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EAO 26th Annual Scientific Meeting Madrid · 5–7 October 2017

Interview

Prof. Albrektsson from Sweden explains the findings of a new meta-analysis of studies involving the TiUnite surface.

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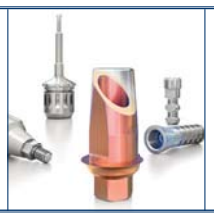

Products in focus

The EAO-SEPES meeting will be an excellent opportunity to see the most up-to-date innovations and technologies in dental implantology.

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What's on in Madrid

There is plenty to do in the evenings as the Spanish capital is a city of culture that has a lot to offer.

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Hot start for EAO meeting in Madrid

More than 4,000 dental professionals to attend 26th edition of international event

■ Under a blue Spanish sky and with temperatures soaring above 30 °C, the 26th Annual Scientific Meeting of the European Association for Osseointegration (EAO) officially began yesterday at the Feria de Madrid fairgrounds. Attendees will have little time to enjoy the sun, however, as the event has plenty to offer over the course of the next three days. With over 600 papers, guests can learn more about the latest concepts and clinical techniques in dental implantology and oral rehabilitation.

Lectures started yesterday evening with insightful discussions on changes and developments in implant placement protocols. Overall, more than 50 clinical experts from all over the world are speaking at this year's event. Among them are prominent figures in dentistry, such as Prof. Mariano Sanz from Spain, Dr Christian Coachman from Brazil and Dr Christoph Hämmerle from Switzerland. In the guest country session, to be held on Saturday, clinicians from Latin America will be presenting their research to a professional audience for the first time. While most of the papers will be delivered in English, the organisers have announced that there will be simultaneous interpreting into Spanish for some of the sessions.

EAO President Prof. Alberto Sicilia Felechosa opening this year's Annual Scientific Meeting of the EAO. In the background are SEPES President and congress chair Dr Nacho Rodriguez Ruiz and congress co-chair Jaime A. Gil.

At the opening ceremony held on Thursday in the Madrid room, EAO President Prof. Alberto Sicilia Felechosa from Spain yesterday welcomed everyone to this year's congress and thanked the Spanish society of prosthodontic and aesthetic dentistry (Sociedad Española de Prótesis Estomatológica y Estética; SEPES) for co-organising the event. He said that, according to the latest figures, over 4,000 dental professionals had registered for the three-day conference, which is being held in Spain for the second time since the first edition took place in 1992. Spanish attendees were then addressed by SEPES President and congress chair Dr Nacho Rodríguez Ruiz.

Also during the ceremony, several members of the EAO were awarded honorary membership of the EAO, including past President Dr Franck Renouard from France.

In addition to the educational offering, attendees can try out the latest products and technologies in their field at the trade exhibition. Over 130 manufacturers and dealers, including international heavyweights like Nobel Biocare, Straumann and Dentsply Sirona, are showcasing their latest innovations. Attendees can also learn about the new products and clinical solutions in detail at industry symposia running concurrently with the main programme.

Information about the 2017 congress and programme is available online and through the EAO-SEPES 2017 mobile app, which can be downloaded from the iTunes Store and Google Play. The latest news from the show floor, interviews with opinion leaders, and impressions are available at www.dental-tribune.com.

Founded in 1991 by leading dentists interested in osseointegration, the EAO is now a worldwide authority in the fields of reconstructive surgery and prosthetic rehabilitation. In addition to its large annual event, which attracts between 2,000 and 4,000 professional visitors annually, the association holds master clinical courses throughout the year. It furthermore offers members and non-members the opportunity to obtain a postgraduate diploma in implant dentistry. ◂◂

Symposium highlights JUVORA's PEEK implant prostheses

■ In front of an enthusiastic audience on the opening morning of the annual European Association for Osseointegration congress, Invibio hosted a successful symposium during which several experts discussed the growing potential of JUVORA implant-supported prostheses. JUVORA is made of PEEK-OPTIMA high-performance polymer, a clinically proven alternative to metal-based prostheses. Dental professionals from the well-known MALO CLINIC in Lisbon in Portugal and the Madrid-based Clínica Somosaguas presented their laboratory experiences and clinical outcomes with the material. Congress attendees can visit the JUVORA Booth (S32) to learn more about the low risk of peri-implantitis (1 per cent) and high survival rate (99 per cent) of implants bearing JUVORA prostheses.

António Silva

Dr Carlos Moura-Guedes, Director of the MALO CLINIC in Lisbon, provided a clinician's perspective on JUVORA PEEK-based frameworks. In his presentation, he discussed the promising short-term results of his ongoing prospective study regarding the material's clinical applications. Showing the progress made by a number of patients fitted with JUVORA prostheses for full-arch rehabilitation, Moura-Guedes praised the high level of biocompatibility that this material possesses, drawing attention to the excellent gingival conditions enabled by its impressive osseointegration. "Bone responds very well to PEEK," he told attendees. "We were very happy with the performance of PEEK. Patients have also responded favourably to it."

Following Moura-Guedes was António Silva, also from the MALO CLINIC. Silva shared his laboratory experience with JUVORA in his presentation and detailed some of the problems his team had encountered upon first applying the polymer in the clinic's patented All-on-4 protocol for rehabilitating completely edentulous patients. He stressed that these issues were easily resolved once his team became more familiar with the material behaviour of the JUVORA Dental Disc, as there were certain mistakes that occurred simply owing to the evolution of learning. In his presentation, Silva emphasised the processing of the disc effortlessly, quickly and precisely through CAD/CAM workflows. PEEK can be easily implemented within the laboratory approach in a more comfortable way. "PEEK meets the high-quality restoration requirement standards set by MALO CLINIC," said Silva.

Dr Miguel de Araújo Nobre, Director of the MALO CLINIC's Research & Development and Oral Hygiene departments, was the next expert to address the crowd. In his presentation, he demonstrated the potential for PEEK-based products like JUVORA to contribute to the long-term maintenance and successful outcomes for full-arch fixed prosthetic rehabilitation supported by im-

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plants in immediate function. The award-winning clinician highlighted the importance of understanding peri-implant pathologies prior to discussing peri-implantitis. He explained the risk assessment factors and recall recommendations to prevent implant failure. "Measure the risk, manage the risk, communicate the risk," he said. As Nobre told the audience, peri-implant pathology has a combination of biological and biomechanical risk factors, and this risk score can ideally be reduced with the use of PEEK frameworks in restorative dentistry. "It is worth considering PEEK today. It could be the next periodontal ligament," concluded Nobre.

To round up the symposium, pioneer in PEEK technology research Dr Bernd Siewert, of Clínica Somosaguas, outlined some of the key factors for ensuring long-term success when using JUVORA prostheses. With almost three decades of experience as a dentist, Siewert has specialised in metal-free dentistry since 2008, and in 2014, founded a dental laboratory that processes only PEEK-based prosthetic solutions. In his presentation, he spoke about the history of PEEK and presented some of his own clinical cases to highlight how the bone-like modulus of elasticity and impressive flexibility of a JUVORA bridge framework allow it to withstand enormous masticatory forces and bruxism in the long term. Siewert emphasised that CAD/CAM-fabricated bridge frameworks milled from this material possess no material faults, as they do not undergo any physical changes during processing. "After nine years of using PEEK, we have seen stable bone around the implants, stable PEEK frameworks, no fractures of direct-to-implant PEEK abutments and, finally, no chipping or wear with composite veneering. Only in some cases did we see occlusal wear using PMMA veneers," said Siewert. "PEEK is not only a metal-free alternative, but a great material for full-arch metal implant-supported bridges."

Dr Bernd Siewert

Overall, the symposium provided a valuable opportunity for those who attended to learn more about JUVORA implant prostheses and how this solution can be integrated into the workflow of a dental clinic or laboratory. As the speakers demonstrated, PEEK exhibits great flexibility, a low modulus of elasticity, outstanding capacity to absorb occlusal forces, a density of 1.3 g/cm^3 and a water absorption of only 0.5 per cent. Its flexural strength and very low fatigue prevent fractures. Finally, the excellent biocompatibility of pure PEEK helps maintain healthy soft tissue and prevents corrosion. With the latest-generation PEEK material, dentists can offer prostheses with the important properties of being flexible and shock-absorbing while following a fully digital production.

For further information, dental professionals are invited to visit www.juvoradental.com/peekexpert-club and stop by the JUVORA Booth S32.

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Putting TiUnite to the test

An interview with Prof. Tomas Albrektsson, Sweden

■ Having been involved in dental implantology from the very beginning, Prof. Tomas Albrektsson was a keen observer when Nobel Biocare launched its moderately rough TiUnite surface in 2000. Seventeen years later, he co-authored a landmark meta-analysis of all prospective studies published on the surface, which included 106 papers and over 12,000 TiUnite implants in total.[1] In this interview, he explains the significance of the findings.

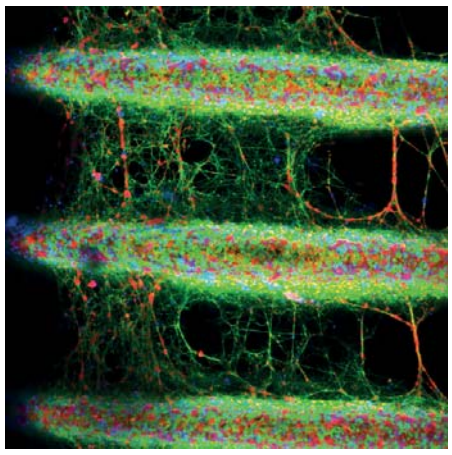
Prof. Tomas Albrektsson

"There are not many systematic reviews of a single implant surface or brand."

Prof. Albrektsson, the meta-analysis of TiUnite implants that you co-authored with Prof. Matthias Karl from Saarland University in Germany is perhaps the most extensive assessment of a single dental implant brand. What was the relevance of looking at research on the TiUnite surface in such detail?

It is always relevant to conduct proper clinical studies, but it was the sheer wealth of evidence on TiUnite implants that made this meta-analysis possible. There are not many systematic reviews of a single implant surface or brand. Nobel Biocare is definitely leading the way in that regard. The more we know about an implant, of course, the better it is for dental professionals and for patients.

Research of this nature highlights the stark contrast between high-quality implants and the copycat versions that are not backed by any documentation. Even if they seemingly look like the implant that they are trying to imitate, it does not mean they work the same way. The most important thing is that a dental implant really functions as planned and that there is high-quality evidence to prove it.



Confocal microscopy z-stack projection shows fluorescent staining of fibrin (green), nuclei of white blood cells (blue) and platelets (red) on a TiUnite surface implant. (© Nobel Biocare)

What were the key findings of this TiUnite meta-analysis, and why are they important?

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Unsurprisingly, a very high implant survival rate for implants with the TiUnite surface was reported. We know now that TiUnite has a very good clinical record of maintained bone levels in the vast majority of cases. There are actually five different ten-year studies on TiUnite that demonstrated well-maintained bone levels.

What does the meta-analysis tell us about rates of peri-implantitis with TiUnite implants?

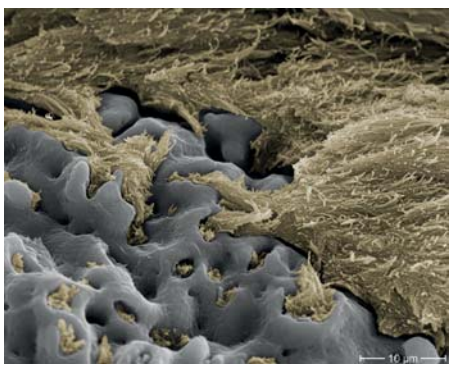
The publications that assessed biological complications revealed a low prevalence of peri-implantitis with TiUnite implants. This was not a big surprise either. The figures we have seen widely reported in the literature are exaggerated. They say that any bone loss after the first year is disease, which is, to put it mildly, incorrect. We see maintained bone levels in this study and in other ten-year follow-up studies with TiUnite. If peri-implantitis is a disease—which is still under debate—it may affect 1 per cent of implants after ten years. If by "disease" we mean bone loss that threatens the survival of the implant, it is in the order of 1 per cent.

Nobel Biocare's implant systems are not the only ones that have shown good results with respect to peri-implantitis, but if I were to choose an implant today I would look at the documented research, which is so much better with Nobel Biocare. The TiUnite implant surface is backed by more five- and ten-year studies than any other implant surfaces from its competitors. When it comes to supporting evidence, Nobel Biocare implants have the advantage.

How can the findings of this meta-analysis be used to optimise clinical outcomes?

I think that we have to strive for continuous improvement. If one had 19 per cent mortality with appendicitis cases in the 1800s, one was better than the average doctor. Nowadays, such a high mortality rate would lead to one losing one's licence. We have new techniques. It is a similar story with dental implants. We have to constantly challenge what we think of now as the ultimate implant solution in order to have even better solutions for patients in future.

It is a continuing mission and I know that Nobel Biocare is involved in a number of studies with the goal of making further improvements. I think this is exactly the right approach because the ideal situation is that we have 100 per cent survival and success rates after ten years. We are not there yet, but that is the goal.



*Photograph shows osseoconductive bone formation. Human histology six months after implant insertion with bone anchored in the TiUnite pores. (© Dr Peter Schüpbach)

You have been involved with research evaluating Nobel Biocare implants for many years. Have the findings of your analysis changed your perception of the TiUnite surface?

While the meta-analysis is another validation of TiUnite's efficacy, its high performance has been confirmed in other types of clinical studies. Meta-analysis offers high-quality insight, but one needs a wide range of supporting evidence. TiUnite is backed not just by prospective studies, as we examined, but by retrospective research and other study types as well. The statements we make about TiUnite implants today can therefore be made with great confidence.

I saw TiUnite being launched in 2000. I believed in it then and now I know that my beliefs were correct. It is a superb implant surface.

Thank you very much for this interview. ◂◂

Reference:

1. *Karl, M & Albrektsson, T, "Clinical performance of dental implants with a moderately rough (TiUnite) surface: A meta-analysis of prospective clinical studies", International Journal of Oral and Maxillofacial Implants, 32/4 (Jul/Aug 2017), 717–34. doi: 10.11607/jomi.5699.*

More information
about the TiUnite surface and its supporting clinical evidence can be found at nobelbiocare.com/tiunite.

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Teeth within an hour: A ticking time bomb

By EAO presenter Dr Göran Urde, Sweden

■ In my lecture at this year's EAO meeting, attendees received an overview of over 50 years of working with implants and why we did it in certain ways back then and why we do it differently today. When I started placing implants, they were only for specialists in oral surgery and prosthetics. Periodontists were not even allowed to listen to our lectures. One also had to be thoroughly trained if one wanted to purchase implants. Companies kept records of the clinician's success rates and if he or she had a higher than normal failure rate, they showed him or her the door to figure out alone what had gone wrong. In some instances, the warranty did not even apply if the dentist was not very good. I wish we had a similar system today to save patients from less skilled peers.

Later, everyone was allowed to take a course and to place implants. Often, these were just weekend courses after which the dentist was supposed to be a fully qualified surgeon and prosthodontist and knew everything, including single-tooth restoration, full-arch rehabilitation of severely resorbed jaws with bone grafts and immediate loading concepts. It was totally absurd. To place implants, one needs to be well trained–learn to walk before one starts to run.

To my delight, I see that more and more implant companies are abandoning weekend courses and instead offering high-quality courses over a longer period. Attendees have to treat patients under supervision and companies even offer mentor support, which means clinicians are receiving guidance in conducting their treatments. The best courses are of a general nature, where the sole purpose is to train dentists to place implants and do this well and not how to do it with a specific implant system.

One thing that worries me a great deal is all the copy-cat versions of implants that are being marketed to less experienced dentists who cannot determine what a good product is. I always tell my audience to never treat patients differently to how they would treat their own family. The unfortunate thing is that I often see members of the audience looking down because they feel admonished. They do not understand that they get what they pay for and that failures are very costly and can hurt both their reputation and patients.

Another topic that gets me going is the marketing of new teeth in an hour. Patients that for decades have not taken care of their natural dentition are now being treated in accordance with concepts like immediate loading. Within an hour, any remaining decayed teeth are removed and replaced with implant-supported crowns and bridges in the belief that the patients will start taking care of their new teeth. Unfortunately, this is not realistic.

In my opinion, this is a ticking time bomb. It is just a matter of time before patients will come back with problems like peri-implantitis and failing implants. Who is going to sort that out? In the good old days, patients had to cooperate first and then we placed the implants. Maybe this was a bit harsh, but success rates were higher then and fewer patients ended up with problems. One does not have to be a rocket scientist to understand that, with a mouth full of pathogens, the success rates will go down.

I have been heavily involved in developing concepts like "Tooth Now", according to which a tooth is extracted and immediately replaced with an implant and loaded with the final abutment and a temporary crown, with extremely high success rates when it comes to both implant survival and even more so the aesthetic outcome. Therefore, I am not against immediate loading at all, but case selection is very important. That is why good training courses conducted over longer periods are so important.

Guided surgery is both good and bad. The saying of "garbage in, garbage out" is apt in this regard: if one has the wrong information or interprets the digital information incorrectly, one might get into trouble if a fully guided surgical template is based on that. I do not agree with fully guided surgery as it is today, as I believe our brain needs to be connected instead of just computers. Do not get me wrong, I love to work with digital planning tools like NobelClinician (Nobel Biocare) to optimise my treatments, but instead of fully guided I prefer to use simpler surgical and/or pilot bur guides that do not force me to drill in a certain way. ◂◂

Dr Göran Urde is the director of the Futurum Clinic at the Malmö University's Faculty of Odontology. On Thursday, he presented a paper titled "Evolution of surgical protocols in implant dentistry" as part of this year's EAO 2017 scientific programme.

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Robotic guidance system could be game changer for implant dentistry

■ Implant dentistry is about to make a leap in development, at least if things go the way US company Neocis predicts. After introducing YOMI, the first robotic system developed for dental implant placement, and receiving Food and Drug Administration (FDA) 510(k) clearance to market its pioneering surgical assistance system, the company has recently announced the completion of the first sale of its device.

The dental implant and prosthetic market is one of the fastest-growing markets in the US. Equally thriving is the surgical robotics market, which is estimated to reach US$20 billion (€18.8 billion) across several medical markets by 2021. Combining both medical fields is YOMI, which is intended to provide assistance in both the planning (preoperative) and the surgical (intraoperative) phases of dental implant surgery.

Commenting on receiving FDA clearance, Neocis CEO and co-founder Dr Alon Mozes said, "We are excited to achieve this important milestone for YOMI. We look forward to further demonstrating the benefits of YOMI to the surgeon's practice and their patients and to bringing the system to select key opinion leaders in the United States."


© Neocis, USA

According to Neocis, YOMI is engineered to eliminate dentists' dependence on plastic drill guides, which can impede the site of surgery and block proper irrigation and visibility. The computerised navigational system delivers physical guidance through the use of haptic robotic technology, which provides sensory feedback and constrains the drill in position, orientation and depth. Notwithstanding its digital guidance, the surgeon remains in control and can dynamically change the plan during the procedure, the company emphasised.

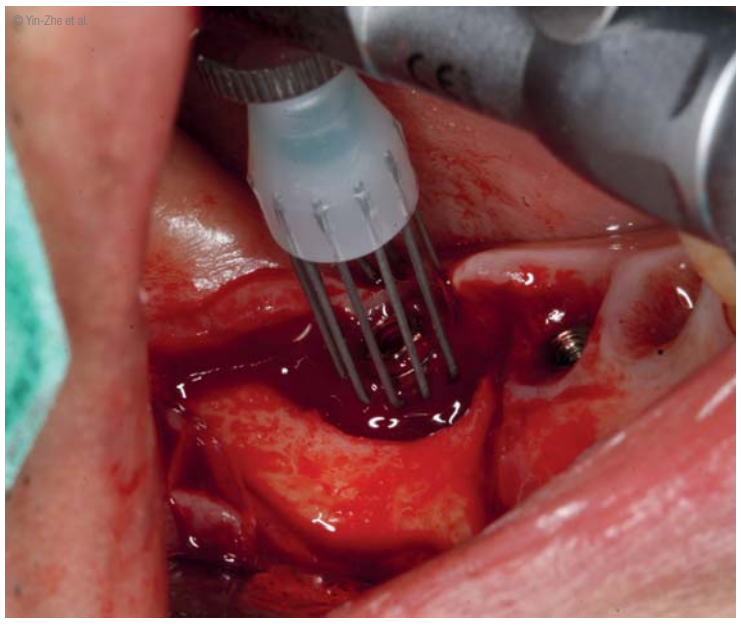
Neocis further noted that it is committed to ensuring that dentists who choose to use YOMI in their practice undergo sufficient training on the use of the software and the workflow of the system.

The first clinic to use YOMI in daily practice will be the South Florida Center for Periodontics & Implant Dentistry in Boca Raton, Florida, Neocis stated in a press release. The system has been installed, and Drs Jeffrey Ganeles, Frederic Norkin and Liliana Aranguren have completed training.

"We are excited to incorporate YOMI into our practice," Ganeles stated. "Adopting state-of-the-art technology is part of our commitment to providing the very best care for our patients. YOMI ensures that the procedure goes precisely as planned. There is nothing else like it, and I believe it will be a game changer for our practice." ◂◂

Novel surgical procedure could help combat peri-implantitis

■ The most common cause of peri-implantitis is the formation of a biofilm on the implant surface. Thus, effectively decontaminating the affected surface is essential for avoiding implant failure. Researchers in South Korea have now tested a novel surgical procedure and shown promising results in combating this inflammation.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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. Moreover, 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. Periapical radiographs showed that the alveolar bone height was stable, and no bone resorption was observed mesially or distally.

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.

In addition to its promising results, the procedure has one significant advantage compared with conservative therapies for removing debris, which include the use of metallic curettes with an adjunct of local or systematic antibiotics, as well as laser and ultrasonic devices: it has a very short chair time. In one of the cases, it took about four minutes to treat the eight exposed threads with the R-Brush, the researchers noted in their paper.

However, owing to the small number of cases considered, the efficacy of the described method needs further investigation in clinical trials, the researchers concluded. ◂◂

Microthreaded dental implants may preserve crestal bone

■ Implants with a microthreaded-neck design are more effective than those with a machined or conventional rough surface, researchers have found. Their study findings indicate that less crestal bone is lost with implants with the first design. Furthermore, the shape may contribute to better primary implant stability.


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The researchers, from the University of Kentucky in Lexington and the University of Dammam, investigated the impact of a microthreaded-neck design on crestal bone preservation, which is essential for implant stability. For the study, they analysed 23 articles published between January 1995 and June 2016 and obtained via a relevant keyword search on three electronic databases. From these, they concluded that the addition of deeper threads on the implant allowed for greater stabilisation between the implant and the bone, especially with weaker bone, and that less crestal bone was lost with dental implants that had a microthreaded-neck design than with those with a machined surface or conventional rough surface. Their findings demonstrate that geometry does affect the amount of stress and strain on the implant.

The scientists recommended additional trials to evaluate how bone loss might be affected by different implant types. Furthermore, they suggested that future studies use standardised imaging techniques to evaluate the placement of implants with a microthreaded-neck design in bone-augmented sites. ◂◂

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