

# implants

international magazine of oral implantology



## case report

Single tooth restoration with the one-tooth one-time technique

## industry

Initial stability after placement of a new buttress-threaded implant

## interview

Combining strengths towards further evolution

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**Dr Rolf Vollmer**

First Vice President and Treasurer of DGZI



## Second **Future Congress** of DGZI— An event for practitioners

Dear colleagues,

On 4 and 5 October 2019, the second Future Congress for Dental Implantology of the German Association of Dental Implantology (DGZI) will take place in Munich (Germany) under the theme “Perio-Implantology: Implants, Bone & Tissue—Where are we today and where are we headed?” The interactive congress concept that was successfully implemented last year for the first time will serve as the foundation of this year’s conference too and there will be, once again, a strong focus on the future of implant dentistry. You are most warmly invited to attend!

Embracing this novel concept means in concrete terms that there will no longer be a division into various lecture sessions, workshops and parallel programmes, sharpening the profile of the congress as an event for practitioners as a result. The conference will be split into an industry day on Friday, comprising strategy lectures, live streaming of surgeries and table clinics; and a Saturday solely dedicated to science. This format is aimed at fulfilling the information needs of implantologists in particular. Also, the industry will be given even greater significance through the table clinics and an exhibition concept that is a spatially integral part of the programme. By employing modern tools such as the future podium, innovative presentation techniques, digital poster presentations and interactive solutions, the overall experience will be something of a congress trade fair. A special catering concept of “flying service”, bringing participants food where they are, will serve this purpose as well. By

increasingly dissolving the breaks between the lectures, live surgeries and table clinics, participants, speakers and industry representatives will be given significantly more time for communication.

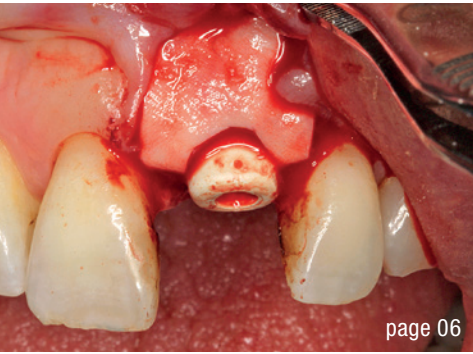
On Friday, 4 October, an implant surgery carried out by Dr Conrad Kühnöl and a tutorial led by Prof. Florian Stelzle will be live streamed to the Munich conference hall and on ZWP online, Facebook and YouTube. The focus of the implant surgery, starting at 12:15 p.m., will be on adapting a digital workflow with a specifically tailored implant concept and compatible software. It will be demonstrated how treatment safety, legal protection through proof of patient education prior to surgery, less patient stress and cost-effectiveness can be achieved through optimised time management. In his tutorial titled “Fast.four.fixed.final—Fixed third teeth in one day”, starting at 1:15 p.m., Stelzle will then guide participants step by step through planning, implant insertion and placement of the prosthetic framework, commenting in real time on the surgical sequences shown and answering questions from online viewers and from participants in the conference room alike.

I look forward to seeing you in Munich!

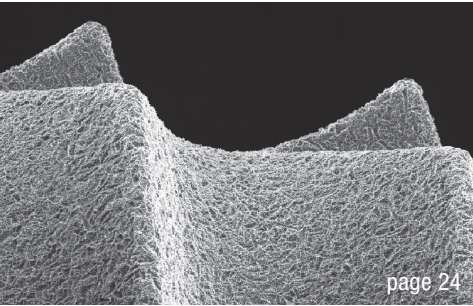
Yours,

A handwritten signature in black ink, appearing to read 'R. Vollmer', written in a cursive style.

Dr Rolf Vollmer



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# Single-tooth replacement using CBCT matching and virtual wax-up

Dr Jakob Zwaan, Netherlands & DT Vito Minutolo, Italy

**In our practice we often** encounter major challenges when just a single tooth needs to be substituted. In order to estimate the risk of an unacceptable aesthetic treatment result and to determine the most effective treatment plan, it is necessary to perform an analysis of the desired tooth shape, the soft tissue architecture and the bone volume necessary to stabilise an implant in the optimal position and support the soft tissue.

In the following, an approach to cases will be described in which a single tooth needs to be replaced by an implant-supported crown. After an anamnestic interview with the patient, we proceed with the intra-oral examination. Hygiene and periodontal health are checked. Normally, an intra-oral radiograph for a single tooth is taken first (Fig. 1) or a dental panoramic tomogram if the need for a more extensive treatment is suspected. In the same session, both dental arches are scanned with an intra-oral scanner and the bite is registered. The photographic sequence is as follows:

1. Full frontal view intra-oral photograph.
2. Detailed photograph of the single arch, possibly with a black mirror to contrast the teeth (Fig. 2).
3. Photograph of laterolateral detail of the tooth and gingival profile (Fig. 3).
4. Full-face photograph with maximum gingival exposure.
5. Full-face photograph of a spontaneous smile.
6. Photograph of the full face at rest.

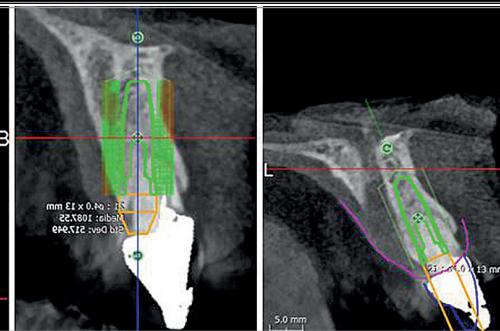
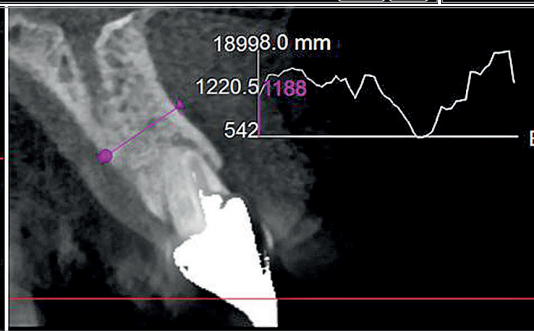
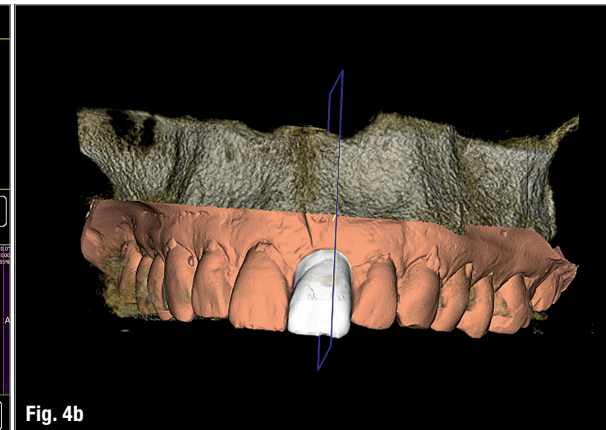
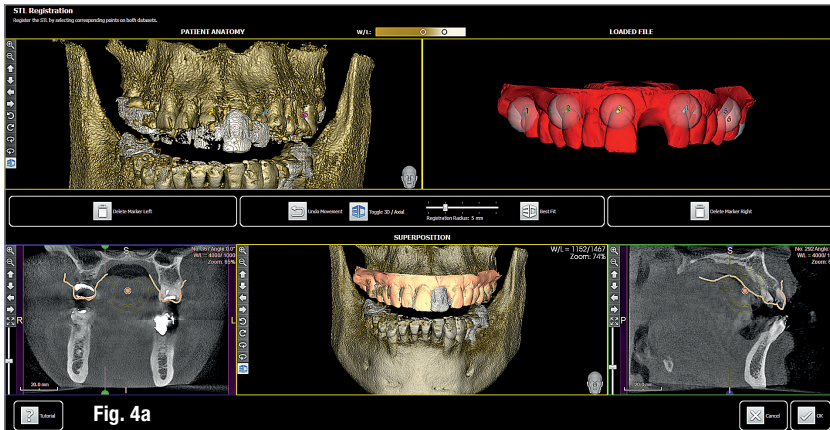


This sequence allows one to view immediately the presence of orthognathic and periodontal issues (Fig. 1), to evaluate the biotype (Fig. 2) and to estimate aesthetic challenges, like tooth colour, tooth texture, soft tissue/lip exposure and position of the incisal edge/lip (Fig. 3). The 3D intra-oral scan is helpful for determining orthodontic alignment of the teeth and in our protocol replaces an occlusal and/or 12 o'clock photograph in most cases. "There can be different ways of treating a disease, but there can be only one correct diagnosis." Dr Morton Amsterdam, 1974. When anamnesis, intra-oral examination and preliminary radiographs conclude that the tooth in question cannot be preserved, it needs to be decided what the optimal timing for extraction and a CBCT scan is and how to provide for a temporary tooth replacement. Also, the operator must choose between immediate, early or delayed placement in the fresh extraction socket.

Our policy is the following: in case of acute inflammation that cannot be effectively treated, we will proceed with extraction. A temporary fixed etch and bond or removable prosthesis can be used to guarantee acceptable aesthetic comfort to the patient. In these cases, a CBCT scan will be taken after extraction so that the most detailed image of the socket anatomy can be obtained. Since a provisional solution has been provided for, there is no need for very early implant placement. Timing is now based on the expected period needed for the infection to be eliminated and the risk of loss of volume by the collapse of tissue. Normally, the implant is placed four to six weeks after the extraction. Another reason for delayed implant placement can be the need for healed soft tissue in order to facilitate proper wound closure to protect, for example, bone substitutes and membranes when bone augmentation is necessary.

If the patient is suffering, extraction should be done quickly. If the anatomy and biological conditions are favourable, implant surgery can be carried out as early as one week after extraction. Only if there is no inflammation or infection, and sufficient bone and soft tissue quantity and quality are present, the implant should be placed in the fresh extraction socket. In such a case, the CBCT scan would be performed before proceeding.





Minor bone augmentation and/or connective tissue grafting can be performed contemporaneously. The decision to place an immediate provisional crown on the implant is strongly related to the expected primary stability of the implant, as well as the opportunity to manage the position of biomaterials in such way that undisturbed and uncontaminated healing is guaranteed. After healing, good aesthetics and sufficient protection of the underlying implant and implant–prosthesis connection are requisite if we wish to treat our patients in the best possible way.

## Risk evaluation

### First aesthetic risk evaluation

One can start with a render of a 2D photograph. We use the macro intra-oral shot with the black background behind the teeth (Fig. 2). With Adobe Photoshop, GIMP, Microsoft PowerPoint or Keynote, for example, it is easily possible to cut out the shape of the contralateral tooth that will not be extracted, copy it, flip it horizontally and paste it in the position of the tooth that needs replacement. It will be clear immediately whether this shape supports the papillae sufficiently or whether there is a lack of volume that needs to be compensated for. Also, this image with the flipped contralateral tooth can be aligned with the original photograph and then draw a horizontal line across both images that coincides with the same gingival reference points. This will demonstrate whether there is a vertical component that indicates a lack or abundance of soft tissue. This can be easily quantified in a metric system if an intra-oral reference is measured with

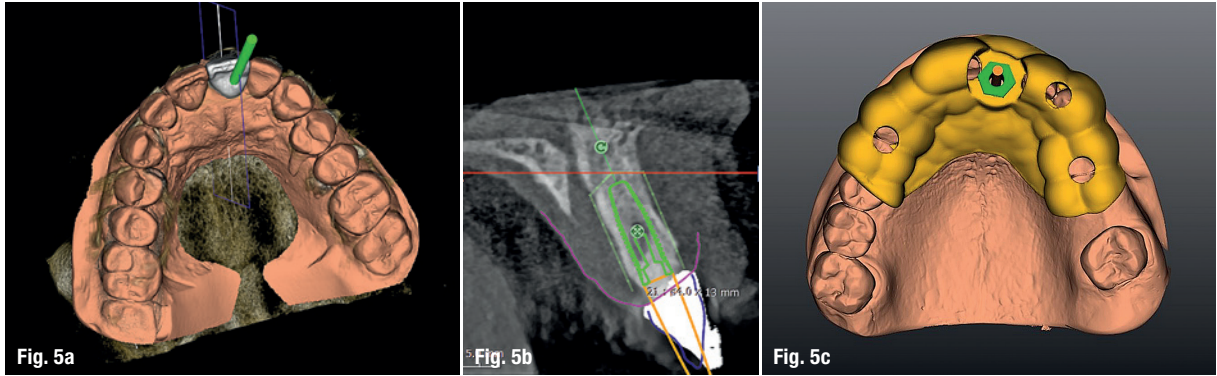
a calliper. The patient can now be informed whether additional procedures like guided bone regeneration (GBR) or a connective tissue graft will be needed.

### Second risk evaluation

The intra-oral scan is imported into CAD software and transformed into a virtual master model without the tooth to be extracted and a separate STL shape of the ideal CAD-designed tooth. Now there is the opportunity for 3D evaluation of the dimensional relation between the new tooth and the soft tissue before extraction. In the current case, the tooth involved had not been extracted and a CBCT scan was performed (X-Mind trium, ACTEON; 110 x 80 mm field of view; 0.15 mm voxel size) for further investigation and treatment planning. In the AIS 3D App software that comes with the CBCT X-Mind trium device, STL files can be matched and aligned with the 3D bone volume, thus giving the opportunity to plan the future implant position taking into account the shape and position of the future crown (Figs. 4a & b). In accordance with the prosthetic procedure preferred, cemented versus screw-retained, CAD/CAM-fabricated versus manual layering and the type of material to be used, all the information for the final treatment plan is available, on which decisions can be made regarding GBR, connective tissue graft and timing of implant loading.

## Case report

The female patient, aged 47 and a non-smoker, was in good general health. She experienced increasing mo-

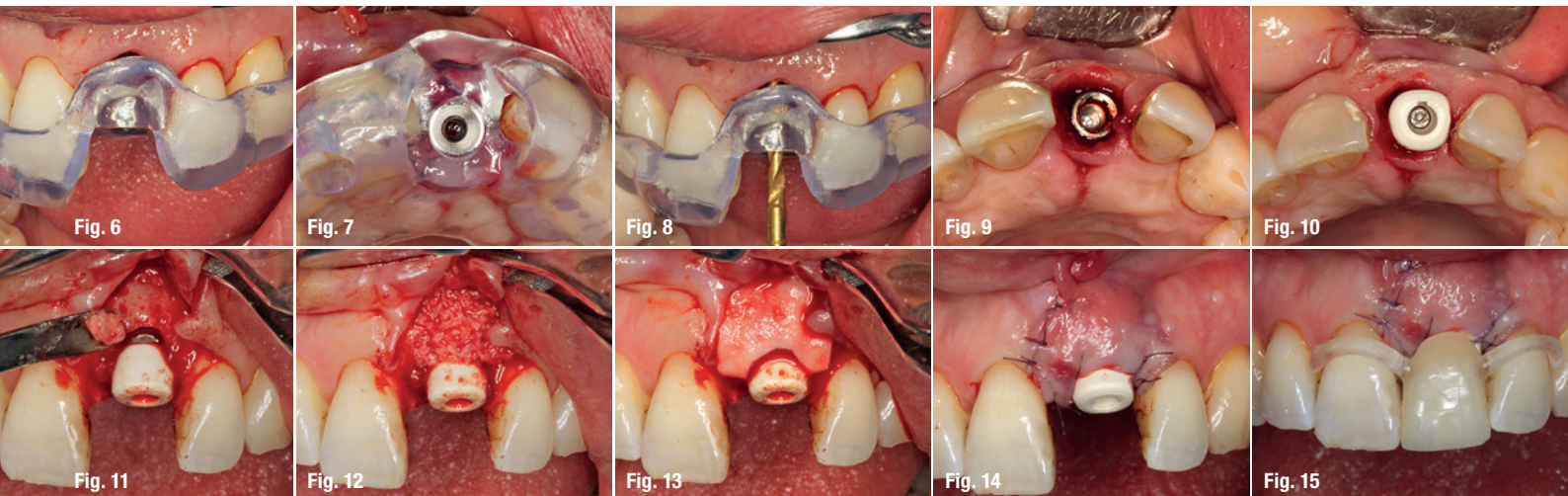


bility of the maxillary left central incisor and complained about compromised aesthetics due to the extrusion and progressive migration of the tooth in a buccal direction. The incisor had been treated with a crown at a preadolescent age after a violent trauma. The intra-oral radiograph showed incomplete root development and evidence of a root canal therapy suggesting a strip perforation though no signs of periapical lesions were present. The shape of the crown was not symmetrical in relation to the triangular shape of the maxillary right central incisor, but had a wider and rectangular profile. Minor general gingival recession had led to the presence of a tiny interdental space. The marginal gingiva was reddened, and the central papilla was not symmetrical. Probing depths were within 2mm for both the right and left central incisors and the radiographic mesial and distal bone peaks were of a regular height. The photographic aesthetic evaluation showed that it would be very difficult to obtain symmetry in tooth shape and have good-looking and healthy soft tissue support at the same time. The patient's maximum smile exposed the gingival contours. In such cases, it may be wise to consider also the possibility of altering the anatomy of the contralateral tooth with, for example, a ceramic veneer and discuss outcomes with the patient before finalising the treatment plan. This can be evalu-

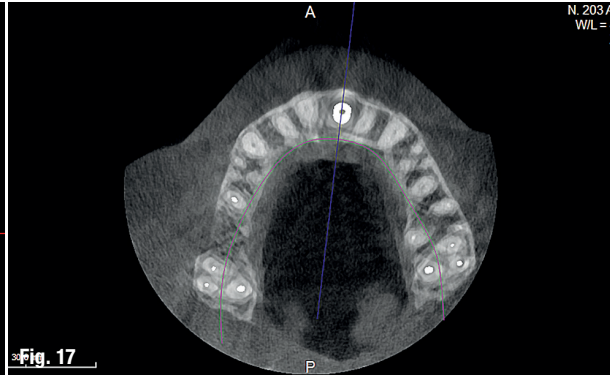
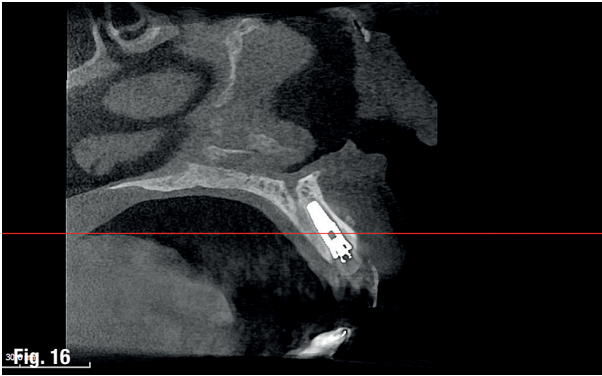
ated by performing the cut/copy/flip/paste sequence in reverse. It was decided to start performing the best possible replacement of the maxillary left central incisor and evaluate at an advanced stage with a temporary crown on the implant and mature, conditioned tissue whether to add a veneer to the maxillary right central incisor.

### Analysing the CBCT scan

The short-rooted tooth could be extracted without compromising the buccal bone, and there was sufficient bone volume and quality to obtain good primary implant stability. Thanks to the AIS 3D App software, this information can be visualised using the bone density tool and linear measures tool (Fig. 4c). The presence of the nasopalatine duct prohibited ideal palatal positioning of the implant, and if the implant were to be placed flush with the palatal alveolar bone, this would have resulted in a 1.5–2.0mm high exposure of the implant collar on the buccal aspect (Fig. 5a). It was thus decided to place the implant in that position and to augment the buccal bone volume with a contemporaneous GBR procedure, thus also providing for major soft tissue support. Literature suggests that that in some measure the implant will deviate buccally from the orig-







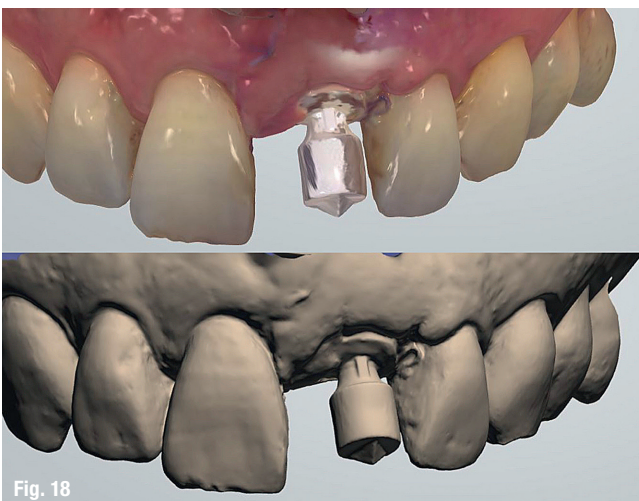
inal planning because of the major mechanical resistance of the palatal plate.<sup>2-4</sup>

The author's team prefers screw-retained solutions. Several production centres are capable of milling angulated screw access holes in cobalt-chromium abutments of up to 25°. It can be easily checked in the implant planning software whether the future access hole will exit on the palatal aspect of the tooth, either by angulating the implant extension tool or by choosing a virtual abutment from the library. Confirming being in the safety range from this point of view allowed for an approach that foresaw the implant in native bone without the necessity for major GBR on the apical aspect of the implant. It was decided to use a surgical guide (Figs. 5a & b) for only the first drill to determine with precision the position and angulation of the osteotomy that would be performed freehand thereafter. A removable temporary prosthetic tooth was produced in advance.

### Surgery

Local anaesthesia was performed with 2% mepivacaine with 1:100,000 adrenaline. Preventative antibiotic therapy with amoxicillin (1 g, b.d. for five days) was prescribed,

aided by use of a 0.2% chlorhexidine mouth-rinse three times a day. The tooth was extracted and the sulcular epithelium removed with diamond burs. The milled surgical template (Figs. 6 & 7) served as a guide for the first 2 mm diameter pilot drill (Fig. 8). Thus, the planned depth, position and angulation of the osteotomy were obtained. The drill sequence was completed freehand, using tapered 3.0 and 3.4 mm drills. A Neoss Pro-Active Tapered Implant of 4 mm in diameter and 13 mm in length was inserted flush with the mesial/palatal/distal bone, motor driven up to a torque of 50 Ncm and then with a manual wrench (Fig. 9). The correct position of the internal hex was verified by checking the references on the implant driver, which ideally points in the buccal direction. Resonance frequency analysis with Penguin-RFA (Integration Diagnostics Sweden) determined an ISQ value of 73/76. A Neoss Esthetic Healing Abutment with a ScanPeg was connected to the implant (Fig. 10). A flap was then raised after a vertical incision of the frenulum and the expected buccal exposure of the implant neck was evident. Autogenous bone was positioned directly on the implant surface (Fig. 11), followed by a bone substitute on top of it and on the buccal cortical bone (Fig. 12). This material was covered with a resorbable membrane (Fig. 13). The mobilised flap was then repositioned by rotating it coronally and fixed with single su-



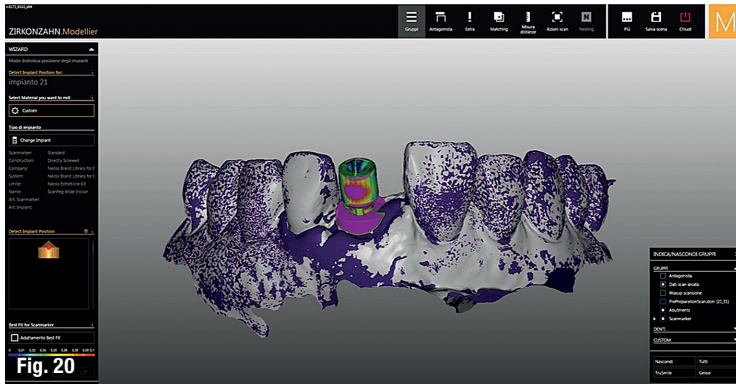


Fig. 20

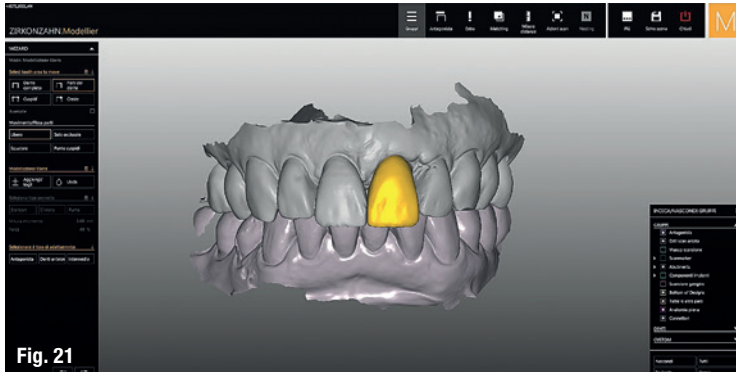


Fig. 21

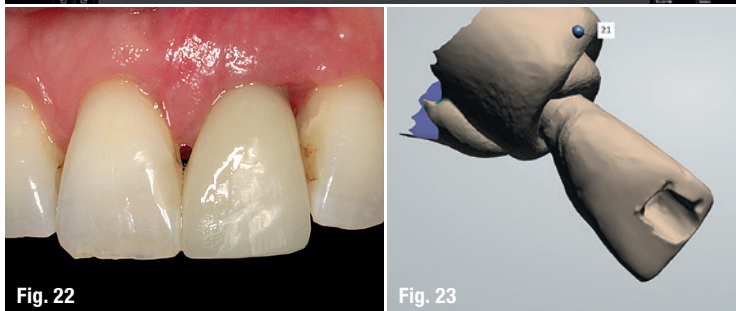


Fig. 22

Fig. 23

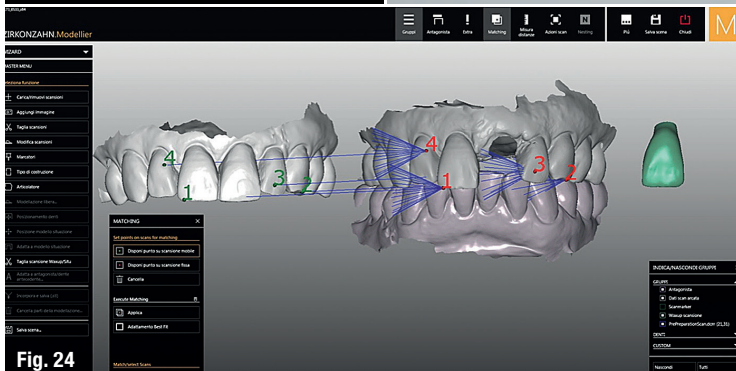


Fig. 24

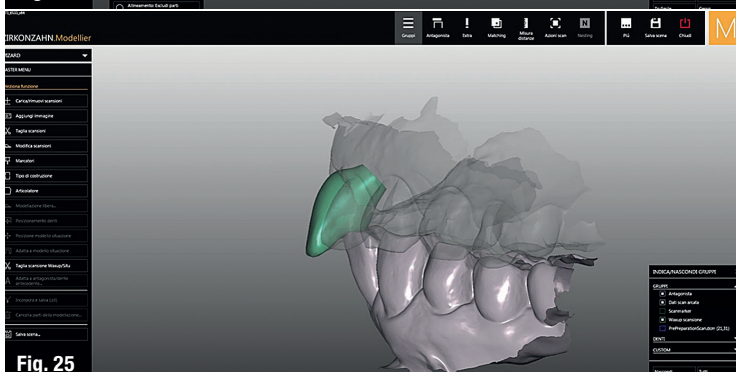


Fig. 25

tures (Fig. 14). The removable partial denture was adapted and delivered (Fig. 15). An immediate postoperative CBCT scan of 60 x 60mm was performed, and it confirmed a perfectly centred implant position (Figs. 16 & 17).

### Intra-oral scan

Eight days after surgery, the patient reported that healing was uneventful and the prosthodontist removed the stitches. It has become the author's standard protocol to perform an intra-oral scan for implant position in this same session (Fig. 18). The specific and unique PEEK healing abutment used has an internal circular channel and on one side, normally positioned on the buccal aspect, a vertical rectangular slot (Fig. 19). After removing the PTFE tape used to plug this area during surgery, a ScanPeg can be positioned inside the healing abutment. This allows for a unique scanning procedure without removing the healing abutment, thus avoiding disturbing healing tissue or dislocating recently placed biomaterials.

### Temporary crown

The surgeon indicated that the healing abutment may be removed after four weeks. By then, the temporary screw-retained crown had already been fabricated by the technician, who had prepared a CAD/CAM-milled acrylic tooth glued on to a Neoss NeoLink abutment (Figs. 20 & 21). As a result of the decision to place the implant entirely in native bone, the angulation was such as to locate the screw access hole of the provisional on the buccal aspect. This can be easily camouflaged by a simple composite filling after plugging the channel with PTFE tape. The gingival profile copies in this first stage of loading the central incisor anatomy of the Neoss Esthetic Healing Abutment (Fig. 22).

### Tissue conditioning

As evidenced by the aesthetic analysis before treatment, it was clear that symmetry with the contralateral incisor would be impossible. The implant was placed slightly distal because the distal papilla normally has a narrower mesiodistal basis than the central papilla. The tissue volume augmentation helped to obtain the necessary quantity of gingiva to shape nice papillae, leaving a minimal gap. The soft tissue architecture was conditioned by adding composite to the temporary crown and grinding material where necessary until the prosthodontist and the patient felt an optimal result had been achieved.

### Transfer of the profile

Another intra-oral scan of the full arch with the temporary crown in place was performed. The provisional was then removed from the mouth and screwed on to an implant replica fixed to a stable support with wax. A second scan



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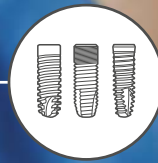
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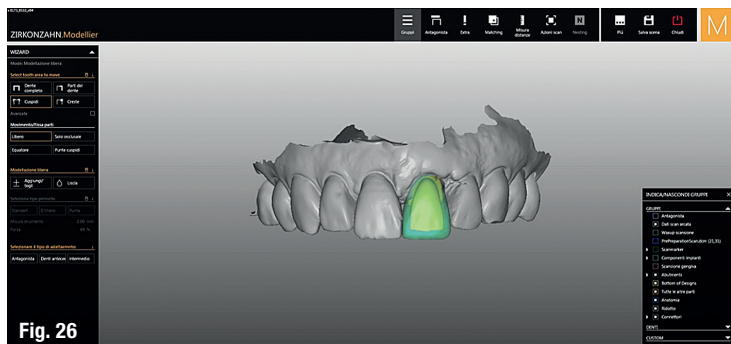


Fig. 26



Fig. 27

revealed in 360° the modified shape of the temporary crown, including the gingival profile (Fig. 23). These files can be easily matched in the CAD software when designing the definitive crown (Figs. 24 & 25).

### Definitive crown

Owing to the angulation of the implant, it was necessary to relocate the screw access hole. In CAD, the design for a cobalt-chromium support that copied the gingival profile of the temporary was prepared, and the screw access was brought to the palatal aspect (Fig. 26). The file was sent to a milling centre in Sweden. High-quality material and CAM production guarantee an excellent outcome in terms of connection and smooth surfaces (Fig. 27). Feldspathic ceramics are layered to obtain the final anatomy and texture. The patient was satisfied with the result. Minor gingival asymmetries are not really disturbing when viewed at social distance if other parameters, like colour, incisal edge, and tooth texture are respected (Fig. 28).



Fig. 28

### Conclusion

Innovative technologies enable very accurate diagnosis and treatment planning. Affordable high-quality CBCT has profoundly changed our profession. In the current case, the detailed X-Mind trium 3D images allowed for planning and performing implant placement in the optimal mesiodistal position. After collecting all of the necessary information and knowing what technology can provide, it is possible that one team will opt for GBR and monolithic crowns, where another might try to minimise the invasiveness of surgery and employ innovative milling strategies. In the actual challenging buccopalatal dimension, the implant was perfectly planned and guided into the centre of the native bone. GBR was limited to the minimum. The fact that bone volume could be matched with the dental preoperative situation and the CAD virtual wax-up made the whole procedure very predictable. Bone volume, bone quality, extent of GBR indicated and the type of prosthodontic solution were all known before starting treatment thanks to the implant planning with the AIS 3D App software.

*Editorial note: This article was originally published by Dental Tribune International in the 1/2019 issue of CAD/CAM—international magazine of digital dentistry. It is reprinted here (as shortened version with editing changes) with permission. Scan the QR code at the top of the article for the full-length version.*

### about the author



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# Single tooth restoration with the one-tooth one-time technique

Drs Louwrens Swart & Paul van Zyl, South Africa

**Immediate implant placement and loading** of a prosthesis in an edentulous jaw is an accepted treatment modality in dental practice worldwide. Optimisation of treatment time is an attractive option for both the treating implantologist and the patient; thus, a single-stage surgical procedure and new loading protocols have been explored. The implant's design, core material and surface modification are important device-related factors that may influence primary stability. All of these factors, as well as patient anatomy and bone quality, must be considered for immediate loading treatments. Scanning and milling techniques have opened up a new landscape for implant dentistry, enabling implant prosthetic dentistry to take a major step forward. Digital workflows are increasingly used, particularly for single-unit restorations, and they allow for straightforward and cost-effective protocols that improve

patient satisfaction. One-tooth one-time is a technique developed to predictably place an implant in the molar area of the mandible, followed by immediate loading of a definitive prosthesis just hours after surgery, using the new Straumann BLX system and a digital workflow.

## Initial situation

The patient presented to the office with a missing mandibular first molar (Figs. 1–4). His chief complaint was of pain on chewing on the respective side because of the pressure on the gingival tissue (Fig. 5). For this reason, he had begun chewing mainly on the opposite side and he thus wished to have the site restored as soon as possible. Considering that the patient presented with a well-balanced occlusion and the missing tooth was



**Fig. 1:** Extra-oral frontal view. **Fig. 2:** Intra-oral frontal view, in occlusion. **Fig. 3:** Intra-oral lateral view, in occlusion. **Fig. 4:** Mandible, occlusal view. **Fig. 5:** Region #46, occlusal view.

the only one missing, the one-tooth one-time technique would fulfil his primary wish and this option was discussed with the patient.

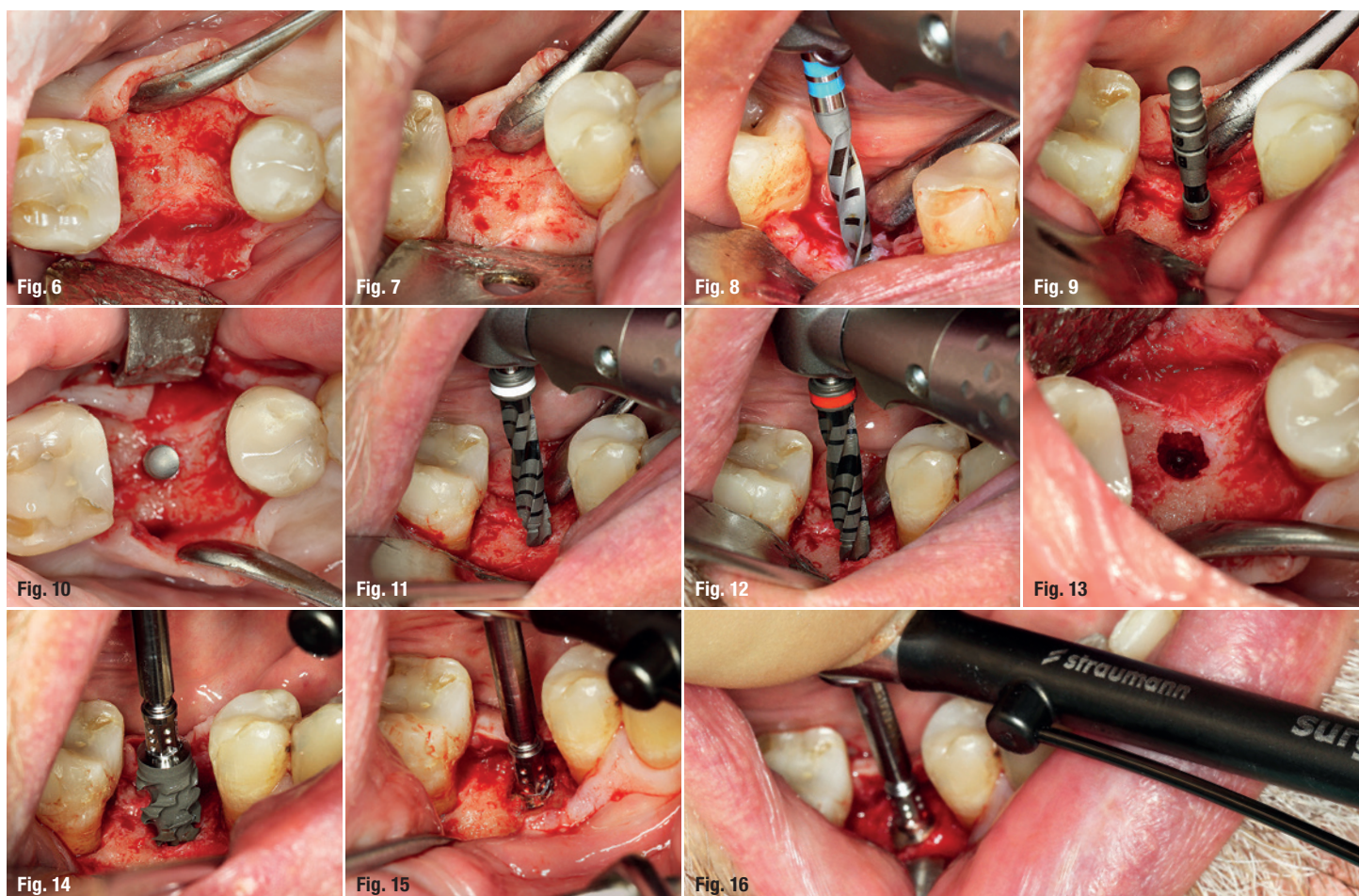
## Treatment planning

A CBCT scan was taken preoperatively, and it confirmed 13 mm of vertical bone between the inferior alveolar nerve and the coronal cortical margin of the mandible, as well as a minimum bone width of 6mm. The implant selected for the surgical procedure was a Straumann BLX implant of  $\varnothing$  5.5 x 10.0mm. This would be followed by intra-oral scanning and the manufacturing of a hybrid ceramic crown, seated on a Straumann WB Variobase abutment and torqued to 35Ncm.

## Surgical procedure

A flap was raised to expose the alveolar bone in the surgical area (Figs. 6 & 7). The ideal position for the implant

had previously been selected with careful determination of the best 3D position via clinical assessment. A pilot hole (2mm) was drilled to determine the bone density (Fig. 8). An alignment pin was placed to confirm the ideal 3D position and the preparation depth (Figs. 9 & 10). The width of the osteotomy was defined by clinical evaluation of the bone density and following the recommended drilling protocol (Figs. 11–13). The BLX implant was placed with the use of the ratchet and the Straumann surgical torque control device (Figs. 14 & 15). Because of the very engaging design, the implant reached a torque value of 55 Ncm (Fig. 16). The primary stability was further evaluated using the Implant Stability Quotient (ISQ) scale (Osstell, Integration Diagnostics; Figs. 17 & 18). The minimum ISQ value necessary for the implant to be sufficiently stable for immediate definitive loading is 60. The RB/WB BLX healing abutment ( $\varnothing$  6.5mm) was placed. The initial neck height of 2.5mm was determined by the coronal bone anatomy. An advanced platelet-rich fibrin membrane was placed on the buccal surface of the implant to aid soft-tissue healing



**Fig. 6:** Mucoperiosteal flap elevated, occlusal view. **Fig. 7:** Mucoperiosteal flap elevated, lateral view. **Fig. 8:** Initial osteotomy performed using  $\varnothing$  2.2 mm drill. **Fig. 9:** Three-dimensional position confirmed by alignment pin, lateral view. **Fig. 10:** Three-dimensional position confirmed by alignment pin, occlusal view. **Fig. 11:** Osteotomy performed using  $\varnothing$  3.2mm drill. **Fig. 12:** Osteotomy performed using  $\varnothing$  3.5mm drill. **Fig. 13:** Osteotomy ready for implant placement. **Fig. 14:** Placement of the Straumann BLX implant initiated with a surgical ratchet. **Fig. 15:** Final implant position. **Fig. 16:** Torque value of 55Ncm measured with surgical torque control device.



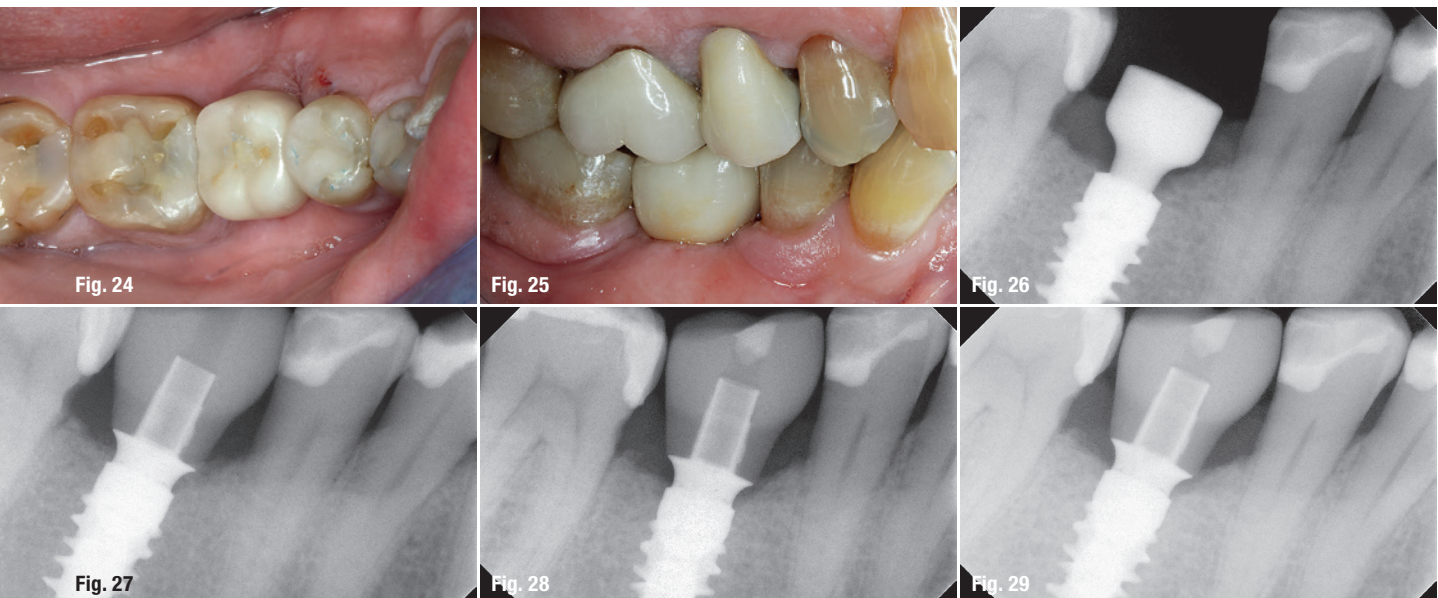
**Fig. 17:** SmartPeg (Osstell) for measuring ISQ value in position. **Fig. 18:** ISQ value of 74 was measured—ideal for immediate loading protocols. **Fig. 19:** A-PRF membrane accommodated around RB/WB BLX healing abutment. **Fig. 20:** Soft-tissue properly sutured, lateral view. **Fig. 21:** Soft-tissue properly sutured, occlusal view. **Fig. 22:** Monotype scanbody in position for digital impression. **Fig. 23:** CAD of immediate final crown on WB Variobase.

(Fig. 19). Sutures were placed to create a soft-tissue seal around the implant (Figs. 20 & 21). The patient was then transferred to the prosthodontist's office.

### Prosthetic procedure

The prosthodontic and technical work followed a digital workflow that included a Dental Wings intra-oral scan-

ner and CAD/CAM processing using Straumann CARES Digital Solutions. The intra-oral scanner captured the peri-implant mucosal architecture, including the neighbouring teeth, in a quadrant-like approach. A monotype scanbody was then screwed into the implant (Fig. 22), and the 3D implant position was determined. The corresponding opposite arch was scanned in the same way. Finally, the bite recording was also digitally trans-



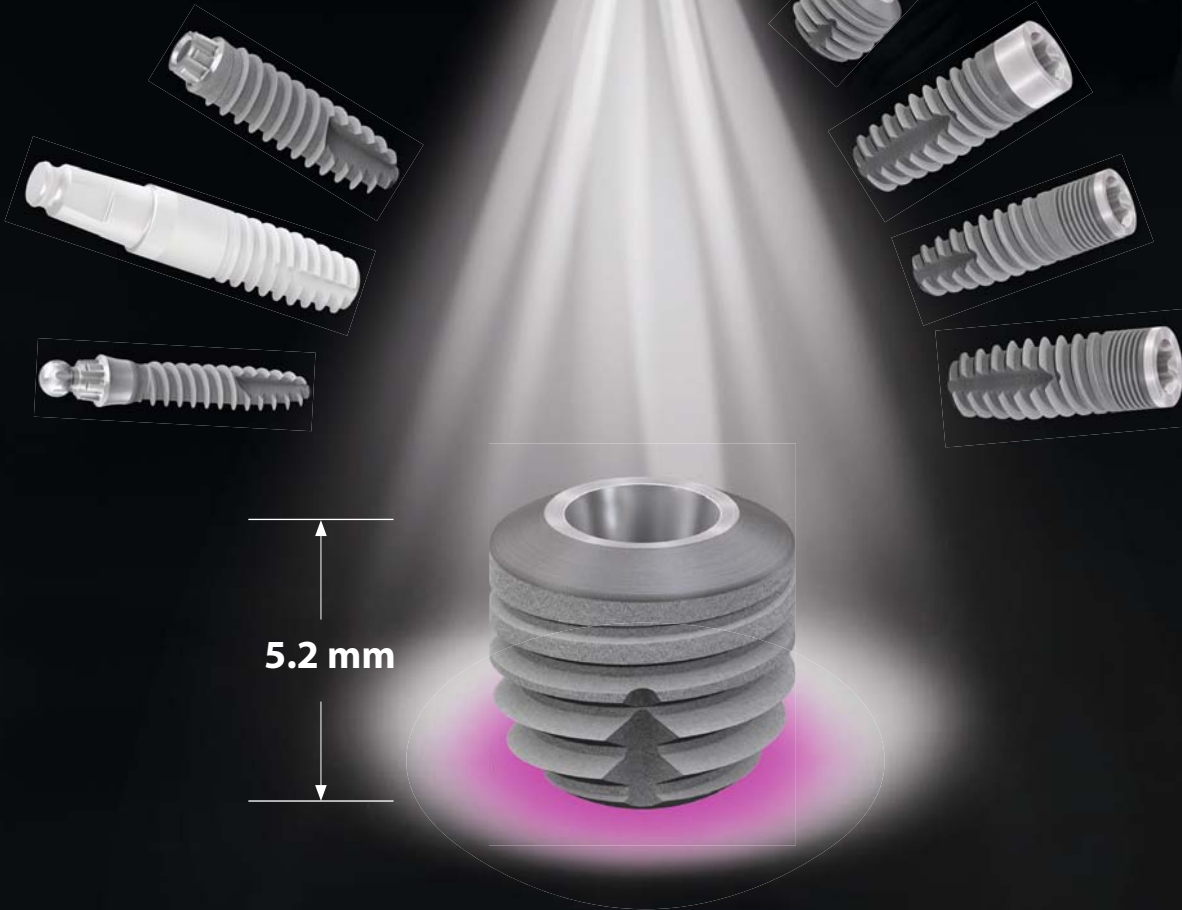
**Fig. 24:** Final crown in position, occlusal view. **Fig. 25:** Final crown in position, lateral view. **Fig. 26:** Periapical radiograph immediately after implant placement and before crown seating. **Fig. 27:** Fifteen-day follow-up periapical radiograph. **Fig. 28:** Three-month follow-up periapical radiograph. **Fig. 29:** Six-month follow-up periapical radiograph.



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ferred. Based on the STL file from the intra-oral scanner, a full-contoured crown was designed as a screw-retained dental hybrid ceramic (VITA ENAMIC IS-16L, VITA Zahnfabrik) and bonded with composite luting cement to a regular base/wide base (RB/WB) Variobase and produced digitally without any physical models or casting (Fig. 23). The virtual crown design was processed and produced with four-axis wet milling and grinding equipment (CARES C-Series, Straumann). After the crown had been milled, the restoration was cleaned with 95% ethanol and, after further post-processing, polished and individually characterised. The prepared crown was then directly bonded to a WB Variobase extra-orally.

First the interproximal fit and then the marginal integrity of the restoration were clinically assessed. Identical continuity with dental floss was separately checked for the mesial and distal contact surfaces. Next, the occlusal scheme was checked statically and dynamically with shimstock, achieving light occlusal contacts. The restoration was screwed in with a torque of 35Ncm, according to the implant manufacturer's recommendations. The screw access hole was sealed with PTFE tape and composite material (Figs. 24 & 25). A periapical radiograph was used to check the position of the implant after the procedure (Fig. 26). Follow-up radiographs were taken 15 days after the surgery when the sutures were removed (Fig. 27), and after three months (Fig. 28) and six months (Fig. 29).

### Treatment outcome

For the one-tooth one-time technique, patient selection is key. The patient in this case had only one missing posterior tooth in the mandible and an otherwise well-balanced occlusal relation. It is critical to select an implant design that will ensure primary stability and enhanced bone-to-implant contact. Fully tapered implants favour this outcome. The Straumann BLX implant is designed for increased primary stability in order to enable immediate treatment protocols. The first requirement is that the implant should achieve primary stability, and thereafter a crown can be manufactured with a fully digital workflow. This has the added advantage of no impression material ever coming into contact with the surgical wound. Digital implant dentistry will soon have an enormous impact on daily dental practice because of its precision in replicating the structures in the mouth. Analogue methods using traditional impressions often produce inaccuracies. This new standard, as with all newly acquired knowledge, requires experience and familiarity with the products used. While some adjustments to the occlusal and interproximal contacts were needed, this was to a lesser extent than with the analogue method. Digital protocols lead to more predictable results and a more efficient workflow, which will help reduce costs and save time for both the patient and the dental team.

### Conclusion

The one-tooth one-time technique has been demonstrated by means of a case of a missing mandibular first molar treated with an implant and restored with the definitive crown a few hours after the surgical procedure. This treatment modality has been shown to be a reproducible and predictable treatment option through the combination of the Straumann BLX implant system and its digital workflow.

### about the authors



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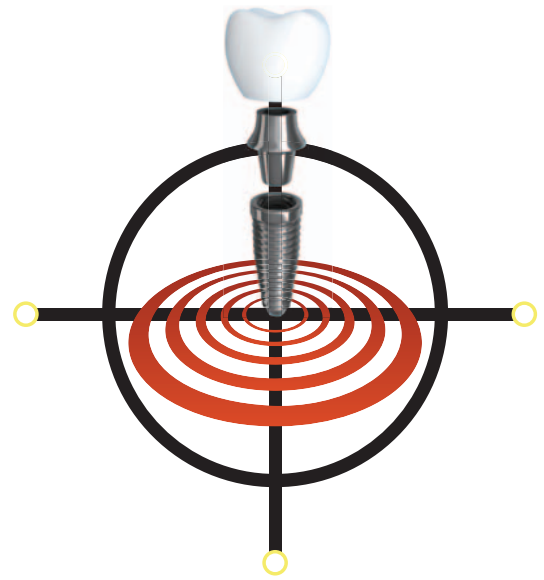
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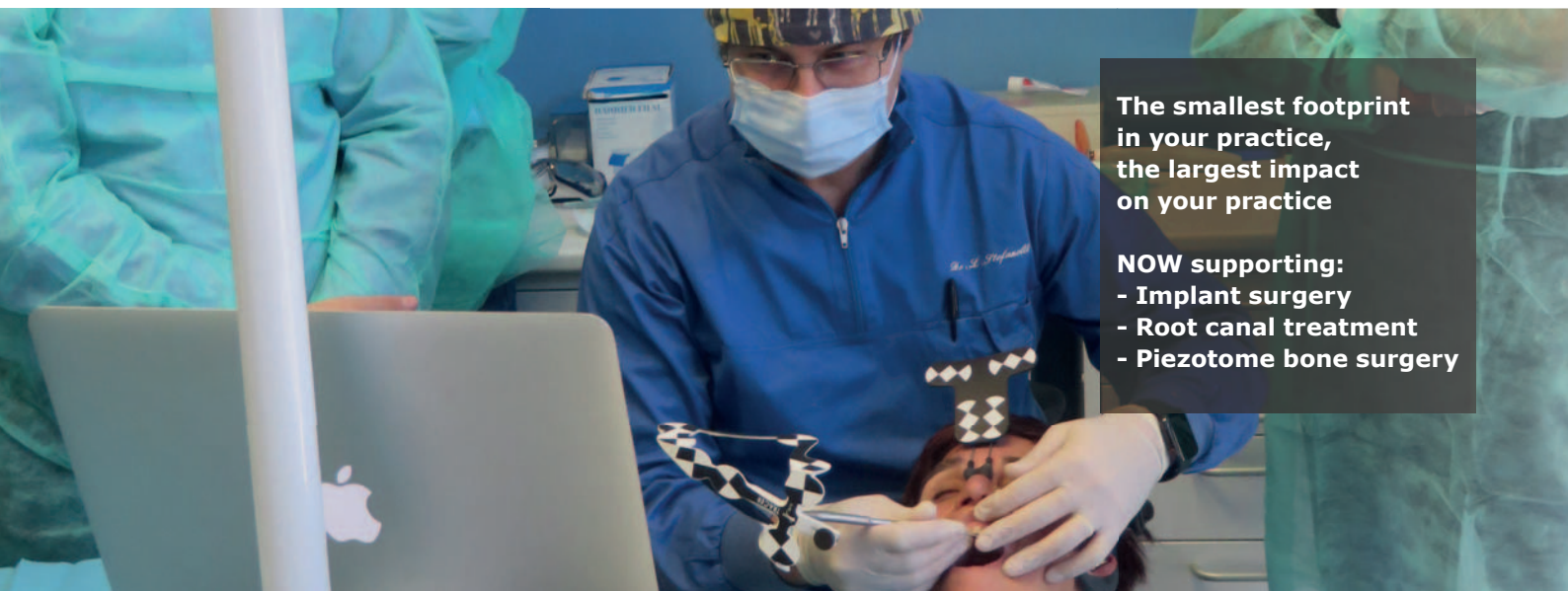
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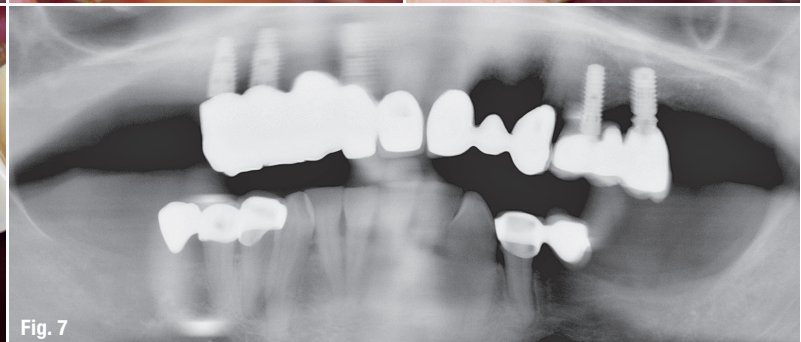
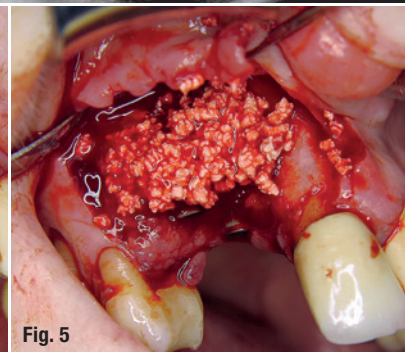
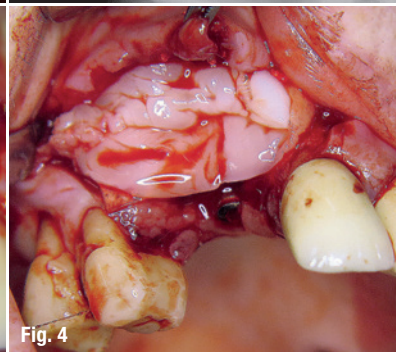
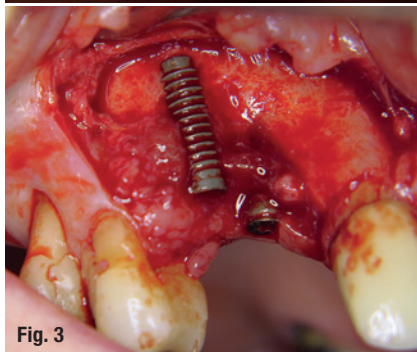
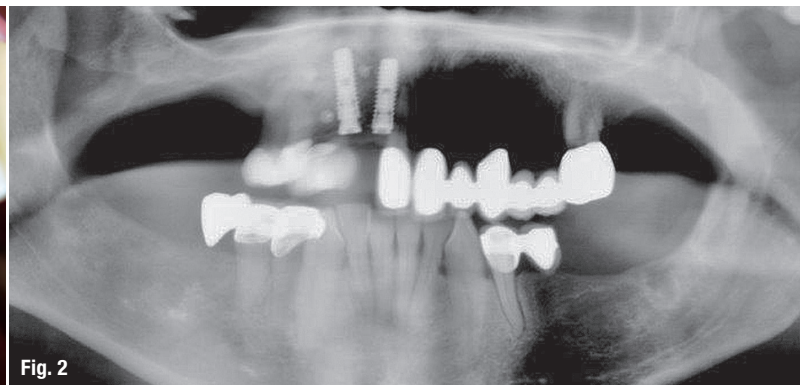
\*Average error of 0.4mm in internal bench tests with a range of operating conditions.

# Implant treatment of heavy smokers with critical bone situations

Drs Branislav Fatori & Inge Schmitz, Germany

In today's dentistry, the use of implants is a common modality for treating patients with missing teeth. Therapeutic options and aesthetics heavily depend on the treatment concept. Problematic situations include insufficient bone volume, poor bone quality, periodontitis and, of course, heavy smoking. Smoking reduces the possibility

of successful implant integration. In this article, we present two cases in which the patients were heavy smokers with anatomically critical bone situations in the form of atrophy of the jaws. Both patients were treated according to the new protocol that we have developed especially for extreme smokers. Four implants were inserted in total. Despite



**Case 1—Fig. 1:** The intra-oral examination revealed extreme atrophy. **Fig. 2:** Pre-op radiograph with view of the implants and pins. **Fig. 3:** View of the completely exposed implant with visibly missing bone material. **Fig. 4:** A membrane was used for augmentation purposes. **Fig. 5:** View of the bone graft material. **Fig. 6:** View of the highly aesthetic final result. **Fig. 7:** Final post-op radiograph.

being heavy smokers, both patients were in good physical condition and maintained relatively good oral hygiene.

## On smoking

Reports in the literature indicate that dental implants placed in smokers have lower survival rates compared with dental implants placed in non-smokers. One possible mechanism by which smoking might affect osseointegration is a lower blood flow rate owing to increased peripheral resistance and platelet aggregation. In addition, inhaled tobacco directly affects osteoblast function. In general, smoking is a major risk factor for implant failure. Moreover, for smokers to be treated with implants, good bone quality is necessary. Excellent primary stability was able to be achieved in both cases discussed in the following case reports.

## Case 1

The first patient, a 65-year-old woman, was a heavy smoker, smoking about 45 cigarettes per day. Upon examination, prominent atrophy in regions #12 and 13 was observed, with complete loss of the buccal bone lamella. Augmentation was necessary in the lateral and vertical regions. NanoBone granulate (Artoss) was used. A membrane (imperiOs) was fixed with titanium pins. Two DENTAL RATIO implants (DRS International), 10 and 12mm in length and with a diameter of 3.75mm, were simultaneously inserted.

## Case 2

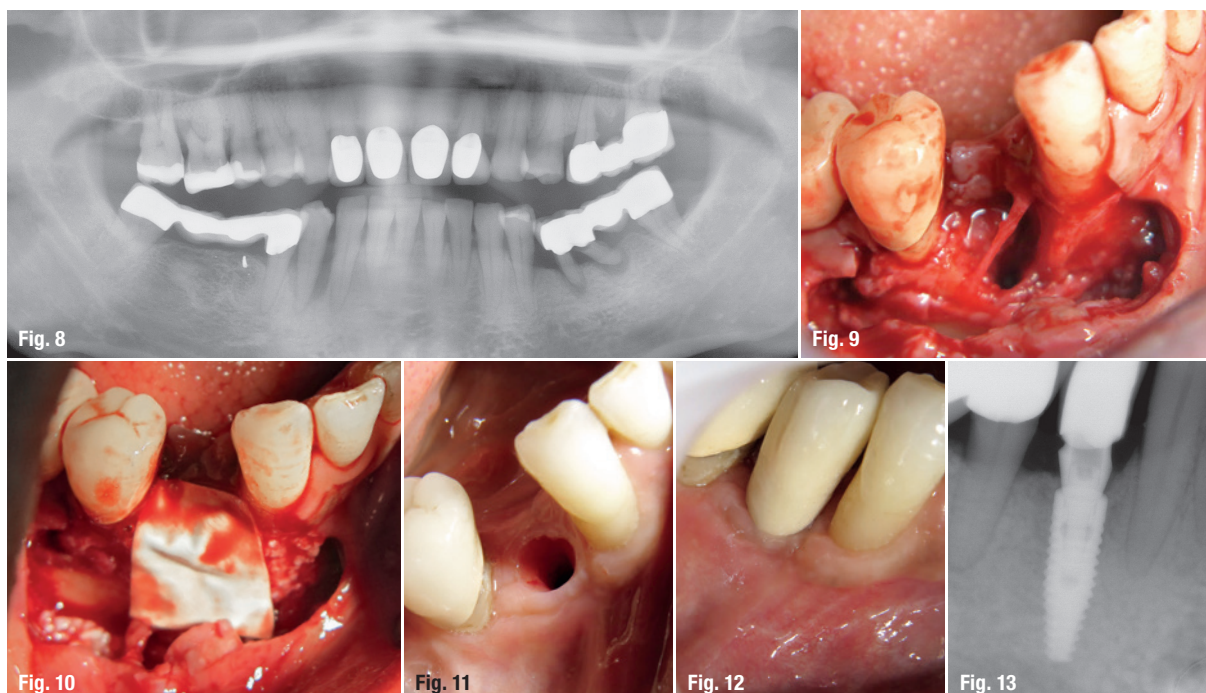
The second patient, a 52-year-old woman, was a heavy smoker as well, smoking 30 cigarettes per day. Upon examination, severe damage of tooth #43 with extreme circular bone loss was detected. NanoBone granulate and an imperiOs membrane were used for augmentation purposes as well. In this case, two DENTAL RATIO implants with a length of 12mm and a diameter of 3.5mm were chosen.

## Patient diagnostics

The two patients were treated by the same surgeon in our private practice. Neither of them suffered from uncontrolled severe diabetes, drug addiction or alcoholism. Pre-implantation diagnostics were performed.

## Surgical phase

Both patients were treated with HELBO laser therapy (bredent medical) in order to reduce the amount of harmful bacteria. Implant placement was performed under local anaesthesia after premedication with antibiotics. The osteotomies were extended gradually up to the intended implant diameter. After the incision, the sites were cleaned and necrotic or inflammatory tissue was removed. The osteotomy sites were prepared according to the drilling sequence recommended by the manufacturer. The implants were then inserted into the prepared osteotomies at an insertion torque of 45 Ncm. As a result,



**Case 2—Fig. 8:** Pre-op radiograph revealed extreme vertical and horizontal bone loss. **Fig. 9:** View of alveoli with severely damaged walls. **Fig. 10:** View of the augmentation material and the membrane used. **Fig. 11:** Post-op examination revealed the excellent health of the peri-implant region. **Fig. 12:** Post-op view showing the highly aesthetic final result. **Fig. 13:** Post-op radiograph showing that new bone had formed around the implant.

adequate primary stability was obtained. Sutures were done with a 4/0 RESORBA thread (Advanced Medical Solutions).

### Guided bone regeneration technique

In both cases, a HEART Pericard Membrane (imperioS) and NanoBone granulate were used for augmentation. The latter is an efficient nanostructure nanocrystalline hydroxyapatite embedded in a highly porous silica gel matrix. It is a medically safe product and stimulates the formation of collagen and bone. As a result, a high number of osteoblasts are usually seen in the early stages of regeneration. NanoBone is completely substituted by bone and no foreign substances will influence natural biomechanics.

### Medication

After the microbiological examination, an antibiotic (Clindamycin Aristo, 600mg; Aristo Pharma) was prescribed and administered three times a day and later twice a day until the day of surgery. Right before the surgery, mouth rinsing with Chlorhexamed (GlaxoSmithKline) was performed. Local anaesthesia was then performed using Ultracain D-S forte (Sanofi-Aventis Deutschland). Before the insertion, each implant was covered either with hyaluronic acid or with the patient's own plasma. After successful completion of the surgeries, 40mg of Dexamethasone (Dexa-ratiopharm (ratiopharm)) was injected. At the very end of the appointment, 20mg of Prednisolon (Jenapharm) was prescribed and the patients were advised to take one tablet three times a day, then half a tablet three times a day and finally a quarter of a tablet three times a day. In order to minimise swelling, five arnica globules were given.

### Postoperative treatment

In both cases, digital radiographic images were taken at the time of surgery, 24 hours after surgery and one month later in order to evaluate the success of the implant restoration adequately. The patients were advised to refrain from smoking for a duration of least eight weeks after the implantation in order for the healing phase of the osteoblasts to successfully take place without any disturbance.

### Follow-up examination

Follow-up examinations were conducted according to the criteria of Albrektsson et al.<sup>1</sup> and Buser et al.<sup>2</sup>. These criteria for implant success are widely cited and generally accepted. A lack of osseointegration is commonly distinguished by implant mobility and radiolucency. The criteria used described the absence of persistent subjective complaints from the patient, such as pain, foreign-body sensation and/or dysaesthesia; absence of recurrent peri-implant infection with suppuration; ab-

sence of mobility; absence of continuous radiolucency around the implant; and possibility of restoration.

### Conclusion

In both cases presented here, good results were observed even years later. Dental implant therapy has evolved in great leaps and bounds over the last 30 years, and in the last decade in particular, which is why it is now possible to treat even heavy smokers with complicated anatomical situations successfully.

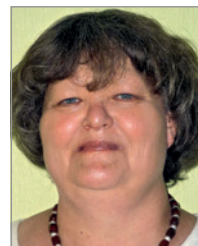
*Editorial note: Dr Inge Schmitz declared no conflicts of interest regarding this article. Dr Branislav Fatori would like to thank Ulf-Christian Henschen of DRS International in Langenfeld in Germany and Dr Walter Gerike from Artoss in Rostock in Germany for their support.*



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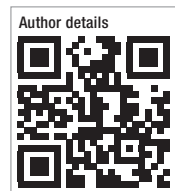
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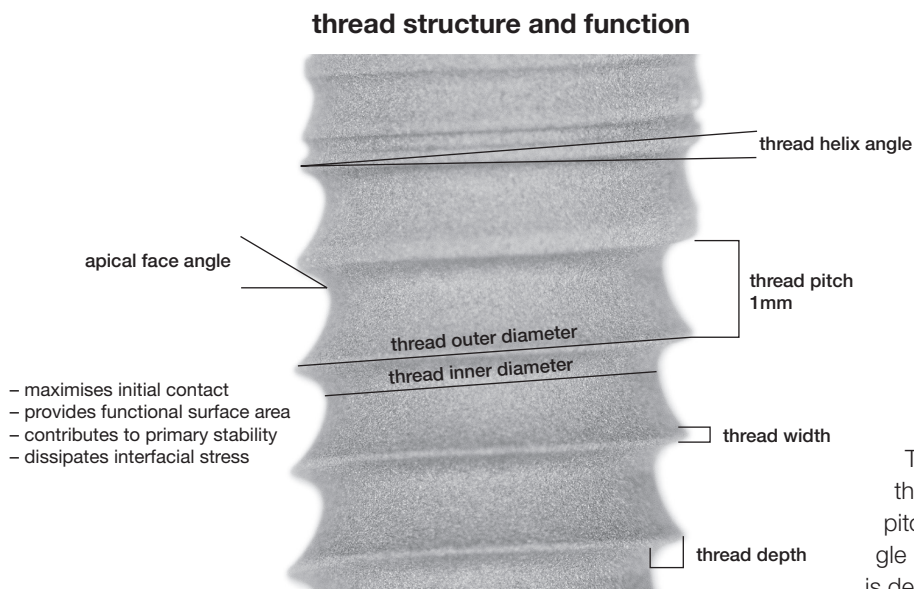
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# Initial stability after placement of a new buttress-threaded implant

## A case series study

Dr Enrico Conserva, Italy



**Fig. 1:** Basic implant macro-design features.

In implant dentistry, high primary stability is considered to be the most crucial requirement for implant success,<sup>1</sup> especially when applying restorative concepts like immediate restoration and loading. Implant design features are one of the most fundamental elements that can be influenced by the clinician, by the choice of implant, to have an effect on implant primary stability. It is also the implant design which affects the implant's ability to be able to withstand loading during or after its osseointegration.

Implant design can be divided into two major categories: macro-design and micro-design. Macro-design includes the body shape and thread design.<sup>2,3</sup> Implant stability is obtained thanks to the interlocking between threads and bone, and is influenced by surgical technique and by implant, as well as recipient bed characteristics. Tapered and partially tapered implants are known for their ability to achieve good primary stability,<sup>4</sup> but the importance of thread design should also not be underestimated. Implant threads have multiple functions, all of which are

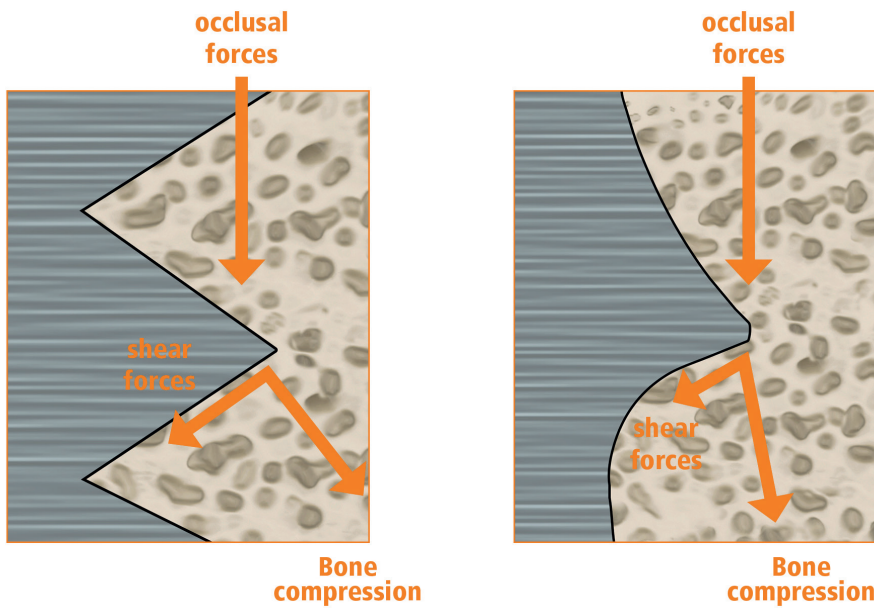
to be perfectly equilibrated to meet the respective clinical demand. Threads steer the initial bone-to-implant contact and surface area, determine the compression of bone and facilitate the dissipation of loads to the bone or implant. In other words, the thread design and its interaction with the bone is one of the key factors for the success, in order to provide primary stability and thus minimise micro-movements—but respecting the biology and not at any cost.

The thread-related characteristics, also called thread geometry,<sup>5</sup> are thread shape, thread pitch, thread depth, thread width, thread face angle and thread helix angle (Fig. 1). Thread shape is determined by the thread width and thread face angle. Different threads are available on the market and many of them are derived from concepts used in orthopaedic surgery. The most common thread types are V-shape, trapezoidal shape, buttress shape, reverse buttress shape, round shape and square shape.<sup>6</sup> For application in dental implantology, the thread shape is adapted to the most prominent needs which are to be fulfilled by the particular implant.

Thread shape determines the face angle. The face angle is the angle between a face of a thread and a plane perpendicular to the long axis of the implant. In the implantological literature, the most studied face angle is that of the apical face, where most of the loading forces are dissipated. Thread pitch refers to the distance from the centre of the thread to the centre of the next thread, measured parallel to the axis of the implant. It may be calculated by dividing the implant length by the number of threads.<sup>7</sup> In implants of equal length, smaller pitch indicates more threads, leading to greater surface area, but this needs to be equilibrated with the insertion time, which can be reduced with a higher pitch. The thread depth is defined as the distance from the tip







**Fig. 2:** V-thread in comparison with buttress thread: the buttress design has a large, deep thread and a low surface face designed for stronger compression and minimal shear force.

of the thread to the body of the implant. Thread width is the distance in the same axial plane between the coronal-most and the apical-most part at the tip of a single thread (thickness).

An optimal thread design, from a biomechanical point of view, must have the following characteristics: a thread pitch of no less than 0.80mm, (a 0.80/1.0mm pitch has been shown to have a stronger resistance to vertical loading<sup>8</sup>), a thread width of between 0.18 and 0.30mm, a thread depth of between 0.34 and 0.50mm (generates less stress during axial loading<sup>9</sup>) and a thread apical face angle of less than 30° to better dissipate loading forces.<sup>9</sup> Thus, the thread design is much more than just an interface to provide primary stability and, thus, to minimise micro-movements.

Different non-invasive methods of measuring implant stability have been suggested, including Periotest<sup>10</sup> and Implatest<sup>11</sup>, but the most utilised are insertion torque value (ITV)<sup>12</sup> and resonance frequency analysis (RFA)<sup>13</sup>. ITV measures the frictional resistance of the implant during insertion through a rotatory movement on its axis, whereas RFA measures resistance to lateral micro-movement. RFA is performed by measuring the response of a magnetic device (SmartPeg), screwed into the im-

plant, when excited by small sinusoidal signals. The peak amplitude is recorded and transformed into a numeric value on the Implant Stability Quotient (ISQ) scale, ranging from 0 to 100.<sup>14</sup> The literature supports a range of values between 57 and 82 as indicating better implant anchorage, and an ISQ > 70 as indicating high initial stability, allowing for immediate loading.<sup>15</sup> In other studies, it was shown that all implants with an initial ISQ > 54 osseointegrated when immediately loaded, indicating that it is not possible to define a unique “threshold ISQ” as a decision-making factor for the loading protocol.<sup>16</sup> The aim of this preliminary case series study was to assess the primary stability of a new hybrid design implant with buttress threads (Fig. 2) by measuring the ITV and the ISQ in order to investigate the achievable results with this new implant.

## Materials and methods

Eleven implants (CONELOG PROGRESSIVE-LINE, CAMLOG Biotechnologies) were consecutively placed in seven patients (four men and three women; mean age: 59.29 ± 11.25 years) in this study. All implants, except the reduced-diameter implants, were placed immediately after atraumatic tooth extraction, whereas the implant bed was prepared conventionally in healed bone for the



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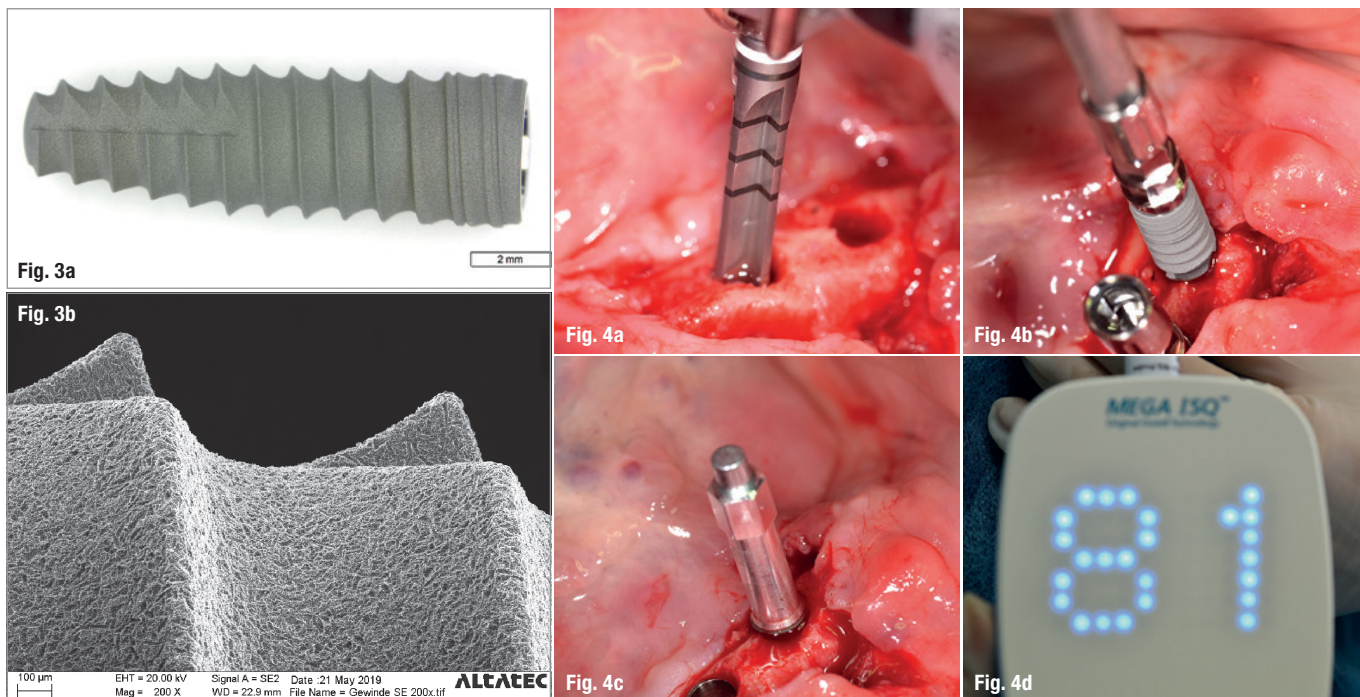
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**Figs. 3a & b:** Stereomicroscope image of CONELOG PROGRESSIVE-LINE implant and scanning electron microscope image of thread particular at 200× magnification. **Fig. 4a:** Implant bed preparation in dense bone without tapping—creating recipient bed characteristics with reduced pressure on the dense bone. **Figs. 4b–d:** Implant insertion and measurement of ISQ value.

four reduced-diameter implants (Table 1). Under local anaesthesia with 1:100,000 adrenaline, a full-thickness mucoperiosteal flap was elevated and the osteotomy was performed with the drills (Figs. 4a–c) according to the manufacturer’s recommendations. Implant insertion was performed using a surgical motor with torque control (Elcomed SA-310, W&H). The ITV level was set at 60Ncm, and the insertion speed at 15rpm. During the entire process of inserting the fixture, the ITV was recorded on a USB memory device.

The ISQ value was measured with a resonance frequency analyser (Mega ISQ, Osstell; Fig. 4d) using SmartPeg Type 58 for platforms 3.8 and 4.3 and SmartPeg Type 65 for platform 3.3 (Osstell). All measurements were per-

formed both parallel and perpendicular to the bone crest by a single operator. The strength of the association between the ITV and the ISQ was assessed by Spearman’s rho correlation coefficient. The level of significance was set at  $p < 0.05$ .

### Results

The results are shown in Table 2. The ITV values ranged between 36 and 55Ncm, with a mean  $\pm$  SD value of  $46.73 \pm 5.90$ Ncm, and the ISQ values ranged between 74 and 87, with a mean value of  $81.64 \pm 3.38$ . All implants could be immediately restored (Fig. 5). We found no statistical correlation between ITV and ISQ ( $r_s = 0.037212$ ;  $p = 0.91351$  [NS]).

Patient   sex   age	Implant diameter (mm)	Implant length (mm)	Tooth no.	Post-extraction
No. 1   M   47	3.8	9	46	Yes
No. 2   F   72	3.3	11	33	N/A
No. 2   F   72	3.3	11	31	N/A
No. 2   F   72	3.3	11	41	N/A
No. 2   F   72	3.3	11	43	N/A
No. 3   M   66	4.3	7	26	Yes
No. 3   M   66	3.8	13	25	Yes
No. 4   F   51	4.3	11	36	Yes
No. 5   M   56	4.3	13	11	Yes
No. 6   F   74	3.8	13	12	Yes
No. 7   M   49	4.3	13	15	Yes

**Table 1**



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Implant diameter (mm)	Implant length (mm)	ITV (Ncm)	ISQ
3.8	9	45	79
3.3	11	47	80
3.3	11	50	81
3.3	11	53	84
3.3	11	48	81
4.3	7	38	82
3.8	13	45	74
4.3	11	36	87
4.3	13	55	82
3.8	13	45	84
4.3	13	52	84
Mean ± SD			46.73 ± 5.90
Variance s <sup>2</sup>			34.82
Spearman's rho			r <sub>s</sub> = 0.037212;
			81.64 ± 3.38
			11.45
			p = 0.91351 (2-tailed; NS)

Table 2

## Discussion

Several methods of measuring implant primary stability have been suggested. The most commonly used are ITV and RFA, which determine the ISQ. Among the numerous papers published about these measurement systems, there is no evidence of a correlation between these measuring methods; thus, they are considered independent and incomparable methods of measuring primary stability.<sup>17</sup> This study investigated the primary stability of a new hybrid design implant with buttress threads by measuring the ITV and ISQ values. This implant demonstrates excellent stability. Compared with other published studies which analysed both the ITV and ISQ values, the results were much better (mean ITV = 46.73Ncm and mean ISQ = 81.64). Baldi et al. analysed a knife-edge-threaded implant and found a mean ITV value of 42.73Ncm and a mean ISQ value of 75.13.<sup>14</sup> Sarfaraz et al. studied a sharp-cutting, double-threaded implant and reported a mean ITV value of 39.08Ncm and a mean ISQ value of 78.26.<sup>18</sup> Sargolzaie et al. investigated the relationship between ISQ and bone quality with regard to a buttress-threaded implant and reported mean values of 77.21 for Type I, 74.40 for Type II, 76.61 for Type III and 73.50 for Type IV.<sup>19</sup> Kim et al. reported an overall average ISQ value after implant placement of 72.65. We too found no correlation between the two measurements.<sup>20</sup>



Fig. 5: Immediate restoration of implants, in this case by modifying the existing denture.

## Conclusion

Within the limitations of this case series study, it can be concluded that the new buttress-threaded implant tested showed a very good primary stability in extraction sockets. There was no correlation between ISQ and ITV.

## about the author



In 1987, **Dr Enrico Conserva** graduated from the dental school of the University of Turin in Italy. As assistant professor, he taught implants and fixed prosthodontics at the dental school of the University of Genoa in Italy between 2001 and 2011. He also lectured in the second-level master's degree in implantology programme at the same university. From 2014 to 2017, he was a researcher and teacher at the University of Modena and Reggio Emilia in Italy, and he has been a contracted lecturer at the same university since 2017. He is also in private practice at his own clinic, Sphera Center, in Albenga in Italy, specialising in prosthodontics and implantology. He is a published author and editorial board member of two international journals, and his fields of scientific interest include implant surfaces, biomechanics, bone substitutes, stem cells and peri-implantitis.

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# Good practice guidelines for implant dentistry

**Training Standards in Implant Dentistry (TSID)** has been available from the Faculty of General Dental Practice (UK) (FGDP[UK]) for over ten years. Recently, the faculty announced that it will be publishing new national standards in implant dentistry alongside their good practice guidelines and standards in dentistry, clinical examination and record keeping, as well as dental radiography. The work is being led by Prof. Cemal Ucer, a past President of the Association of Dental Implantology (ADI) from Salford University in Manchester. Due to be published later in 2019, these evidence-graded recommendations are categorised using the faculty's "ABC" (aspirational, basic, conditional) notation. *Dental Tribune UK & Ireland* spoke with Prof. Ucer about the state of the document and what clinicians can expect when it is published.

**Prof. Ucer, what is the level of implant dentistry in the UK at the moment?**

From what I can see, the standard of dentistry in this country is maintained at a very high level. There are some very well-structured courses offered by experienced individuals and seven or eight MSc programmes throughout the country providing training as a formal postgraduate qualification. As we are still behind our European neighbours in market penetration of implants in the UK, it is expected

that the numbers will keep rising, with increasing need for well structured, accredited clinical training in this field. Implantology is very complex and requires skills from all branches of dentistry, including restorative dentistry, oral surgery, periodontology, orthodontics and endodontics. It is also becoming increasingly team-oriented, requiring the

services of highly trained dentists, dental technicians, dental hygienists and dental nurses with a special interest in dental implants. Finally, the recent advances in digital dentistry and surgical navigation are revolutionising the delivery of implant treatment while improving accuracy, efficiency and safety. Whilst TSID (2016) established the requirements for training in implant dentistry, good practice guidelines in implant dentistry will be invaluable to every member of the dental team and will help to increase the quality of care to our patients.

**How did you become involved in the preparation of the new implant dentistry guidelines?**

In 2006, the FGDP(UK) published the TSID, which is used by the General Dental Council to define the training that should be undertaken to provide implant dentistry in the UK and the standards that should be met by training courses. One of the requirements of the document is that dentists wishing to provide implant treatment in the UK have to undergo structured and supervised training in this field. Another requirement is that dentists need to audit their implant cases annually. Most of the training programmes in this country have responded positively to the TSID and have improved the structure and content of their courses. For example, mentoring to help with clinical skills development under supervision has now become widely available. Implantology requires a variety of clinical skills, which can only be developed practically and clinically, so mentoring has been a huge advantage to dentists training to incorporate implantology into their practices. By the way, the contribution of TSID has also been recognised worldwide.

I was invited by the FGDP(UK) to lead the development of the new guidelines. Given my previous work in helping to develop other similar documents in the UK and in Europe, this was already an area of special interest to me. My remit is to develop evidence-based best practice standards in line with a framework known as AGREE II. There are six domains that are required to make this process

“...patients are entitled to have adequate information and advice on the alternative techniques and products...”



rigorous, including editorial independence, well-defined scope and specific objectives, and stakeholder involvement. Professor Simon Wright is a co-author developing the document; however, there will be widespread stakeholder consultation before the standards are finalised.

### When did you begin, and what is the current state of the document?

We started last May and, so far, we have written about 40,000 words. It is a huge workload, as implant dentistry covers a wide spectrum of the science and the art of dentistry. The manuscript is now in its first draft and the next step is to condense and consolidate it. It is currently going through internal review at the FGDP(UK). After this, it also has to go through an outside review process and we will invite all stakeholders in the UK to give their comments so that we can respond to any concerns and eventually modify the document in accordance with such broad-based feedback. The aim is not to exclude any one group from the process and we will certainly circulate it to the Association of Dental Implantology and other organisations that have a stakeholder interest in implant dentistry.

### What are the basic principles behind the document?

Delivery of satisfactory implant treatment and its long-term success and maintenance require complex and invasive surgical and restorative procedures using a variety of highly specialised products, biomaterials and equipment. Patients expect that the members of the dental team have the right skills and that the products they use are safe and proven. Furthermore, patients are entitled to have adequate information and advice on the alternative techniques and products, as well as the risks, before autonomously deciding to commence treatment. The overall objective of Standards in Implant Dentistry (SID) is to set out a fundamental framework of knowledge and skills that the dental team must possess in order to provide safe and successful treatment that can meet the long-term expectations of patients who seek the restoration of their dental function and aesthetics with dental implant-supported prostheses.

The document is divided into two main domains: clinical and non-clinical. These cover the subdomains of professionalism, patient information and communication, application of knowledge and skills, safety, consent, human factors, audit, teamwork and management, governance and regulations, and so on. It is a dynamic document that will evolve with the changing evidence base and knowledge in the years to come. These are intended to be good practice guidelines that will improve the clinical standards rather than prescriptive regulations that could hamper best treatment of patients.

### What challenges have you faced in compiling the guidelines?

The greatest criticism of any guidelines is that they could work against the clinician, who might find them impossi-

ble to fulfil if the standards are clinically unachievable. The standards are written using a grading system of “aspirational”, “basic” or “conditional”. These are a framework of structured domains that describe the best practices, yet they allow for individual autonomy and variation. Clinicians therefore need to refer to the document and justify their clinical decision-making protocols whilst making a special reference to the best current evidence.

For example, in the patient communication domain, we do not specify what should be in the treatment plan. What we do say is that a good treatment plan should involve description of the patient’s problem, a diagnosis, what the treatment options and risk management factors are, the choice, nature and type of biomaterials that can be used and what the expected satisfactory outcome should be. The document provides a broad prescription, but then it has to be fitted with the patient’s individual requirements and desires and the current evidence supporting clinical decisions.

### When will the guidelines be available?

The hard work has been done in producing the main manuscript. However, there is still a great deal to be achieved when the document goes out for the internal and external review processes. I am hoping that this could be accomplished in the next six months. We should then be in the position to publish the standards towards the end of the year.

### Thank you very much for the interview.

*Editorial note: This interview was originally published by Dental Tribune UK & Ireland online in February of 2018 (<https://eu.dental-tribune.com/news/good-practice-guidelines-for-implant-dentistry>). It is republished here (with substantial changes and additions by the author) with permission.*

## about the interviewee

**Prof. Cemal Ucer**, a specialist oral surgeon, is a director of the ICE Postgraduate Dental Institute & Hospital in Manchester, as well as the clinical lead for the MSc in Dental Implantology at University of Salford in Manchester.

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Fig. 1

Fig. 1: The new joint brand of “BioHorizons Camlog” was unveiled at IDS 2019. Fig. 2: Holger Essig, Chief Marketing Officer of BioHorizons Camlog.

# Combining strengths towards further evolution

## BioHorizons and CAMLOG are joining forces

At the 2019 International Dental Show (IDS), BioHorizons and CAMLOG presented themselves under the new joint brand of “BioHorizons Camlog” for the first time, showcasing a vast product portfolio including dental implants, restorative components, CAD/CAM technologies and innovative regenerative solutions. *implants* spoke to Holger Essig, Chief Marketing Officer of BioHorizons Camlog, about the major challenges and strategic goals associated with the new branding.

Mr Essig, at this year’s IDS, CAMLOG presented itself under the new joint brand of “BioHorizons Camlog” for the first time. The company is thereby following other global players and a current trend towards increasingly larger company structures. What is the reason behind this?

As the two premium implant providers within Henry Schein’s Global Dental Surgical Group, BioHorizons and

CAMLOG have been on a common evolutionary path since 2016 to combine their strengths in order to jointly assume a leading position globally. Initially, BioHorizons and CAMLOG unified their go-to-market strategies in its main markets through their own subsidiaries. This was reflected in both expanded product portfolios and improved services. Then in 2018, the international distribution channels were consolidated and five regional sales areas were formed: APAC (Asia Pacific), western Europe, D-A-CH (Germany, Austria and Switzerland), America and the rest of the world. This has allowed BioHorizons Camlog to focus not only on the D-A-CH region and the US, but also on the other fast-growing international markets, while maintaining local customer proximity on a global level as a result. In recent years, a strong sense of global teamwork and a common company culture have developed and are embraced by the experienced and compe-



Fig. 2



tent employees of both companies. BioHorizons Camlog is thus well positioned to gain further global market share. At the same time, we have managed to keep our key strengths: to be locally present, to uphold close relationships with our customers and to foster a high level of identification with our brands and values. The quality of our entire team and the family spirit and continuity it reflects make all the difference.

**What significance does the new branding hold on a national and an international level?**

The new brand identity of BioHorizons Camlog is yet another milestone in the successful collaboration of two industry-leading companies and a crucial step towards growing together globally while maintaining and strengthening the identity of the two established individual brands. CAMLOG will continue to be the leading brand in the German-speaking markets and BioHorizons will retain its position as the leading brand in America. We are introducing the joint branding with great care, building on the respective histories in the different markets and the high identification and loyalty of our customers and employees. The new joint brand symbolises our shared DNA in creating individual, intelligent and inspiring solutions. The new branding will be used to strengthen our combined global brand reputation, which builds on the strong brand value of BioHorizons and CAMLOG.

**What are the advantages of this strategic positioning for your customers, and how do you intend to further strengthen the increasingly important customer loyalty?**

We are convinced that our comprehensive evidence-based and scientific product portfolio offers ideal solutions for the individual preferences and treatment options of today's implantologists and specialists who are looking to facilitate their workflows. Our open digital workflow approach also ensures that our solutions work with many devices and software that are available in the market. By combining our range of surgical, prosthetic and restorative solutions within our group, customers benefit from a variety of options and services that go beyond implant dentistry. In addition, they can benefit from further training in corporate management and practice management, as well as top-notch clinical training events with high scientific standards.

**This year, CAMLOG celebrates its 20<sup>th</sup> anniversary. What are the core values of the company?**

The anniversary represents a 20-year success story. Team spirit plays a vital role in this context: evolutionary advancements are only possible when there are close and trusting collaborations, a constant exchange of knowledge and lateral thinking—always aimed at advancing ideas and translating them into solutions that support customers in the best possible way and ultimately make them more successful through added



value and great services. The facts show that 20 years of continuity and creativity have paid off. We would like to thank our customers and all those who have contributed to this huge success story.

**The Oral Reconstruction Foundation's Global Symposium will take place in New York City from 30 April to 2 May 2020. What can participants expect?**

The Oral Reconstruction Global Symposium 2020 will be the perfect opportunity for clinicians to learn about the latest treatment options. Participants can look forward to a top-class scientific education programme on hot future topics in the fields of implant dentistry and tissue regeneration. The programme will be helmed by the joint European–American committee, which consists of renowned experts, such as Profs. Irena Sailer, Fernando Guerra and Robert Sader, and Drs Greg Bryant, Edward P. Allen, Craig Misch, Myron Nevins and Alex Schär. Being a founding partner, we support the foundation's goal of advancing research, science and education at the highest international level. A number of breakout sessions and practical exercises, as well as workshops in German, based on the congress theme of "20/20 Vision" are planned. We expect over 1,500 participants from all over the world and look forward to a lively international participation.

**Thank you very much for your time.**

**contact**

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CAMLOG

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The PROGRESSIVE-LINE was developed to be an implant suitable for all indications. The outer geometry of the new implant line, which is available for both the renowned CAMLOG® and CONELOG® connections, was geared to facilitate the implementation of treatment concepts like immediate placement and restoration and has been coupled with highly efficient protocols for the implant bed preparation in all bone types. Well thought-out features of this apically tapered implant, prove to be particularly advantageous in soft bone. Threads down to the apex make PROGRESSIVE-LINE ideal for immediate implantation and a coronal anchorage thread helps to master complex situations in reduced bone height. Additional features encompass a broadened thread height with strongly engaging threads, and flexible drill protocols which allow to adapt the stability according to the needs of the treatment plan. In addition, advanced drill designs offer efficient implant site preparation in dense bone—without requiring additional tools or a tap.

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The award-winning design of the new Modular Cassette

The new Straumann® Modular Cassette was designed for change so your cassette never gets outdated. The cassette is a compact and customisable container system for and is compatible with all implant lines of the Straumann Implant System. You can assemble the three modules in different ways to customise the kit with exactly the tools you need. Developed in close collaboration with dental professionals, the Modular Cassette blends into your clinic's daily workflow and supports the team in every step of the process—before, during and after surgery—so that you can work together efficiently and focus fully on the patient. Over the past two years, the project team went through four major design loops and interviewed close to 50 users to get to the final design. Visiting nurses and

doctors in their practices helped to understand the daily routines and individual needs, which change over time. Throughout this process, countless versions of modules and the exact tray designs were created to ensure a seamless, intuitive handling. Also, the design of the new Modular Cassette has been awarded the prestigious Red Dot and iF Design awards for its usability and aesthetics—a further example for the brand's promise of "simply doing more".

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Integration Diagnostics Sweden

## Measuring implant stability with a handy device



A trend in dental implant treatment today is to allow shorter time or no time at all before loading an implant. This places high demands on the personnel involved. If the conditions are not optimal, insufficient primary stability can increase the risk of implant failure. NSK's Osseo 100 measures the stability and osseointegration of implants, serving as reliable support when taking decisions when to load the implant. Osseo 100 is the result of years of research and development, driven by a small team of experts consisting of implant specialists and engineers. Integration Diagnostics Sweden AB (IDSAB) was founded in 2015 with the aim of developing a handy

ISQ measuring device (ISQ = Implant Stability Quotient). Since November 2018, IDSAB has been part of the Japanese Nakanishi Inc., primarily known under the brand name NSK, a worldwide leading manufacturer of dental transmission instruments, prophylaxis devices and innovative solutions for dental surgery/implantology.

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MIS

## CONNECT abutment system for a screw-retained solution



MIS has released the versatile CONNECT abutment system, which is suited for multi- or single-unit restorations in both digital and conventional procedures. It can also be used for provisional or final prosthetic restorations. The new abutment system is convenient, easy to use, and has advantages over other screw-retained systems that are currently available. Tali Jacoby, Implants Product Manager at MIS, says about the new CONNECT system: "It is a One Time Abutment, which enables a prosthetic procedure above the connective tissue level, distancing the micromovements from the bone."

CONNECT allows for a broader range of screw-retained prosthetics in the aesthetic zone and is suited for one- and two-stage procedures. It supports long-term biological stability by increasing the distance from the bone and providing an ultimate seal. Dr David Norre, who has been using CONNECT since its release, says: "I think the most important reason I use the CONNECT is because I can avoid repeated disruption of the soft tissue, which reduces the risk of bacteria entering the site." This provides his patients with a safe and predictable solution and an aesthetic result.

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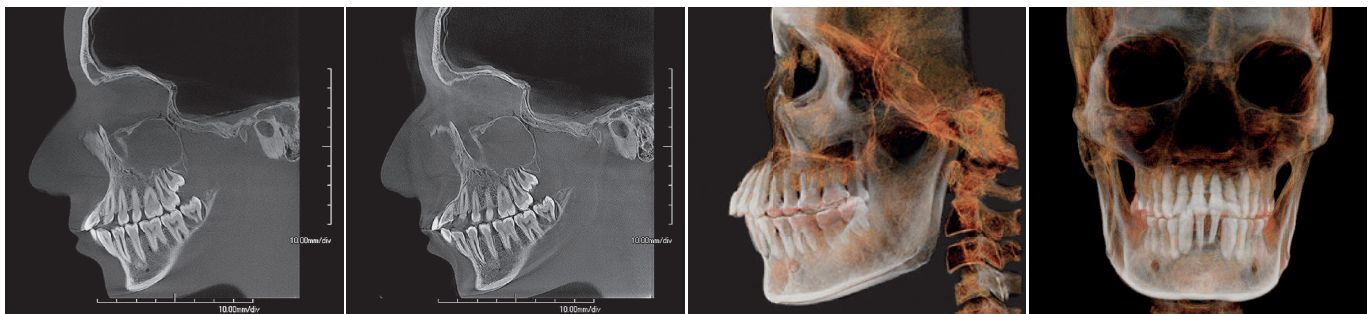
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PATENT PENDING



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elegance. Also, they were interested in a ten-year study of the University of Graz, Austria, on the whiteSKY zirconia implant, as well as a ten-year study of the University of Ulm, Germany, on the immediate restoration of edentulous jaws by means of the SKY fast & fixed therapy. The grand finale was the evening gala at the Summer Palace of the Tsars in Peterhof just outside St Petersburg, where participants enjoyed a magical “White Night” after a day filled with top-class lectures and training courses.

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PATENT PENDING

Bicon

## Implants driven by simplicity

The SHORT Implants line of the US-American company Bicon perfectly embraces their core philosophy of simplicity. When the Bicon system was first introduced in 1985, its implants with lengths of 8mm were considered quite short in comparison to most other implants, which had lengths of at least 12 to 14 mm or 18 to 20 mm. Since then, the natural



progression of Bicon's design philosophy has resulted in 5 and 6.0 mm SHORT Implants, all with proven clinical success.

**Bicon**  
**501 Arborway**  
**Boston, MA 02130, USA**  
**www.bicon.com**

SDS Swiss Dental Solutions

# The Swiss Biohealth Education weeks— more than just ceramic implants

October							
cw	Mon	Tue	Wed	Thu	Fri	Sat	Sun
40		1	2	3	4	5	6
41	7	8	9	10	11	12	13
42	14	15	16	17	18	19	20
43	21	22	23	24	25	26	27
44	28	29	30	31			

- Biological Dentistry with Ceramic Implants
- Prosthetics on SDS implants
- A-PRF™ and I-PRF™
- Sinus lift
- Neural therapy
- Lifecoding: Nutritional Design
- Lifecoding: Stress-, time-, patient-management and psychology
- The CLEOPATRA technique™ for facial aesthetics

The concept of biological dentistry with ceramic implants according to Dr Karl Ulrich Volz is the central component of the Swiss Biohealth therapy practised consistently and successfully at the Swiss Biohealth Clinic in Kreuzlingen in Switzerland. The symbiosis between biological medicine and biological dentistry, as well as the biological therapy concepts and protocols pave the way for the future of biological medicine. In order to keep up with the constant demand for advanced training courses on the Swiss Biohealth Concept, SDS Swiss Dental Solutions has further developed its Swiss Biohealth Education advanced training centre. From 7 to 19 October 2019, participants will have the opportunity to take part in a wide variety of courses not only on biological dentistry

and ceramic implants, but also biological medicine including topics like neural therapy, heavy metal detoxification, and the PRF technique according to Dr Joseph Choukroun. In addition, there will be numerous “advisory courses” covering the positioning of your practice or stress management. The courses, to be held either in English or translated simultaneously, will be led by Dr Karl Ulrich Volz, Dr med. Rainer Wander, Drs Joseph and Elisa Choukroun, oral surgeon Sabine Hutfilz, master dental technician Joachim Maier, Dr Cleopatra Nacopoulos, or Dr Dominik Nischwitz.

**SDS Swiss Dental Solutions AG**  
[www.swissdentalsolutions.com](http://www.swissdentalsolutions.com)

ClaroNav

## State-of-the-art navigation for every day

Similar to the way that a GPS system guides you while driving, Navident by ClaroNav guides clinicians by using the CBCT image as a map. It offers surgeons an easy to use, accurate, highly portable and affordable way to plan restorations and implant placements. With Navident 2, clinicians will no longer need to do a special extra scan. They can use the diagnostic scan already available for the patient. The stress of stent making is also gone because a stent is no longer required. Trace and Place (TaP) is a game-changing development for dynamic navigation. With TaP, the Navident workflow is streamlined, efficient, user-friendly and seamlessly integrated into the daily practice. “Trace and Place is a real tipping point for dynamic navigation guidance,” said user Dr George Mandelaris, a periodontist from Chicago, USA. “It has streamlined and simplified the workflow in both the diagnostic and surgical phases to allow state-of-the-art technology to be an everyday component of my surgical implant practice. I can’t imagine going back.” Clinicians are invited to learn from masters and interact with peers at ClaroNav’s Booth C09 at this year’s EAO in Lisbon, Portugal.

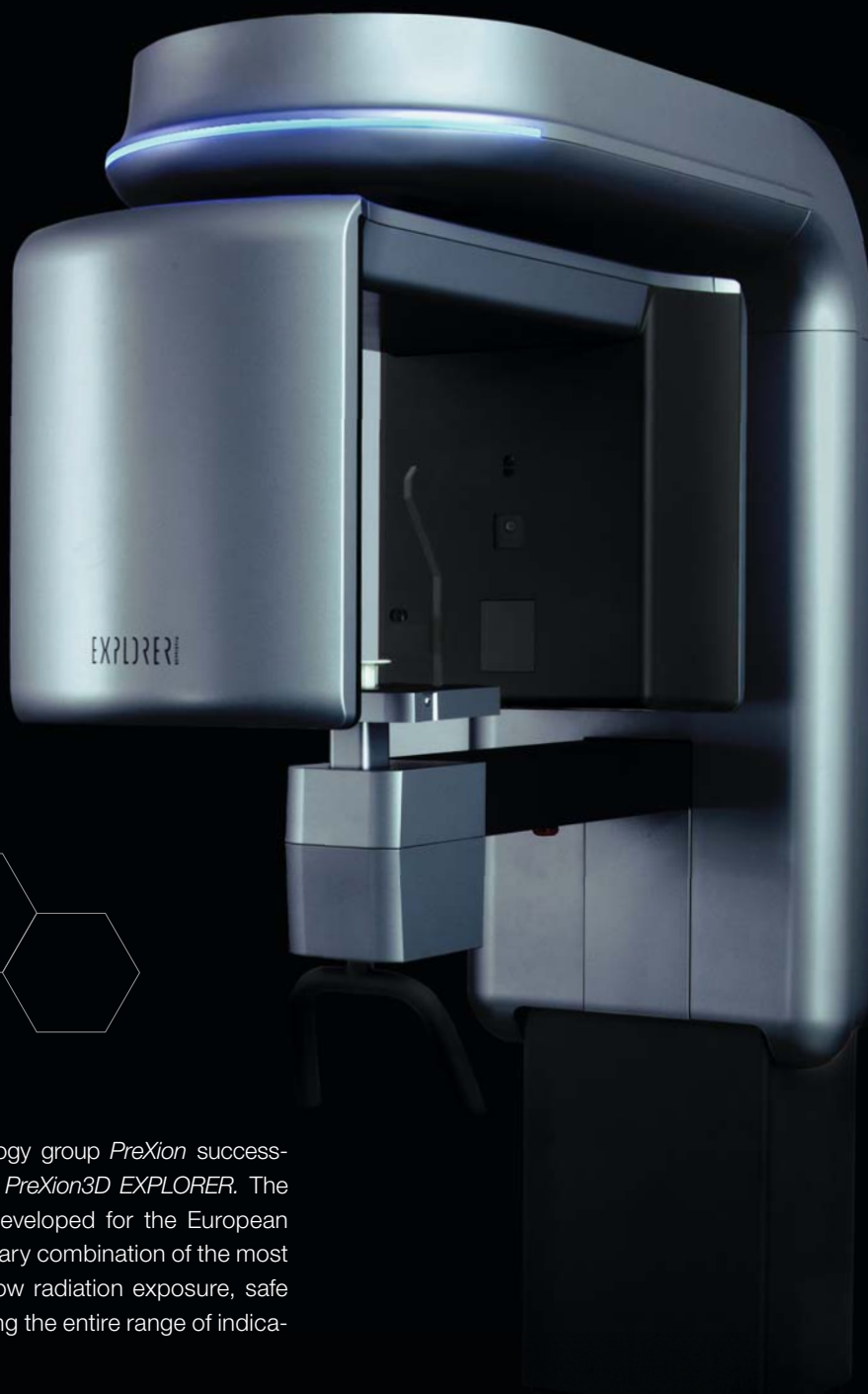
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1140 Sheppard Avenue West, Unit 10  
M3K 2A2 Toronto, Canada  
[www.claronav.com](http://www.claronav.com)





# CBCT WORLD PREMIERE

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PreXion3D

At the IDS 2019, the Japanese technology group *PreXion* successfully introduced their new CBCT system *PreXion3D EXPLORER*. The high-performance system, especially developed for the European and US market, allows for an extraordinary combination of the most precise imaging, great picture detail, low radiation exposure, safe diagnostics and digital planning, covering the entire range of indications in modern dentistry.

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WE FOLLOW NO ONE.

## Game changer? Nobel Biocare launches new implant system



Fig. 1

For over 60 years, Nobel Biocare has been a pioneering force for implant dentistry. At the Global Symposium in Madrid, the company is now taking innovation to another level with the announcement of its Nobel Biocare N1 implant system. Soon to be available to dental professionals worldwide, the purpose behind the new system was to make treatments faster, as well as more straightforward and predictable. To achieve this, unconventional techniques in implantology were required. Addressing some of the shortcomings of current protocols, Nobel Biocare N1 was designed from the ground up with biological principles and patient needs in mind. In collaboration with a group of international researchers and clinicians, Nobel Biocare is now bringing to the market this long-anticipated new system, which was created from over six years of scientific and clinical refinement.

The entire Nobel Biocare N1 system, from planning to the prosthetic delivery, was created to streamline workflows and enhance patient comfort. Going beyond a new implant design, Nobel Biocare is also redefining site preparation with the introduction of the OsseoShaper™, a new innovative alternative to conventional drilling protocols. Experience gained from over 18 months of clinical evaluations with an early ambassador group on the Nobel Biocare N1 concept have already indicated promising results in terms of the method's effectiveness. Fully embracing the new Mucointegration™ concept, the Xeal™ and TiUltra™ surfaces will be available on the Nobel Biocare N1 implant system from day one. With the help of their specially tailored surface chemistry and topography, the Nobel Biocare N1 TiUltra implants and Xeal abutments can, thus, benefit from optimised tissue inte-



Fig. 2

Fig. 1: Nobel Biocare Systems President Hans Geiselhöringer presented the innovative strength of his company in Madrid. Fig. 2: Numerous expert groups presented their implantological and prosthetic works to an international audience.



Fig. 3

Fig. 3: Over 1,000 participants from around the globe attended the Global Symposium in Madrid.

gration. Nobel Biocare N1 is integrated into the digital workflow with DTX Studio™, giving dental professionals more opportunities to provide patients with shorter time-to-teeth.

“Our Nobel Biocare N1 system is a real breakthrough in almost every aspect of the treatment workflow,” said Nobel Biocare President Hans Geiselhöringer. “With the help of our early ambassador group we have collected over 18 months of clinical experience on the Nobel Biocare N1 concept, as well as the unique implant site preparation technique. The feedback we received from clinicians experiencing the system for the first time here in Madrid has been extremely positive. I am more than convinced that the system will be able to set new standards for the industry.”

Nobel Biocare N1 will first become available to clinicians in CE markets later in 2019, followed by additional markets pending regulatory approval.

Photos: © OEMUS MEDIA AG

contact

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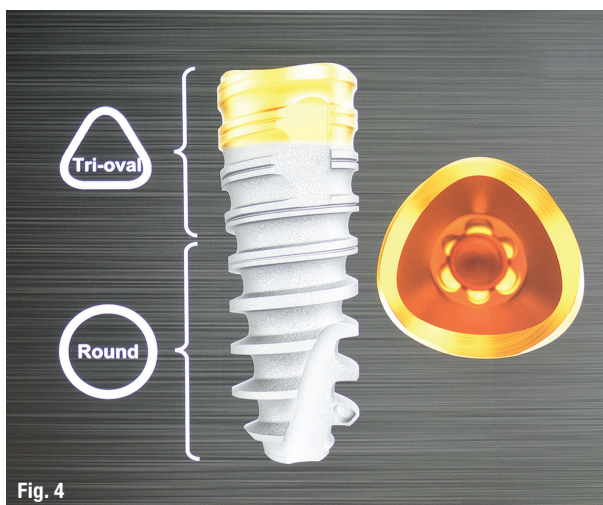


Fig. 4



Fig. 5

Fig. 4: The Nobel Biocare N1 is characterised by a novel geometry and combines numerous biological aspects with its unique preparation possibilities of the implant bed. Fig. 5: Live broadcast of an anterior restoration in the aesthetic zone by Nasser Shademan.

# Harmony in a signature smile

## West-East MIS Conference in Tel Aviv



Fig. 1

**The West-East MIS Conference**, held on 20 and 21 June 2019 in Tel Aviv-Jaffa in Israel, was a middle ground for the distinguished lecturers from Europe and Japan for meeting on the same stage at the Hilton Hotel, situated on the gorgeous Mediterranean shoreline. Inspired by his many visits to Japan throughout his career as a periodontist, Dr Bernard Dahan was one of the key initiators of the conference. His opening statement was followed by a musical stage performance of a drum quartet, dressed in traditional Japanese clothing, playing beautiful Japanese taiko drums. The powerful music held the audience spellbound and reflected the overarching theme of the event, namely, finding harmony in the different aesthetic ideals and techniques of another culture. Elad Ginat, Vice President of Marketing and Products at MIS, welcomed the more than 500 participants and shared some personal stories regarding the close relationship they maintain with their numerous global partners. Dr Dahan then opened the morning lectures by introducing the line-up (Fig. 1). Afterwards, Dr Iñaki Gamborena from Spain lectured on immediate placement procedures and the importance of pre-planning. He made a bold opening statement, saying "The more I know about dental implants, the more I want to keep the natural tooth". He spoke about tooth extraction and implant stability, which he described as "the two great miracles". Dr Masana Suzuki from Tokyo then discussed microscopic approaches in his lecture titled "Tissue management around implants as a must".

During the coffee-breaks, we spoke to some of the guests, including Dr Bajram Selimaj from Kosovo, who has been using MIS products for five years. He had previously been on a holiday trip to Tel Aviv-Jaffa and now returned for the conference to meet colleagues who are also using MIS products. We were also able to chat with

Drs Mahfuz Akher and Marcus Kallstrom, two dentists from Sweden, who had travelled to Tel Aviv-Jaffa together with their mentor to learn more about guided implantology. After the break, Dr Eric Van Dooren, co-creator of the MIS V3 implant system, spoke about the importance of digital pre-planning techniques. In the last lecture of the morning, Tokyo-based Dr Masayuki Okawa spoke about minimally invasive surgery. He believes that adopting a microscopic workflow in combination with both a digital and traditional approach will ultimately lead to better results. After the lunch and another great performance by the Japanese drum group, the afternoon session commenced with lectures from Drs Gamborena, Suzuki and Okawa. In the last lecture of the day Dr Mirela Feraru spoke about achieving long-term stability and controlling the different stages of the workflow, with a view to the new MIS CONNECT. A full panel discussion, moderated by Prof. Nitzan Bichacho, rounded off the first conference day. Afterwards, it was time to wind down on the beautiful terrace with its sea view, have a cocktail or two and dance to the sounds of a great live band. A full house of participants showed up the next morning for the joint lecture by Drs Florin Cofar and Van Dooren, and the presentations by Drs Gamborena and Suzuki that followed. In summary, it was a hugely successful conference, which set the bar high for future events in the region.

### contact

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# The inaugural **Dynamic Navigation** Symposium 2019 in Rome

On 5 and 6 July 2019, the first symposium of the Dynamic Navigation Society (DNS), the educational arm of ClaroNav, was held in Rome in Italy. Fourteen leading experts in guided surgery came together to review the status of dynamic navigation in front of an audience of 140 clinicians from all over the globe. The primary focus was on the clinical use of Navident, published data and potential fields of application. The conference, organised with the support of the Sapienza University of Rome, was directed by a scientific and an organising committee. ClaroNav CEO Doron Dekel opened the conference talking about the Navident trajectory, including past achievements, recent progress and ClaroNav's plans for addressing remaining challenges. Dr Olivier Henry-Savajol then presented a step-by-step protocol by which Navident can be integrated into dental clinics. As with any technology, there is a learning curve involved for Navident too that needs to be considered. Dr David Burgess then covered full-arch reconstructions and explained the advantages of dynamic navigation over static guides, including unobstructed fields of view, unrestricted access and no barrier to irrigation of osteotomies. He also illustrated how Navident with Trace and Place enables precise implant placement.

Drs Tadeusz Morawiec and Patryk Kownacki subsequently discussed dynamic navigation in flapless implant surgery, which is a minimally invasive approach appreciated by many patients. Drs Paolo Zalunardo and Pierluigi Pelagalli argued that, by incorporating Navident into digital workflows, prosthetic rehabilitations become more predictable, precise and simple. Prof. Gianluca Gambarini then discussed how dynamic navigation preserves maximum tooth structure during root canal therapy, making it useful in endodontics. Thereafter, Dr Ricardo Henriques presented a Navident-guided protocol for positioning bony windows during sinus elevation. Drs Marco Esposito, Pietro Felice and Roberto Pistilli discussed how Navident can be helpful in treating complex cases of severely atrophic maxillae. Drs Luigi Stefanelli and Bradley DeGroot spoke about the improved accuracy of dynamic navigation compared with freehand surgery and showed how Navident can improve aesthetic outcomes. Prof. Volkan Arisan explained how a significantly higher surgical precision can be achieved with dynamic navigation compared with freehand surgery. At the Navident workshop held the next day participants could practise planning treatments using navigation software, registering and calibrating instruments, and drilling on models using Navident.

Since its first release in 2015, Navident has become a tool for use in any scenario, setting a standard not only for surgical navigation but for education as well. The objective of the DNS is to provide continuing courses and training worldwide and to create a community of top-class experts dedicated to optimising guided implantology. ClaroNav believes that education is vital and for



**Fig. 1** At the Navident workshop participants could practise planning treatments with navigation software.

communicating the impact that dynamic surgical navigation can have on the daily practice of clinicians. ClaroNav invites both active members and anyone seeking to engage to give their feedback on the company's chosen path regarding education and research. ClaroNav would like to thank everyone who participated in the DNS symposium this year and hopes to see many familiar faces again in 2020. For more information on the event, visit [dns.claronav.com](https://dns.claronav.com).

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# VISIONS IN IMPLANTOLOGY

## 2<sup>ND</sup> FUTURE CONGRESS FOR DENTAL IMPLANTOLOGY

### Perio-Implantology: Implants, Bone & Tissue— Where are we today and where are we headed?

According to the motto “Visions in Implantology”, the German Association of Dental Implantology (DGZI) hosted their 48<sup>th</sup> International Annual Congress in 2018. The Düsseldorf event, which was held as “Future Congress in Dental Implantology” for the first time, turned out to be a great success.

The 250 dentists and the 120 practice employees attending the event experienced a congress that provided answers to topical issues and that pointed out new ways regarding the interaction between participants, speakers and the industry. This inherent high and new standard of content was also reflected in a completely fresh organisational concept, which will also serve as the bedrock of the 2<sup>nd</sup> DGZI Future Congress in Dental Implantology, to be held in **Munich from 4 to 5 October 2019**.

The overriding aim of the congress will be to provide top-notch practical education on the highest level and to bridge the gap between the latest scientific findings and industry innovations, with a view to the integration into the daily clinical practice of the latter. To sharpen its profile as practical and application-oriented event, the congress will no longer be split into separate speaking stages, workshops and side programmes. Instead, it will be divided into a so-called industry day on Friday featuring strategy talks, transmissions of live operations and table clinics, as well as a science-oriented Saturday. This setup guarantees that individual demands—especially from implantologists—will be met and satisfied. By using modern tools such as the Future Podium, innovative presentation techniques, an internet-based digital poster presentation, interactive solutions or a catering concept based on “flying services”, the event will resemble a congress trade fair. Without there being considerable breaks between lectures, live surgeries and table clinics anymore, participants, speakers and industry representatives will be given significantly more time and space for communication.



16

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Perio-Implantology: Implants, Bone & Tissue—  
Where are we today and where are we headed?

**VISIONS IN IMPLANTOLOGY**

2<sup>ND</sup> FUTURE CONGRESS  
FOR DENTAL  
IMPLANTOLOGY

4 & 5 October 2019  
The Westin Grand Hotel Munich

49<sup>TH</sup> DGZI INTERNATIONAL  
ANNUAL CONGRESS

*Oktoberfest Zapft is 2019*

**DGZI**

*Zapft is*

ONLINE REGISTRATION/  
CONGRESS PROGRAMME



[www.dgzi-jahreskongress.de](http://www.dgzi-jahreskongress.de)

## New study reveals

## Hazardous uses of teeth



According to the findings of a new study, most people do not just use their teeth for eating. The research by the Oral Health Foundation and Philips found that 65% of respondents frequently put their oral health at risk by using their teeth as a multi-tool. The most common misuse of teeth is tearing Sellotape—more than four in ten admitted to doing this regularly. More than a quarter bite their nails, and over a fifth use their teeth to carry things when their hands are full. Other popular uses include taking tags out of clothing (20%), chewing pens and pencils (16%), opening bottles (9%) and doing up zips (4%). More than four in five 18- to 35-year-olds in the study admitted to abusing their teeth by performing unusual tasks with them. This is significantly higher than the 70% of 35- to 54-year-olds and the 54% of over-55s who made this admission. Commenting on the findings, Dr Nigel Carter, OBE, Chief Executive of the Oral Health Foundation, said that, while it may seem trivial, using our teeth as tools poses a considerable risk to our oral health.

Source: [Dentistry.co.uk](http://Dentistry.co.uk)

## Family characteristics influence

## Periodontal diseases in children

A recent systematic review found that parents' socio-economic status is significantly associated with periodontal diseases in children. Furthermore, children who are exposed to passive smoking and have parents with periodontal diseases are more

## Danaher announces new company

## Envista Holdings Corporation

Danaher Corporation has announced that Envista Holdings Corporation will be the name of the separate company, which will go public in the second half of 2019. Envista will be comprised of three operating companies within Danaher's Dental segment: Nobel Biocare Systems, KaVo Kerr, and Ormco, all of which have significant positions in dental implants, equipment and orthodontics. Danaher



is a global science and technology innovator committed to helping its customers solve complex challenges and improving quality of life around the world. Envista will be led by Amir Aghdaei, who will become President and Chief Executive Officer. Mr Aghdaei currently serves as Danaher Group Executive with responsibility for the Dental segment. He stated, "Envista's culture will be built on four core values: 'Better Choices, Better Outcomes,' 'Relationships Built on Trust,' 'Innovation in Action,' and 'Continuous Improvement as a Competitive Advantage'. Our Danaher heritage helped us shape these values and serves as a strong foundation for our business."

Source: [Danaher Corporation](http://Danaher Corporation)



likely to have periodontal diseases as well. For the review of the relevant literature, 32 studies from a number of countries were included. Factors considered varied in the different studies but included family income, parents' socio-economic status, educational status and occupation, and parental knowledge, practices and clinical status.

"Similar to dental caries, three commonly used indicators of parent's socio-economic status namely income, education and occupation are significantly associated with periodontal diseases in children with better periodontal status being observed in children of parents with higher socio-economic status than those children whose parents are of lower socio-economic status," said lead author Dr Santosh Kumar Tadakamadla, Senior Research Fellow at the School of Dentistry and Oral Health at Griffith University in Brisbane, Australia. The study, titled "Effect of family characteristics on periodontal diseases in children and adolescents—A systematic review", was first published online in the *International Journal of Dental Hygiene*.

Source: [DTI](http://DTI)



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## Primary teeth reveal

# Unknown group of ancient people

Scientists have recently found two primary teeth buried deep in a remote archaeological site in northeastern Siberia. The site, known as the Yana Rhinoceros Horn Site, was discovered in 2001 and has revealed more than 2,500 artefacts made from animal bones and ivory, along with stone tools and other evidence of human habitation. The discovery has revealed that a previously unknown group of people lived there during the last Ice Age. The team of scientists from the University of Cambridge and the Lundbeck Foundation Centre for GeoGenetics at the University of Copenhagen in Denmark have named the new people the Ancient

North Siberians. It is widely accepted that humans first made their way to the Americas from Siberia into Alaska via a land-bridge spanning the Bering Strait which was submerged at the end of the last Ice Age. In the study, the researchers were able to pinpoint some of these ancestors as Asian groups who mixed with the Ancient North Siberians. The study, titled “The population history of northeastern Siberia since the Pleistocene”, was published on 5 June 2019 in *Nature*.

**Source: DTI**

## Vegan diet contributes to

# Periodontal health

A new study has shown that eating habits contribute to periodontal health. Scientists from the Department of Conservative Dentistry and Periodontology at the University Hospital of Freiburg in Germany have investigated the extent to which a specific diet can have a positive effect on gingivitis. The study involved 30 patients suffering from gingivitis, which were randomly assigned to two groups. The control group kept their “western” eating habits, including a daily intake of up to 45 per cent carbohydrates. The experimental group was instructed to maintain an anti-inflammatory diet for four weeks. Processed carbohydrates such as sugar, white flour, fruit juices and polished rice should be avoided. Trans-fatty acids, omega-6 fatty acids, as well as milk and meat

products weren’t allowed either. However, the group was advised to increase their daily intake of omega-3 fatty acids, vitamins C and D, antioxidants, fibre and nitrate containing plants. Throughout the study, the degree of gingivitis was regularly determined via the gingival index (GI) and the plaque values. It was found that the prescribed diet significantly improved GI levels and reduced bleeding of the gums. In addition, the control group showed an increase in gingival pocket depth, while the other group remained unchanged. The study, titled “The influence of an anti-inflammatory diet on gingivitis. A randomized controlled trial”, was published in the *Journal of Clinical Periodontology* in April 2019.

**Source: ZWP online**



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# Congresses, courses and symposia



## EAO Congress 2019

26–28 September 2019  
Lisbon, Portugal  
[www.eao.org](http://www.eao.org)



## 49th DGZI International Annual Congress— Visions in Implantology

4–5 October 2019  
Munich, Germany  
[www.dgzi-jahreskongress.de](http://www.dgzi-jahreskongress.de)



## AO Annual Meeting

18–20 March 2020  
Seattle, WA, USA  
[www.osseo.org/2020-annual-meeting](http://www.osseo.org/2020-annual-meeting)



## Giornate Veronesi

1–2 May 2020  
Verona, Italy  
[www.giornate-veronesi.info](http://www.giornate-veronesi.info)



## 6th Annual Meeting of ISMI

8–9 May 2020  
Berlin, Germany  
[www.ismi-meeting.com](http://www.ismi-meeting.com)

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international magazine of oral implantology

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[nobelbiocare.com/surface](https://nobelbiocare.com/surface)

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