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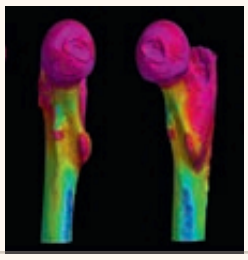
PERFECT SMILE

What exactly makes a smile genuine or pleasant? In a new study, researchers have investigated the traits of a winning smile.

▸ Page 04



BONE COLLECTION

An interview about teeth and bones with Prof. John Clement and Dr Rita Hardiman from the University of Melbourne.

▸ Page 06

EZ-BASE

Designed for extreme angulation, the new MIS abutment will provide practitioners with more freedom of choice for prosthetic restorations.

▸ Page 08

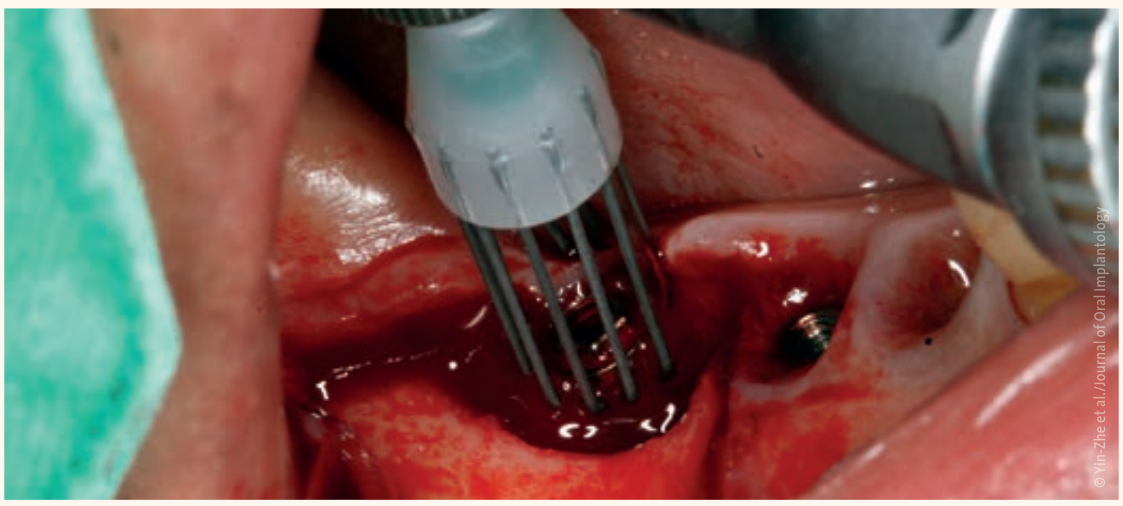
Combating peri-implantitis

By DTI

SEOUL, South Korea: The most common cause of peri-implantitis is the formation of a biofilm on the implant surface. Researchers in South Korea have now tested a novel surgical procedure and shown promising results in combating this inflammation.

In two case studies of male patients over the age of 50 who exhibited severe peri-implantitis, the clinicians used the R-Brush (Neobiotech), a round brush with titanium alloy bristles, to clean the affected implant surfaces. In addition, a regenerative approach incorporating bone grafting materials was used to rebuild the bone surrounding the implant.

The titanium brush proved to be highly effective at removing biofilm from the implant surface, the researchers noted. In addition to eliminating the contaminated original rough surface, the brush created a new rough implant surface. This newly created surface made the regenerative process more successful and predictable, the follow-up assessment at three, six and 12 months after treatment indicated. During the two-year follow-up, the bone level was maintained.



© Yin-Zhe et al./Journal of Oral Implantology

Researchers in South Korea have described the protocol for using a newly developed round titanium brush to clean and modify the contaminated surfaces of an implant affected by severe peri-implantitis.

The results are in line with those of previous studies that have shown that re-osseointegration can occur on surfaces previously contaminated by dental plaque and surrounded by a bone defect. Although there is no similar protocol in the treatment of severe peri-implantitis yet, the two cases in which the R-Brush was used suggest that open debridement may result in re-osseointegration and that this integration may be more pronounced on a rougher implant surface, the researchers wrote.

The study, titled "Treatment of severe peri-implantitis using a round titanium brush for implant surface decontamination: A case report with clinical reentry", was published in the June issue of the *Journal of Oral Implantology*.

Higher caries risk

ADELAIDE, Australia: A study conducted at the University of Adelaide has suggested that children who are breastfed for at least two years could be at a higher risk of dental caries. The researchers considered this finding against the children's pattern of sugar intake from foods. Dr Karen Glazer Peres from the Adelaide Dental School explained that children still breastfed at age 2 or older had an increased risk of developing dental problems, including teeth that showed signs of decay, were missing or had a filling.

According to the study, their risk of having severe early childhood caries was also 2.4 times higher compared with those who were breastfed up to 1 year of age. However, the researchers found that breastfeeding up to the age of 13–23 months had no effect on dental caries incidence. Overall, 1,129 children born in 2004 in Pelotas in Brazil, a community with a public fluoridated water supply, were included in the study.

© Plymouth University

Ruth Potterton and Dr Robert Witton are to join a small team of professionals volunteering for Dentaid in the Philippines.

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ADA: Dental Health Week

From 7 to 13 August, the Australian Dental Association will be celebrating Dental Health Week. Among other things, the campaign aims to motivate dental professionals to become more actively engaged with one another and with the community they serve. Dentists can find guidance on running their own events at www.ada.org.au/Dental-Health-Week.

Water fluoridation funding

New Zealand Health Minister Dr Jonathan Coleman has announced that the federal government's 2017 budget will commit NZ$12 million (US$8.66 million) over the next four years to help build the infrastructure needed to fluoridate drinking water. "Increasing access to fluoridated water will improve oral health and mean fewer costly trips to the dentist," Coleman said.

Artificial blood vessels

US researchers have developed a revolutionary process by which to engineer new blood vessels in teeth using pre-vascularised dental tissue constructs. The technique involves placing a fibre mould made of sugar molecules across the root canal and injecting a gel-like material, similar to proteins found in the body, filled with dental pulp cells. After seven days, dentine-producing cells proliferated near the tooth walls and artificial blood vessels formed inside the tooth. "This result proves that fabrication of artificial blood vessels can be a highly effective strategy for fully regenerating the function of teeth," said principal investigator Dr Luiz E. Bertassoni. "We believe that this finding may change the way that root canal treatments are done in the future."

AD

A sweet remedy? New lozenges aim to tackle dental caries

By DTI

OSAKA, Japan: Osaka-based confectionary company UHA Mikakuto has introduced flavoured pastilles claimed to be helpful in maintaining a healthy oral flora. According to the company, its UHA dentaclear sweets contain a strain of lactic acid bacteria that is believed to effectively suppress the proliferation of pathogenic bacteria in the mouth and hence reduce the risk of dental caries.

The lozenges are available in yogurt or clear mint flavour and have been available from Japanese chemists and convenience stores since June. According to UHA Mikakuto, the incidence of caries and other oral diseases can be reduced by sucking the sweets after meals.

In addition to strains of *Lactobacillus rhamnosus* L8020, the pastilles contain various sweeteners, including 0.85 g of xylitol per lozenge. Xylitol has been shown to have caries-preventive qualities, mainly because most plaque bacteria lack the ability to ferment xylitol into cariogenic end-products. Other ingredients include crystalline cellulose, fine silicon dioxide and green tea extract.

Screenshot/uha-l8020.jp

Aim to prevent dental caries: UHA dentaclear lozenges.

UHA Mikakuto jointly developed the product with Prof. Hiroki Nikawa from the School of Oral Health Science at Hiroshima University and trading company Mitsui & Co. The idea of using the beneficial properties of *L. rhamnosus* L8020 to enhance oral health arose after Nikawa discovered the increased presence of the bacterial strain in research on patients with resistance to caries.

The lozenges have a recommended retail price of JPY198 (US$1.75) per 13 g bag. Further information can be found on the Japanese product website at www.uha-l8020.jp.

Plymouth dental experts support Philippine mission

By DTI

PLYMOUTH, UK/MANDAUE CITY, Philippines: Supporting UK charity Dentaid, two dental experts from Plymouth University Peninsula School of Dentistry will be bringing oral health care to one of the poorest cities in the Philippines. In addition to providing emergency and preventative dental services during their two-week mission, Dr Robert Witton and Ruth Potterton will be providing oral health education for the children and their teachers and set up a school toothbrushing programme.

The operation and project activities will be based around Umapad Elementary School in Mandaue City on the island of Cebu. This publicly funded school with approximately 1,100 pupils provides education to a group known locally as "scavenger children", who live in and around the city's dump sites and earn a living recycling other people's waste.

"Our mission with Dentaid is to get all the school children dentally fit," said Potterton. "We'll do this by offering pain relief treatments where necessary, atraumatic restorative treatment if possible, and fluoride varnish for all the children," Potterton said.

The two Plymouth volunteers will be part of wider group of relief teams who will be working together across a range of activities, including providing support in teaching English, IT equipment and community support training, and rebuilding after earthquakes, fires and typhoon damage in the region. Dental treatments will be provided in close cooperation with a local dentist and dental students from the dental school in Cebu.

Risks of dental tourism

By DTI

SYDNEY, Australia: With the cost of dental treatment presenting a significant barrier for many Australians, some may consider dental tourism—travelling to another country to undergo a dental procedure—to be an increasingly viable option. With this in mind, the Australian Dental Association (ADA) has been prompted to issue a warning about the risks that may accompany this decision.

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Australian dental tourists tend to travel to a wide variety of places for cheaper procedures, from South-East Asian hotspots like Bali and Thailand to eastern European destinations. Though it is in no way illegal to have dental procedures performed away from Australia—and the initial cost of the treatment may be relatively cheap—there can often be unforeseen complications that are unable to be handled effectively in the time span of the period abroad, the ADA warned.

"The decision to become a dental tourist usually comes to down to one simple thing—saving money," said Dr Michael Foley, Vice Chairman of the ADA's Oral Health Committee.

"While it's true you may save some money in the short term, the reality is that things can go wrong and all those expected savings can quickly disappear and end up costing more than the holiday itself."

In addition to procedural complications, dental tourists may be subject to less-stringent quality standards and lower-grade materials in comparison with Australian dentistry. If a patient is dissatisfied with dental work performed overseas, the ADA cautioned, it can sometimes be extremely difficult to repair satisfactorily and may lead to the extraction of the affected teeth.

"Complex procedures—medical or dental–should not be done over the course of a holiday," said Foley. "If you have the need for a complex medical treatment or procedure, it is best done in Australia where you can be assured of the safety and quality standards in place, and of the certainty of follow up."

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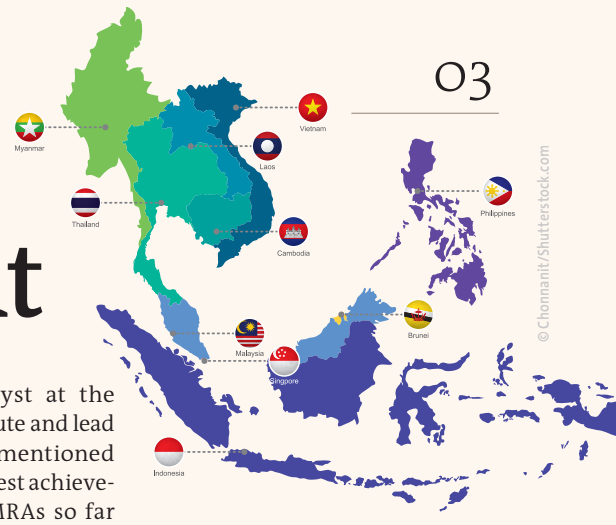
Labour migration still difficult



By DTI

CEBU CITY, Philippines: Aiming to facilitate dental workforce mobility among member states of the Association of Southeast Asian Nations (ASEAN), a mutual recognition agreement (MRA) for dental practitioners was signed by member economies in 2009. However, almost a decade later, the ASEAN community still seems far from realising the unhindered movement of skilled professionals.

Among other factors, the implementation of the MRA has reportedly faced difficulties because of differences in national regulations. According to Rahmat Pramono, representative of Indonesia to the ASEAN, implementation of services by medical and dental practitioners are among the most difficult to negotiate because of the different systems of instruction and curricula followed in each country.

According to a Migration Policy Institute report, titled *Open Windows, Closed Doors: Mutual Recognition Arrangements on Professional Services in the ASEAN Region*, dental, medical and nursing MRAs are the least open of those signed by ASEAN member states. Unlike their counterparts in tourism, for which the framework automatically recognises competency certificates as issued at origin, health professionals interested in working in another ASEAN country have to follow a complex application process. After obtaining a licence from their respective professional regulatory agency and meeting MRA-related criteria, such as minimum years of experience, applicants are still faced with additional local requirements, which vary from country to country.

In an interview with Philippine newspaper *SunStar*, oral surgeon and implantologist Dr Steve Mark Gan, the Philippines' representative to the MRA on dental practitioners, pointed out that members of the economic bloc are still apprehensive about allowing foreign dental professionals to practise in their respective countries. "It's a tricky situation right now. It may take some time," Gan said.

While Philippine dentists still cannot work freely in the ASEAN region, the country's own products remain among the world's best, drawing dental tourists from the US and Australia, Gan remarked.

In 2015, medical tourism in the Philippines generated US$3 billion in revenue from about 200,000 tourists, according to data from the Department of Tourism. In the ASEAN community, Singapore and Thailand are the country's strongest competitors in the field, but services in the Philippines still cost 40 per cent less, *Cebu Daily News* recently reported.

In addition to the MRA for dental practitioners, the Philippines has signed agreements for eight other professions, including surveying, engineering, nursing, architecture and accountancy. However, so far, the ASEAN bloc has only managed to implement the MRAs for engineers, architects and tourism professionals.

Addressing the untapped potential of the MRAs to build and utilise human capital in the long term, Dovelyn Rannveig Mendoza, a senior policy analyst at the Migration Policy Institute and lead author of the above-mentioned report, said: "The greatest achievement of the ASEAN MRAs so far is rather indirect: The signing of these agreements has inspired a significant capacity-building effort in the less-advanced ASEAN Member States to upgrade professional regulation and training standards."

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Researchers identify DNA sections responsible for periodontitis

By DTI

BERLIN, Germany: An international network of researchers led by scientists at the Charité—Universitätsmedizin Berlin in Germany has identified variations of certain DNA sequences that are clearly associated with an increased risk of developing different forms of periodontal disease. For at least two gene regions, the study team found a highly significant association with the disease.

In a genome-wide association study, the group, led by Prof. Arne Schäfer from the Charité Institute for Dental and Craniofacial Sciences, investigated the relationship between sequence differences in genetic information and the incidence of the disease in several thousand patients with aggressive and chronic periodontitis. The results were compared with healthy individuals.

"This type of study is very systematic in nature. It aims to identify the genes that have an effect on a person's risk of developing a specific disease," Schäfer explained. Millions of DNA sequence variants, distributed throughout the genome and describing most of a person's genetic information, were examined in various patient groups. "DNA sequence variations can have an effect on a person's risk of developing a particular disease. By comparing frequencies of variants in patients and healthy controls, it is possible to find which areas of a chromosome are associated with the disease," he added.

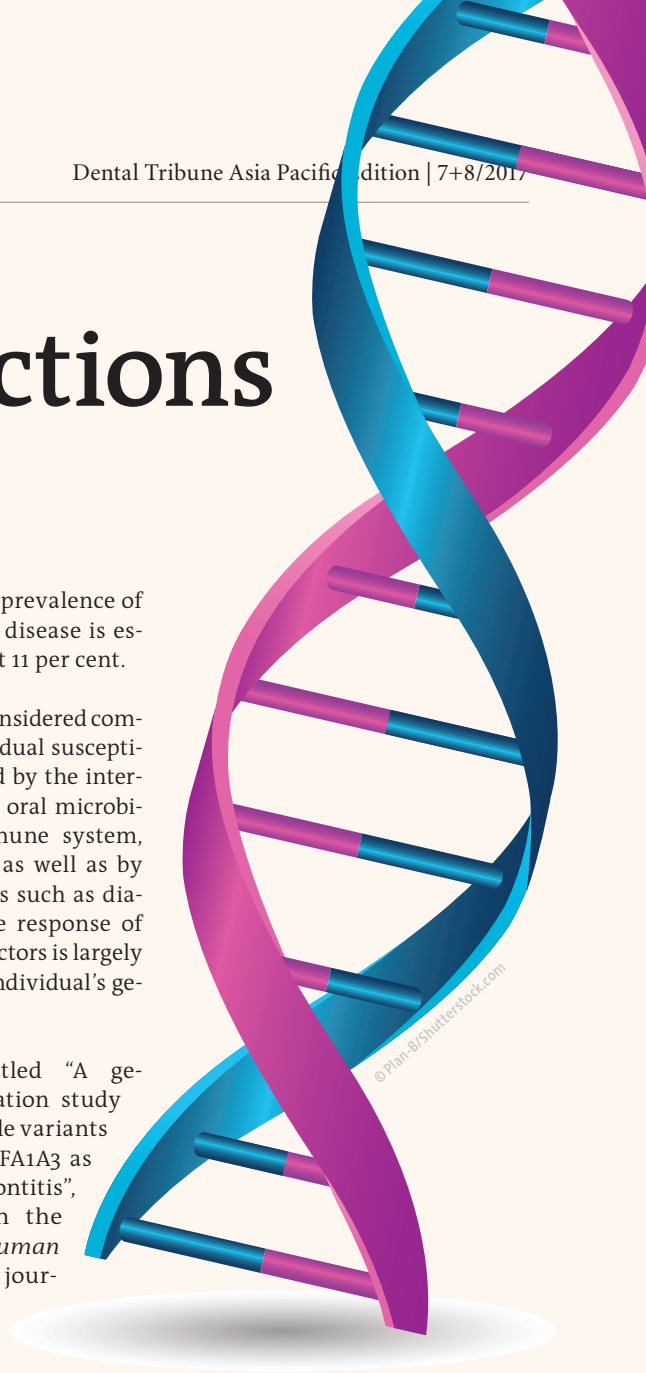
The scientists found two gene regions that appeared to be associated with an increased risk of developing different forms of periodontitis. One of the two regions is responsible for the synthesis of alpha-defensins (antimicrobial peptides), which are produced by specialised immune cells. These immune cells, neutrophils, are part of the body's immune response and are involved in the identification and destruction of microorganisms. The second gene region inhibits the activation of these immune cells.

"Our results show that the different forms of gum disease share a common genetic origin," said Schäfer. He emphasised: "This means that there are groups of patients who are susceptible to developing gum disease, but whose susceptibility is independent of other risk factors, such as smoking, oral hygiene or aging."

Worldwide, the prevalence of severe periodontal disease is estimated to be about 11 per cent.

The disease is considered complex because individual susceptibility is determined by the interaction between the oral microbiome and the immune system, smoking and diet, as well as by metabolic disorders such as diabetes mellitus. The response of the body to these factors is largely influenced by the individual's genetic make-up.

The study, titled "A genome-wide association study identifies nucleotide variants at SIGLEC5 and DEFA1A3 as risk loci for periodontitis", was published in the July issue of the *Human Molecular Genetics* journal.



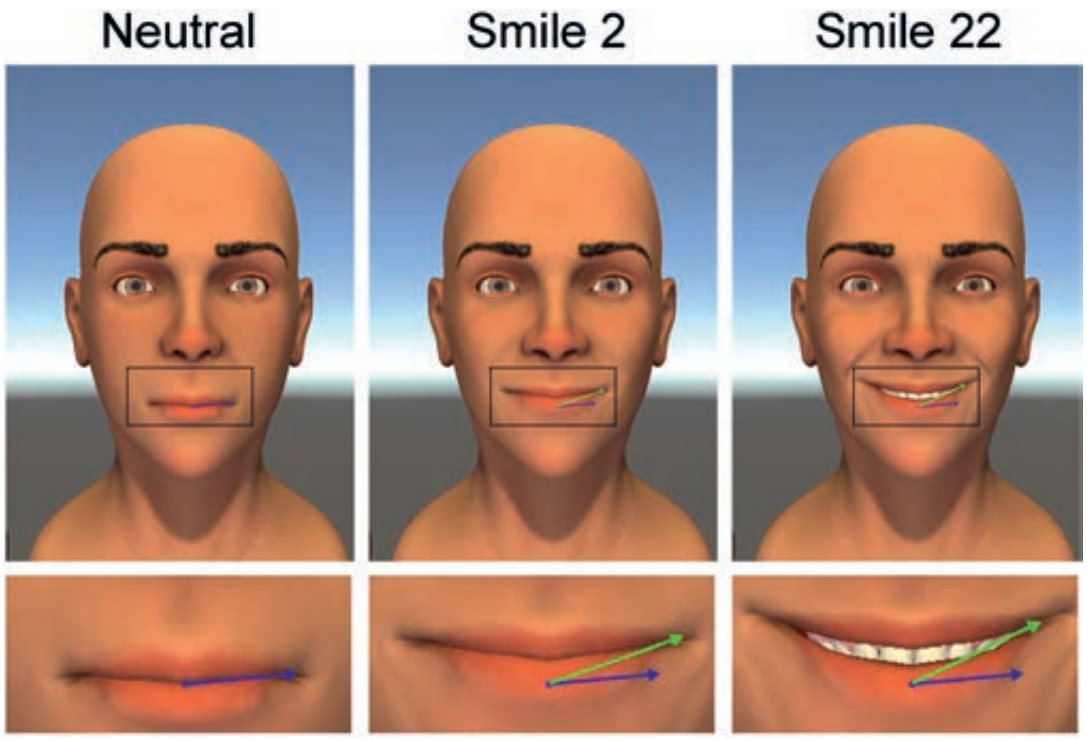
Less is more: Study looks into the traits of a "perfect" smile

By DTI

MINNEAPOLIS, USA: Lopsided, big, toothy, shy—smiles are described in many different ways. However, according to research from the University of Minnesota, how people perceive the facial expression in social interaction and non-verbal communication can differ significantly.

In the study, the researchers asked 802 study participants to rate 27 computer-animated smiles on their perceived effectiveness (very bad to very good), genuineness (fake vs. genuine), pleasantness (creepy to pleasant) and emotion expressed (anger, contempt, disgust, fear, happiness, sadness or surprise). The animated expression was altered by variations in the mouth angle, the extent of the smile, the degree to which teeth were shown and how symmetrically the smile developed.

The findings suggest that for a winning smile—one that is perceived as effective, genuine and pleasant—less is more. In the study, smiles with a medium angle tended to be more favorably judged, while wide open-mouth smiles were often interpreted as a sign of fear or contempt. In fact, the two lowest-rated smiles were both very toothy.



Asking participants to rate computer-animated smiles, researchers at the University of Minnesota investigated the traits that can distinguish a likeable grin from a grimace.

Although research has suggested that facial symmetry is often perceived as being more beautiful than asymmetry, slightly crooked smiles were rated higher in the current study. According to the researchers, this result is consistent with principles of smile design, in which dynamic symmetry, that is being very similar but not identical, allows for a more vital, dynamic, unique and natural smile compared with static symmetry.

The study's results could have broad applications in a variety of areas, such as facial reanimation surgery and rehabilitation in individuals who have suffered from trauma, cerebrovascular accidents, neurological conditions, cancers or infections that have robbed them of the ability to express emotions through facial movement.

The psychological and social consequences of facial impairment can be extensive. Research has shown that individuals with partial facial paralysis are often misinterpreted, have trouble communicating, and often report symptoms such as anxiety and depression.

The study, titled "Dynamic properties of successful smiles," was published on 28 June in the *PLOS ONE* journal.

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"There are several barriers to using bones in useful age determination"

An interview with Prof. John Clement and Dr Rita Hardiman from the Melbourne Dental School at the University of Melbourne, Australia

Prof. John Clement, Deputy Head of the Melbourne Dental School at the University of Melbourne.—Dr Rita Hardiman, co-curator of the Melbourne Femur Research Collection.

By Kristin Hübner, DTI

With the Melbourne Femur Collection, the University of Melbourne holds a unique archive of human bone samples that has allowed for a multitude of interdisciplinary research projects in the past two decades. *Dental Tribune* spoke with Prof. John Clement, who has worked with the collection since its initiation, and Dr Rita Hardiman about its forensic and anthropological value and the experiences the dental profession brings to the methodological mix that help unlock the information recorded in the bone tissue.

The Femur Collection was initiated in 1991. Can you explain the initial purpose of the collection?

Prof. Clement: The initial purpose of the collection was to test the theory that femoral cortical bone microstructure could be used to establish age at death for an individual. This relied on being able to reliably measure the rate of turnover of bone during life, and age changes in the bone's features. The aim was to collect samples of the midshaft of the femur covering the entirety of the human lifespan and both sexes. The femur was chosen because it is a durable part of the skeleton, likely to survive unscathed in cases in which deceased individuals are not discovered for a long time. These are also the cases in which an anthropological assessment of age at death is required.

Why is it located at the Melbourne Dental School?

Dr Hardiman: When the Femur Collection was initiated to try to determine a pattern of microstructural change to establish age at death, Professor Clement was working at the Victorian Institute of Forensic Medicine as a consultant forensic odontologist, as well as fulfilling his academic role at the School of Dental Science—as it was then called—at the University of Melbourne. The collection was established to answer questions about unknown deceased individuals' identity, in particular: how old was the person when he or she died? This is part of the work of a forensic odontologist. I joined the collection at a later date, in 1998, to answer questions about sex differences and age changes in the cortex of the femoral midshaft.

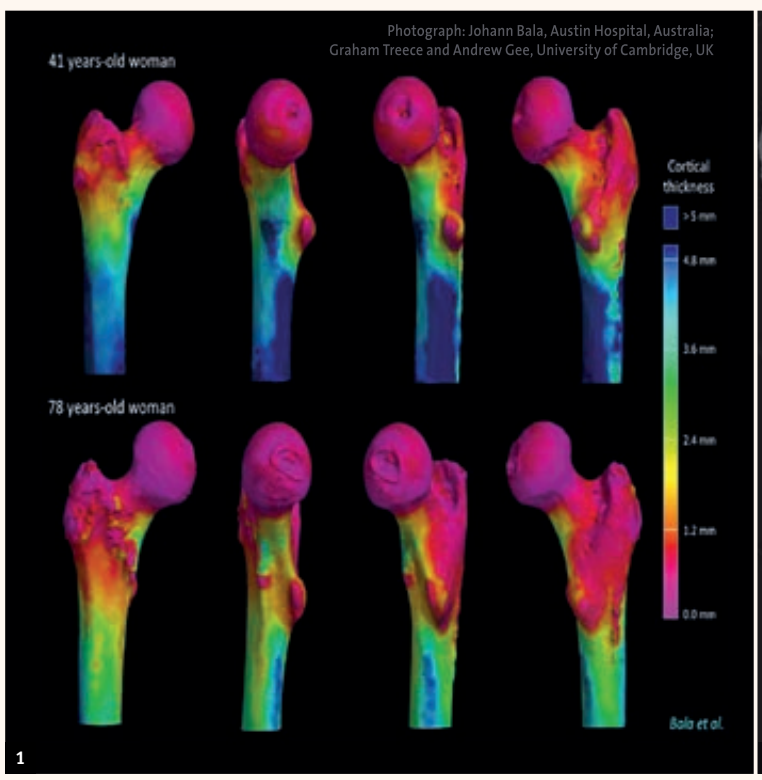
Is there a similar collection elsewhere in the world that you know of?

Prof. Clement: Not such a well-documented, well-provenanced collection from recently living individuals, collected in accordance with national ethical guidelines and with explicit permission of the next of kin, for the express purpose of research into age-related changes.

How many individuals are represented in the collection today, and where were the specimens obtained?

Dr Hardiman: The collection represents over 600 individuals. Specimens are either physical samples of femoral bone or digi-

> "The next big step in the collection's future is to couple the results of genetic investigations with the morphological outcomes from the bones."



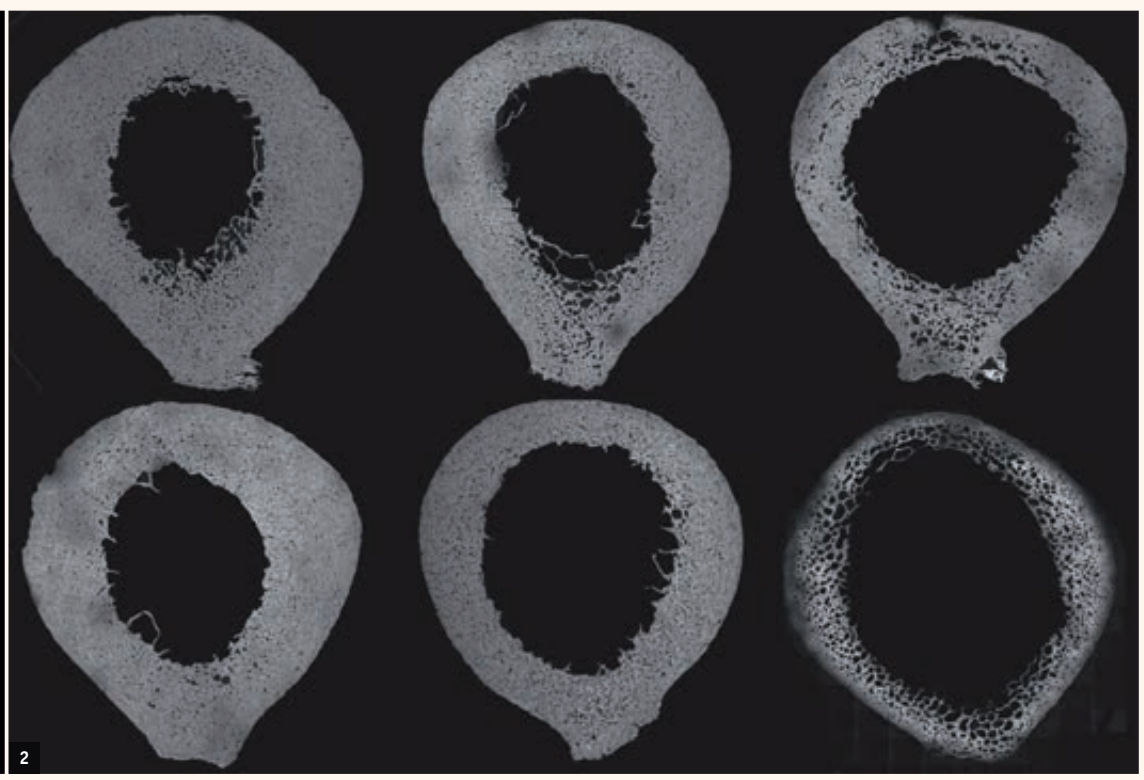


Fig. 1: *Cortical thickness mapping of the proximal femur in women of different ages.—**Fig. 2:** Two rows of microradiographs of the femoral midshaft cortex illustrating the wide variation in bone structure. All from individuals between the ages of 78 and 80; top row men, bottom row women.*

tal volumetric scans of lower limbs. All physical specimens were collected with informed consent from the next of kin, with expert help from transplant coordinators and mortuary staff and the support of the Victorian Institute of Forensic Medicine. This means that the specimens are of recently living persons from the state of Victoria in Australia who died suddenly and unexpectedly.

> "The ultimate aim is to maintain people's bone health throughout life."

The collection is a rich source of information for researchers in various fields. What methodologies and experiences does the dental profession contribute?

Prof. Clement: Dental academics and researchers have a long history of intrepid research into all five types of mineralised tissues that are important in the jaws and faces of people, using a number of methodologies at the forefront of scientific technology. All research conducted on the collection is done with expert knowledge of bone growth and development and of age changes. This field of knowledge is one with which the dental profession is closely linked.

Just as with the femur bone, teeth are very resistant to decomposition and record a great deal of information about people's lives. Given that you have all the information about the bone donors in the collection, have you ever considered doing cross-research with teeth samples to compare the teeth and bone findings?

Prof. Clement: The ethical constraints of this collection mean that we cannot do this for specimens we have collected so far. Besides that, removing teeth results in significant disfigurement—something we as researchers are reluctant to do unless absolutely necessary. Teeth are also able to be studied in living individuals, reducing the need to study extracted cadaveric teeth. Lastly, teeth are exposed to a variety of very different environmental factors, such as diet and habitual wear, thus not easily correlated with the changes in bone due to mechanical influences. Researchers at the Melbourne Dental School do have a keen interest in determining life histories through mineralised tissue, though, so it would be a very interesting idea for the future.

To date, over 80 papers have been published based on the collection. Could you name a few key findings?

Dr Hardiman: The key findings of research on this collection broadly relate to the ability to study features in recently deceased individuals from a prosperous urban environment that are impossible to study in the living. An example of a really interesting finding is that of the level of porosity in the cortical bone being a function of the size of individual pores, rather than pore density in the bone. More recently, researchers on the collection have been able to reconstruct the osteocyte lacunar network and the 3-D structure of Haversian systems. All these findings help us to understand much more about the 3-D form of bone tissue in the femur and how this might change throughout the human life span.

One of the major findings was that there is a high degree of variation regarding the femur bone between individuals of the same chronological age. Can you explain why?

Dr Hardiman: Bone is very responsive to mechanical forces. If one considers a number of people within a community, some are more active in their daily lives than others, and there is a broad spectrum of activity types. For example, some people have a more sedentary lifestyle, while others have physically demanding work and extracurricular activities.

All these physical lifestyle factors have a remodelling effect on limb bones, at different rates and with different morphological outcomes. Genetic effects also come into play. The Melbourne Femur Collection includes blood samples that were collected together with many of the bone samples. The next big step in the collection's future is to couple the results of genetic investigations with the morphological outcomes from the bones. As for nutrition, in the time span that these individuals were alive in the state of Victoria, most of them would have had very good nutrition, so effects of malnutrition would most likely not be seen in these bone samples.

Looking at teeth only, it can be difficult to make a precise age determination after the permanent dentition has erupted because there is a great deal of variation as well. For age determination, which is necessary, for example, owing to the recent influx of refugees into Europe, would it be more precise to combine data from teeth and bones?

Prof. Clement: In theory, this might be a good addition to current methodologies. Of course, closure of epiphyses in the long bones is currently used as an age estimate—again, only in those who have not finished growing. And there have been some—as yet ultimately unsuccessful—attempts at age determination using cranial sutures. Unfortunately, there are several barriers to using bones in useful age determination. The first is that there is no reliable method to determine age accurately within a reasonable range. The second is that any investigative technique that can be used on living individuals would not be sensitive enough. The third is that there are inevitably population differences in rates of change of bone features, and environmental effects that would probably confound any results, such as malnutrition and diseases that affect bone metabolism.

With the emergence of new digital technology, the collection probably offers the potential for even further discoveries. In your opinion, what do you foresee in this regard for the future?

Prof. Clement: The insights for the future will probably come from more precise mathematical modelling of the effects of physical changes on bone tissue. We now have the capability to work effectively with big data to predict changes in bone by inputting very detailed information about its morphological structure and the bone tissue's physical composition. Perhaps soon we will be able to watch a skeleton ageing virtually and test the effects of preventative therapies on the structure of bone. The ultimate aim is to maintain people's bone health throughout life so that everyone can remain as active and have as enjoyable, productive and long a life as possible!

Thank you very much for the interview.

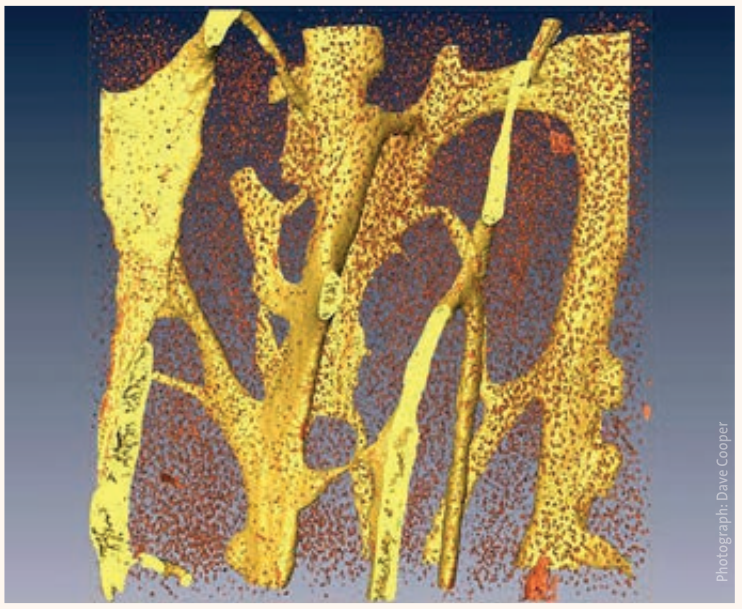


Fig. 3: Osteocyte lacunae (red) and Haversian canals (yellow).

AD

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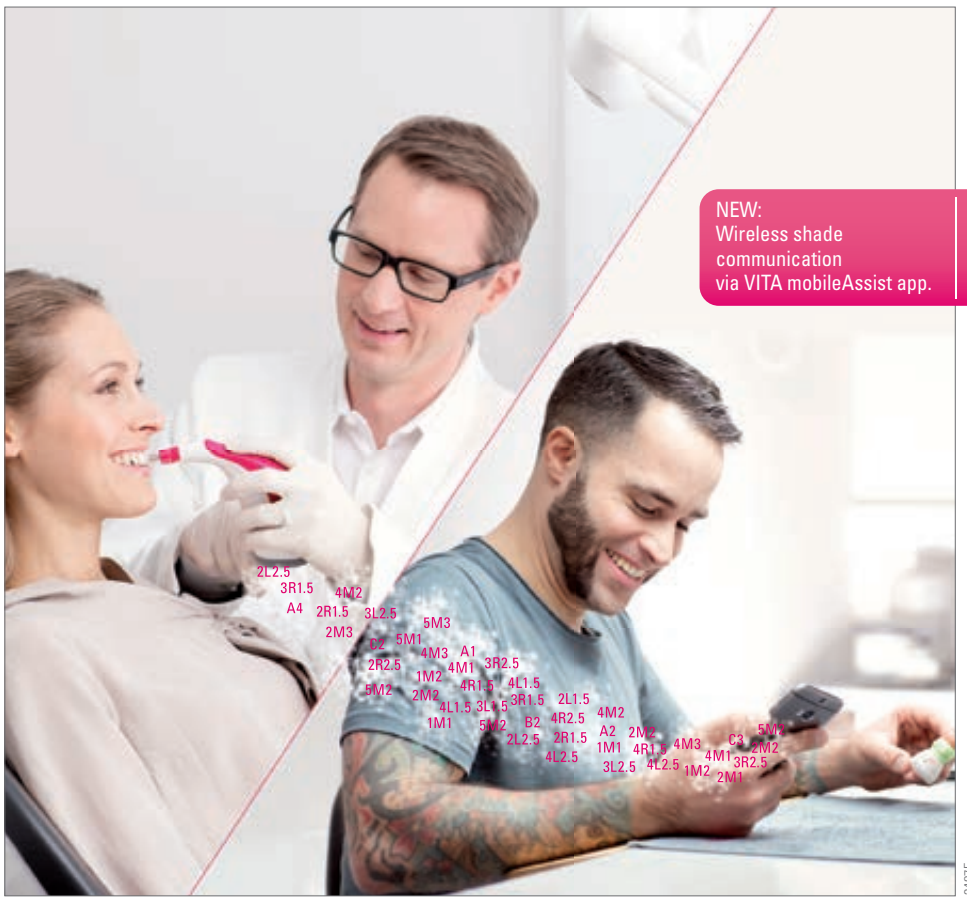

VITA Easyshade® V

- Precise, fast and environment-independent tooth shade determination
- Detailed measurement results in the world-wide established VITA shade systems
- Ergonomic design, intuitive operating concept and brilliant color touch display
- Efficient communication between dental practice and laboratory thanks to VITA Assist and VITA mobileAssist

In practice

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Inroads into Japanese market

By DTI

SEOUL, South Korea: South Korean dental implant manufacturer OSSTEM IMPLANT is aiming to increase its market share in Japan, OSSTEM Japan CEO Kim Hae-gon told the *Korean Times* in an interview. Among other measures, the company plans to almost double its Japanese offices, from 12 to 22, by 2019.

Currently, the company, which was founded in 1997, holds only 3 per cent of the Japanese implant market. However, building on its success in South Korea, where the implant manufacturer has 50 per cent of the market share in the segment, OSSTEM plans to slowly expand its presence and over time compete with premium competitors from overseas, such as Straumann and Nobel Biocare.

Seoul-based discount implant manufacturer OSSTEM aims to make significant inroads into the Japanese market over the next several years.

"The key behind our success in Korea is our strategy of not taking excessive royalty profits, but instead, investing more in research and development to enhance product quality," Kim said.

Compared with Europe and America, the demand for implants is not yet as high in Japan. However, it is steadily growing and the company is confident that it will reach its annual sales target of JPY3 billion by 2023. In 2016, OSSTEM Japan already generated JPY600 million (US$5.48 million) in sales, growing more than 150 per cent compared with its 2012 figures.

One reason for this success is the company's focus on research and development, Kim said. Consequently, OSSTEM not only produces quality implants and dental equipment, but also puts emphasis on educating dental professionals in the field. For example, the company runs advanced education seminars for dentists wishing to learn surgical procedures for implant placement. "This is part of our efforts to raise the awareness of implants in Japan, which will also improve our brand image in the country," the branch head remarked.

"It is true it will not be an overnight thing for us to make tons of profits in Japan in the next few years, but we are confident that the implants industry here will definitely take more concrete shape as time goes on. Our price-competitive and quality products will then pose serious threats to market leaders, as we had done with our products in Korea."

MIS releases new EZ-Base abutment

By DTI

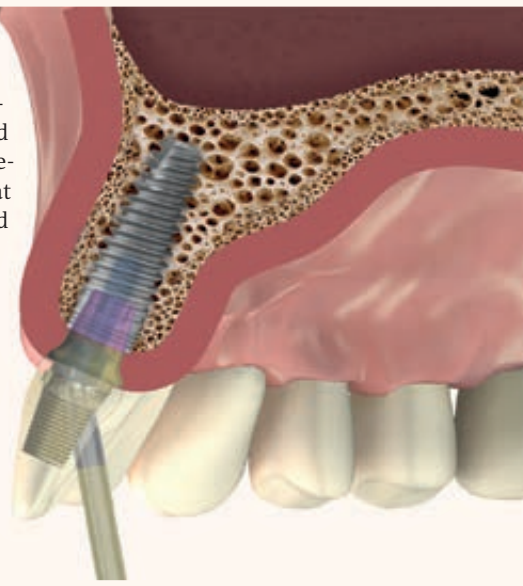
BAR-LEV INDUSTRIAL PARK, Israel: MIS Implants Technologies has announced the release of a new Ti-Base abutment that offers a solution for anterior screw-retained restorations. According to the implant manufacturer, restoration placement has never been simpler than with the EZ-Base system. The new abutment is designed for extreme angulation and offers safe handling within its screw channel. In addition, more angle options allow for greater comfort for the clinician performing anterior and posterior restorations with convenient handling and placement.

"It's critical to keep our R & D in direct correlation with the market's needs," commented Dr Shelly Akazany, Implants Product Manager at MIS, on the launch. "Both screw-retained solutions and CAD/CAM technologies are in accelerated growth. The EZ-Base belongs to both worlds."

The EZ-Base screwdriver features a unique tip that allows safe and reliable access from multiple angles, as well as gripping, tightening and loosening within the angulated screw channel with the convenience and at a torque similar to that of a straight screw channel.

According to the company, the system provides an entire range of possibilities for prosthetic restorations in the aesthetic zone. Whereas screw-retained restorations may not have been an option for many anterior cases in the past, the EZ-Base system now provides a solution. It may be used in a digitally planned procedure incorporating CAD/CAM technologies or using conventional methods.

Akazany explained: "It's important for us, in the Products Division, to offer a broad range of prosthetic options in order to make the clinician's life simpler, by having the most appropriate solution for each specific case without having to compromise. The EZ-Base system enables more freedom of choice and the ability to perform screw-retrained restorations in cases that would have been previously ruled out."



The EZ-Base system is available for narrow, standard and wide platforms and in both conical and internal hex connections. EZ-Base is also offered in both fixed gingival heights and adjustable options for optimal customisation and convenience.

AD

3Shape opens TRIOS for STL file export

By DTI

COPENHAGEN, Denmark: Danish digital dental solutions provider 3Shape has announced the opening of its TRIOS intra-oral scanner system for STL file export. According to the company, the export option will be included in a software upgrade for TRIOS users in the release of the new 3Shape Dental Desktop platform expected in the fourth quarter of 2017.

Currently, 3Shape only provides open STL CAD file export from its design software. With the addition of TRIOS STL export, both STL CAD files and digital impressions taken with the company's TRIOS scanners will soon be available to dental professionals or laboratories using any system.

"As doctors and the industry in general, go more and more digital, the need for across-the-board seamless connectivity is essential. We believe that professionals should have the freedom to choose the partner and solution they want to work with. Whether it's a dental lab or appliance-maker that needs a STL or DCM file for their workflow, or a preferred milling machine and 3-D printer, it should be up to the professionals to decide how, and who they work with," commented 3Shape co-founder and Chief Technology Officer Tais Clausen on the move.

However, data exclusive to the TRIOS system will not be available in STL format in the upgrade, the company pointed out. This includes features such as shade measurement, high-definition photographs, colour imaging, annotations and patient data, along with its colour digital impressions. This data will still be exclusively available as DCM files produced and used in the TRIOS system.

With the decision to open its systems, the Danish manufacturer is following the current trend to provide dental professionals with greater flexibility through completely open solutions. For example, competitor Dentsply Sirona just announced the opening of its CEREC system during the International Dental Show in March. Previously, CEREC impressions were automatically sent to the CEREC milling system, which prevented clinicians using other solutions for further processing of scans.

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In support of open data in digital dentistry, 3Shape has announced that TRIOS scans will now be available in a format allowing further processing with any system.

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