings that were developed for this purpose “is designed to be used in situ, at the dentist’s surgery itself, on the infected screw without any need to extract the implant from the patient. This new material is in the process of being patented and remains a trade secret,” the researcher stated.

In view of the results, Palla believes that “it is possible to confirm that coatings with antibacterial capabilities, which do not affect the proper integration of the implant into the jawbone, have been developed”. However, she also admits that there is still a long way to go until these can be applied and used at dental surgeries. She explains that “apart from all the trials that remain to be carried out, it would also be advisable to further pursue the research a little in order to optimise the results”.

The study, titled ‘Control of the degradation of silica sol gel hybrid coatings for metal implants prepared by the triple combination of alkoxysilanes’ was published in the December 2016 issue of the Journal of Non-Crystalline Solids.
A cost-effective and custom solution for bruxism

By Akervall Technologies

In the U.S. alone, bruxism affects 10 per cent of people and as many as 15 per cent of children, according to the American Sleep Association. Once this oral habit has been identified, dentists usually prescribe a night guard or splint.

However, many types of night guards exist on the market that do not fit perfectly owing to the hard acrylic material from which they are manufactured. Furthermore, while custom-made occlusal guards are the best permanent solution, not every patient affected by bruxism can afford such an expensive mouth guard. Insurance may cover a night guard only once in the patient’s lifetime. Therefore, many cases of bruxism go untreated, causing continued permanent damage to patients’ teeth.

U.S.-based Akervall Technologies offers an effective custom-made and cheaper solution: the SOVA Night Guard, the thinnest over-the-counter night guard on the market made of thermoplastic material. While the SOVA Night Guard is only 1.6 mm thick, it has been designed to withstand 30 per cent more impact than a conventional mouth guard. Patients have reported that within the first week of wearing the night guard, the pain caused by bruxism or temporomandibular joint dysfunction (TMD) was significantly reduced or stopped. Moreover, they have remarked on SOVA’s stability and thinness, as well as the ease of drinking and talking while wearing it.

The technology behind the SOVA Night Guard is called Diffusix and it works with unique perforations and special crumple zones that prevent grinding forces from travelling to the teeth, relieving pain and reducing the risk of dental injury.

When a SOVA Night Guard is properly fitted, perforations oscillate on impact to diffuse grinding forces and guide those forces into the crumple zones. The perforations also allow for a true custom fit and natural flow of air and saliva.

The SOVA Night Guard is made from a tough thermoplastic polymer material with a high tensile strength that is biocompatible, biodegradable and BPA-free.

The night guard starts as a flat horseshoe shape. After immersion in 130 °F (54 °C) water, the material becomes pliable. The night guard is then molded against the teeth until it hardens. Thus, rather than requiring taking an impression and sending it to the dental laboratory, the SOVA Night Guard can be molded in the office in under 5 minutes to provide the patient with an immediate solution. The appliance can be remolded up to 20 times. SOVA also works with orthodontics. As the teeth are moving, the night guard can be easily adjusted.

Akervall Technologies
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Saline, MI 48176
USA
www.sovanightguard.com

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A new era in digital orthodontics

By Jeffrey T. Kozlowski, USA

A true straight wire appliance would necessitate patient-specific appliances based on an individual’s anatomy. Now, with advances in computer software and design, fabrication, and a reality and a practical consideration for your practice. Customized Insignia™ is the first true straight wire appliance. It involves two components: customized appliances—brackets, wires, and placement gauges—and 3D real-time virtual treatment planning software. The 3D software enables clinicians to design the patient’s final occlusion on screen before initiating treatment, then prescribes the fabrication of patient-specific appliances to achieve the planned result. This concept is quite different from how clinicians practice orthodontics. Traditionally, we choose appliances with specific torque values to have certain effects, then re-

act to those effects by repositioning brackets and making wire bends to guide the teeth into the desired po-
tions. With Insignia, we begin with the end in sight and drive directly to-
wards the desired end result.

Over 20 years in development, cus-
tomized Insignia appliances offer the only comprehensive patient-
specific solution available: The treat-
ment planning process begins with accurate PVS impressions. New methods and materials make this procedure quick and easy. From the impressions, the pretreatment malocclusion (T1) is digitized into a precise mathematical model of the patient’s skeletal and dental anat-
omy and the proposed setup (T2) de-
signed (Fig. 1a-b).

See Dr. Craig Andrekson’s discussion. The setup is loaded into the Insignia web portal where, used on clinical experience, functional and esthetic preferences and intimate knowledge of the patient’s specific orthodontic needs, the clinician can easily cus-
tomize it using the Insignia Approv-
er software (Fig. 2). The included soft-
ware offers clinicians unprecedented control in determining accurate tooth position and in their ability to make changes directly to the 3D models without relying on an opera-
tor’s interpretation of instructions.

Insignia does not determine treat-
ment mechanics or prescribe tooth movements and it allows clinicians to use the mechanics and adjuncts of their choice. As doctors modify the desired final outcome in the Approv-
er software, they can view in “real-
time” how the changes affect the op-
posing occlusion. Once the clinician finalizes the ideal setup, the Insignia software engineers the customized brackets, wires and precision bond-
ing placement gauges to the exact prescription required to deliver the desired end result accurately and efficiently.

My experience with Insignia is with the both the customized passive self-
ligating appliance (Insignia custom-
SL) and Insignia using stock Damon® System appliances. The Insignia soft-
ware can be used to fabricate patient-
specific conventional twin brackets and aligners as well. You can also use Insignia software with stock appli-
cances (Ortho’, Inspire ICP™ and, as I mentioned, Damon).

Order your Damon Clear2 brackets today!
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Fig. 5. Breakdown of 41 Cases in Clinical Evaluation
Class I – 19 Cases
 5 were Class I, div 2
Class II – 11 Cases
 3 were Class I, div 1 – 3 Cases
Class III – 6 Cases
 3 were Class I with Class III tendency
 3 were Full Class III

More Control.

Clear Performance.

Offering the same crystal clear performance with more control, Damon Clear2 allows you to treat a wide variety of cases with outstanding results so you and your patients can put their best face forward.

NEW! DAMON CLEAR2 Variable Torques

100% CLEAR BRACKET BODY AND SLIDE for the supreme retention of your Damon SL
SMOOTH, ROUNDED CORNERS for outstanding patient comfort

FOUR SOLID WALLS with improved precision slot for 2× the sliding distance with finishing and efficient treatment

NEW! DAMON CLEAR2 Variable Torques

INNOVATIVE SPINE™ SLIDE for easy and comfortable wire changes
SELF-LIGATING BRACKET DESIGN eliminates the need for elastomeric which etan and collect bacteria

The difference between customized Insignia and Insignia using stock brackets is the third-order customi-

zation (torque) that is engineered into the customized brackets. This difference saves considerable treat-

time and effort over using a “best fit torque” stock appliance. Having treated with both custom-

ized Insignia SL and Insignia using stock Damon brackets, I can attest to the superior value of the customized appliances.

The Clinical Evaluation

My initial experience with custom-
ized Insignia SL began in 2007 when I conducted an extensive clinical treatment trial treating 41 patients to completion. The only limitations on the selection criteria was that patients have no unerupted impacted teeth, no pending restorative needs, and must not exhibit poor oral hygiene. The criteria were limi-
ted in these ways simply because it wouldn’t have been feasible for me to coordinate the ancillary pro-
cedures from across the country. At the time, I was in the process of opening my new office in Connecti-

cut and the clinical evaluation was to be conducted atOrmco in Califor-
nia—nearly 3000 miles away. For operability, I played the roles of doctor and assistant, per-
forming the diagnoses, treatment planning, initial bondings and wire changes, providing all mechanics for 100% of treatment. Full records were taken of each patient, including PVS impressions and iCAT® scans (Imag-

ing Sciences, International, Hatfield, PA) for diagnostics and treatment planning using the Insignia interac-
tive Approver software. Based on my previous experience with Damon System appliances, I estimated that treatment time for the 41 patients would average 175 months.

While I wouldn’t recommend select-
ing this many patients to begin treat-

ing with customized Insignia SL for the first time. I am convinced that the best way to learn Insignia is to submit cases regularly. Regular case submission allows the clinician to relate what is designed in the digital environment to the clinical experi-
ence and final results. This positive feedback loop of learning will help the clinician design each successive Insignia case with a higher level of understanding and accuracy and hence be more successful with its application. My experience has been that clinicians who regularly submit Insignia cases are more suc-
cessful with it than those who start only a few cases and wait to see how they work out. My skills improved substantially through the first 10 to 20 cases, and like using any new appliance, it takes a bit of time to learn the nuances. I also strongly recommend doctors initially select easier cases, and then add more chal-

lenging cases when they become fam-
iliar with the software and clinical protocols.

In late February, 2008, in a one-chair 

operatory at Ormco’s Insignia manu-
factoring facility in Glendora, Cali-

fornia, I bonded all 41 patients over a five-day period. This intensive week of bonding proved to be my first in-

sight into the potential efficiencies of Insignia’s direct view/indirect bonding process. After just the first few patients my bonding technique using the placement gauges sig-
ificantly improved and during the balance of the week, the bonding ap-

pointments averaged less than one hour, including preparing the teeth, bonding the brackets, placing bite 

turbos, engaging the wires, attaching the elastics and reviewing the patient’s records. And all without the help of a clinical assistant!

We all know the importance of plac-

ing brackets correctly, but few of us can consistently and quickly place each bracket precisely where it needs to be. With Insignia, you design the final occlusion and the customized appliances will be fabricated with custom torques, custom bases (in-

out) and custom wires. You specify your bracket positioning preference (e.g. center of the tooth, more gingi-

val or more incisal) so that the cus-

tom appliances are designed to your specifications; thus, it is possible for your Insignia SL appliances to clini-
cally match the placement of your direct bonded appliances.

To transfer the Approver-designed appliances to the mouth, Insignia provides customized placement gauges that place the brackets in the right spot without need for adjust-

ment (Fig. 4). The precision built into the brackets is matched by the ac-

curacy of the placement gauges that offer the benefit of a direct view with the precision of planned indirect bonding.

The major challenge in conducting this clinical evaluation was logistics. Managing treatment from so far away was a daunting experience at first; however, the process reinforced the importance of good digital deci-
sion making and its impact on clin-

cal efficiency. Gone was the luxury of shortening patients’ appointment intervals to accommodate case management alternatives when we need to make clinical decisions based on how a patient responds. It was thus incumbent upon me to re-

create mechanical systems that would withstand the eight-to-ten-week ap-

pointment cycle of my West Coast trips.

At six months, the first patient fin-

ished treatment and by December 2009, after just 21 months, the first patient had his appliances removed. To determine the value of custom-

ized Insignia SL for my own practice,
I initially compared the results of this evaluation with my previous seven years of experience treating patients with direct-bonded Damon System appliances. This comparison helped me evaluate customized Insignia SL with what I used to do in my office—direct bonding. These 41 customized Insignia SL cases were treated in an average time of 12.5 months—a full five months (28%) shorter than my estimate of 17.3 months (Fig. 3). I based the estimates on my previous seven years of experience with the Damon System appliance but before I had had any experience with Insignia. In my opinion, this difference alone attests to the efficiency of customized Insignia SL treatment. Another value indicator was the number of reposi- tioned brackets needed to finish the customized Insignia SL cases, which was 50% less than my cases with direct-bonded stock Damon System appliances.

After completing the evaluation, I compared the results with comparable patients I later treated with Insignia using stock Damon appliances. This second comparison assisted me in placing a value on the patient-spe- cific customized torques of the cus- tomarized Insignia SL appliance. The 41 customized Insignia SL cases in the evaluation finished in 22% shorter treatment time (12.5 months) than the next consecutive 41 cases using Insignia with stock Damon brackets that I treated in my private practice (15.1 months). The average number of appointments for the 41 Insignia stock Damon cases was 10.2 versus 8 appointments for the 41 customized Insignia SL cases.

In terms of quality, a subjective evaluation I grant you, I feel that my customized Insignia SL cases finish with quality that equals or exceeds my direct-bonded Damon System cases or my Insignia cases using stock Damon brackets yet in less time and with significantly less effort. I have felt confident enough with the customized Insignia case results to have shown them in pre- sentations around the world and have been so pleased with the results that I now treat 70% of my patients with direct-bonded stock Damon appliances, primarily those who start treatment in late mixed dentition, but for all those cases for which customized Insignia SL applies, it is now my ap- pliance of choice.

This article highlights a few of the pa- tients I treated in the clinical evalua- tion, demonstrating the quality of the results and efficiency of treat- ment.

Dr. Kadowaki obtained his DDS degree in 1996 and a certificate in orthodontics at State University of New York at Buffalo in 1998. His practice, Kadowaki Orthodontics, has locations in New London and East Lyme, Connecticut. He has lectured exten- sively all over the world, including for the AAO and its various constituent societies and universities and study clubs as well as annually at the US Damon Forum and European Damon Symposium. His topics include efficiency and excellence in ortho- dodontics, early treatment and facial esthet- ics. He has also been published in several orthodontic journals, including Seminars in Orthodontics and the Journal of Clin- ical Orthodontics.

A fitness advocate, he has completed five Ironman Triathlons, more than a dozen Half-Ironman Triathlons and numerous marathons and endurance cycling events, including the grueling Mt. Washington Bicycle Hill Climb seven times. He and his wife, Amy, a pediatric dentist, have two children: Amelia and Jake.

Easy bonding of orthodontic brackets
New abrasion technique

By Medivance Instruments Ltd.

Abrasions have long been discussed as a treatment in all areas of dentistry. With AquaCare, UK-based Velopex International has introduced an in- novative and contactless way to abrade and polish teeth and ortho- dontic appliances.

The unit combines four powder car- ride systems with an easy-to-use multi-function handpiece—that can even be double via the foot control as a control. This is achieved by hold- ing the cutting nozzle 2 mm above the surface of the tooth and gently moving it in a circular motion over the required area. This will result in a dry ‘etched’ surface, ready to accept the bonding agent.

The risk of saliva contamination is greatly reduced because the alum- inum oxide dries the surrounding area. The same technique can be used to clean the orthodontic brack- ets.

Therefore, AquaCare is a superior tool for incognito lingual brackets as it is able to reach difficult internal surfaces in order to clean and attach the brackets.
Orthodontic supplies market: Report predicts highest growth rate in Asia Pacific

By DTI

PUNE, India: While North America and Europe are expected to have accounted for the largest share of the regional segments in the global orthodontic supplies market in 2016, the Asia-Pacific market is projected to register the highest growth rate over the next five years, a new report by market specialist MarketsandMarkets has found.

According to the research firm, the forces driving this development are growing efforts to increase awareness of advanced orthodontic treatments in the region and a very large patient population with malocclusion and jaw disorders. In addition, growth is being stimulated through increasing disposable income, coupled with a growing middle class and the stronger focus of global orthodontic and dental companies on emerging Asia-Pacific countries.

According to the market review, the major competitors in the orthodontic supplies segment are 3M, Align Technology, Danaher Corporation, Henry Schein, Dentsply Sirona, American Orthodontics, Rocky Mountain Orthodontics, G&H Orthodontics, Dentsaurum and TP Orthodontics.

Orthodontic supplies market: Report predicts highest growth rate in Asia Pacific

Perfect Orthodontic Performance

POP expansion screws

By Leone S.p.A.

The innovative and biomechanical orthodontic expansion screw POP is made of stainless steel and biomaterial techno polymer. The male screw is not in contact with the orthodontic acrylic resin; the function of the screw will not be influenced by the quality of the technical procedure and a non-compliant curing time.

Continuous expansion movement: the high pressure injection of the polymer allows the perfect copy of the male thread of the screw, thus ensuring a steady expansion transmission without the risk of undesired turning back in the mouth. The self-centring rectangular guides ensure a biomechanical and absolutely controlled symmetrical expansion. The flat shape of the guides and their flexibility allow the gradual release of the expansion with a physiological orthodontic movement. The flexibility of the screw allows the adjustments of any dental regres due to inconsistent use of the appliance by the patient, thus being very effective with holding devices following a rapid expansion treatment.

The high adaptability of the appliance enables a comfortable application in the mouth in the days following reactivation. Two embossed arrows on the body indicate the direction of opening. When using a colour of acrylic resin similar to the polymer body, a white arrow provided with the plastic placement tab may be easily applied to make the direction of activation visible.

The placement plastic tab, made of two pieces combined with a unique geometry, allows perfect protection of the holes from the acrylic resin during the packing procedure and facilitates the removal after the curing cycle. The screw body is available in five colours.

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According to a recent market review, the fixed braces segment is expected to have gained the largest share in the global orthodontic supplies market in 2016. (Photograph: bngdesigns/PixaBay)