Chewing causes microwear

By DTI

CHENGDU, China/FAYETTEVILLE, USA: A team of researchers from the University of Arkansas in the USA and the Tribology Research Institute at Southwest Jiaotong University in Chengdu has documented the effects of chewing on the nanosized structures that make up tooth enamel. Using tips made from different types of material, pressure was applied to the surface of human molars, which had been extracted for orthodontic purposes. The researchers scratched the teeth, moving the tip across the surface to simulate the action of teeth moving against each other during chewing. They also indented the tooth surface, pressing the tip against the enamel to simulate the pressure caused by crushing food.

The researchers observed that, at every level of pressure, scratching led to more damage than indentation, but both types of stress resulted in three different kinds of damage. Plucking occurred when the crystallites were separated from each other. Applying more pressure to the enamel led to deformation, or the bending and squeezing of the crystallites. At even higher levels of pressure, fragmentation resulted when the chemical bonds holding the crystallites together broke.

“Hydroxyapatite crystallites are the fundamental units of enamel, each less than 0.0001mm thick, the thickness of a human hair,” said co-author Prof. Peter Ungar from the University of Arkansas. “Most research on tooth wear to date has focused on effects at much larger scales, but we have to study enamel at this finer level to truly understand the nature of how the hardest tissue in our bodies resists wear and tear.” The study, titled “Enamel crystallite strength and wear: Nanoscale responses of teeth to chewing loads,” was published online on 23 October in the Journal of the Royal Society Interface.

Legal loopholes

Dentistry and cosmetic surgery are two fields that may be especially vulnerable to exploitation of legal loopholes concerning the administration of local anaesthesia, according to the Australian and New Zealand College of Anaesthetists. To address this issue, the medical body has called for tighter and uniform national regulation for administering sedation in these fields.

Changing taste

Caffeine is a powerful antagonist of adenosine receptors, which promote relaxation and sleepiness. Depressing the effect of the receptors may make people feel more awake, but a new US study has found that it also decreases their ability to taste sweetness—which makes food and drink seem less sweet and may trigger sugar cravings, the researchers concluded.

The method was first introduced in 1996 by Scottish dentist Dr Norma Hall, who used the treatment on her patients for 15 years until she retired. Some clinicians think the treatment is wrong because it leaves bacteria behind, explained lead researcher Dr Foster Page from the University of Otago. However, the study’s provisional results have been promising, she said.

Women in dentistry

SYDNEY, Australia: The latest figures out of Australia show that, for the first time in the island continent’s history, there are more women working in dentistry than men. According to data from the Dental Board of Australia, 52 per cent of dental practitioners, including dentists and dental therapists, across the country are female. Additionally, of the 722 current members of the Australian Dental Association Victorian Branch, 410 are women and 312 men.

With its flexible hours, creativity and good pay, many women are choosing the profession over medicine. Speaking to Dental Tribune, President of the Australian Dental Association Victorian Branch Dr Susan Wise said, “There is now more diversity of dentists with respect to gender and ethnicity. Women are attracted to dentistry as a career, as it is possible to do part-time work and fit in bringing up young children. This is more difficult in many fields of medicine, low, accounting and architecture.”
Aussie dentist awarded prize for innovation

By DTI

MELBOURNE, Australia: University of Melbourne molecular biologist Prof. Eric Reynolds has claimed the Prime Minister’s Prize for Innovation for his pioneering dental research. Thirty years ago, the then-young dental researcher discovered a protein in cows’ milk that repairs and strengthens teeth. Today, that protein, sold as RECALDENT, is used by millions of people every day in the form of chewing gum and professional applications by the dentist.

As an inventor and laureate professor, Reynolds now leads the University of Melbourne’s dental school and travels the world working with Australian and global businesses to create new products to further improve oral health. “Oral diseases are the most prevalent diseases of humankind,” said Reynolds.

With one in four Australians suffering from caries and/or periodontal disease, the cost of treatment is A$5 billion a year, with worldwide costs around A$140 billion a year. Since Reynolds’ discovery, products using RECALDENT have generated sales of over A$2 billion, and it has been estimated that they have saved over A$12 billion in dental treatment costs worldwide.

“I am very honoured to receive the Prime Minister’s Prize for Innovation and extremely grateful that the judging panel recognised the importance of innovation in oral health research,” said Reynolds.

In his early dental academic career, there was anecdotal and some epidemiological evidence that dairy products could reduce the risk of dental caries. Through a series of experiments, Reynolds and his team were able to confirm this and found that the effect was due to a unique form of calcium present in milk, in a protein called casein.

When Reynolds started talking at international meetings about the product, the large oral companies wanted samples to evaluate. That is when the Australian dairy industry became involved—first Bonlac Foods (now part of Fonterra) and then Dairy Australia. They started manufacturing the material, trademarked as RECALDENT. Today, all the RECALDENT used around the world is made in Melbourne using Australian dairy milk, and Japan is the largest seller of sugar-free gum containing RECALDENT.

Reynolds continues to improve RECALDENT, and a recent President of the Turkish Academy of Esthetic Dentistry. He will also be holding a hands-on workshop titled “Revolution in 3D Smile design: The REV360”. Additionally, specialist prosthodontist Dr Christopher Ho will be presenting a paper entitled “The additive approach to complex rehabilitation: Digital workflow meets the art and science of dentistry”. Other particularly noteworthy lectures will focus on a rational workflow in the treatment and restoration of endodontically treated teeth, periodontal treatment in the twenty-first century (from research to clinical practice), and skills and techniques for treating older patients.

In addition to the main scientific programme, attendees can take part in a number of hands-on workshops being held before, during and after IDEM. These offer the opportunity to learn the latest in dentistry and earn continuing professional education credits.

“IDEM is the best event in Southeast Asia to uncover the latest trends being discussed in dentistry. The Singapore Dental Association is proud that IDEM calls Singapore home and, taking the tenth edition to look forward, is excited to see what new innovations leading the dental exhibition and conference in the Asia Pacific will continue to bring to the region,” said Dr Lim Lii, President of the Singapore Dental Association.

Online registration for IDEM 2018 is now open at www.idem-singapore.com.

IDEM 2018 larger than ever

By DTI

SINGAPORE: Around 9,000 visitors representing at least 83 countries are expected to attend the tenth International Dental Exhibition and Meeting (IDEM) Singapore that will take place from 15 to 17 April 2018. With an increased exhibition space, the anniversary edition of IDEM will not only be the largest show to date, it will also review nearly 20 years of dental history and feature Workflow in the treatment and restoration of endodontically treated teeth, periodontal treatment in the twenty-first century (from research to clinical practice), and skills and techniques for treating older patients.

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Texting for advice: New app enables medical consults round the clock

By DTI

SINGAPORE: Tele-medicine and tele-health apps are increasingly emerging. Just last month, the MaNaDr app for mobiles was launched in Singapore. Through the app, which is accessible to patients in Singapore and Australia, users can tele-consult and schedule appointments with over 500 clinics and 600 general medical and dental practitioners and specialists in the two countries.

The app is part of the larger MaNaDr healthcare platform, which is owned by Singaporean company Mobile Health. At the launch event, which was held at the Singapore Press Holdings’ News Centre, Mobile Health co-founder and CEO Dr Tung Yeng Siaw said he and his team of doctors were motivated by the vision of a mobile platform that would empower patients to take charge of their healthcare.

In tele-consulting medical professionals, patients can text doctors and send photographs of their medical conditions through the app. If the user’s preferred doctor is unavailable, he or she will be referred to another professional.

According to Siaw, doctors do not have to pay a fee to list their services on the app. Instead they are provided with an extra stream of revenue through the paid tele-consults.

An advantage of the system, which is mainly intended for follow-up consultations and minor health issues, is that patients have access to medical advice anytime and anywhere. In addition, text consulting with medical and dental professionals costs less compared with face-to-face consultations at the clinic, the developers stressed.

For example, Dr David Cheong, one of Mobile Health’s co-founders and its chief medical officer, charges S$5 (US$3.60) for the initial messages for the tele-consult and S$0.50 (US$0.36) for subsequent messages—substantially less than his usual consultation fee of S$30 (US$22), the Straits Times reported.

The app is available for iOS and Android devices and can be downloaded free from the iTunes Store and Google Play. More information is available at www.manadr.com.
“The pattern of decay is slowly changing”
An interview with paediatric dentist Dr Rana Yawary, Australia

In Australia, dental caries is the highest cause of preventable hospitalisations of children. In search of a potent anti-caries approach, Dental Health Services Victoria has announced that it is conducting a study on the use of silver diamine fluoride (SDF) for the management of caries. In an interview with Dental Tribune, research project manager Dr Rana Yawary spoke about the benefits and drawbacks of the method and why she thinks SDF has the potential to increase treatment compliance and thereby help ease social inequalities.

“[… even the youngest children are consistently more cooperative because they experience their dental visits without pain or discomfort.”

Can you explain how and why SDF is used in dentistry?
Topical application of 38 per cent SDF, a liquid cavity cleanser and desensitiser, has been shown to arrest 81 per cent of active caries in primary teeth. Because this treatment is non-invasive and easily performed, it can be a promising strategy for management of dental caries in very young children and avoids dental general anaesthesia. Apart from staining the arrested lesion, there has been no reported significant complication of SDF use among children.

Can you briefly introduce the study design and its objectives?
The study will closely follow more than 400 children aged 2–10 years. The researchers will treat children and monitor them over a year to study the impact of the protocol on cavity progression. They will also measure oral health-related quality of life and treatment satisfaction and acceptability. These results will be compared with those for children who are referred for treatment under general anaesthesia.

What are the benefits of SDF compared with other anti-caries approaches?
The use of SDF provides an alternative in managing early childhood caries in children that aren’t able to cope with extensive dental treatment in the chair. It doesn’t require local anaesthesia—the needle! With each successive dental visit, even the youngest children are consistently more cooperative because they experience their dental visits without pain or discomfort. It’s easy to apply and non-invasive and has the potential to significantly increase access to oral healthcare across the state.

There is one major drawback to the substance, at least aesthetically: it can cause carious tooth structure to turn brown or black. That is right, and this forms an important component of the informed consent. However, the

Dr Rana Yawary is a specialist paediatric dentist with significant experience in public oral healthcare. In collaboration with Dental Health Services Victoria, she aims to trial and implement new models of care and drive initiatives relating to oral disease prevention and improved health outcomes.
undesirable effects of SDF—dark discoloration of carious dentine—are outweighed by its desirable properties in most cases, and no toxicity or adverse events associated with its use have been reported. The use of a second application using potassium iodide can reduce the staining without affecting the efficacy.

If the study proves successful, could SDF help ease social inequalities in the prevalence of dental caries in children?

Absolutely. Dental caries prevalence occurs on a social gradient, with more disease in children from low socioeconomic groups. SDF application can be a cost-effective means of treatment for many disadvantaged children or in areas where there is a great shortage of dental staff. It can even be applied in outreach settings outside of the dental clinic, such as schools, early learning centres, maternal and child health clinics, and playgroups.

So, it would be relatively easy to implement treatment with SDF in daily dental practice?

Yes. The treatment is low-cost. It does not require expensive equipment or supporting infrastructure. Therefore, the programme is easy and inexpensive to set up.

When one compares the costs of the protocol to the cost of managing severe early childhood caries under general anaesthesia, the cost of dental general anaesthesia is disproportionately high. Dental caries is the highest cause of potentially preventable hospital admissions in Victoria for children in the 0 to 19 year-old age bracket. In fact, around 4,500 Victorian children aged 0–14 years are hospitalised every year owing to dental conditions.

Do you think, when addressing the global burden of dental caries, measures such as this are more effective than educational initiatives? Or do they always need to go hand in hand?

Tooth decay is caused by lifestyle factors such as diet and oral hygiene. To eradicate tooth decay, there needs to be education addressing the cause of the disease. Improving global oral health literacy and addressing the social determinants of poor oral health are the keys to reducing the global burden of tooth decay. Topical fluorides form an important part of managing caries, but they do not resolve the need for oral health education and prevention. In fact, we know that if one doesn’t address the cause of the decay process, one can get secondary caries around an arrested cavity after one has applied SDF.

From your personal experience, do you feel that the number of children suffering from severe dental caries has increased or declined in the last few years?

I believe the pattern of decay is slowly changing. The recent Victorian Preschoolers Oral Health Survey revealed that over 56 per cent of Victorian children between the ages of 3 and 5 years present with signs of dental caries. The evidence demonstrates significantly worse figures for children of healthcare and pensioner concession cardholders, Aboriginal people, Torres Strait Islanders and those from non-English-speaking backgrounds. These high-risk communities need to be targeted to help close the gap in the fight against early childhood caries.

It is a proven fact that dental caries is a preventable disease. Why is it that most countries—industrial nations and developing countries alike—still struggle with a high prevalence of dental caries? Tooth decay is preventable, but government bodies and public health organisations need to take the lead in creating strategies to reach those most in need. There is considerable inequality in the distribution of oral disease, with 80 per cent of the burden of disease in Australia concentrated in only 20 per cent of the population. Dental Health Services Victoria has taken on the challenge, using the latest evidence and data, to help provide an equitable and effective oral healthcare system. Our aim with this protocol is to provide an example of a safe, evidence-based solution that has been trialled and found to be effective in Victoria.

Thank you very much for the interview.
Optimal handpiece maintenance

No waiting time or stress with the W&H Assistina TWIN system

Offering optimal support of an efficient reprocessing workflow in contemporary dental practices, W&H presents its new automatic handpiece maintenance device, Assistina TWIN. The device boasts a record cycle time of just 10 seconds and a sophisticated dual-chamber system, effectively rendering tedious waiting times during the maintenance process a thing of the past.

For the practice team, this translates not only to stress-free working but also to optimal support as far as efficient time management is concerned. Together with a simple operating concept, the ergonomically arranged instrument ports also offer additional convenience. Furthermore, an enhanced method of oil application and the use of a HEPA (high-efficiency particulate air) filter provide short cycle times, high cost-efficiency and improved reliability.

Running smoothly

According to the company, instrument servicing with the Assistina TWIN makes maintenance as effortless as possible for the dental team. While the first instrument is being serviced in the closed chamber, the user can already start connecting the next one in the second chamber. The device thus promotes a continuous workflow—without any waiting time and entirely free from stress. The ease of operation of the W&H device, requiring just the push of a button to start the maintenance process, is yet another highlight.

Furthermore, the dental professional is given the option of using any adaptor. This means that the new handpiece maintenance solution can easily be adapted to the particular requirements of the practice.

Record cycle time thanks to oil nebulisation

A particular highlight of the Assistina TWIN is the device’s short service cycle time. During servicing, the spray channels are flushed with cleaning solution and dried with compressed air, and all gearing components are lubricated perfectly with W&H service oil. With this all-round maintenance concept, the Assistina TWIN makes a valuable contribution to the continued good functioning of instruments and helps to extend their lifetimes.

W&H’s innovative oil nebulisation technology guarantees the Assistina TWIN’s record processing time. The oil is first nebulised before being blasted through the instrument at high pressure. The fine mist produced reaches even the most remote parts without any need for the gearing components to be set in motion first. This makes it possible to remove debris and dirt from the instrument completely and efficiently. Equipped with a state-of-the-art process monitoring system, the device checks that the exact quantity of oil required for each instrument is applied, ensuring uniform and optimal handpiece maintenance results.

The device’s HEPA filter removes bacteria, viruses, dusts, aerosols and smoke particles, among others, from the air, and thus also offers optimal safety in its use. Aerosol mists that form during the maintenance process are captured by a fan and filtered out, ensuring the practice team of a safe working environment in the course of the hygienic reprocessing.

Efficient, sustainable and ergonomic

Specially designed to the requirements of dental practices focusing on cost reduction through improved performance, the Assistina TWIN optimises oil consumption and the cycle time during the service process. As such, it is a particularly cost-effective solution that also helps to save resources.

All of the device consumables, such as cartridges and HEPA filters, are offered in the new Assistina TWIN Care Set and can be replaced by the user without any tools. More information can be found at www.wh.com.

Simple starting of the handpiece maintenance process with just one button.
China accelerates registration process for foreign drugs and medical devices

BEIJING, China: The Chinese State Council has announced its facilitation and expediting of the approval process for overseas pharmaceuticals and medical device manufacturers seeking to enter the Chinese market. The measures are part of efforts to lower research and development costs and reduce delays for new medical products entering the domestic market.

As reported by the Global Times, one of the changes announced in October is that foreign clinical trial data obtained from overseas centres can now be used in registration applications—as long as the trials comply with Chinese pharmaceutical and medical device registration requirements.

"Previously, clinical trial data carried out overseas was not accepted in China. Thus, international drug makers had to repeat the trials if they wanted to bring new drugs and medical devices into the Chinese market, which could take several years," explained Yingtao Wang, head of the Beijing representative office for Germany-based dental material manufacturer DMG.

According to Lifeng Wang, a representative of the China Food and Drug Administration, the accelerated procedure will reduce repetitive trials and thereby significantly improve efficiency in domestic registration. As a result of the expedited process, approvals for new treatment will be cut by several years and the latest products and devices will likely be available without delays, benefiting medical professionals and patients alike. In addition, prices of pharmaceuticals and medical devices from overseas are expected to fall.

The current market approval procedure has been insufficient in supporting scientific innovation, resulting in the Chinese market lagging behind global advancements, the State Council said in a statement. The changes thus ought to boost the domestic pharmaceutical industry by adjusting the industrial structure, encouraging innovation and making Chinese pharmaceutical manufacturers more competitive.

To ensure data accuracy in the new process, the authorities are expected to strengthen supervision of foreign clinical tests through efforts such as setting up an overseas clinical trial examination system, among other measures.
Age-appropriate aesthetics
Creating natural effects with VITA VM materials

By Carolin Wehning, Germany

For dental technicians, it is especially challenging to produce natural-looking, age-appropriate reconstructions in the visible area of the mouth in older people. It is recommended to follow a systematic procedure based on the characteristics of the natural teeth for the individualisation and characterisation of such a restoration. This is the only way results can be achieved that blend harmoniously with the remaining dentition. In this case study, I show how such a complex case can be solved with VITA VM9 veneering ceramics and VITA INTERNO materials (both VITA Zahnfabrik) for internal characterisation.

Assessment and planning

A 77-year-old patient presented to the dental practice after a coronal transverse fracture of tooth #21 that had already been treated with a direct composite. Clinically, the results were morphologically and aesthetically inadequate (Fig. 6). On the adjacent natural tooth (#11), age-related discolorations, initial white and brown spot lesions in the cervical area, and a vestibular transverse dark-brown crack were apparent. The dentist and patient decided on restoration of the tooth with a full-ceramic crown to achieve a predictable result, the functional crown was designed (Fig. 2). After establishing the basic shade of #11 with the VITA Toothguide 3D-MASTER (VITA Zahnfabrik), the layering scheme was sketched (Fig. 3). After a dentine firing, VITA INTERNO can be used for a second time to give depth with individual shade nuances (Fig. 5). The VITA INTERNO stains allow for a multifaceted and age-appropriate reproduction of the natural teeth (Fig. 3). The patient was very satisfied with the final aesthetic result (Fig. 7). The shading and lighting of the restoration fitted in perfectly with the overall picture (Fig. 8). The final full-ceramic crown had an age-appropriate morphology, surface texture and shading.

Fig. 1: Initial situation: Composite restoration of tooth #21 after distal transverse fracture of the tooth crown. — Fig. 2: After matching the wax-up with the master model, the functional crown was designed. — Fig. 3: The crown framework, prepared for veneering. — Fig. 4: After determining the basic tooth shade of #11 with the VITA Toothguide 3D-MASTER (VITA Zahnfabrik), the layering scheme was sketched. — Fig. 5: After a dentine firing, VITA INTERNO can be used for a second time to give depth with individual shade nuances. — Fig. 6: The VITA INTERNO stains allow for a multifaceted and age-appropriate reproduction of the natural teeth. — Fig. 7: The patient was very satisfied with the final aesthetic result. — Fig. 8: The shading and lighting of the restoration fitted in perfectly with the overall picture.

CAD/CAM fabrication and veneering

The crown framework was made of CAD/CAM-supported VITA YZ HT zirconium dioxide (Fig. 3) for a deep initial fluorescent effect, a wash firing was performed with EFFECT LINER 5 (orange) and EFFECT LINER 6 (green-yellow). Layering with VITA VM9 was the foundation for reproducing the basic shade (Fig. 4). The VITA INTERNO materials then enabled intensification of the deeper individual shade nuances after the wash and dentine firings (Figs. 5 & 6). Int 04 (orange) and Int 11 (grey-brown) were used in the cervical and interdental areas. Int 03 (terra cotta) was used in the centre. The inside areas were nuanced with Int 08 (blue), Int 05 (terra cotta) and Int 07 (anthracite), and the incisal edges with Int 02 (sand). Cracks and brown spots were reproduced with Int 10 (brown), and white spots with Int 01 (white).

Finalisation of the restorations

After establishing the basic morphology with a stone and the details with a fine diamond-coated bur, the interior crack was recreated from the outside with a file bur to achieve a 3-D effect. The surface texture was kept as smooth as possible, in accordance with the patient’s age. After the glaze firing, only a goat hair brush and diamond polishing paste were used to slightly reduce the gloss effect. After trying out the full-ceramic crown, the patient was very satisfied with the result (Fig. 7), and a self-adhesive bonding agent was applied. The shade and form of the restoration integrated harmoniously with the other teeth (Fig. 8). The veneering ceramic, in combination with two stain firings, made it possible to achieve age-appropriate aesthetics (Fig. 9).

Editorial note: This article was first published in Dental Barometer, Issue 6/2017.

Carolin Wehning is a dental technician in Bocholt, Germany.
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A preventative approach to infection control

An interview with Dr Lisa Heitz-Mayfield, Australia

By Brendan Day, DTI

Periodontist and implant specialist Dr Lisa Heitz-Mayfield is very busy indeed. In addition to maintaining a specialist periodontics practice in West Perth in Australia and serving as the Editor-in-Chief of the Clinical Oral Implants Research journal, Heitz-Mayfield holds several academic positions, including that of adjunct professor at the University of Western Australia and the University of Notre Dame Australia. Dental Tribune had the opportunity to speak with her about the importance of preventative strategies and early diagnosis of peri-implant disease—a topic she recently addressed at the 26th Annual Scientific Meeting of the European Association for Osseointegration (EAO), held in October in Madrid in Spain.

What were some of the key messages of your presentation during the EAO meeting?

In brief, my presentation focused on diagnosis and treatment planning for implant procedures in relation to the high prevalence of peri-implantitis. I emphasised the importance of achieving infection control prior to implant placement—this involves conducting a comprehensive examination of the patient to determine whether there are any problems, such as periodontal disease or any other intraoral infections.

I highlighted how, particularly for a periodontal patient, the patient needs to have been fully treated beforehand so that he or she doesn’t have active periodontal disease when any implants are placed. The patient should have already gone through the entire process of infection control and should ideally be in a supportive periodontal therapy programme with good compliance and maintenance before he or she receives an implant.

But what is involved in this infection control? Firstly, one needs to eliminate any deep periodontal pockets. We have good evidence today that supports the idea that the presence of residual periodontal disease is a risk factor for peri-implantitis. I emphasised the importance of achieving infection control prior to implant placement—this involves conducting a comprehensive examination of the patient to determine whether there are any problems, such as periodontal disease or any other intraoral infections.

“That is the key to prevention: to make sure that the patient has a healthy oral cavity with little plaque and no periodontal disease before one starts.”
patients developing peri-implantitis at a later date. Infection control also means that patients must have really good oral hygiene. They must have low full-mouth plaque scores, which again is strongly supported by evidence that suggests patients with poor plaque control are at a much greater risk of developing peri-implantitis.

Of course, once one has achieved good infection control, one then needs to ensure that there will be good access for cleaning the implant site once the prosthesis has been placed. This will allow the patient to continue infection minimisation practices at home. If one designs a prosthesis that is inaccessible through the cleaning habits practised by the patient, it is simply more likely that he or she will contract an infection later on.

As a practising periodontist, how have you implemented a preventative approach to infection control? Having good infection control before placing implants is crucial, as it is the best way to prevent these infections occurring later on. When I am planning for implant procedures, I make sure that I start with a good foundation where any infection has been dealt with and that the patient has displayed good compliance and is likely to continue to do so. That is the key to prevention: to make sure that the patient has a healthy oral cavity with little plaque and no periodontal disease before one starts.

A preventative approach requires several elements to work effectively: regular monitoring and supportive periodontal therapy with professional biofilm control, a healthy and regular at-home oral hygiene routine, and controlling for other risk factors, such as smoking and uncontrolled diabetes. By managing these potential issues, dental professionals and patients can work together to help prevent the recurrence of periodontal disease and occurrence of peri-implantitis.

How important is it to properly motivate a patient to engage in these preventative measures and understand, say, what the role of a good oral hygiene routine is? It is extremely important. Again, it is key that, right at the beginning of the treatment planning phase, patients are informed of the risk of complications if they do not maintain good oral hygiene supplemented with regular professional care. Recent literature shows that patients with implants must receive check-ups and supportive care at least twice a year. For patients who have lost their teeth owing to periodontal disease, we know that they are at a higher risk of having similar problems around their implants. These patients then really need to understand and be informed of the importance of good oral hygiene and regular preventative, supportive care prior to engaging in the rather costly business of getting an implant.

What role does regular professional prophylaxis play in preventing peri-implantitis? It comes back to the responsibilities of dental professionals: they need to identify early signs of inflammation, such as peri-implant mucositis, which is an inflammation of the soft tissue, and treat that before it develops into peri-implantitis and initiates bone loss. Evidence shows that management of peri-implant mucositis is a prerequisite for the primary prevention of peri-implantitis.

Removing the harmful biofilm from the exposed surface of an implant with peri-implantitis, though, can be very challenging. There is a different morphology to it, along with a modified surface that is often rough and tends to harbour the biofilm in a way that it is very difficult to remove.

However, as with periodontal disease, it’s much easier to manage and treat peri-implant disease before it becomes too severe. The best way to prevent it is through early detection of the signs of inflammation so that treatment that reverses this process can take place.

From a prophylactic point of view, the periodontally healthy patient is the best patient. Do you agree? Of course. It is really important that patients have good periodontal health so that they do not have deep periodontal pockets and reservoirs of bacteria that could lead to colonisation of biofilm around the implants. Patients need to come for check-ups on a regular basis so that the early signs of disease can be identified and dealt with.

In addition, we should remember that, sometimes, things can go wrong around implants, for example, if a patient has a screw-retained restoration and there is a mechanical problem or technical issue, such as a loosened screw, then a problem with bacterial accumulation may arise and peri-implantitis may develop. Though periodontal health is important, regular check-ups of the prosthesis and the patient’s overall oral health are also crucial in preventing not just peri-implantitis but other intraoral issues as well.

Thank you very much for the interview.
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When an idea turns into innovation

A visit to COLTENE’s endodontics plant and a case treated with the company’s latest endodontic solutions

By Marc Chalupsky, DTI

Although the headquarters of COLTENE are in Switzerland, its endodontics plant is in southern Germany. At the factory, located in Langenau, a town between Stuttgart and Munich, 155 employees produce treatment auxiliaries and endodontic equipment in a fully automated and camera- and laser-controlled process. The German location houses an impressive logistics department thanks to the office’s central location. Dental Tribune was invited to learn more about the company’s endodontic products.

A now well-known expert in endodontics, Dr Barbara Müller has been responsible for the company’s endodontics business for over 20 years (Fig. 1). She takes pride in the company’s achievements. Today, COLTENE is an international leader in the development and manufacture of dental consumables and solutions for a variety of applications. The company operates worldwide, with subsidiaries and distributors in over 120 countries. With the 1990 introduction of the ParaPost X System, COLTENE came to be known as a provider of endodontic solutions. This position has been further entrenched in recent years as the company’s portfolio of endodontic products has continued to grow.

“We successfully managed to give our NiTi material shape memory properties.”

Fig. 2: HyFlex EDM, the next generation one file NiTi system.

An impressive endodontic range

The CanalPro line, for example, features a cordless endodontic motor, a fully automated electronic apex locator and a variety of rinsing solutions, which are colour-coded for procedural safety. ROEKO and HYGENIC paper points are sterile and highly absorbent, and being non-adhesive, allow for reliable and easy drying of the root canal. Fast and safe ob-
turation can be conducted with Guttaflow bioseal, a bioactive three-in-one obturation material that combines cold free-flow gutta-percha with a sealer and bioceramic in one outstanding filling system and with HYGENIC and ROEKO Gutta-percha points. Recent studies have evaluated the in vitro toxicity of endodontic sealers such as GuttaFlow bioseal and Guttaflow 2, as well as Angelus’s MTA-FILLAPEX and Dentisply Sirona’s AH Plus, on stem cells from the periodontal ligament. It was found that especially GuttaFlow bioseal and also GuttaFlow 2 showed lower toxicity levels and higher cell viabilities than the competing sealers did. In addition, GuttaFlow 2 demonstrated a better result in terms of microleakage and sealing ability than the competing sealers did.

COLTENE’s HyFlex instrument, probably its best-known product, has set a new benchmark for NiTi rotary files. HyFlex EDM, the latest generation, integrates the controlled memory effect of its predecessor, HyFlex CM (Figs. 2 & 3). Furthermore, owing to an innovative manufacturing process using electrical discharge machining, HyFlex EDM has a specially hardened surface that makes the files stronger and more fracture-resistant. The controlled memory of both HyFlex CM and HyFlex EDM gives the instruments a number of important properties, including extreme flexibility, superior canal tracking, regeneration after repeat apicoclaying and strong fatigue resistance.

To achieve these characteristics, HyFlex CM and HyFlex EDM are manufactured using a special thermomechanical process whereby the crystallographic phase transition transforms austenite to martensite at room temperature results in an advanced controlled memory of the material, making both files extremely flexible.

“We successfully managed to give our NiTi material shape memory properties,” said Müller. “We did this by changing the DNA of the material through a switch from low to room temperature, our idea became not only an innovation, but a product many of our competitors have tried unsuccessfully to copy.” Introduced at the International Dental Show in Germany two years ago, the new HyFlex EDM reduces the number of files needed to two to three, particularly in straight and larger canals.

Proven clinical experience

According to Müller, a number of clinical studies have demonstrated the efficacy of both systems. For example, Goo et al. compared the bending stiffness, cyclic fatigue and torsional fracture resistance of NiTi rotary instruments, including V-Taper 2, V-Taper 2H (both SS White), HyFlex CM, HyFlex EDM and ProTaper Next X2 (Dentsply Sirona) HyFlex EDM showed the highest cyclic fatigue resistance of the group, with V-Taper 2H and HyFlex CM coming in next. Overall, they showed high torsional resistance. In comparison with HyFlex CM, the EDM version demonstrated a higher fracture resistance.

In another study, Kaval et al. aimed to evaluate these properties in novel NiTi rotary files, including HyFlex EDM OneFile from COLTENE, ProTaper Gold and ProTaper Universal (both Dentsply Sirona). The results showed that HyFlex EDM OneFile demonstrated significantly higher cyclic fatigue resistance and higher distortion angle to fracture, but a lower torsional resistance than both ProTaper options. In addition, Pedulla et al. sought to measure the torsional and cyclic fatigue resistance of HyFlex EDM OneFile in comparison with VDW’s RECIPROC R25 and Dentisply Sirona’s WaveOne Primary. HyFlex was found to have a significantly higher cyclic fatigue resistance and higher angular rotation to fracture.

Furthermore, Iacono et al. aimed to measure the wear of HyFlex EDM after clinical application. No fractures were registered, no wear or degradation was reported, and the increased fatigue resistance of HyFlex EDM (compared with HyFlex CM) allowed it to remain usable for longer when shaping severely curved canals.
A case from the Philippines

Dr Margaret Tiu, a clinician based in the Philippines, agrees that the increased fatigue resistance and strong flexibility of both HyFlex systems allowed her to manage an S-shaped case more easily. At a recent COLTENE Train the Trainer event (Fig. 4), she presented a mandibular first molar case with four canals that was referred to her by another dentist (Fig. 5) who could not negotiate the canal owing to its difficult anatomy (Fig. 6).

After utilising the crown-down technique and the HyFlex CM files to flare the coronal third of the distobuccal and distolingual canals, Tiu then continued to use HyFlex EDM to negotiate the mesiobuccal and mesiolingual canals, as she had discovered a slight curvature in the middle third of the canals. As for the S-shaped distobuccal and distolingual canal, she continued with the Hyflex CM files. Post-op radiograph showed properly shaped canals with proper healing (Fig. 7).

Editorial note: In a follow-up article, Dental Tribune Asia Pacific will publish another background article on the Train the Trainer event, with cases from the Philippines and Taiwan, as well as other studies on GuttaFlow.
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Nobel Biocare announces entry into metal-free implant market

“The first truly metal-free, two-piece screw-retained implant solution.”

Sequencing of sea cucumber genome may help with tissue regeneration

© Christian Chan/Madrid By DTI

MADRID, Spain: At the 2017 EAO congress, Nobel Biocare has announced that it has entered into a partnership agreement with Dentalpoint, a leader in ceramic dental implants, to add a zirconia implant solution to its portfolio.

According to Nobel Biocare President Hans Geiselhöringer, the implant range is “the first truly metal-free, two-piece screw-retained implant solution” and therefore will provide a new option in addition to Nobel Biocare’s leading range of titanium dental implants with the clinically proven TiUnite surface. With 275 million potential edentulous patients around the world, the innovations from Dentalpoint, known for its ZERAMEX implant brand, are intended to help clinicians meet the growing demand for metal-free solutions.

In further news, Nobel Biocare released the findings of the largest meta-analysis of a single implant brand to date. It has confirmed the clinical success of the TiUnite surface. With 275 million potential edentulous patients around the world, the innovations from Dentalpoint, known for its ZERAMEX implant brand, are intended to help clinicians meet the growing demand for metal-free solutions.

Published in the July/August issue of the International Journal of Oral and Maxillofacial Implants, the review was conducted by Prof. Matthias Karl of Saarland University in Germany and Tomas Albrektsson of the University of Gothenburg in Sweden. They analysed the results of 106 peer-reviewed publications of prospective clinical studies assessing implants with the TiUnite surface, including 2,804 implants and 4,694 patients.

“The results have confirmed that implants with the TiUnite surface have a remarkably low early failure rate and support long-term clinical survival. In the review, early implant and patient level survival rates both exceeded 99 per cent at one year, and the late implant level survival rate was estimated at 93.1 per cent (90.5 per cent at patient level) after ten years.

“This meta-analysis unequivocally confirms what extensive internal testing and external validation have documented for over 15 years—that the TiUnite surface supports peri-implant health, bone maintenance and overall success long-term,” said Geiselhöringer.

In addition, Nobel Biocare announced a new partnership with Dr Alex Kirsch from Germany. The details of this project are yet to be released.

Sequencing of sea cucumber genome may help with tissue regeneration

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QINGDAO, China: Researchers at the Institute of Oceanology Chinese Academy of Sciences have developed a new high-definition sequence of the sea cucumber’s genetic material. Owing to the sea cucumber’s capacity to regrow body parts and internal organs, knowledge of its genome could aid the understanding of regeneration and determine whether its regrowth capability can offer insights into tissue regeneration and other areas of human medicine.

In the study, the researchers obtained a reference genome covering approximately 91.47 per cent of the genome size. The knowledge of the complete genome of a sea cucumber could potentially provide a unique framework for studies that seek to understand cell and tissue regeneration, treat organ failure and alleviate symptoms of ageing.

Sea cucumbers form one class of echinoderms, a group of marine animals that includes sea urchins and starfish too. Echinoderms and chordates (a closely related group under which humans fall) share a feature that distinguishes them from most other animals: they are deuterostomes, a group in which the anus, rather than the mouth, forms first in development. Sea cucumbers are unique among echinoderms in that they do not have a hardened calcium exoskeleton and they have the capacity to regenerate damaged or lost body parts and viscera to a much greater extent than sea urchins or starfish.

As a strategy to scare off predators, sea cucumbers can expel their viscera, which they can then regenerate within several weeks. The researchers found a group of duplicated genes, which they termed FSP94-like genes, that were specifically expressed in the regenerating intestines of the sea cucumber and had no corresponding genes in other echinoderms, suggesting that these genes may be crucial to the animals’ ability to quickly regrow their viscera. A second group of genes, called fibrinogen-related proteins, were also duplicated and highly expressed during regeneration, indicating that they likely contribute to this ability as well.

In addition to possible medical benefits, the genome sequence helps explain why the sea cucumber has such a radically different skeletal structure from other echinoderms and may be useful for understanding evolution of the animal kingdom.

The study, titled “The sea cucumber genome provides insights into morphological evolution and visceral regeneration”, was published in the open-access journal PLOS Biology on 12 October.
“Research on PEEK implants is both challenging and motivating”

An interview with Dr Pär Johansson, Sweden

By Monique Mehler, DTI

In 2010, Dr Pär Johansson received his dentistry degree at Malmö University in Sweden, where he submitted a master thesis on implant surfaces. A few years later, he joined a research team at the same department as they were launching an interesting project on a new implantable material, PEEK (polyether ether ketone). In an interview with Dental Tribune, Johansson spoke about the advantages and challenges of PEEK implants and what the new material could mean for the future of implantology.

The project became my PhD project, which I am defending later this year. PEEK is a highly advanced polymer with properties that could improve the treatment outcomes of several procedures. The challenge is that PEEK is not optimal as a load-bearing implant because of the biointert surface which does not osseointegrate without modification. Therefore, research on PEEK implants is both challenging and motivating, particularly since the arena of applications, especially in dentistry, is so unexplored.

It has been argued that implantable PEEK polymers are a next-generation biomaterial. Is that fact or fantasy?

I would say that PEEK has come a long way to becoming the next-generation biomaterial in the orthopaedic field. Today, PEEK is the standard implant material in several surgical procedures and ongoing research has introduced more applications. In dentistry, the introduction of PEEK has been slow, but the material may well be functional in healing abutments, temporary cylinders and dental frameworks. Introduction of new biomaterials is a slow process which requires a comprehensive evaluation by the U.S. Food and Drug Administration before it can be implemented for clinical trials. PEEK-OPTIMA (Invitro) is currently the only commercial PEEK polymer approved by the FDA as a medical device.

What are the main advantages of PEEK in comparison with conventional implant materials like titanium? What are its limitations?

The main advantage in spine and trauma surgery is its superior biomechanical properties compared with metals. PEEK has an elastic modulus similar to that of human bone, while that of titanium is almost eightfold higher. Differences in elastic modulus between the implant and the surrounding tissue may promote stress shielding and inhibit bone growth or lead to bone resorption. Furthermore, titanium and metal alloys have, in some documented cases, caused signs of hypersensitivity and allergy.

These days, there is also an increasing demand for non-metallic restorations and biomaterials. PEEK is biointert, has a non-reactive surface and, according to current literature, has never shown any signs of provoking hypersensitivity. The colour of PEEK is more natural, and this enables the manufacturing of aesthetic implants for thin biotypes and diverse dental components. Finally, PEEK is transparent to X-rays, which is a feature highly useful after spine surgery, allowing the postoperative radiograph to be viewed and analysed without any disturbing artefacts.

The results of a study in rabbit bone conducted in 2016 proved that the addition of a nano-sized hydroxyapatite coating to PEEK surfaces improved the bone-implant contact and demonstrated strong osteoconductive properties at the perforation. How important are these findings to advancing research on PEEK implants?

This aforementioned study is the third by our research group on PEEK. There were two main areas of investigation regarding the material used in this study, the use of PEEK as a biomaterial and the innovative coating technique by which a nano-sized hydroxyapatite coating is applied to the implant surface. Further, this study evaluated a PEEK implant with a unique design: the implant is functional in healing abutments, temporary cylinders and dental frameworks. Introduction of new biomaterials is a slow process, but the material may well be functional in healing abutments, temporary cylinders and dental frameworks.

The design is mainly aimed to be correlated to spinal applications where PEEK implants are currently used as cages between the vertebrae to facilitate bone fusion. The results of this study show the significant effect of surface modification using nano-hydroxyapatite. These outcomes are important in inspiring and facilitating future research on PEEK and nano-hydroxyapatite. This coating technique can further be applied to PEEK implants with other design and surface properties of the core material.

Dr Pär Johansson is the founder and CEO of three dental clinics in Malmö.

“The colour of PEEK is more natural, and this enables the manufacturing of aesthetic implants for thin biotypes [...]”

Fig. 1: A histological image of a PEEK implant with a hydroxyapatite coating.

Fig. 2: Dr Pär Johansson at his lab at Malmö University, Sweden, conducting PCR (polymerase chain reaction) to evaluate gen-expression on PEEK implants implanted in rabbit bone.
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Hidden danger: Contamination of sterile-packaged implants

Why we need a global initiative for clean dental implants

By Dr Dirk U. Duddeck, Germany

Residues on sterile-packaged implants, particularly organic particles from the production or packaging process, are highly suspected of being responsible for incomplete osseointegration of dental implants or even a loss of bone in the early healing period. Studies in recent years have shown that neither the CE marking nor U.S. Food and Drug Administration (FDA) clearance provide a reliable indication of the cleanliness of dental implants. In March 2017, a new initiative was presented at the International Dental Show in Germany that focuses on this topic for the safety of both dentists and patients.

In three consecutive scanning electron microscopy (SEM) studies, scientists of the University of Cologne and the Charité—Universitätsmedizin Berlin in Germany analysed more than 200 sterile-packaged implants since 2007. Results from the most recent study and comparisons with previous years showed an alarming increase in implants with conspicuous residues. An increasing number of practitioners have concerns about the biological response to these impurities, and the possibility of legal implications has arisen. The question we must ask is: how can the clinician know which implants are not affected by these impurities? Owing to the variety of implant systems offered on the market, it has become quite difficult for the individual dentist to find a safe system for his or her practice.

The CleanImplant Foundation has set itself the goal of providing exactly this information worldwide. This independent non-profit organisation is supported by a scientific advisory board made up of well-known scientists and practitioners, such as Prof. Tomas Albrektsson (University of Gothenburg, Sweden), Prof. Ann Wennerberg (Malmö University, Sweden), Prof. Florian Beuer (Charité, Germany), Prof. Jaafar Mouhyi (Universiapolis—International University of Agadir, Morocco), Dr Luigi Canullo (private practice, Italy) and Dr Michael Norton (private practice, UK), President of the US Academy of Osseointegration. In September 2017, this group of scientists released a consensus paper providing objective evaluation criteria for a clean implant, awarding

“This new global quality mark is intended to enable clinicians to see at a glance whether the specific implant meets a minimum standard of cleanliness.”
The CleanImplant Foundation was established in 2016 with the aim of providing information on possible contamination of sterile-packaged implants sold throughout the world and the consequent potential clinical significance. Jointly developed with the implant manufacturer, this new global quality mark was first introduced in March at the 2017 International Dental Show (Fig. 1).

The five-step approach

The CleanImplant Trusted Quality Mark

Step 1 Unbiased sampling
3 implants from the factory and 2 implants from practices via ghost shopping

Step 2 Unpacking and scanning in clean room conditions
Samples are unpacked and scanned under clean room conditions according to Class 100 US Fed. 209 and Class 5 DIN EN ISO 14644-1

Step 3 Accredited process of analysis
SEM imaging and elemental analysis (energy-dispersive spectroscopy) according to DIN EN ISO/IEC 17025 accreditation process (competence of testing and calibration laboratories) with external audits and multi-annual reassessments

Step 4 Full-size SEM images
Digitally composed SEM images of more than 360 single SEM images at a magnification of x500 always show the complete surface, i.e. no cherry-picking of clean-looking areas

Step 5 Peer-reviewed evidence and proof of sufficient clinical documentation
Two members of the scientific advisory board independently sign the comprehensive report of analysis and proof of the corresponding clinical documentation providing valid data on a 3-95% survival rate

The results are published on the project’s website, www.cleanimplant.com. This grants interested implantologists a quick and easy way to obtain comprehensive information about the possible kinds of implant pollution, as well as numerous analytical results of contaminated and clean implants. The project is open to every dentist and manufacturer concerned about the protection of patients from potentially inferior medical devices.

At the European Association for Osseointegration congress in Spain in October, two implants—UnicA by R+I Biotechnology Institute and the Ti6 implant made by Nuclecis—received the first Trusted Quality Mark 2017–2018 certificates. Only a week later, the CleanImplant Foundation handed over the third award in Japan at the 13th Annual MegaGen International Symposium at Dr Kogor Bum Park, active implantologist and CEO of Korean implant manufacturer MegaGen. Implants of many more manufacturers are already in the process of comprehensive analyses and the results will be published soon.

According to Albrektsson, we should abide by his fundamental guiding principle, stated in an article a decade ago, that we cannot only believe, but rather have to know that the implants we are using do not harm our patients. Patients trust in our decisions on treatment and the analysis result. The greatest difference to all previous attempts to develop such a quality mark is that we not only re-evaluate the results with new implants of the same type every two years, but also regularly tighten the criteria for this quality mark. Thus, the existing analytics will be substantially expanded in the coming years.

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The CleanImplant Foundation was established in 2016 with the aim of providing information on possible contamination of sterile-packaged implants sold throughout the world and the consequent potential clinical significance. Jointly developed with the implant industry to address the issue of implant dental purity, the initiative was first introduced in March at the 2017 International Dental Show (Fig. 3).

Initial funding was provided through the support of numerous implant manufacturers and other companies in the field of oral implantology that are driven by a common vital interest in establishing an objective and independent guide to find out which implants are reduced for production and finishing processes. The 20-page formative newsletter are available free of charge via ghost shopping.

The CleanImplant Foundation is the Managing Director of the CleanImplant Foundation. In addition, he is a guest researcher at Charité. He can be contacted at duddreck@cleanimplant.com.
The role of prevention in implantology

Increasing patient compliance and treatment outcomes through saliva diagnostics

By Dr Peter van der Schoor, Netherlands

In October last year, I had the honour of speaking in front of a medical and dental audience to explain my approach to prevention. In my lecture, I talked about our new “peri-pro-filing” approach using saliva and aMMP-8 diagnostic methods.

The thing is, we need to treat patients between the ages of 20 and 40 differently to those who are 40 years and older. Certainly, everyone can get periodontitis, but my younger patients visit my dental practice less frequently, which means they are at a higher risk of developing periodontal diseases. Interestingly, we have always had difficulty achieving the necessary compliance from patients in this younger age group to obtain good dental hygiene in order to prevent periodontitis.

Also, we have found that well-known diagnostic methods, such as PSI or BOP, do not necessarily “look ahead”, nor are they predictive—which is exactly what we need to make sure we are not always too late with our treatment. Now, finally, we have found a way to do this.

The well-documented collagen destruction indicator, aMMP-8 can be measured in the saliva (with PerioSafe and is, for us, the new gold standard for predictive analysis in preventive dentistry. It helps us identify the patients with the greatest need for preventive treatment and at the right point in time, which is when the sub-clinical collagen destruction of periodontal tissue has started, but it is not yet visible.

Fortunately, the Dutch public health insurance system has recognised the “predictive value” and solid scientific data of aMMP-8 diagnostic methods and is going to fully reimburse the cost of the diagnostic treatment for every patient by 2018. This decision is a breakthrough for targeted healthcare in dentistry.

A proven concept

At my practice, we ran a study with over 200 periodontally-healthy patients, between the ages of 20 and 40 years old. Each patient received a free PerioSafe test. Interestingly, 40 percent of these participants tested positive for the presence of aMMP-8. All of these patients wanted to stay at our practice for an oral hygiene treatment. Of the other 60 percent who had a negative result, around ten percent still asked for an oral hygiene treatment. This means that only one test is necessary to triple the number of dental hygiene procedures for 40 per cent of the patients in your practice.

I have done over 30,000 implants in my life and about ten per cent of those have failed. The overwhelming majority of failures were due to patients developing peri-implantitis. For patients who would like to have implants, we first have to determine what has gone wrong with their natural dentition. Which is why, prior to implant placement, we use the PerioSafe test to evaluate whether there is silent inflammation that might need attention. After the implant surgery, we use the implantSafe test for regular monitoring to prevent peri-implantitis. The patient has to test negative for aMMP-8 to guarantee tissue stability and since our strategy is sustainability, aMMP-8 is the most effective diagnostic tool available to date.

Looking forward, we now have to step into the world of digital saliva diagnostics that is performed as a chair-side, aMMP-8 quantification with the ORALyzer, which is one of the biggest inventions in dentistry, because it allows us to precisely look at the patient’s immune response system and print out an analysis report within a couple of seconds. This tool is exactly what we need to fight peri-implantitis and periodontitis. With the ORALyzer can even measure the success of our treatment by seeing a reduction of aMMP-8 concentration in the saliva, measured in ng/ml.

Some dentists think they cannot earn money with prevention, but I want every dentist to understand that 40 to 50 per cent of all patients will need to four dental hygiene procedures per year to prevent deterioration. aMMP-8 saliva diagnostics open the door to much needed “patient targeting” and “compliance” and there is nothing else available that can compare to it at this point in time. It is a prevention need indicator and a patient motivator. Simply do the calculation for yourself, it is a win-win for the dentist and the patient.

Dr Peter van der Schoor has placed more than 35,000 implants in his professional career and is an avid lecturer in the field.
Shanghai event breaks records

By DTI

SHANGHAI, China: Exceeding all expectations, the third National Osteology Symposium in China welcomed about 1,900 participants to Shanghai, making it the biggest national event in the foundation’s history. Also setting new standards for future congresses was the innovative stage design. The main platform was located in the centre of the hall and allowed speakers to address the surrounding audience at 360°.

According to the organiser, Osteology Shanghai 2017 chairmen Dr Massimo Simion and Wang Xing put together an astonishing programme covering all aspects of oral tissue regeneration and providing the latest insights from research, in line with the foundation’s motto “Linking science with practice in regeneration.”

Osteology Shanghai 2017 was a huge success and broke attendance records. According to the organiser, Osteology Shanghai was the fourth national symposium held this year. The previous ones took place in June in Tokyo in Japan and Melbourne in Australia—the first Osteology meeting ever held in Australasia—and in February in Barcelona in Spain. The next and last National Osteology Symposium in 2017 will be Osteology Moscow on 21 and 22 October.

More information about future events can be found at www.osteology.org.

With almost 2,000 participants, the Shanghai symposium held on 20 and 21 September saw a huge leap in attendance figures compared with the 2014 event, which had 1,200 participants, and the first Chinese symposium in 2012, which took place in Xi’an and had 800 attendees.

Osteology Shanghai was the first Osteology meeting ever held in China—though there has been an Osteology Symposium in 2017 will be Osteology Moscow on 21 and 22 October.

More information about future events can be found at www.osteology.org.

Geistlich introduces Fibro-Gide collagen matrix

By DTI

MADRID, Spain: As an alternative treatment option to connective tissue grafts, Swiss company Geistlich Biomaterials launched the Fibro-Gide collagen matrix at the Annual Scientific Meeting of the European Association for Osteointegration (EAO) in Madrid. The new product has been developed for soft-tissue regeneration at the alveolar ridge around natural teeth and implants and will be available in two sizes.

According to the company, Fibro-Gide should be used as a submerged scaffold in areas where an increase in soft-tissue thickness is clinically desired. Its porous network supports the formation of new connective tissue (angiogenesis) and stability of the collagen network in a submerged healing situation. The smart linking of the reconstituted collagen provides volume stability.

Regarding handling, Fibro-Gide can be shaped to the desired dimensions in both dry and moist states and does not require pretreatment. Once the matrix is soaked, it adapts perfectly to contours and adheres well to the defect, the company added.

Geistlich Chief Scientific Officer Dr Terance Hart commented that the reason for developing the matrix was the increasing demand for a volume-stable collagen matrix that could be used for indications such as soft-tissue augmentation around implants or under pontics.

‘Currently many of those treatments are performed with autologous tissue, which always involves harvesting and, therefore, donor-site morbidity,’ he said. ‘We wanted to offer a product that regenerates soft tissue while also maintaining volume and providing excellent mechanical properties’.

According to Hart, initial in vitro studies involving Fibro-Gide demonstrated nearly complete degradation after approximately six weeks. Clinical trials with larger patient populations and with various clinical preparations are currently under way.

‘I am convinced that this is indeed a step forward in technology, and it has huge potential,’ Deputy Chief Scientific Officer Dr Mark Spilker said.

Intuitive operation and useful functions—Thommen Medical launches new app

By DTI

GEHENEN, Switzerland: Swiss dental implant manufacturer Thommen Medical has launched a new app that gives users mobile access to the company’s product information round the clock. For users to explore the various Thommen implant systems, among others, in an innovative and interactive way, the app has an animation function that lets them zoom in on and rotate the respective features, such as the implant connection.

According to the company, the zoom function allows users to gain more information about the individual product features. Through the app, dentists will also have access to the latest instructions for clinical application of the company’s products and treatment concepts anytime—whether on the move or working chairside.

Complementing the service offerings are additional design options through which users can make notes in the app and exchange them by e-mail, or download documents to their mobile devices.

The Thommen app is available in Chinese, English, French and German and was developed for the iOS and Android operating systems. It can be downloaded free from the iTunes Store and Google Play. More information can be found at www.thommen-medical.com.