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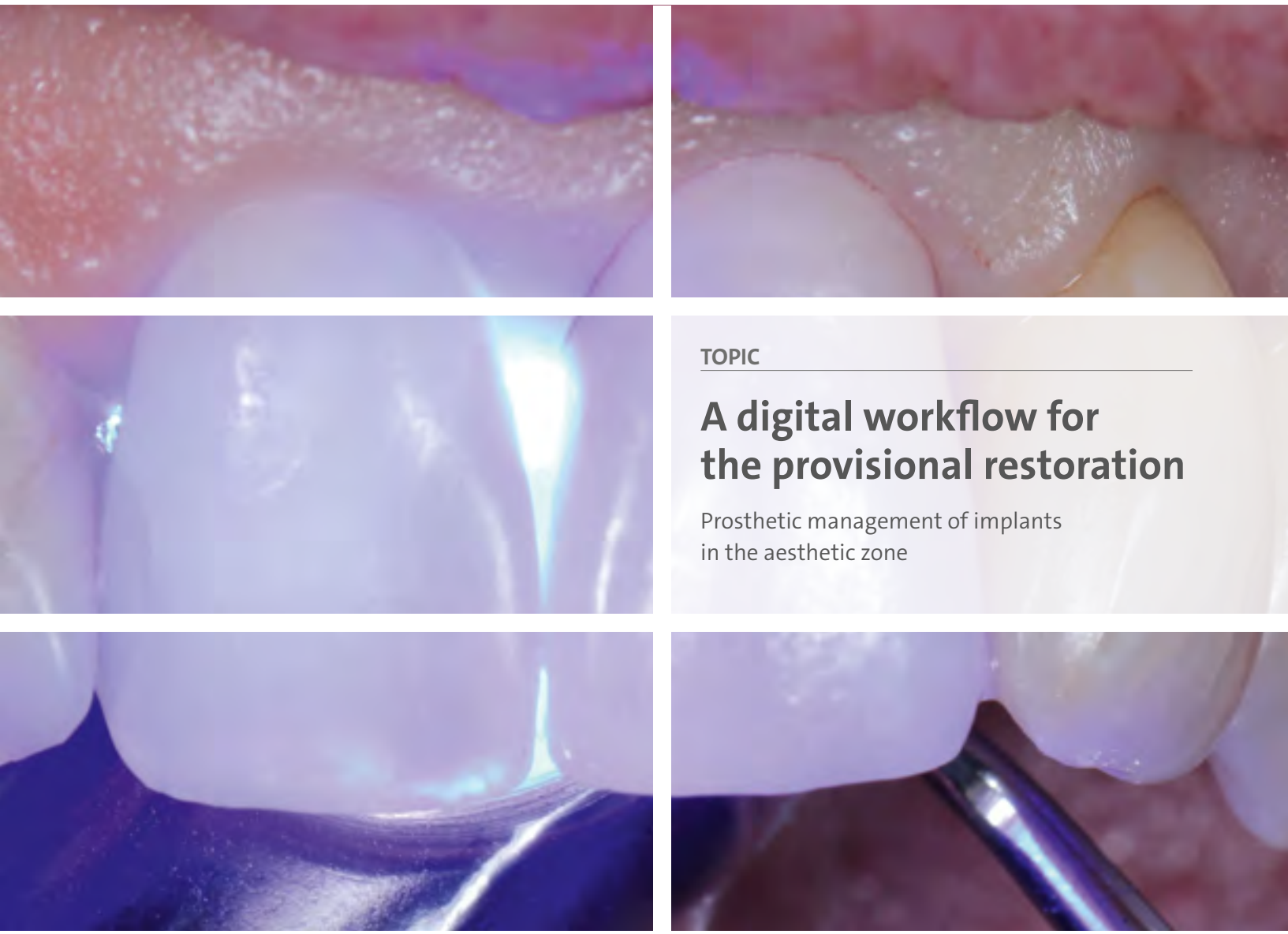
Issue 1/18

EDI Journal

European Journal for Dental Implantologists



TOPIC

A digital workflow for the provisional restoration

Prosthetic management of implants in the aesthetic zone

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Everything flows

There is nothing as constant as change. The famous aphorism of *Heraclitus of Ephesus* may be over 2,500 years old now, but it is as valid a description of the state of things in general as it has ever been – even though right now it does not seem all that applicable to the still fledgling year 2018 and the prevailing political climate in Europe.

In Germany, many players in the healthcare sector would have preferred a "different" new federal government. After many months of negotiations and a caretaker government headed by *Angela Merkel*, it turns out that the no-longer-so-Grand Coalition of the centre-right and centre-left will be in power for another term. Business as usual? Well, not quite. The Conservatives and the Social Democrats are exuding an air of optimism. A mixture of the proven and the new is supposed to show Germans that the Coalition wants to do better this time. The next generation of politicians may finally start taking the helm, and *Merkel*, who had been fighting with her back against the wall during the coalition talks, has opened the door for speculation about a possible successor for the first time.

There is nothing new about Brexit in the UK, apart from the seemingly unwavering commitment by *Theresa May's* government – but with a laundry list of exceptions, something that the EU has denounced and rejected as cherry-picking. For instance, the British government wants to leave the internal market and the customs union while still preserving access to the single market for individual sectors of the economy, such as the financial sector. But although popular approval may have begun to crumble, *May* refuses to consider a second referendum. Brexit will leave a huge hole in the EU budget and have a negative economic impact – not just for the UK.

In Italy, some people seem to have risen from the almost-dead. *Silvio Berlusconi* could tip the scales in forming a new government. The populists of the left and right have prevailed in the national elections, leaving all stakeholders perplexed. The bottom line is that Italian voters have opted for populist, EU-critical parties. Whether a new government can be formed at all remains to be seen. Its challenges, however, will be huge. One in three young Italians is unemployed, and the national debt stands at 133 per cent of the gross domestic product.

The wind of change is blowing in oral implantology as well. Digital oral implantology offers new possibilities. BDIZ EDI has prepared the stage in this edition of EDI Journal by following this year's Expert Symposium in Cologne: "Patient-oriented treatment concepts in oral implantology", featuring digital diagnosis and therapy, CAD/CAM procedures and implant-supported prosthetic restorations and their impact on the quality of life. Our – your! – EDI Journal brings you the brand-new Guideline of the Consensus Conference Implantology on this topic. Reading suggestion: The short interviews with the experts in this issue!

The European Committee of BDIZ EDI has good news to share: The BDIZ EDI family has been joined by EDI Macedonia and BIN EDI from the Netherlands. The recent European Committee meeting in Cologne has shown that guidelines in dentistry and general medicine and their medical relevance are perceived as very important. This is a difficult topic, which we highlight in a detailed article written by BDIZ EDI legal counsel, *Professor Thomas Ratajczak*.

What do dental teams need? What do implant dentists need? As always, we have been investigating this question for the current issue of the EDI Journal. The answer is that we seek to provide practical information of tangible value – whether on EU directives, on recommendations for implant surgery and implant prosthodontics or on guidance and expertise in dentistry in Europe. I think that we have achieved this with the first issue of the year 2018. And it is the yardstick by which we expect to be measured in future.

Panta rhei. Everything flows.

Anita Wuttke
Editor-in-Chief

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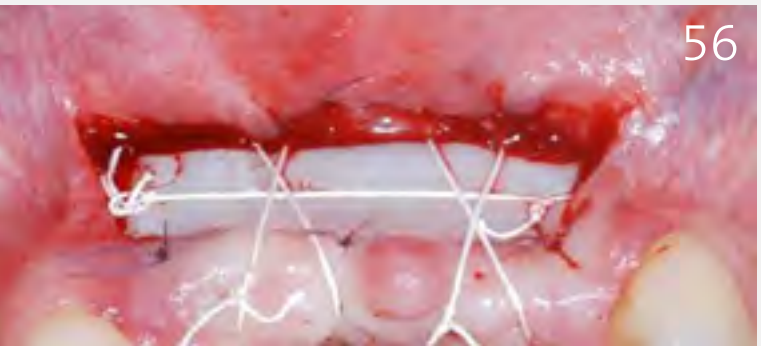
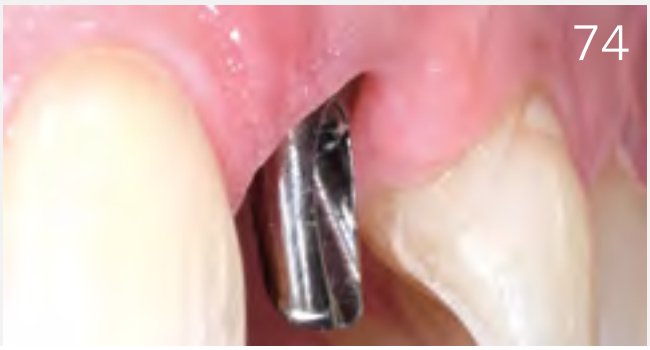


Augmentation with a free mucosal graft.



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Association of Dental Implantology UK (ADI UK)

ADI UK, founded in 1987, is a registered charity committed to improving the standards of implant dentistry by providing continuing education and ensuring scientific research. It is a membership-focused organization dedicated to providing the dental profession with continuing education, and the public with a greater understanding of the benefits of dental implant treatment. Membership of the ADI is open to the whole dental team and industry, and offers a wealth of benefits, education and support for anyone wishing to start out or develop further in the field of dental implantology.

Ogolnopolskie Stowarzyszenie Implantologii Stomatologicznej (OSIS EDI)

OSIS EDI, founded in 1992, is a university-based organization of Polish scientific implantological associations that joined forces to form OSIS. The mission of OSIS EDI is to increase implant patients' comfort and quality of life by promoting the state of the art and high standards of treatment among dental professionals. OSIS EDI offers a postgraduate education in dental implantology leading to receiving a Certificate of Skills (Certyfikat Umiejętności OSIS), which over 130 dental implantologists have already been awarded.

Sociedad Espanola de Implantes (SEI)

SEI is the oldest society for oral implantology in Europe. The pioneer work started in 1959 with great expectations. The concept of the founding fathers had been a bold one at the time, although a preliminary form of implantology had existed both in Spain and Italy for some time. Today, what was started by those visionaries has become a centrepiece of dentistry in Spain. SEI is the society of reference for all those who practice implantology in Spain and has been throughout the 50 years, during which the practice has been promoted and defended whereas many other societies had jumped on the bandwagon. In 2009 SEI celebrated its 50th anniversary and the board is still emphasizing the importance of cooperating with other recognized and renowned professional societies and associations throughout Europe.

Sociedade Portuguesa de Cirurgia Oral (SPCO)

The SPCO's first international activity was the foundation – together with their counterparts in France, Italy, Spain and Germany – of the European Federation of Oral Surgery (EFOOS) in 1999. The Sociedade Portuguesa de Cirurgia Oral's primary objective is the promotion of medical knowledge in the field of oral surgery and the training of its members.

Udruženje Stomatologa Implantologa Srbije-EDI (USSI EDI)

USSI EDI was founded in 2010 with the desire to enhance dentists' knowledge of dental implants, as well as to provide the highest quality of continuing education in dentistry. The most important aims of the organization are to make postgraduate studies meeting the standards of the European Union available to dentists from Serbia and the region; to raise the level of education in the field of oral implantology; to develop forensic practice in implantology; and to cooperate with countries in the region striving to achieve similar goals.

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13th Expert Symposium on patient-oriented treatment concepts

Nothing is set in stone

Nothing is set in stone – possibly even less so in oral implantology than anywhere else. The 13th Expert Symposium of the European Association of Dental Implantologists (BDIZ EDI) focused on patient-oriented treatment concepts. Treatment planning and implementation are constantly changing to reflect innovative technologies and new treatment methods. Digital procedures and the newly available short implants as an alternative to complex bone augmentation commanded particular attention. The one-day continuing professional development (CPD) event of BDIZ EDI was held in Cologne for the 13th time, as always on Carnival Sunday.

Nobody symbolizes change better than "augmentation evangelist" *Professor Rolf Ewers*, who reiterated his plea for the use of short or ultrashort implants and related his experience from his three studies with 45 patients with reduced bone height, some of them with fibula grafts. His conclusion after seven years and very few lost implants: "Today, short and ultrashort implants allow for patient-oriented treatment options without extensive augmentation procedures, which entail long and strenuous regeneration phases for the patient."

Not without my surgical guide

Dr Alexandros Manolakis swears by digital diagnostics and therapy as a means to reliably accommodate individual patient needs and wishes. Reporting on his everyday work in a Thessaloniki clinic, he demonstrated his use of digital methods to enable precise diagnostics, prosthetic-oriented treatment planning and precise implant placement during the surgical session. *Manolakis* uses surgical guides because they let him work faster and more exactly, and he uses 3D printers to make them on site in his own practice.

The results of a study at the University of Cologne on the oral health-related quality of life (OHRQoL), presented by *Professor Hans-Joachim Nickenig*, did not strike the audience as all that surprising. It found in 2016 that implants were the best choice for denture support, especially in partially edentulous patients. What was interesting was the result of the question of "fixed vs removable". After a test phase, the majority of the consulted parties opted for removable dentures because of the greater ease in oral hygiene.

Dr Karl-Ludwig Ackermann focused on single-tooth restoration in the maxillary and mandibular aesthetic zone, especially in young people whose skeletal growth has not been completed. To him, this is the most challenging task there is, because it requires special attention to the defect's size and geometry. He called the three-dimensional treatment of the hard and soft tissues as well as the geometric spatial alignment of implants and their restoration to be the basis of any nature-like rehabilitation.

Is one better than none?

Things became exciting when *Professor Matthias Kern* presented the clinical data on his provocatively titled presentation "Better one than none – single implants for the edentulous jaw", based on selected patient cases and their results after more than six years. During the first five to six years, *Kern* said, all clinical trials yielded significant improvements of the life quality in older and edentulous patients with respect to mandibular single central implants, provided state-of-the-art implant surfaces were used and the retention element was not immediately loaded. "There is some support from case reports for the use of single implants in the edentulous maxilla, but no clinical trials", he concluded.

How many implants should be used for any given augmentation technique? A question that cannot be answered due to insufficient data, at least this is as much as *Professor Ralf Smeets* had to admit in his lecture. Backward planning is the sine qua non to get reliable results. *Smeets* believes that autologous bone is still the gold standard if a ridge must be augmented.

Conflict of interest –
patient expectation vs bone supply?

What does the literature say on the number of implants as a function of the various treatment concepts? *Dr Stefan Reinhardt* conducted a literature search to find out whether survival or success rates were correlated with the number of implants, taking in the different indication classes as well as immediate placement/immediate loading. His findings after reviewing several studies relevant to the topic showed that only few studies had properly investigated the All-on-4 concept. He suggested revising the recommendations of the European Consensus Conference on Implantology for the various indication classes. His literature review of recent studies, he said, had shown that four implants – with fixed or removable restorations – were sufficient in the edentulous mandible, and four to six in the edentulous maxilla.

What determines the number of implants? The anatomy? Or the treatment concept? This is the question that *Dr Paul Weigl* addressed. On the one hand, the optimum number of implants strongly depends on the desired level of accommodation of the patient's wishes; on the other hand, it depends on the residual bone supply. The aim is to derive an algorithm for calculating the optimum number of implants for each patient. *Weigl* proceeds as follows: Based on mounted models of the jaws or a virtual 3D representation (CBCT and intraoral scans), two of the five treatment goals – minimal invasiveness and cost efficiency – are initially set aside to consider the remaining objects of aesthetics, immediate restoration and fixed prosthetics, without compromise. In a second step, a ranking of the five target parameters is discussed with the patient. This discussion, he said, always resulted in a confirmation or a reduction in the number of implants up to the limit set by biomechanics, which in the case of a mandibular overdenture connected via a ball retainer is one single implant.

BDIZ EDI President Christian Berger (left) and Professor Joachim E. Zöller

Dr Jörg Neugebauer highlighted implant-supported restorations for the rehabilitation of the greatly reduced dentition. Conventional production, he reported, may result in inaccuracies of fit and an ensuing loss of function depending on the mechanical load, requiring time-consuming and costly remakes. The ability to produce frameworks for fixed restorations as well as primary and secondary components for removable dentures in one step using the CAD/CAM process ensures a highly precise passive fit of the restoration. To reap all the benefits of the high quality this production modality can provide, the workflow must be adjusted to optimally prepare the case for the dental technician. Such superstructures are suitable, according to *Neugebauer*, both for first-time restorations and for replacing deficient restorations on implants. The high degree of manufacturing precision is clinically manifested in stable denture retention.

Conclusion

Neugebauer, who had hosted the 13th Expert Symposium with *Professor Joachim E. Zöller* and *Professor Hans-Joachim Nickenig*, summed up the event as follows: "To meet patient expectations and to ensure the best possible care in the long term, it is necessary to define the treatment plan precisely, given the vast number of surgical and prosthetic treatment options available today."

And this was also, in a nutshell, the outcome of the 13th European Consensus Conference (EuCC), which had prepared a consensus paper on the topic of patient-oriented treatment concepts the previous day.

AWU

EDI Journal provides background information

Question time

With its focus on patient-oriented treatment concepts, this year's Expert Symposium covered another field of oral implantology. To highlight the symposium's different approaches, we introduce hereafter three speakers and their lectures. The topics: CAD/CAM, digital implantology and literature research. The interviews were conducted by Editor-in-Chief Anita Wuttke.

Dr Alexandros Manolakis had addressed the topic of digital diagnostics and therapy.

What can be digitally implemented today within implantological diagnosis and treatment, and what must still remain "analogue"?

Modern technology allows us to restore smaller defects "all-digitally". It is thus possible to place a single navigated implant with high precision and restore it with an all-ceramic crown without having to take a conventional impression or a master cast. The more extensive the defect, the more treatment steps still need to be analogue today. Nevertheless, digital treatment planning is an essential step that increases therapeutic predictability. This can only be achieved digitally with the help of special software.

In your practice you use digitally produced surgical guides. What are the advantages compared to "free-hand" procedures? Are there disadvantages as well?

Numerous scientific studies have clearly demonstrated that navigated implants are placed with greater precision compared to freehand implants. This entails a lesser risk of injury to anatomical structures and ensures greater aesthetics of the final restoration. Only rarely, as in the case of patients with mouth-opening restrictions, will it be impossible to use the longer drills needed for navigated implant-bed preparation.

What will the future of "digital" implant therapy look like in your opinion?

In the future, I can imagine technologies that can be integrated even more effectively, or in other words, I foresee even more precise results and, at the same time, more user-friendly instruments and products.

Thank you, Dr Manolakis, for this quick overview.

Dr Alexandros Manolakis

Dr Alexandros Manolakis from Thessaloniki, Greece, studied dentistry at Albert Ludwig University in Freiburg, Germany, and graduated in 2002. He obtained his degree of Dr med dent in 2003 at Georg August University Göttingen, Germany, under the direction of Professor Thomas Attin. From 2002 to 2004, he was Visiting Assistant Professor at the Section of Periodontology (director: Professor G. Krekeler) of the Department of Dentistry and Periodontics of the University Hospital of Freiburg (director: Professor E. Hellwig). Since 2006, he has been working with his brother Kleanthis Manolakis in their private dental clinic in Thessaloniki with a focus on implantology.
Manolakis is co-author of a German periodontology textbook (series "Praxis der Zahnheilkunde", 4th ed; Elsevier, 2005), has published articles in a number of dental journals and held presentations at various international congresses. His specialist field is the use of CAD/CAM technology in oral implantology, both in surgery (navigated implantology) and in prosthetics (CAD/CAM restorations). He is also a member of several European professional societies.

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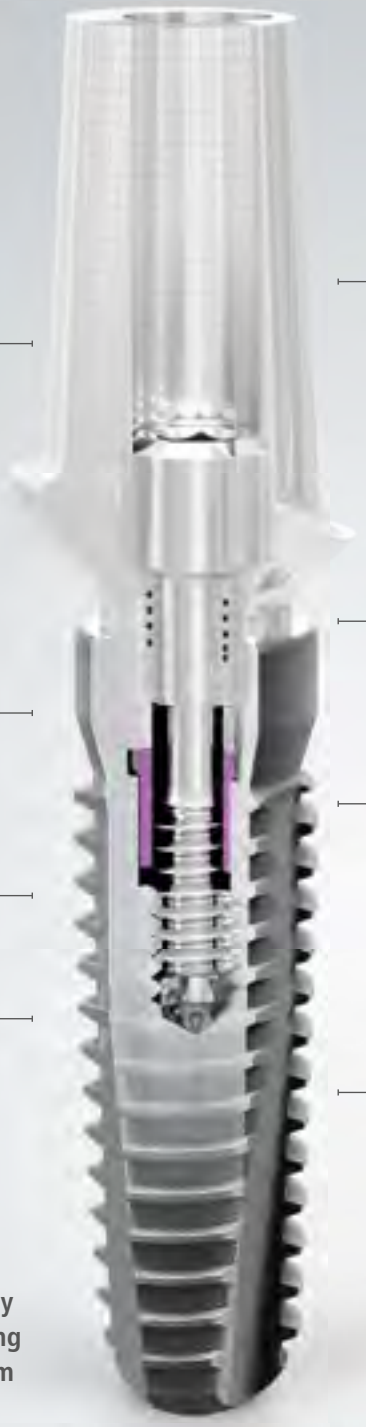

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Dr Stefan Reinhardt had pointed out that he had strictly limited his literature research to the number of implants used to support restorations for different indication classes, such as partially or completely edentulous jaws. No attempt had been made to compare different types of connection between removable dentures and implants.

Were there enough useful studies for your literature search on the number of implants for the various treatment concepts?

That question is difficult to answer. The number of publications on treatment concepts for the edentulous jaw should be sufficient, but they often differ so much in methodology and design that the results can be neither compared nor summarized and we cannot make any valid statements about the number of implants. In addition, there are several factors that can massively influence the survival or success rates of the number of implants in a study. For example, a study of fixed prosthetic restorations on six maxillary implants may show poorer survival rates because many patients had natural teeth in the opposing jaw, while another publication with the same number of implants and treatment concepts may have excluded patients with a history of bruxism or periodontitis and therefore obtained far better results.

As far as the partially edentulous jaw, my literature research has identified no study that would break down implant survival rates according to the number of bridge abutments in cantilever situations and delimited edentulous spaces. There is no valid data.

Can you provide a definitive answer for the question that your research set out to address?

With regard to the number of implants in the partially edentulous jaw, I do not have any answers because the literature available to date is more than scanty.

The number of implants to support removable and fixed dentures in the edentulous jaw, however, has been examined impressively and in detail in a review article by *Kern* and coworkers*, who compared a total of 25 studies with different numbers of implants in the edentulous maxilla. Restorations supported by fewer than four implants showed significantly inferior results, while restorations on four implants, with a survival rate of 94.32 per cent, performed only slightly lower than restorations on more than five implants, with a survival rate of 97.83 per cent.

For the edentulous mandible, 50 studies showed that survival rates were significantly lower only for restorations on one single implant. Designs on 2,2–4,4 or more than 5 implants all achieved low failure rates.

Other than stating that fewer than four implants in the maxilla should be avoided, nothing conclusive can be said about edentulous jaws based on the very heterogeneous studies, especially since *Kern* has shown exceptionally favourable implant survival rates for one median implant in the edentulous mandible.

Anything about your result that surprised you?

I was surprised that an important issue like the number of implants in different indication classes had received so little attention in the literature. Many reviews and examinations conclude with a phrase such as, “It would be desirable if more well-designed scientific studies took up this question in order to be able to make evidence-based statements”. I can only second that.

Thank you for your interesting comments.

*Kern JS, Kern T, Wolfart S, Heussen N. A systematic review and meta-analysis of removable and fixed implant-supported prostheses in edentulous jaws: post-loading implant loss. Clin Oral Implants Res. 2016 Feb;27(2):174-95

Dr Stefan Reinhardt

Dr Stefan Reinhardt was scientific assistant in the Prosthetic and Surgical Department of Westfälische Wilhelms-Universität Münster, Germany from 1983 to 1991. Since 1991, he has been working in private practice at a centre for oral implantology in Münster with Drs Drüke, Janzen and Broschk. In 1991, he qualified as Specialist in Oral Surgery and has been a certified consultant for implantology since 1999. He is certified as a trainer for aspiring Specialists in Oral Surgery by the Dental Chamber of Westfalen-Lippe. He is also an expert reviewer for oral implantology in BDIZ EDI and BDO. In cooperation with Meisinger, Reinhardt developed the Tissue Control System in 2011. He organized and directed the symposium on implantology and periodontology in Münster jointly with Professor Topoll. Reinhardt has presented at numerous national and international congresses and regularly holds continuing professional development courses in the fields of implantology, hard- and soft-tissue augmentation and implant-supported all-ceramic restorations.

Dr Jörg Neugebauer's presentation had been devoted to implantological concepts with CAD/CAM restorations.

Does implant therapy without CAD/CAM still make any sense at all today?

CAD/CAM technology can be employed in any dental practice today, as impressions are best still taken conventionally – especially for extensive rehabilitations – followed by digital steps at a local laboratory or at a central manufacturing centre. CAD/CAM allows restorations to be designed digitally. But this requires a high level of digital technological competence on the part of the dental technician or software operator. On the other hand, it continues to be possible to achieve long-term success with a stable denture manufactured with conventional methods. Given the requisite knowledge and experience in digital design, the production of frameworks becomes less error-prone and less expensive.

You mentioned the high potential share of CAD/CAM in the production of restorations. What is CAD/CAM capable of achieving today?

In the conventional workflow, numerous steps are required to compensate for, for example, distortion or shrinkage after casting metal or milling and firing ceramics. This will create further gaps and adhesive seams that may cause complications in the medium or long term. If a framework is milled from a single blank and no adjustments are required, this risk is eliminated.

As a practitioner, what options would you like to see in the future of dental implant treatment? Where do you see practical shortcomings?

In daily practice, the biggest problem – especially with the newly introduced angulated CAD/CAM screw access channels – is that you always need to have the right screwdriver at hand. As soon as CAD/CAM superstructures are connected to implants by a different manufacturer, things become confusing. Working with incorrect connection geometries can damage the screw, to the point where, in a worst-case scenario, the entire construction must be remade.

Thank you for sharing your insights, Dr Neugebauer.

Dr Jörg Neugebauer

Dr Jörg Neugebauer graduated from dental school at the University of Heidelberg, followed by several years in the dental industry, most recently as head of implantology R&D. After training as a specialist in oral surgery, he worked as a senior dentist at the Interdisciplinary Department of Oral Surgery and Implantology, University of Cologne. In 2009 he obtained his Venia legendi. Since August 2010 he has been working in the dental practice of Dr Bayer, Dr Kistler, Dr Elbertzhagen and colleagues in Landsberg am Lech, Germany, but he continues his teaching and research activities at the University of Cologne. He is a member of the Board of Directors of the Academy of Osseointegration (USA). Neugebauer's research focuses on the reliability of implant therapy, antimicrobial photodynamic therapy, cone-beam computed tomography, guided implantology and minimally invasive implant therapy, as well as ceramic implants. He has held numerous presentations and has published in national and international publications. He is one of the two editors of the dental atlas "Cone Beam Volumetric Imaging in Dental, Oral and Maxillofacial Medicine: Fundamentals, Diagnostics and Treatment Planning", Quintessence Publishing, Berlin, 2nd revised and expanded edition 2014.

Guideline 2018 of the 13th European Consensus Conference (EuCC)

Patient-oriented treatment concepts

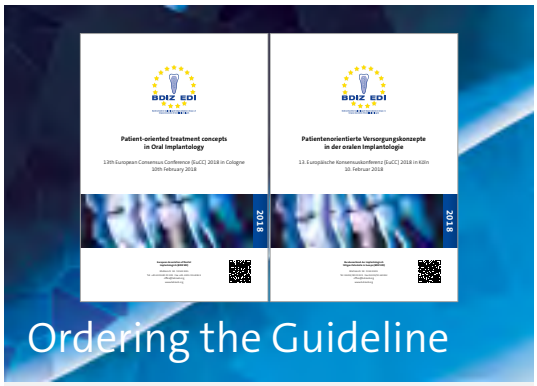
The 13th European Consensus Conference (EuCC) under the auspices of BDIZ EDI has delivered a summary on the patient-oriented treatment concepts in oral implantology based on a working paper prepared by the University of Cologne. The new eight-page Guideline is intended as a recommendation for implant dentists to help them assess the indications and limitations of patient-oriented treatment concepts. The brochure can be ordered in German or English from the BDIZ EDI online shop.

The 18 international experts of the European Consensus Conference highlighted the various steps of treatment concepts to include patient expectations. The purpose of the guide is to offer recommendations for clinicians engaging in implant dentistry, enabling them to correctly assess potential indications (and any limitations thereof) for a patient-oriented treatment concept.

The EuCC discussed the following topics:

- Improving function
- Rehabilitation of function, retaining healthy condition
- Functional rehabilitation of a compromised residual dentition
- Rehabilitation in the aesthetic zone.

The conclusion of the EuCC: Multiple treatment options are available to restore oral function. Depending on patient motivation, anatomical findings and the level of skill and expertise on the part of the clinician, patients should be offered the best available treatment option. In the light of the many variables involved and described, no general recommendation for any specific treatment option can be made. *AWU*



The eight-page Guideline 2018 brochure with its comprehensive bibliography can be ordered from the BDIZ EDI online shop in German or English at the price of € 2.50 (including VAT, plus shipping).

Participants of this year's European Consensus Conference (row-wise from bottom left): Dr Peter Fairbairn, Dr Jörg Neugebauer, Professor Antonio Felino, Christian Berger, Dr Alexandros Manolakis, Professor Rolf Ewers, Professor Matthias Kern, Professor H.J. Nickenig, Professor Pavel Kobler, Dr Stefan Liepe, Dr Jeroen Pepplinkhuizen, Dr Jan Willem Vaartjes, Professor Vitomir Konstantinovic, Professor Andrzej Wojtowicz, Witold Tomkiewicz, Dr Peter Thoolen und Dr Peter Ehrl. Not on the picture: Professor Joachim E. Zöller.

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European Association of Dental Implantologists

Guidelines 2018

Patient-oriented Treatment Concepts in Oral Implantology

13th European Consensus Conference (EuCC) 2018 in Cologne

10 February 2018

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1 Methods

Objective
The purpose of this guide is to offer recommendations for clinicians engaging in implant dentistry, enabling them to correctly assess potential indications (and any limitations there of) for a patient-oriented treatment concept.

Introduction
All consensus recommendations in this paper should be interpreted as guidelines only. The patient's specific situation is always an important aspect and may justify deviations from the recommendations of this consensus paper.

Background
Implant placement is a proven way to replace missing teeth and to restore function and aesthetics. Various treatment options are available to meet patient expectations with respect to invasiveness, efficiency and economic aspects and depending on the treatment abilities of the dental care provider.

Definitions

FDP	Fixed dental prosthesis, including single-tooth restorations
RDP	Removable dental prosthesis
RPDP	Removable partial dental prosthesis
IFPDP	Implant-supported fixed partial dental prosthesis
RISOs	Removable implant-supported overdentures
OHRQoL	Oral health-related quality of life

Literature search
The Cochrane Library, EMBASE, DIMDI and Medline literature databases were used to conduct a systematic search of recent published data on the use of short, angled and reduced-diameter implants. Selective search criteria were used, including terms such prosthetic concept, surgical concept, outcome, implant, patient oriented, decision making, oral health-related quality of life, dental, review, meta-analysis. The publications identified with the search were screened by reading their abstracts and those irrelevant to the subject identified and excluded. Those articles found to be potentially relevant were obtained in full-text form. Multiple review papers with meta-analyses and randomized controlled trials (RCTs) and other prospective or retrospective systematic clinical studies were available on the subject.

Procedure for developing the guideline/consensus conference
A preliminary version of this document on which the EuCC based its deliberations was prepared and authored by J. Neugebauer and H.-J. Nickenig, MSc, of the Interdisciplinary Department for Oral Surgery and Implantology and Department of Oral and Maxillofacial Plastic Surgery at the University of Cologne, Germany. The preliminary report was reviewed and discussed by the committee members in five steps, as follows:

- Reviewing the preliminary draft
- Collecting alternative proposals
- Voting on recommendations and levels of recommendation
- Discussing non-consensual issues
- Final voting

2 Problem

Implant therapy has become more and more complex due to the great variety of existing treatment concepts. Decisions on keeping or removing teeth and possibly performing implant treatment depends on the level of specialisation and knowledge of the clinician **[19, 29]**. Multiple concepts are in use, and the process of making decisions for maximum implant and restorative success and the outcome in terms of OHRQOL is a multifaceted one **[28]**.

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Patient-oriented Treatment Concepts in Oral Implantology

3 Improving function

Patient expectations
Patients already treated with RPDP or overdentures that are functionally deficient due to severe mandibular atrophy or insufficient strategic abutments (Kennedy class I) require functional improvement. Both groups often avoid intensive surgical procedures due to advanced age or various general health problems.

Current observations
For patient of advanced age or with physical impairments, strategic implants – at least one or two implants in the edentulous mandible – or as additional abutment may improve the function of existing RPDP or overdentures **[12, 27, 33, 43, 44]**. Better chewing capability improves the patients' nutritional status **[4, 41]**.

Preventions of complications
- Patients should be informed that strategic implants will improve but not fully restore oral function.
- The treatment modality may have to be adapted to the patient's motivation, any functional and cognitive impairments and medical condition, as well as their socioeconomic status **[26]**.
- Immediate loading of single implants in edentulous patients may result in a higher risk of failure **[17]**.

4 Rehabilitation of function, retaining healthy dentition

Introduction
Tooth loss may occur due to endodontic failure, dental or exogenic trauma, deep caries or for restorative and periodontal reasons **[19]**. Implants may restore function and aesthetics without damaging the existing dentition.

Current observations
Implant placement is a scientifically proven treatment concept for rehabilitating the dentition: it is clinically highly performant in various indications **[24, 30]**.
In case of vertical atrophy or extensive pneumatization of the sinus, vertical grafting in the mandible or a maxillary sinus graft or the use of short implants are viable treatment options **[37, 38]**.
Looking at the great variety of existing implant designs, treatment options such as immediate or delayed implant loading, time of placement after extraction and similar factors, no evidence for a consistent advantage of any of these concepts was found **[7, 9, 10, 30]**

Prevention of complications
- If grafting procedures such as sinus floor elevation or alveolar crest reconstructions are necessary, higher surgical complication rates compared to standard or short implant placement may be expected **[11]**.
- The more complex the treatment option, the more essential the training and experience of the clinician for long-term success **[25]**.

5 Functional rehabilitation of a compromised residual dentition

Introduction
Patients with a compromised residual dentition often fear complete edentulism. In recent years, the concept of immediate transition to a fixed full-arch reconstruction with interantral or interforaminal implants, included angulated ones, has been successfully implemented **[14, 31]**.

Current observations
Studies of immediate loading concepts, including those using angulated implants to support full-arch reconstructions on 4 or 6 implants in the maxilla and mandible, have provided 5- to 10-year data **[2, 3, 13, 15, 20, 22, 31, 35]**. Favourable survival rates were found, following the

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use of primary splinting of angulated/tilted implants using FDP, for follow-up intervals of up to 6.5 years **[21]**. Various meta-analyses have shown no differences compared to conventional implant placement/loading in terms of either survival rates or bone loss in the restoration of atrophied edentulous jaws with FDP and angulated implants after short and medium observation periods **[1, 5, 8, 23]**. High patient satisfaction has been described in a current review article **[35]**. No influence of the chosen implant design or materials was confirmed **[16, 34]**.

Prevention of complications

- For restorations with the placement of angulated implants, patients should be informed that masticatory, aesthetic, hygienic and phonetic impairment may occur **[14]**
- It is recommended to evaluate the phonetic, maintenance and intra- and extraoral aesthetics using a temporary prothesis.
- Patients with a history of severe periodontitis are prone to higher complication rates **[32, 36]**

6 Rehabilitation in the aesthetic zone

Introduction
Implants are often recommended as viable treatment options in anterior tooth loss.

Current observations
In the long term, implant treatment in young patients may result in aesthetic impairment due to continuing skeletal growth or soft- and hard-tissue alterations **[6]**. Immediate implant placement results in similar soft- and hard-tissue alterations as conventional procedures **[18, 42]**. Two-unit cantilever FDPs supported by a single implant can be a viable alternative to two adjacent implant-supported single crowns in the aesthetic zone **[39]**.

Prevention of complications

- Anterior implant placement requires a strict patient and treatment selection for a stable aesthetic result **[40]**.
- Alternatively, minimally invasive resin-bonded prosthetic restorations should be considered.

7 Conclusion

Multiple treatment options are available to restore oral function – not only the ones mentioned above. Depending on patient motivation, anatomical findings and the level of skill and expertise on the part of the clinician, patients should be offered the best available treatment option. In the light of the many variables involved and described here, no general recommendation for any specific treatment option can be made.

Professor DDr Joachim E. Zöller
Vice President

Dr Jörg Neugebauer
Chairman of EuCC

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Guidelines in dentistry

A race to better treatment

There is a continuing surge into developing guidelines in medicine worldwide and this race to better treatment has reached dentistry already quite some time ago. But there is hardly any critical discussion of issues related to the use of guidelines by expert witnesses and judges and lawyers representing patients in malpractice suits.

The questions at hand are:

- Are guidelines helpful appliances in the hands of dentists or potentially dangerous adversaries because of their impact onto jurisdiction?
- Should dentists allow themselves to be guided by guidelines and, if so, which level of reliability should guidelines represent?
- Should guidelines define state of the art dentistry reflecting medical and ethical questions only, regardless of treatment costs, cost reimbursements and health care legislation?

These are difficult questions and they involve not only medicine and dentistry, but legal issues as well.

These issues are hardly ever considered during guideline development. Many developers fear that integrating legal and – worse – economic issues may not be congruent with medical standards and especially medical ethical standards. Patients need diagnostic and therapeutic solutions because they are sick, and not because they can afford the treatment. There is hope in such approaches that money (funds needed for treatment) will – in the long run – follow medical necessities.

To phrase one question very precisely: Does a dentist violate his duty of care if he treats a patient according to the regulations provided by his countries legislation, but would have reached better results if he had followed dental guidelines requesting more?

Take for instance the issue of 3D imaging using DVT technology. Are the indications to use 3D imaging identical regardless in which country the patient lives? Which guidelines apply? The ones used in Germany or for instance the SEDENT-EXCT guideline "Cone Beam CT for Dental and Maxillofacial Radiology" issued in 2011, but despite its 139 pages not recognized in Germany?

There are supposedly already more than 10,000 medical guidelines worldwide. I doubt that there are clinicians who know them all. The German Federal High Court (Bundesgerichtshof – BGH) had to decide a case in which the only existing guideline worldwide applicable to the measures to be followed during an emergency caesarian section had been Canadian and issued in February 2005, while the emergency caesarian section had been performed in Germany in January 2006. Must the German obstetrician know and follow a Canadian guideline issued just eleven months earlier? The High Court denied the question on 16 June 2016 (case No. VI ZR 332/14), but the Regional Court at Koblenz (judgement of 14 May 2013, case No. 2 O 1/10) and the Appellate Court at Koblenz (judgement of 25 June 2014, case No. 5 U 792/13) had shown no doubt that the German obstetrician should have obeyed the Canadian guideline. The case was very close for the obstetrician because the Appellate Court had not granted the right to appeal to the Federal High Court.

Medical guidelines in Germany

Germany has a long history in developing medical guidelines. They are coordinated by the Arbeitsgemeinschaft der Wissenschaftlichen Medizinischen Fachgesellschaften e.V. (AWMF – Association of the Scientific Medical Societies in Germany), founded in 1962. AWMF now combines 177 scientific member societies and three associated societies.

AWMF classifies its guidelines in five categories: S1, S2, S2e, S2k and S3, but defines only four:

S1: informal consent achieved by a group of experts,

S2: (not defined),

S2k: formal consent achieved by a group of experts,

S2e: formal evidence research has been done by a group of experts,

S3: guideline with all elements of systematic development.

At present, there a 356 guidelines level S1, 11 guidelines level S2, 217 guidelines S2k, 31 guidelines level S2e and 156 guidelines level S3.

Considering dental guidelines only, there are two at level S1, four at level S2, fifteen at level S2k, one at level S2e and seventeen at level S3.

Purpose of guidelines

The World Health Organization describes a WHO guideline as "any document developed by the World Health Organization containing recommendations for clinical practice or public health policy. A recommendation tells the intended end-user of the guideline what he or she can or should do in specific situations to achieve the best health outcomes possible, individually or collectively. It offers a choice among different interventions or measures having an anticipated positive impact on health and implications for the use of resources.

Recommendations help the user of the guideline to make informed decisions on whether to undertake specific interventions, clinical tests or public health measures, and on where and when to do so. Recommendations also help the user to select and prioritize across a range of potential interventions" (WHO Handbook on Guideline Development, 2nd edition, 2014, p. 1).

AWMF describes guidelines as systematically developed assistance for medical doctors to help their decision-making in specific circumstances. They are based on current scientific findings and procedures approved in practice and shall provide more security in medicine, but also consider economic aspects. Guidelines are not legally binding for medical doctors und therefore are neither establishing liability nor relieving from liability (http://www.awmf.org/leitlinien.html).

The wording is different, the approaches are similar, except that it is unclear to which extent economic implications may interact with medical and ethical reasoning.

It is at the least doubtful that guidelines based on systematic reviews may have no impact on liability issues. It might seem as wishful thinking that medical guidelines are events happening just within the medical community without any repercussions in the outside world, especially in legal contexts. And in fact, it is wishful thinking. Whoever engages in developing medical guidelines should be aware that regardless of the intentions, as a side effect he paves the way to legal repercussions. There is no medicine outside the law.

Dental guidelines in Germany

At present, there are 39 dental guidelines in Germany listed on the AMWF website, covering a wide range of dental treatments like osteotomy of wisdom teeth, peri-implantitis therapy, dental implants for patients with diabetes, etc.

Without a doubt it is a difficult task to write guidelines. But whenever I had to closely evaluate guidelines in legal contexts in the past, I found disturbing errors and even guidelines with literary citations mostly depending on the publications of the guideline editors. The editorial process needs more accuracy to be reliable – one of the reasons why German jurisdiction is undecided what to do about existing guidelines.

Guidelines in German jurisdiction

I regularly check the published decisions of German courts as to the key words

- medical malpractice
- medical malpractice and directive
- medical malpractice and guideline
- dental malpractice
- dental malpractice and directive
- dental malpractice and guideline.

The results are rising, as to be expected. A survey of 9 February 2018 revealed the followings findings:

- medical malpractice: 7,121 court decisions
- medical malpractice and directive: 326 court decisions (4.6 %)
- medical malpractice and guideline: 429 court decisions (6.0 %)
- dental malpractice: 406 court decisions
- dental malpractice and directive: 16 (3.9 %)
- dental malpractice and guideline: 9 (2.2 %).

A survey of the court decisions my law firm, which is specialized in health law and has a large section handling malpractice cases for medical doctors, dentists and hospitals, has collected over the years shows that the impact of guidelines is far higher and reaches 20 per cent of all decisions we had been involved in as lawyers on the defense side. In new pending malpractice cases, the issue of violation of/deviation from guidelines is raised by lawyers on the patient side in about every second case.

The medicolegal aspects of guidelines cannot be overestimated but may easily be misjudged. In general, guidelines are used and interpreted not by their editors, but by doctors and dentists acting as expert witnesses who hardly ever take the time to carefully study the

Illustration: fotolia/pokki

guideline and its accompanying papers and – not to forget – evaluate the studies included or excluded before drafting of the guideline, in order to form their own opinion of the validity of the guideline before treating the patient. We even experience cases in which the expert witnesses are not aware of existing guidelines, causing interesting disputes at the bench.

Guidelines intend to describe the state of the art of medicine at a given time, no later than their approval. But whether this assumption is true must be reviewed and considered by the practitioner applying the guideline in his daily practice and the expert witness before the courts. Guidelines do not justify themselves through the mere fact of their existence, regardless which level of development they claim to have reached – which makes it so difficult to follow guidelines, and even more so the more guidelines are developed and published.

Does anybody consider the additional obligations guidelines thereby cause for the practitioner? Is it really appropriate to intend to make things easier by making them more difficult?

Medico-legal aspects of guidelines

The main medico-legal aspect of any medical/dental guideline is not validity, but reliability. A guideline which is not reliable is for once another piece of junk published in the medical world, but will most likely cause adverse side effects, either by following the guideline or by having to defend a treatment violating the guideline but – hopefully – not standards of good clinical practice.

The issue is tricky, though. Guidelines have to be valid in order to be reliable. If they are both valid and reliable, they are most likely setting and/or describing good standards of clinical practice in a way that significant deviations most likely constitute errors in treatment and thereby malpractice.

Either way the mere existence of a medical/dental guideline forces practitioners to deal with it, especially know that it exists, read it, consider it, and decide to apply it or not to apply it.

There is a prominent (and very bad) example of a medical guideline published by AWMF in 1997 on the treatment of myoarthropathy of the chewing system (AWMF-catalogue No. 038/002). The guideline was developed and issued by the German Association for Psychiatry, Psychotherapy and Neurology without a single dentist or any dental association being consulted. Myoarthropathy of the chewing system is usually treated by dentists, not psychiatrists, although the disease may in parts be caused by disorders of the mind. The guideline made it to level S1 and is no longer valid today. Dentists in Germany are usually not aware that it even existed once. They had never heard of it.

That is – unfortunately – true for many medical and dental guidelines published every year and I doubt that we shall ever achieve the goal of all or at least most addressees of such guidelines to acknowledge their existence and critically evaluate whether to follow them or not.

What happens to the burden of proof if the dentist does follow a guideline, what happens, if he does not, what if he doesn't even know of the guideline? Is there any safe side to following a guideline?

These are important questions and the answers given by the courts are not satisfying. A violation of guidelines may constitute malpractice, a treatment in accordance with guidelines may also constitute malpractice. Should we still request dentists to bother with guidelines or should we reconsider the whole concept?

Pars pro toto: German jurisprudence on medical guidelines

The main part of German jurisprudence accepts guidelines as a means for professional orientation. A considerable part considers guidelines, especially at the S3 level, as an indication of the acceptable standard of care and a significant deviation from a guideline therefore as a hint, some even as proof, of malpractice. A violation of a level S3 guideline might in some opinions even turn the burden of proof against the medical/dental practitioner.

German jurisdiction is equally divided. The Higher Regional Court (Oberlandesgericht – OLG) Stuttgart decided that guidelines shape the applicable standard of care even if less than 5 per cent of the guideline addressees follow them (decision of 22 February 2001, case No. 14 U 62/00).

Other courts see guidelines just as informative or at best declaring the standards of care at a given time (see for instance OLG Nuremberg, 25 March 2002, case No. 1 U 11/01).

The courts agree that guidelines may not be considered as an anticipated expert opinion. Expert opinions have to be obtained by the courts regardless of existing guidelines (OLG Naumburg, 11 July 2006, case no. 1 U 1/06).

The more guidelines are being published, the more the courts change the wording of their rulings. A deviation from guidelines may now not necessarily constitute a grave error in treatment (grober Behandlungsfehler), but it may (OLG Munich, 6 April 2006, case No. 1 U 4142/05). Guidelines are to be considered as a "signpost" for good clinical practice and any significant deviation needs a specific justification (OLG Hamm, 18 June 2014, case No. I-3 U 66/14). S1 and S2 level guidelines do not indicate an error in treatment, at least not a grave one (BGH, 15 April 2014, case No. VI ZR 382/12). But deviations from S3 level guidelines may constitute errors in treatment, even grave ones (OLG Naumburg, 20 August 2009, Case No. 1 U 86/08). Grave errors in treatment turn the burden of proof in many countries (see for instance Austrian High Court of Justice, decision of 16 December 2013, case No. 6 Ob 212/13i).

The Federal High Court of Justice also decided that guidelines and especially directives, which are not subject to this essay, may develop to describe good clinical practice in their range of application (BGH, 15 April 2014, case No. VI ZR 382/12). The idea behind this decision is that a guideline might not be accepted practice at the time of its publication but might become accepted practice in the medical community.

Not just minor (insignificant) deviations from guidelines must in any case be justified and should usually show in the patient documentation including the reasons for the deviation (OLG Hamm, 18 June 2014, case No. I-3 U 66/14). That is hardly ever done yet except in large hospitals and even there it may happen that guidelines are not recognized.

The medico-legal aspects of guidelines will considerably increase. This requires utmost care in drafting guidelines.

Guidelines should recognize and not minimize the range of possible treatment decisions. The Federal High Court of Justice defined malpractice in a decision of 10 March 1987 (case No. VI ZR 88/86) as follows:

"The answer to the question whether the practitioner conducted malpractice causing damage to a patient's health depends on whether the practitioner had the medical knowledge and expertise to be expected from him, made reasonable decisions on diagnostic and therapeutic measures and executed them in a careful manner."

Reasonable decisions accept a wide range of possibilities and should not be narrowed by guidelines.

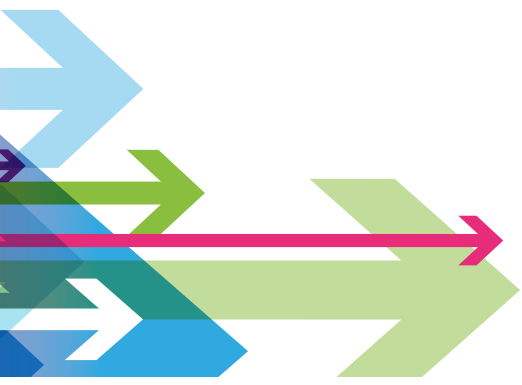


Illustration: fotolia/pokki

Guides for guideline development

There are many guides for guideline development worldwide. Almost any body who drafts guidelines has its own manual. The National Health and Medical Research Council of the Australian Government published standards for clinical guidelines with helpful questions in 2016 (http://bit.ly/2Eur2f5). They deserve to be mentioned here:

1. To be relevant and useful for decision making guidelines will:

1.1 Address a health issue of importance

1.2. Clearly state the purpose of the guideline and the context in which it will be applied

1.3. Be informed by public consultation

1.4. Be feasible to implement.

2. To be transparent guidelines will make publicly available:

2.1. The details of all processes and procedures used to develop the guideline

2.2. The source evidence

2.3. The declarations of interest of members of the guideline development group and information on how any conflicts of interest were managed

2.4. All sources of funding for the guideline.

3. The guideline development group will:

3.1. Be composed of an appropriate mix of expertise and experience, including relevant end users

3.2. Have clearly defined, documented processes for reaching consensus.

4. To identify and manage conflicts of interest guideline developers will:

4.1. Require all interests of all guideline development group members to be declared

4.2. Establish a process for determining if a declared interest represents a conflict of interest, and how a conflict of interest will be managed.

5. To be focused on health and related outcomes guidelines will:

5.1. Be developed around explicitly defined clinical or public health questions

5.2. Address outcomes that are relevant to the guideline's expected end users

5.3. Clearly define the outcomes considered to be important to the person/s who will be affected by the decision and prioritize these outcomes.

6. To be evidence informed guidelines will:

6.1. Be informed by well conducted systematic reviews

6.2. Consider the body of evidence for each outcome (including the quality of that evidence) and other factors that influence the process of making recommendations including benefits and harms, values and preferences, resource use and acceptability.

6.3. Be subjected to appropriate peer review.

7. To make actionable recommendations guidelines will:

7.1. Discuss the options for action

7.2. Clearly articulate what the recommended course of action is, and when it should be taken

7.3. Clearly articulate what the intervention is so it can be implemented

7.4. Clearly link each recommendation to the evidence that supports it

7.5. Grade the strength of each recommendation.

8. To be up-to-date guidelines will:

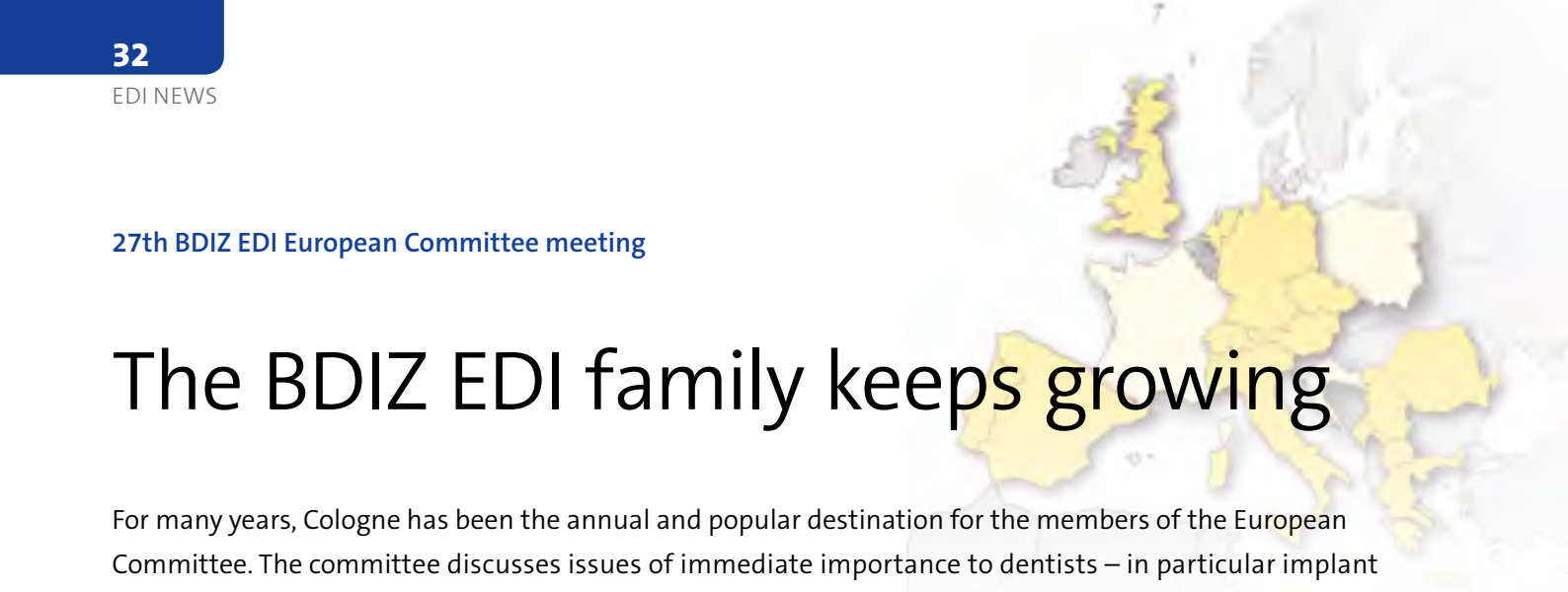
8.1. Ensure that the recommendation is based on an up-to-date body of evidence

8.2. Propose a date by which the evidence and the guideline should be updated. This may be specific to each recommendation.

Conclusion

I consider it as helpful to raise the question of whether a guideline is needed and helpful to the dental practitioner prior to any engagement in developing one. If guidelines are devised to help practitioners in their treatment choices, respecting the range of possible treatments, they do no harm. Otherwise, they might create more collateral damage than assistance.

Professor Thomas Ratajczak
Legal advisor to BDIZ EDI



27th BDIZ EDI European Committee meeting

The BDIZ EDI family keeps growing

For many years, Cologne has been the annual and popular destination for the members of the European Committee. The committee discusses issues of immediate importance to dentists – in particular implant dentists – in an informal atmosphere. Once again, the representatives of the partner associations of BDIZ EDI met on the occasion of the Expert Symposium for an exchange of ideas. BDIZ EDI welcomed two new partner associations in Cologne – BIN EDI (Netherlands) and EDI Macedonia.

The committee meeting was constructive and characterized by interesting discussions. Overall, the influence of governments on the practice of dentistry is growing, especially in the Netherlands, where dentists and their teams are increasingly under pressure, especially by therapeutic guidelines made mandatory. Another topic was the increasing number of industry-driven continuing professional development (CPD) events in some countries, such as Greece, which the committee assessed critically.

Standing in for BDIZ EDI legal counsel *Professor Thomas Ratajczak*, BDIZ EDI President *Christian Berger* delivered the presentation on the importance of guidelines, as reported in our German publication, BDIZ EDI konkret. EDI Journal also highlights this topic in the current issue (see p. 28). Editor-in-Chief *Anita Wuttke* presented EDI Journal, showcasing its contents and what it can achieve. She also offered a new service – the delivery of copies of the journal for distribution at congresses in various countries, provided the necessary information about time, place and number of copies needed reaches her in good time.

New members of the EDI family

The implantological associations from the Netherlands and Macedonia are now partner associations of BDIZ EDI. The contract was signed in site in Cologne.

AWU

Welcome to the BDIZ EDI family: Belangenvereniging Implantologie (BIN EDI) from the Netherlands with Dr Jeroen Pepplinkhuizen, Dr Jan Willem Vaartjes and Dr Peter Thoolen (centre to right) and BDIZ EDI President Christian Berger (left) signing the contract.

EDI Macedonia is the name of the new partner association, which consists of the Albanian Implantological Association of Macedonia (AIAM) and the Macedonian Association of Oral Surgeons (MAOS). Dr Fisnik Kasapi with Christian Berger.

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[1] Data on file at RTI Surgical, Inc.

12th European Symposium to be held in Athens, Greece, from 19 to 20 May 2018

BDIZ EDI and Masterminds

One of the highlights of the BDIZ EDI year is certainly the European Symposium, held annually with changing partners in different European countries. The 12th European Symposium will be held in Athens, Greece, from 19 to 20 May 2018. BDIZ EDI is the cooperation partner of Omnipress, the biggest dental publishing house in Greece. The theme of the two-day congress will be "Masterminds".

"Small opportunities are often the beginning of great enterprises." This quote from *Demosthenes* has been characteristic of the still short history of BDIZ EDI's European symposia. Humble beginnings and spurious opportunities have been consolidated into a comprehensive approach that allows communities of dentists to transcend national borders and to intensify the exchange of ideas within Europe. The European Symposium is based on the proven educational concept of BDIZ EDI to promote an active exchange of dental knowledge at the European level. Omnipress will be the host of the BDIZ EDI and its European Symposium for the second time, the two having previously held a joint congress in Vouliagmeni near Athens in 2009.

The programme targets active oral implantologists, but by no means exclusively. The partners offer a two-day congress with top speakers from Germany, Greece and France. Congress language is English with simultaneous interpretation into the local language.

The symposium organized by Omnipress and its CEO *Yannis Roussis* features an attractive programme tailor-made for clinical practicability.

More information and registration

Via the below QR code, you can directly access the programme and registration form of "The Masterminds".

http://omnicongresses.gr/index.php?lang=ENG

Venue

Designed by Mario Botta and managed with the professionalism of the Athenaeum InterContinental, the Ethniki Asfalistiki Conference Center provides a unique space which ensures the successful outcome of every professional or personal event. With industrial design elements, exceptional acoustics, functional partitions for flexibility of use depending on the requirements of each event, the Ethniki Asfalistiki building inspires organizers and participants alike in events taking place in either the Conference Hall or the Exhibition Hall. Both the building and technological infrastructure, in conjunction with the experience and expertise of the personnel managing the venue, contribute to create an event venue of unparalleled aesthetics and quality.

12th European Symposium – Programme

Pascal Magne

Saturday, 19 May 2018, 09:00 – 17:00

Paradigm shifts resulting from biomimetic restorative dentistry and bio-emulation

How can science, common sense and experience in adhesive dentistry generate revolutionary concepts to save tooth structure and teeth? This presentation will describe innovative techniques (immediate dentin sealing, deep margin elevation, additive luting and others) but also explore the future of CAD/CAM dentistry and "biologic restorations".

- Understand the driving force behind biomimetic restorative dentistry
- Learn about new clinical techniques to improve tissue conservation and bonding
- Learn how CAD/CAM technique can be used "biomimetically"

Panaghiotis Bazos

Saturday, 19 May 2018, 17:00 – 18:00

Enter the Cube;
Craniofacial Spatial Arrangement Redefined via the BaseLine

The diagnostic template serves as the point of origin for any facially generated treatment plan in the modern restorative practice. Thus an accurate and precise maxillo-mandibular three dimensional spatial registration will provide the dental team with a flawless workflow, maximizing efficiency and effectiveness, when working in either the conventional (manual) or contemporary (digital) modes.
The position of the occlusal plane in the patient and the articulator is an essential link for achieving the functional and esthetic goals of the anticipated treatment. Patient specific anatomic craniofacial landmarks within the frontal, transverse and sagittal planes will be thouroughly explored and analyzed.
Participants will learn how to mitigate transfer errors and increase accuracy via specific photographic and radiographic protocols in addition to utilising a customised registration, aiding both clinicians and technicians to systematically manage the proper spatial orientation of the maxillary cast.

Sascha Hein

Sunday, 20 May 2018, 09:00 – 14:00

"eLABor_aid" – A new dawn in shade matching!

Consistent shade matching of indirect restorations with natural dentition remains to be a formidable challenge, even for the most experienced of experts. Numerous factors which take adverse effect on the clinical outcome have long been identified. They include operator dependency (subjective shade selection and evaluation), insufficient shade guide coverage of the range of natural tooth shades as well as considerable inconsistencies among manufacturers shading regimes. The eLABor_aid System was developed to combat these limitations by enabling objective shade communication using cross polarized dental photography in conjunction with a new and innovative digital work flow that will allow the dental ceramist to formulate an individual shade recipe and to measure its accuracy with the help of a digital try-in of the build-up prior to firing. Learn about the future of shade management: capture, calibrate & create!

Learning Goals:
- Traditional shade communication using visual assessment, what are the pros and cons?
- Understanding metamerism and its origins
- Using a digital single lens camera (DSLR) for objective shade quantification and communication without the use of shade guides
- Formulating custom shade recipes specifically for your patient
- Testing accuracy with the digital try-in
- Tips & Tricks and new innovations

Marco Gresnigt

Sunday, 20 May 2018, 14:00 – 18:00

Step by step procedure of the delivery of laminate veneers

Anterior Ceramic Restorations
Laminate Veneers in general have a good long-term follow-up, however sometimes they fail due to different reasons. In this lecture we will cover the step by step procedure of the delivery of laminate veneers. We will focus on some common failures and give some insights in our studies performed. Some of the aspects will be: preparation, IDS, what to do with existing restorations, luting/conditioning of tooth and ceramic.

Posterior Ceramic Restorations
In this lecture we will cover posterior ceramic restorations. Due to the fact that we can lute ceramic to tooth material we can be less invasive. Partial ceramic in the posterior regions require some other challenges. In this lecture we will cover some of the aspects important to deliver partial posterior ceramic restorations, like preparation, cusp coverage or not, endocrowns, luting.

Both lectures will contain a clinical approach step by step procedure but fully supported by scientific background.

Photo: fotolia/Sergii Figurnyi

Passing the baton on the BDIZ EDI board

Bernd Kreusser takes his leave

Professor Bernd Kreusser has left the extended board of the BDIZ EDI at his own request after 17 years, a step he had announced at the General Assembly in December 2017. Dr Nathalie Khasin (Berlin) will be taking his place, having been unanimously elected by the General Assembly in Munich.

Professor Bernd Kreusser, a maxillofacial surgeon from Aschaffenburg, has been a member of BDIZ – founded in 1989 – since 1 January 1990 and is thus one of the members who has seen the association grow from its very beginnings. His commitment to the association's goals quickly extended to accepting a position on the BDIZ EDI board, where he represented German maxillofacial surgeons starting in 2001 and advised the core board of BDIZ EDI in important questions related to his field of oral and maxillofacial surgery. "I am on the board because the association is always keen to develop practical solutions for our colleagues. Of particular interest are the accounting recommendations, which are now increasingly consulted in legal proceedings or in disputes with private insurers", as he said in a statement on the occasion of the 25th anniversary of the BDIZ EDI in 2014.

Professor Bernd Kreusser

Active on the Expert Committee

Kreusser started serving on the board at a time when BDIZ had successfully fought for the right of dentists to advertise a formal Focus of Professional Activity in oral implantology before the German Federal Constitutional Court. At that time, this was a remarkable victory, because the Chambers of Dentists, the state and federal semi-official representations of dentists in Germany, were not at all happy with the idea, fearing at that time that this would throw the door wide open to abuse. Today, not only the Chambers of Dentists professional associations and societies award a formal professional focus for all dental disciplines. Any dentist wishing to be awarded a formal Focus of Professional Activity in oral implantology by BDIZ EDI must meet exacting requirements demonstrating their knowledge and skills.

Kreusser not only served on the extended board; he also contributed his expertise to the BDIZ EDI Expert Committee, which is tasked with training implantological court experts in legal as well as in dental and technical terms.

In 2009, *Bernd Kreusser* was appointed Visiting Professor at the University of Pécs, Hungary. Pécs has scientific collaboration agreements with Semmelweis University in Budapest, Hungary, and offers about 20,000 students a university education in all medical fields and in dentistry.

Bernd Kreusser is a member of a dentist dynasty. He is the heir and grandson of *Karl Kreusser* who had founded their Aschaffenburg practice in 1913. *Karl*'s son *Kurt* took over in 1957, and in 1983 *Bernd Kreusser* joined his father's practice, which celebrated its 100th anniversary in 2013. This makes it one of the oldest dental practices in Germany.

"The members of the board will miss his competence and his quiet, complaisant way. We wish our esteemed colleague all the best for his future", said BDIZ EDI President *Christian Berger* at the General Assembly in Munich. *AWU*

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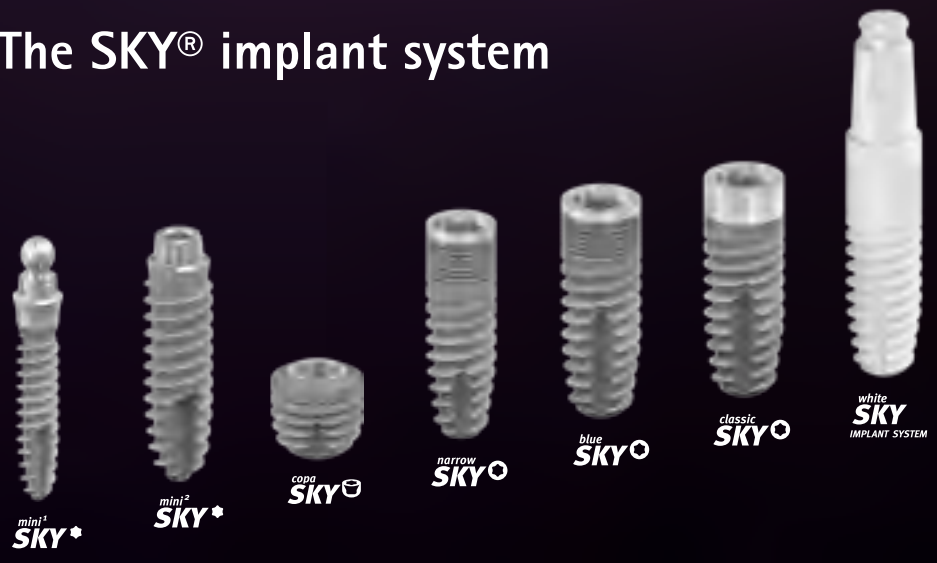

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Curriculum Implantology in Greece

136 hours of training have been completed. Another Greek Curriculum Implantology of BDIZ EDI and the University of Cologne ended with a solemn ceremony in Munich at the clinic of Professor Daniel Edelhoff. This time, 18 graduates received their certificates.

The tremendous number of applications for the Curriculum shows how interested the Greek dentists are in dental implantology. And the next joint Curriculum is yet to start. *Yannis Roussis* of the Greek dental publisher Omnipress, and *Christian Berger*, president of BDIZ EDI, were the driving forces behind the scenes to get the Greek-German Curriculum going.

The BDIZ EDI assisted in getting the Curriculum started, but there was certainly no intention simply to implement the German setup one-to-one. While preserving the guidelines laid down in the curriculum of the Consensus Conference on Dental Implantology, the concept implemented gave special regard to the specifics of the Greek environment. At graduation, special thanks were expressed especially to the lecturers of the Curriculum: *Stratis Papazoglou, Spyros Karatzas, Dimitrios Papadimitriou, Daniel Edelhoff, Egon Euwe, Michael Stimmelmayr, Dietmar Weng, Otto Zuhr, Christos Angelopoulos, Konstantinos Valavanis, George Goumenos, Alexandros Manolakis, Stavros Pelekanos, Nikos Raptis, Ilia Roussou, Ioannis Fakitsas*.

The graduates

Vasileios Venianakis, Olympia Venetsanou, Anthi Giannopoulou, Ioanna Klironomou, Vasileios Kormas, Vasileios Kormas, Konstantinos Kyriakakis, Panagiotis Lourantos, Michail Melitzanis, Elissavet Mosa, Michalis Moulios, Anastasios Pafilis, Eleni Pournara, Mohammad Shahin, George Soukas, Constantinos Charalambous, Antonios Charinos, Georgia Hatzipanoria.

AWU

News from BDIZ EDI partner in the UK

The Association of Dental Implantology (ADI) was delighted to welcome Dr Abid Faqir as its new President at the recent Members' National Forum and AGM in Manchester on 25 November 2017.

Dr Abid Faqir

Abid graduated from the Glasgow Dental School before undertaking his diploma of membership of the Faculty of Dental Surgery in Edinburgh and an MSc at Glasgow University. He gained a further diploma in Implant Dentistry from the Royal College of Edinburgh. Currently, he limits his practice to dental implantology, and he has a special interest in immediate placement and loading of implants.

Abid commented: "I am honoured and delighted to take on the role of President of the ADI. I feel that I am here at a time when the association has been growing from strength to strength, following some fantastic educational events. *Craig Parker* did a great job in progressing the ADI to where it is now and I look forward to building on this further. For 2018, we are thrilled to have organised a Masterclass and a Focus Meeting, plus the next ADI Team Congress in 2019 is sure to be another great event. Our priority as an organisation is to engage with our members and the profession as much as possible so we can deliver the education and support they need. Benefits such as the Members-only Facebook group are ideal for this, providing a platform for members to interact with colleagues."

Press release ADI UK

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German doctor wins right to remove name from rating website

Failure to maintain neutrality

Germany's Federal Court of Justice (BGH) has ordered an online medical portal to delete information about a doctor published against her will. The judgement runs contrary to a verdict reached by the BGH in a similar case in 2014.

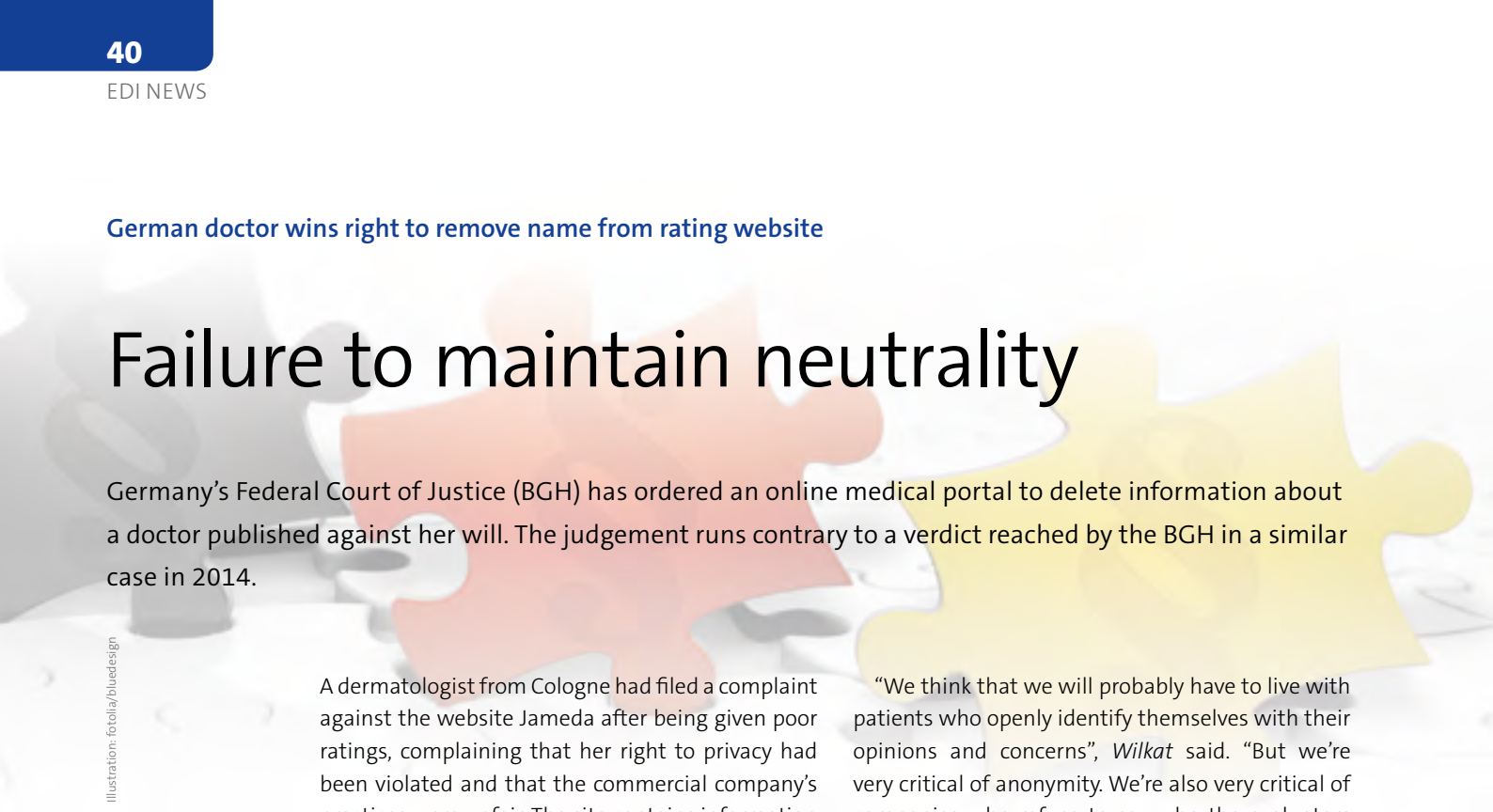


Illustration: fotolia/bluedesign

A dermatologist from Cologne had filed a complaint against the website Jameda after being given poor ratings, complaining that her right to privacy had been violated and that the commercial company's practices were unfair. The site contains information about some 275,000 physicians in Germany, included "grades" from one to six handed out by patients, who remain anonymous.

The BGH ruled in favour of the plaintiff, saying that the portal had failed to maintain the necessary neutrality. Jameda offers special benefits to doctors who take out paid advertisements on the webpage, a practice attorneys for the plaintiff characterized as "protection money coercion." Doctors who pay for Jameda services are, for instance, given web pages that are free from links to competitors.

"We're very happy — we've achieved our goal," one of the doctor's lawyers, *Anja Wilkat*, told DW. "We need to distinguish between classic neutral comparison portals, which don't offer the people evaluated any advantages in presenting themselves, and portals like Jameda that sell advertising to doctors and thereby undermine the ideal of transparency."

A spokeswoman for Jameda told DW that the portal would abide by the court's decision and alter its online presence accordingly. But the company's chief executive told dpa news agency that the ruling would not create any "great economic uncertainty".

Are anonymous evaluations fair or not?

Physicians are not always happy about being graded or otherwise evaluated by patients who may not be qualified to offer informed judgements about the quality of medical services. And doctors groups welcomed BGH's judgement.

But the verdict doesn't necessarily mean that doctor comparison portals in general are illegal. *Wilkat* admitted that a substantial grey area still exists. She and her client still object to patients anonymously ranking the doctors who treat them.

"We think that we will probably have to live with patients who openly identify themselves with their opinions and concerns", *Wilkat* said. "But we're very critical of anonymity. We're also very critical of companies who refuse to say who the evaluators are, even at legal trials." Still, *Wilkat* hopes that the BGH's latest judgement will serve as a precedent. "Essentially, all doctors can use the same argumentation to demand that information be deleted", *Wilkat* said. "Our arguments weren't based on anything specific to our client as an individual."

No broad precedent?

Others, however, are less optimistic about the implications of the BGH's judgement. They say that the verdict is less about doctors' rights than about curtailing the effects of paid ads on supposedly neutral platforms.

"The BGH explicitly said that the verdict from 2014 remains valid, and back then it decided that for reasons of freedom of speech and freedom of information, evaluated doctors had to put up with being listed on such portals against their will", lawyer and data protection expert *Steffen Henn* told DW. *Henn* said the present case had been decided on the basis of doctors who paid and those who didn't being treated differently, adding that in the specific case of Jameda it wasn't sufficiently clear to users that some physicians were paying for better presentations.

He also said that the effects would primarily be economic ones on portals like Jameda that are partially financed by advertising, characterizing the BGH's verdict as a "Pyrrhic victory" for doctors, and predicting that the deletions may turn out to be only temporary.

"I don't see this as a massive defeat for the portals and a great victory for evaluated doctors," *Henn* said.

By courtesy of Deutsche Welle (DW)

The CED position on dental professions in ESCO

Dental assistants are part of the dental team

The Council of European Dentists (CED) raises concern about the classification of dental occupations in the European Classification of Skills/Competences, Occupations and Qualifications (ESCO). Reviewing the first full version of ESCO, the CED noted that some definitions are not the same than those preliminary consulted with the stakeholders, particularly the occupation of "Dental assistants and therapists" and "Medical and Dental Prosthetic Technicians".

The CED resolution about "The Dental Team relationship with patients" lists the dental professions that must be considered for the classification of dental occupations at the European level. The professions and definitions that were proposed by CED to ESCO are the ones that are in line with the CED resolution. These professions are well-known throughout Europe and can be clearly identified. In the January press release, the CED makes clear that it can cause a confusion as to the objective and status of the individual activities to have "Dental assistants and therapists" and "Medical and Dental Prosthetic Technicians" occupations listed in ESCO.

Statement of the CED thereto:

- Dental assistants are a part of the dental team. Dental therapists, even if they exist in a very few countries, could be considered within this group of professionals. These members of the dental team can undertake work in accordance with each team member's defined level of competence, but for reasons of patient safety should only do so after a dentist has provided a diagnosis and treatment plan and delegated the work to team members as appropriate. Therefore, this is in line with what is the definition of "Dental Chair Assistant".
- Dental Prosthetic Technicians manufacture dental custom-made devices like bridges, crowns, dentures and appliances under the supervision of dental practitioners following their directions and specifications. Therefore, this is in line with what is the definition of "Dental Technicians".

The ESCO classification was structured similarly to the International Standard Classification of Occupations (ISCO) managed by the International Labour Organization (ILO). However, in the ISCO classification, the inclusion of some tasks assigned for "Dental assistants and therapists" and "Dental Prosthetic Technicians" is applicable in an international context where lack of health professionals is a reality, but should not be replicated at EU level without taking into account regional dimension.

Dental assistants are a part of the dental team and can undertake work in accordance with each team member's defined level of competence.

Task in cooperation with dentist

Members of the dental team can perform their task only in cooperation with a dentist, says the CED. It is imperative to ensure the adequate delivery of oral healthcare and appropriate relationship with patients. By introducing skills and competencies for these professions, the European Commission (EC) does not adequately reflect the need to respect the Members States' competencies to determine regulation of healthcare professionals.

At the EU level, the Directive 2005/36/EC amended by Directive 2013/55/EU serves as the sole reference for dentists' qualification and practice. It is important that any initiative at the EU level ensures compliance with the Directive. The CED believes that multitude of initiatives can contribute to incoherence and misinterpretation of legal facts. If the purpose is to follow the classification of ISCO, CED would propose to maintain the own definition and change the following occupations in ESCO:

- Dentists to Dentists and Dental Practitioners
- Dental Technicians to Dental Technicians and Dental Prosthetic Technicians
- Dental Chair Assistants to Dental Chair Assistants and Therapists

This would allow removing from ESCO the profession of "Dental assistants and therapists". In addition, it would be possible to change "Medical and Dental Prosthetic Technicians" to "Medical Prosthetic Technicians" and "Dental Technicians and Dental Prosthetic Technicians".

The CED calls on the EU institutions, to revise the dental occupations in ESCO, taking into account the potential consequences the current version can have on patient safety and quality of care.

Press release of CED

High levels of antibiotic resistance found worldwide

Pathogens don't respect national borders

Photo: fotolia/ Kateryna Kon

WHO's (World Health Organization) first release of surveillance data on antibiotic resistance reveals high levels of resistance to a number of serious bacterial infections in both high- and low-income countries.

WHO's new Global Antimicrobial Surveillance System (GLASS) reveals widespread occurrence of antibiotic resistance among 500,000 people with suspected bacterial infections across 22 countries. The most commonly reported resistant bacteria were Escherichia coli, Klebsiella pneumoniae, Staphylococcus aureus, and Streptococcus pneumoniae, followed by Salmonella spp. The system does not include data on resistance of Mycobacterium tuberculosis, which causes tuberculosis (TB), as WHO has been tracking it since 1994 and providing annual updates in the Global tuberculosis report.

Serious situation

Among patients with suspected bloodstream infection, the proportion that had bacteria resistant to

at least one of the most commonly used antibiotics ranged tremendously between different countries – from 0 to 82 per cent. Resistance to penicillin – the medicine used for decades worldwide to treat pneumonia – ranged from 0 to 51 per cent among reporting countries. And between 8 and 65 per cent of E. coli associated with urinary tract infections presented resistance to ciprofloxacin, an antibiotic commonly used to treat this condition.

"The report confirms the serious situation of antibiotic resistance worldwide", says *Dr Marc Sprenger,* director of WHO's Antimicrobial Resistance Secretariat. "Some of the world's most common – and potentially most dangerous – infections are proving drug-resistant", adds *Sprenger*. "And most worrying of all, pathogens don't respect national borders. That's why WHO is encouraging all countries to set up good surveillance systems for detecting drug resistance that can provide data to this global system."

To date, 52 countries (25 high-income, 20 middle-income and 7 low-income countries) are enrolled in WHO's Global Antimicrobial Surveillance System. For the first report, 40 countries provided information about their national surveillance systems and 22 countries also provided data on levels of antibiotic resistance.

Anticipate and tackle threads to global public health

"The report is a vital first step towards improving our understanding of the extent of antimicrobial resistance (AMR). Surveillance is in its infancy, but it is vital to develop it if we are to anticipate and tackle one of the biggest threats to global public health", says *Dr Carmem Pessoa-Silva*, who coordinates the new surveillance system at WHO. Data presented in this first GLASS report vary widely in quality and completeness. Some countries face major challenges in building their national surveillance systems, including a lack of personnel, funds and infrastructure.

However, WHO is supporting more countries to set up national antimicrobial resistance surveillance systems that can produce reliable, meaningful data. GLASS is helping to standardize the way that countries collect data and enable a more complete picture about antimicrobial resistance patterns and trends.

Solid drug resistance surveillance programmes in TB, HIV and malaria have been functioning for many years and have helped estimate disease burden, plan diagnostic and treatment services, monitor the effectiveness of control interventions, and design effective treatment regimens to address and prevent future resistance. GLASS is expected to perform a similar function for common bacterial pathogens.

The rollout of GLASS is already making a difference in many countries. For example, Kenya has enhanced the development of its national antimicrobial resistance system; Tunisia started to aggregate data on antimicrobial resistance at national level; the Republic of Korea completely revised its national surveillance system to align with the GLASS methodology, providing data of very high quality and completeness; and countries such as Afghanistan or Cambodia that face major structural challenges have enrolled in the system and are using the GLASS framework as an opportunity for strengthening their AMR surveillance capacities. In general, national participation in GLASS is seen as a sign of growing political commitment to support global efforts to control antimicrobial resistance.

Background

The need for a global surveillance system was highlighted by WHO in 2014 in the Antimicrobial resistance global report on surveillance. In October 2015, WHO launched the Global Antimicrobial Surveillance System working closely with WHO Collaborating Centres and existing antimicrobial resistance surveillance networks and based on the experience of other WHO surveillance programmes. For example, TB drug resistance surveillance has been implemented in 188 countries over the past 24 years. HIV drug resistance surveillance started in 2005 and by 2017, over 50 countries had reported data on pretreatment and acquired resistance using standardized survey methods.

Any country, at any stage of the development of its national antimicrobial resistance surveillance system, can enrol in GLASS. Countries are encouraged to implement the surveillance standards and indicators gradually, based on their national priorities and available resources.

GLASS will eventually incorporate information from other surveillance systems related to antimicrobial resistance in humans, such as in the food chain, monitoring of antimicrobial consumption, targeted surveillance projects, and other related data. All data produced by GLASS is available free online and will be updated regularly.

Dr Tedros Adhanom Ghebreyesus, WHO's Director-General, has underscored his aim to make antimicrobial resistance one of WHO's top priorities by bringing together experts working on this issue under a newly created strategic initiatives cluster.

WHO, Bangkok

Did you ever know ...

... that since 2006

... the BDIZ EDI annually creates a Guideline on implant therapy that is mailed to its members and also published in the EDI Journal? The Guideline is annually prepared by the European Consensus Conference (EuCC) prior to the Expert Symposium. All Guidelines can also be downloaded at:

www.bdizedi.org > english > Professionals > European Consensus Conference

... that the BDIZ EDI supports

... its associated partners to setup their own Curricula Implantology? The Curricula of the BDIZ EDI in cooperation with the University of Cologne have a modular structure and can be adapted to the respective situation of each country.

More information and download at: www.bdizedi.org > english > Professionals > Curriculum

... that the EDI Journal is delivered

... in many countries of the European Community and additionally in the USA, Australia, South Korea and Russia and that it informs dentists interested or engaging in oral implantology about the state of the art in implantology, but also about directives and laws on EC level?

OSSTEM's digital dentistry Innovation

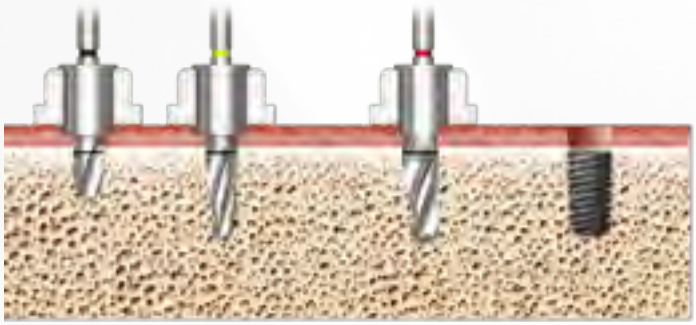
OneGuide

Quick but **Precise, Safe** and **Easy**

Quick

Shortened Surgery Time

- Possible to place an Implant with only **2-4 drilling steps.**
- Flapless surgery (No need for incision and suture)

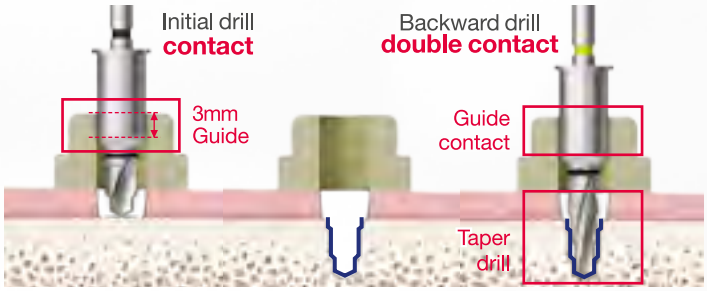


Ø5.0 Implant placement (Hard Bone case)

Precise

Accuracy, assured by digital dentistry

- **Computer Guided** Surgery Planning and Simulation
- **Customized** surgery guide template
- Stable drilling with **double contact area**

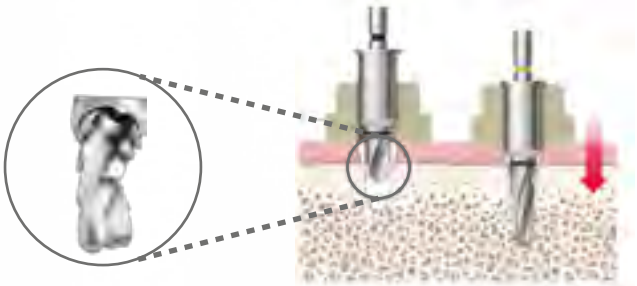


Stable drilling with double contact area

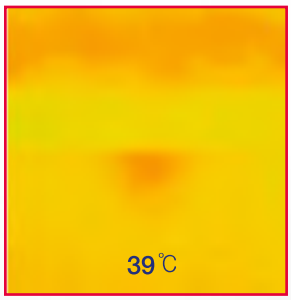
Safe

No heating damage to Bone

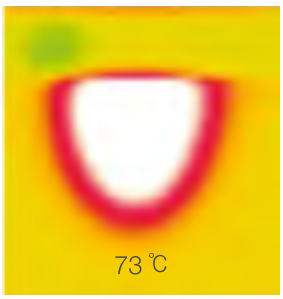
- Top tier quality drills **minimize the heating of the bones** in spite of shortened drilling steps



OneGuide drill's outstanding cutting force



OneGuide drill

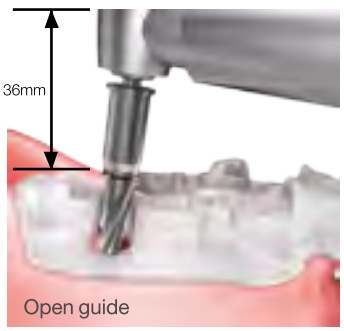


Conventional drill

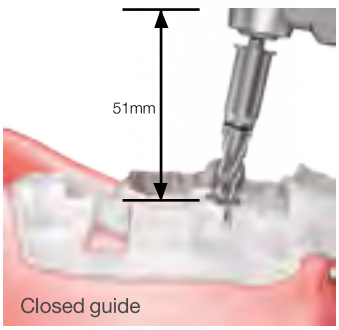
Easy

Solution for intermaxillary space limit

- **Open Guide** enables easy entrance of drill into the guide template for patients **with limited intermaxillary space**
- Open or closed option available



Insufficient intermaxillary space



Sufficient intermaxillary space

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Tel. +49(0)6196 777 550
www.osstem.de
info@osstem.de

OSSTEM IMPLANT

Certification as an EDA Expert in Implantology

Qualification for experienced implantologists

For many years, BDIZ EDI has been catering to experienced and well-versed oral implantologists by offering the certification exam for EDA Expert in Implantology. Jointly with the European Dental Association (EDA), BDIZ EDI regularly invites interested dentists to take the certification exam, which we would like to present in this article.

That quality is of paramount importance to BDIZ EDI is no secret. BDIZ EDI has demonstrated this in many different areas – legal and accounting, materials testing, postgraduate education, the annual Guidelines of the European Consensus Conference (EuCC) on current implantological issues and finally the qualification of court experts. BDIZ EDI also supports dental education with its Curriculum Implantology that introduces aspiring dentists and young implantologists to this dental specialty in eight well-organized modules.

Admission requirements for the certification exam

Certification as Expert in Implantology requires very good to excellent skills and knowledge. Candidates must meet the following admission requirements:

- 250 EDA-recognized continuing education/training hours in various sub-disciplines of implantology
- Submission of ten documented, independently performed implantological treatment cases
- At least five years of professional activity, primarily in the field of implantology

Specific experience and primary activity in the field of implantology must be documented by at least 400 implants inserted and 150 implants restored within the past five years. Candidates who already obtained qualifications in oral implantology (e.g. from other professional societies) may submit the appropriate credentials with their application for certification as EDA Expert in Implantology.

The exam

Candidates meeting all the requirements will be admitted to the examination. The examination board of BDIZ EDI and EDA consists of recognized specialists. The exam has a theoretical and a practical part, both of which must be completed successfully.

The procedure is as follows: The theoretical part of the exam will start with a discussion of the documented cases. In addition, candidates are expected to answer questions related to oral implantology and closely associated fields. The theoretical examination usually takes no longer than 60 minutes; it may be administered to candidates in groups. The practical part of the examination covers one or more recognized, state-of-the-art treatment method or methods and/or treatment plans covering some aspect of oral implantology. Candidates will be informed of the respective topic two weeks before the exam date. Candidates are responsible for providing the required materials and instruments on the day of the exam. The examination as a whole is subject to a fee to cover the cost incurred by the examination board.

New EDA Experts in Implantology are nominated by the president or vice president of the EDA certification committee.

AWU

More information

To register for the next certification exam, please go to www.bdizedi.org and select English > Professionals > Expert or write to the BDIZ EDI office in Cologne at office@bdizedi.org

European Association of Dental Implantologists

Applicant's address:

Full name _____

Full address _____

_____

_____

E-mail _____ Date _____

Forward by mail or fax to:

European Association of Dental Implantologists (BDIZ EDI)
Mühlenstr. 18
51143 Köln
Germany

office@bdizedi.org
Fax: +49 2203 9168822

Certification exam: EDA Expert in Implantology
Application for accreditation

I hereby apply for the EDA Expert in Implantology certification exam (EDA = European Dental Association).

I am qualified for this exam as defined below:

Member of BDIZ EDI ☐ yes ☐ no

Member of the following Societies/Associations: _____

I am: ☐ a dental clinician ☐ an oral surgeon ☐ a maxillofacial surgeon

I meet the training requirement of 250 hours of postgraduate education. ☐ yes ☐ no

Education and experience:

Surgery:

Inserted implants: ☐ less than 400 ☐ more than 400

Sinus lift: ☐ yes ☐ no

Close to nerve: ☐ yes ☐ no

Advanced atrophy of the jaw: ☐ yes ☐ no

Soft-tissue augmentation: ☐ yes ☐ no

Bone augmentation: ☐ yes ☐ no

Prosthodontics:

Implant-supported restorations: ☐ less than 150 ☐ 150 or more

During the exam, I will be able to present documentation for 10 treatment cases. ☐ yes ☐ no

I understand that the examination board will review my qualifications and vote to accept or reject my application. Furthermore, I declare that all images I present are my own and that the implants have been inserted and prosthetically restored by me.

_____ _____

Applicant's signature Date

Having successfully passed the exam and paid the requisite fee, I will be certified as EDA Expert in Implantology.

Europe Ticker +++

European Medicines Agency (EMA) is moving

From London to Amsterdam

The European Medicines Agency EMA will move to Amsterdam – not to Germany. The EMA is forced to relocate from London because of Brexit. The European Union has chosen Amsterdam as the new location for the European Medicines Agency. Milan, Amsterdam and Copenhagen were the three cities still included in the second round of the selection process. As the UK is preparing its withdrawal, the headquarters of the agency have to move to one of the other 27 EU countries as quickly as possible.

The EU is also looking for a new location for the European Banking Authority (EBA). Housing an EU agency is much coveted, reports the German newspaper for medical practitioners, Ärzte-Zeitung. The chosen city can look forward to substantial additional revenue. The EMA and the EBA host hundreds of conferences and events each year, attended by experts from around the world. In London, the two agencies have recently accounted for some 39,000 extra hotel nights a year, according to the dpa news agency.

Sources: Ärzte-Zeitung, Germany; dpa, Germany

Photo: pixabay.com/Skitterphoto

Dentists need a lot of patience in the UK

The long wait for registration

Rumblings are voiced in the British National Health Service (NHS): Applications for practice registrations have remained unprocessed for months, complains the British Dental Association (BDA). In the meantime, relief organizations are taking care of the basic dental needs of the population. In an open letter, the BDA has called on the NHS administration to return to in-house administration for all procedures in order to be able to process applications for practice registration as well as payments within an acceptable time frame. The BDA has identified the service provider Capita, which had taken over these administrative tasks from the NHS in September 2015, as the source of the unpredictable delays in issuing the "National Performer Numbers" required to open a dental practice. Since then, there have been unmotivated delays of up to four months in receiving payment for services provided, the BDA continues. In some cases, NHS practices were directly threatened with closure because they could no longer pay their rent and other obligations.

Sources: BDA; Zahnärztliche Mitteilungen, Germany

Expenditures in health systems continue to grow

Cuts do not help

The EU Commission forecasts that health spending in Europe will continue to grow over the coming decades, not least because of existing demographic trends. This could be reflected in higher public debt, which in turn could have a negative impact on credit ratings, writes the Swiss newspaper Neue Zürcher Zeitung based on a study by Moody's, a rating agency. In an unfavourable scenario, according to the study, the EU Commission expects public health spending to rise from an average of 6.9 per cent of the EU's gross domestic product (GDP) in 2013 to 9.5 per cent in 2060, with the greatest cost increases expected in Portugal, Malta, Hungary and Slovakia. This development should hit Portugal particularly hard, since it already has a high public debt of 127 per cent of GDP. So calls for reforms are in the air. However, reforms are generally not that easy to implement in complex healthcare system environments. There is no easy way to develop systems that are as efficient and cost-effective as their quality is high, says Moody's. But a high-quality healthcare system is a competitive advantage for a country. Healthcare cuts in themselves, Moody's continues, will not improve credit ratings if their result is a significant decline in productivity or threats to the social fabric.

Sources: Neue Zürcher Zeitung, Switzerland; Moody's rating agency

Robot density the highest in Europe

"Cobots" also in use in medicine

Worldwide, there are 74 robot units per 10,000 human employees – more than ever before. This is one of the results of the World Robotics Report 2017, recently published by the International Federation of Robotics. The report showed that robot density is (still) highest in Europe. Robot density varies considerably from country to country. In Europe, an average of 10,000 employees are supported by 99 robots; in the Americas, the figure is 84, and in Asia it is only 63. Together with South Korea and Singapore, Germany ranks at the top of the most highly automated countries, with a robot density of 309 units in Germany. However, countries that have been lagging behind are catching up slowly: While robot density in Europe is currently growing at 5 per cent, the growth rate in Asia is almost twice as high at 9 per cent. China in particular is characterized by highly dynamic growth – from 25 units per 10,000 in 2013 to 68 units in 2016. With the rapid development in the field of artificial intelligence (AI), robots are penetrating more and more fields of application. The focus is currently on "cobots", intelligent and "sensitive" robots that can work together with people in one and the same work environment without risk. Their possibilities are not limited to industrial production and quality control. Increasingly, robots are also used in medicine and nursing care – whether to assist in surgical procedures or as miniaturized messengers in the human body.

Source: International Federation of Robotics (IFR)

Photo: fotolia/zapp2photo

Photo: fotolia/john9595

Liberalization U-turn in Germany

Strengthening local pharmacies

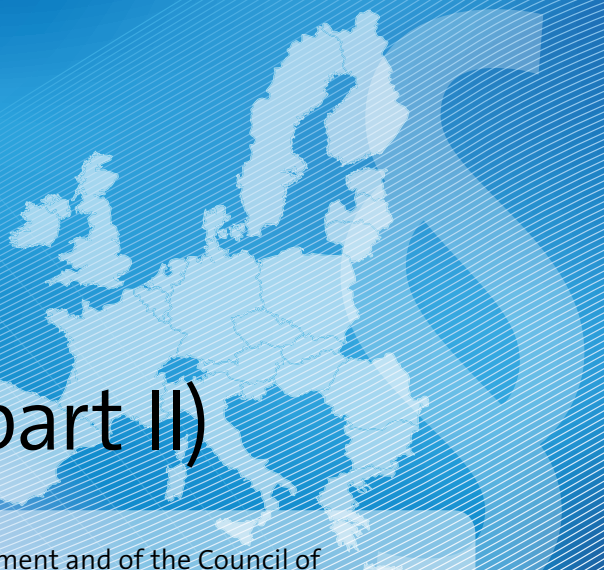
Full steam backwards for the liberalization of medication sales in Germany: "To strengthen the local pharmacies, we are campaigning for a ban on the mail order of prescription drugs", says the programme of the new grand coalition government in Berlin. "Unlike in Austria and most other EU countries, since 2004, prescription drugs have been allowed to be sold not only over-the-counter but also by mail order. For large mail-order pharmacies, liberal Germany is therefore regarded as a highly fertile ground", writes the Austrian newspaper Kurier. In 2016, the European Court of Justice (ECJ) abolished fixed prices for prescription-only medical products for foreign mail-order pharmacies, which since that time have been able to sell medications at high discounts, while fixed pricing still applies to the almost 20,000 licenced pharmacies in the area. Particularly in rural areas, high competitive pressure has already led to many closures. Last year alone, 275 pharmacies had to give up; their total number dropped to its lowest level in 30 years. German pharmacists are, not unexpectedly, cheering the new government's plans.

With the ban, the "balance in competition among pharmacies can be restored", says ABDA, their industry association. On the other side, large online pharmacies are apprehensive about the plans, as they stand to lose millions in sales. Share prices of the Swiss pharmaceutical mail-order giant "Zur Rose" and the Frankfurt-listed "Shop-Apotheke Europe" fell by up to 25 per cent in February 2018, after the announcement of the government's plans.

Source: Kurier, Austria

The new GDPR will affect all dental practices in the EC

The General Data Protection Regulation (part II)



On 25 May 2018, the "Regulation (EC) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)" shall enter into force. The GDPR is applicable for any dental office in the European Community (EC). In this edition, EDI Journal continues to scrutinize the articles with special impact on dental practitioners.

Even though the regulation will become effective immediately on this very day, it will in parts depend on national legislation, which may allow deviations from the EC regulation. Without national legislation, only GDPR will be applicable.

Why does GDPR affect a dental practice? According to Art. 2(1) GDPR the "Regulation applies to the processing of personal data wholly or partly by automated means and to the processing other than by automated means of personal data which form part of a filing system or are intended to form part of a filing system." As all dental offices process personal data, the GDPR is applicable for any dental office in the EC. Refer to EDI Journal 4/17 for the description of articles 1 to 8.

Processing of special categories of personal data (Art. 9 GDPR)

Art. 9 (1) GDPR prohibits the processing of personal data revealing (amongst other items) "data concerning health".

Art. 9(2) point a) GDPR contains an exemption if "the data subject has given explicit consent to the processing of those personal data for one or more specified purposes, except where Union or Member State law provide that the prohibition referred to in paragraph 1 may not be lifted by the data subject".

Art. 9(2) point h) GDPR contains an important exemption if processing is necessary for the purposes of preventive or occupational medicine, ... , medical diagnosis, the provision of health or social care or treatment or the management of health or social care systems and services on the basis of Union or Member State law or pursuant to contract with a health professional and subject to the conditions and safeguards referred to in paragraph 3.

This exemption is valid even if there is no consent by the patient into processing of his personal data or the consent is withdrawn.

German legislation (BDSG – Federal Data Protection Act) for instance changed the EC regulation in this rather important point in ways better suitable to health care needs. Sec. 22(1) No. 1 point b) BDSG reads:

"Deviant from Article 9(1) of the Regulation (EC) 2016/679, the processing of personal data according to Article 9(1) Regulation (EC) 2016/679 is permitted

1. by public and private bodies

a) ...

b) for the purposes of health protection, ... , medical diagnostics, provision or treatment in health and social care or the administration of systems and services in health and social care or due to a contract of the data subject with a member of a health profession, if these data are processed through medical personal or under their responsibility or through other persons subject to secrecy obligations, ..."

Information to be provided where personal data are collected from the data subject (Art. 13 GDPR)

Chapter III GDPR rules the "rights of the data subject". In a dental office it is applicable on the rights of those patients whose data are processed, meaning on all patients.

Art. 12 lists under the section headline "transparency and modalities" many duties to "transparent information, communication and modalities for the exercise of the rights of the data subject". I doubt that there is a purpose justifying all the duries, but in any case, it will mean a perceptible increase in bureaucracy for dental offices. Art. 13 GDPR shall be given as an example for these extensive provisions:

"Article 13 Information to be provided where personal data are collected from the data subject

1. Where personal data relating to a data subject are collected from the data subject, the controller shall, at the time when personal data are obtained, provide the data subject with all of the following information:

(a) the identity and the contact details of the controller and, where applicable, of the controller's representative;

(b) the contact details of the data protection officer, where applicable;

(c) the purposes of the processing for which the personal data are intended as well as the legal basis for the processing;

(d) where the processing is based on point (f) of Article 6(1), the legitimate interests pursued by the controller or by a third party;

(e) the recipients or categories of recipients of the personal data, if any;

(f) where applicable, the fact that the controller intends to transfer personal data to a third country or international organization and the existence or absence of an adequacy decision by the Commission, or in the case of transfers referred to in Article 46 or 47, or the second subparagraph of Article 49(1), reference to the appropriate or suitable safeguards and the means by which to obtain a copy of them or where they have been made available.

2. In addition to the information referred to in paragraph 1, the controller shall, at the time when personal data are obtained, provide the data subject with the following further information necessary to ensure fair and transparent processing:

(a) the period for which the personal data will be stored, or if that is not possible, the criteria used to determine that period;

(b) the existence of the right to request from the controller access to and rectification or erasure of personal data or restriction of processing concerning the data subject or to object to processing as well as the right to data portability;

(c) where the processing is based on point (a) of Article 6(1) or point (a) of Article 9(2), the existence of the right to withdraw consent at any time, without affecting the lawfulness of processing based on consent before its withdrawal;

(d) the right to lodge a complaint with a supervisory authority;

(e) whether the provision of personal data is a statutory or contractual requirement, or a requirement necessary to enter into a contract, as well as whether the data subject is obliged to provide the personal data and of the possible consequences of failure to provide such data;

(f) the existence of automated decision-making, including profiling, referred to in Article 22(1) and (4) and, at least in those cases, meaningful information about the logic involved, as well as the significance and the envisaged consequences of such processing for the data subject.

3. Where the controller intends to further process the personal data for a purpose other than that for which the personal data were collected, the controller shall provide the data subject prior to that further processing with information on that other purpose and with any relevant further information as referred to in paragraph 2.

4. Paragraphs 1, 2 and 3 shall not apply where and insofar as the data subject already has the information."

In general, all information on personal data processing has to be provided – information that all citizens should be aware of anyway in the 21. century. The internet, Google, Facebook, WhatsApp, Snapchat, Instagram, Twitter etc. all involve processing of personal data. So what's the catch to require to tell people what they already should know except to make life for dental offices and others more difficult?

Right of access, rectification and erasure (Art. 15 – 17 GDPR)

The "data subject" (the patient) is granted by Art. 15 GDPR the right to obtain from the controller confirmation as to whether or not personal data concerning him or her are being processed, and, where that is the case, access to the personal data and a list of informations.

Art. 16 GDPR adds the right to rectification of inaccurate personal data.

Art. 17(1) GDPR grants furthermore the right to erasure ("right to be forgotten") under provisions included in notes a) to f). The right to erasure shall not apply to the extent that processing is necessary for reasons of public interest in the area of public health in accordance with .... (Art. 17(3) point c) GDPR).

This right will certainly cause trouble in specific patient surroundings.

Right to restriction of processing (Art. 18 GDPR)

More trouble although might be caused by the right to restrict processing of personal data as contained in Art. 18.

Art. 18(1) GDPR provides that the "data subject" has

"the right to obtain from the controller restriction of processing where one of the following applies:

(a) the accuracy of the personal data is contested by the data subject, for a period enabling the controller to verify the accuracy of the personal data;

(b) the processing is unlawful and the data subject opposes the erasure of the personal data and requests the restriction of their use instead;

(c) the controller no longer needs the personal data for the purposes of the processing, but they are required by the data subject for the establishment, exercise or defence of legal claims;

(d) the data subject has objected to processing pursuant to Article 21(1) pending the verification whether the legitimate grounds of the controller override those of the data subject."

Notification obligation regarding rectification or erasure of personal data or restriction of processing (Art. 19 GDPR)

Art. 19 GDPR contains a bureaucratic monster. The text is self-explanatory:

"The controller shall communicate any rectification or erasure of personal data or restriction of processing carried out in accordance with Article 16, Article 17(1) and Article 18 to each recipient to whom the personal data have been disclosed, unless this proves impossible or involves disproportionate effort. The controller shall inform the data subject about those recipients if the data subject requests it."

Although the text recognizes the fact that an enterprise shall need a sophisticated data processing organization in order to keep up with these requirements, the provision lacks a general exemption for micro and small enterprises. When is information not to be disclosed because it is impossible or involves disproportionate effort?

We hope that national legislation uses its capability (s. Art. 23 GDPR) to confine the notification clause.

Controller and processor (Art. 24, 25, 29, 35, 36 GDPR)

There a two often used termini in the GDPR. One is "data subject", the other "controller". For the purpose of dental offices, the first refers to the patients, the latter to the dentist or the body of dentists in the office.

Art. 24 GDPR specifies the "responsibility of the controller". Art. 24(1) and (2) GDPR provide:

"1. Taking into account the nature, scope, context and purposes of processing as well as the risks of varying likelihood and severity for the rights and freedoms of natural persons, the controller shall implement appropriate technical and organizational measures to ensure and to be able to demonstrate that processing is performed in accordance with this Regulation. Those measures shall be reviewed and updated where necessary.

2. Where proportionate in relation to processing activities, the measures referred to in paragraph 1 shall include the implementation of appropriate data protection policies by the controller."

The issue of "appropriate technical and organizational measures" will most likely be subject to questioning, depending on the affinity of auditors to dental offices or the IT branch.

Art. 25 GDPR requires "data protection by design and by default".

Processor (Art. 28 GDPR)

Art. 28 GDPR will become relevant for dental offices using cloud solutions or external providers and not processing the data themselves. That should also include factoring services. Art. 28(1) and (2) GDPR provide:

"1. Where processing is to be carried out on behalf of a controller, the controller shall use only processors providing sufficient guarantees to implement appropriate technical and organizational measures in such a manner that processing will meet the requirements of this Regulation and ensure the protection of the rights of the data subject.

2. The processor shall not engage another processor without prior specific or general written authorization of the controller. In the case of general written authorization, the processor shall inform the controller of any intended changes concerning the addition or replacement of other processors, thereby giving the controller the opportunity to object to such changes."

"Processor" is according to Art. 4 No. 8 GDPR

"a natural or legal person, public authority, agency or other body which processes personal data on behalf of the controller."

The "controller" needs to control the "processor". Art. 28(3) GDPR contains extensive requirements as to the contractual obligations between "controller" and "processor". Art. 28(4) GDPR adds:

"Where a processor engages another processor for carrying out specific processing activities on behalf of the controller, the same data protection obligations as set out in the contract or other legal act between the controller and the processor as referred to in paragraph 3 shall be imposed on that other processor by way of a contract or other legal act under Union or Member State law, in particular providing sufficient guarantees to implement appropriate technical and organizational measures in such a manner that the processing will meet the requirements of this Regulation. Where that other processor fails to fulfil its data protection obligations, the initial processor shall remain fully liable to the controller for the performance of that other processor's obligations."

One does not need to study law in order to understand the obligations for the controller, especially if cloud solutions are involved. The question remains: Is this adequate for dental offices? I doubt it very much.

Records of processing activities (Art. 30 GDPR)

Art. 30 GDPR requests the controller to maintain a record of processing activities under his responsibility, which shall contain

"(a) the name and contact details of the controller and, where applicable, the joint controller, the controller's representative and the data protection officer;

(b) the purposes of the processing;

(c) a description of the categories of data subjects and of the categories of personal data;

(d) the categories of recipients to whom the personal data have been or will be disclosed including recipients in third countries or international organizations;

(e) where applicable, transfers of personal data to a third country or an international organization, including the identification of that third country or international organization and, in the case of transfers referred to in the second subparagraph of Article 49(1), the documentation of suitable safeguards;

(f) where possible, the envisaged time limits for erasure of the different categories of data;

(g) where possible, a general description of the technical and organizational security measures referred to in Article 32(1)."

Art. 30(2) GDPR adds:

"Each processor and, where applicable, the processor's representative shall maintain a record of all categories of processing activities carried out on behalf of a controller, containing:

(a) the name and contact details of the processor or processors and of each controller on behalf of which the processor is acting, and, where applicable, of the controller's or the processor's representative, and the data protection officer;

(b) the categories of processing carried out on behalf of each controller;

(c) where applicable, transfers of personal data to a third country or an international organization, including the identification of that third country or international organization and, in the case of transfers referred to in the second subparagraph of Article 49(1), the documentation of suitable safeguards;

(d) where possible, a general description of the technical and organizational security measures referred to in Article 32(1)."

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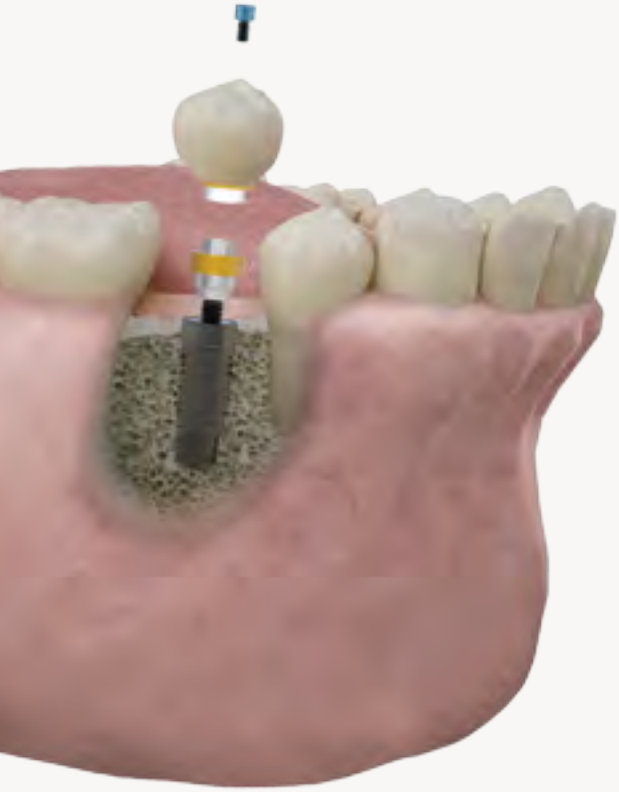

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The record shall be made available to the supervisory authority on request (Art. 30(4) GDPR).

Art. 30(5) GDPR seems to contain a general exemption to these obligations:

"The obligations referred to in paragraphs 1 and 2 shall not apply to an enterprise or an organization employing fewer than 250 persons unless the processing it carries out is likely to result in a risk to the rights and freedoms of data subjects, the processing is not occasional, or the processing includes special categories of data as referred to in Article 9(1) or personal data relating to criminal convictions and offences referred to in Article 10."

250 persons working in a dental office are an exception. However, Art. 9(1) GDPR refers to health data – and therefore Art. 30 GDPR is applicable for dental offices without any confinements.

Notification and communication of a personal data breach to the data subject (Art. 33 und 34 GDPR)

Any data breach shall be communicated to the supervisory authority (Art. 33 GDPR) and the data subject (Art. 34(1) GDPR).

Data protection officer (Art. 37 – 39 GDPR, § 38 BDSG)

It is until now an unsolved issue if a "data protection officer" is required for all or only for large dental offices. This will depend on national legislation. According to Art. 37(1) point c) GDPR, a data protection officer shall be designated in any case where

"the core activities of the controller or the processor consist of processing on a large scale of special categories of data pursuant to Article 9 and personal data relating to criminal convictions and offences referred to in Article 10."

Is the dentist "controller" under GDPR? The answer to this question is positive.Is it his "core activity" to process (health) data on a large scale? I tend to believe that the core activity of a dentist is to treat dental patients and not to process their personal data.

BDIZ EDI shall try to get dental chambers in Germany and Europe to consent on this very topic with the intent to avoid data protection officers in dental offices. If this cannot be avoided, there are regulations on the "position of the data protection officer" in Art. 38 GDPR and his tasks in Art. 39 GDPR.

Codes of conduct (Art. 40 GDPR)

"The Member States, the supervisory authorities, the Board and the Commission shall encourage the drawing up of codes of conduct intended to contribute to the proper application of this Regulation, taking account of the specific features of the various processing sectors and the specific needs of micro, small and medium-sized enterprises" (Art. 40(1) GDPR).

Art. 40(2) GDPR provides:

"Associations and other bodies representing categories of controllers or processors may prepare codes of conduct, or amend or extend such codes, for the purpose of specifying the application of this Regulation, such as with regard to:

(a) fair and transparent processing;

(b) the legitimate interests pursued by controllers in specific contexts;

(c) the collection of personal data;

(d) the pseudonymization of personal data;

(e) the information provided to the public and to data subjects;

(f) the exercise of the rights of data subjects;

(g) the information provided to, and the protection of, children, and the manner in which the consent of the holders of parental responsibility over children is to be obtained;

(h) the measures and procedures referred to in Articles 24 and 25 and the measures to ensure security of processing referred to in Article 32;

(i) the notification of personal data breaches to supervisory authorities and the communication of such personal data breaches to data subjects;

(j) the transfer of personal data to third countries or international organizations; or

(k) out-of-court proceedings and other dispute resolution procedures for resolving disputes between controllers and data subjects with regard to processing, without prejudice to the rights of data subjects pursuant to Articles 77 and 79."

BDIZ EDI shall also try to get dental chambers in Germany and Europe to consent on this very topic.

Remedies, liability and penalties (Art. 77 – 84 GDPR)

The final chapters rule remedies (Art. 77 to 79 GDPR), liabilities (Art. 82 GDPR), administrative fines (Art. 83 GDPR) and penalties (Art. 84 GDPR).

The penalties are subject to national legislation (Art. 84 GDPR).

The administrative fines may amount to 20 million euro or up to 4 per cent of the total worldwide annual turnover of the preceding financial year, whichever is higher (Art. 83(5) and (6) GDPR).

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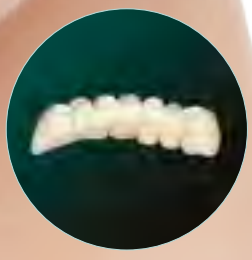

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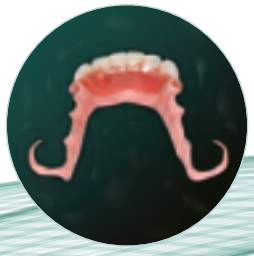
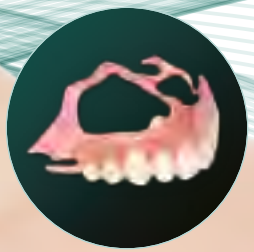
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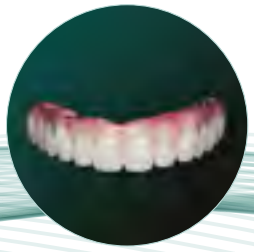
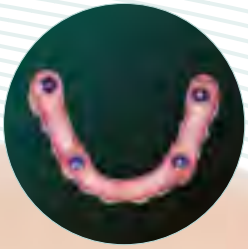
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Update on peri-implant soft tissue augmentation

How much soft tissue does an implant need?

DR GERNOT WIMMER, GRAZ, AUSTRIA

The quality of the peri-implant soft tissue around the crestal portion of dental implants seems to be as much a factor of implant success and survival as their osseointegration. However, the requirements in terms of width, thickness and keratinization of the mucosa are still controversial and have been the object of numerous clinical studies. Various techniques and materials have been described for augmenting peri-implant soft tissue.

The soft tissue surrounding dental implants is referred to as peri-implant mucosa [14], although the use of this term remains inconsistent. The properties of the peri-implant mucosa are established during the wound-healing process following implant placement or re-entry surgery plus abutment connection. The peri-implant mucosa provides a functional barrier between the oral cavity and the underlying dental implants.

The peri-implant mucosa and the gingiva around natural teeth have a number of clinical and histological characteristics in common. However, there are also some significant differences. In the case of natural teeth, fibres of the periodontal ligament (Sharpey's fibres) are inserted into the root cementum and provide retention, while in dental implants, connective-tissue fibres run broadly parallel to the implant or abutment surface; they are not inserted into the implant and do not adhere to it.

Implant anchorage is primarily achieved by osseointegration. The peri-implant connective tissue also contains fewer fibroblasts and more collagen fibres than the gingiva [16]. The tissue thus structurally resembles scar tissue more closely than anything else [23]. The junctional epithelium is longer and more permeable in the case of implants than with natural teeth, whereas the gingiva around the latter exhibits greater vascularization. These structural biological aspects might make peri-implant mucous membranes more susceptible to bacterial infection [20].

The non-elastic collagen fibres in the underlying connective tissue are also responsible for the presence of keratinized tissue, with most fibres of the periodontal ligament being non-elastically collagenous. For this reason, a narrow band of keratinized gingiva is usually rebuilt, even if it was completely excised by surgical means. The peri-implant mucosa, keratinization notwithstanding, often remains unattached to the underlying bone. This is especially often observed in cases where the volume of peri-implant tissue present is considerable and where the border between the keratinized tissue and the covering mucosa is positioned further coronally in relation to the peri-implant bone level [24].

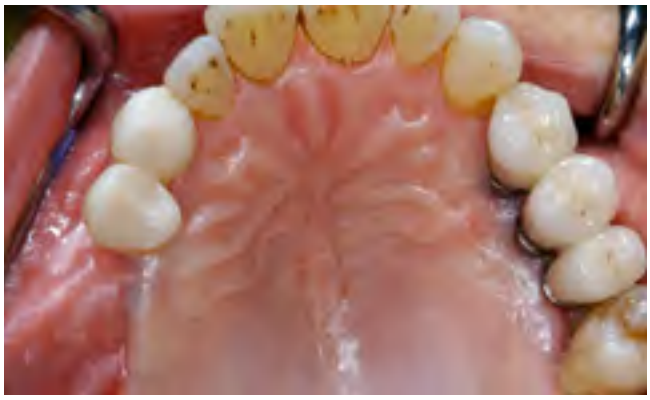
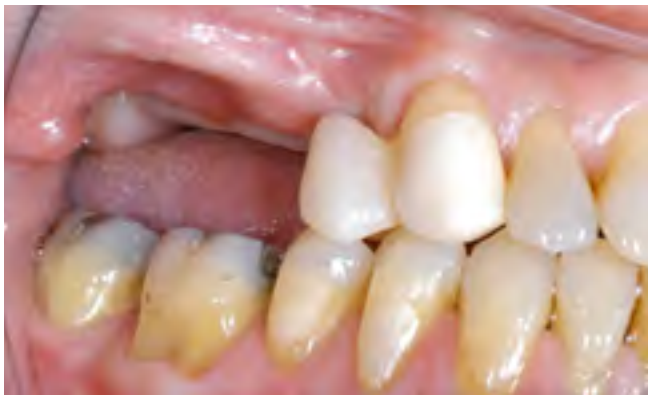
The importance of keratinized mucosa for peri-implant health

The importance of an adequate width of keratinized or attached mucosa (KAM) for the health or long-term stability of peri-implant tissue has been widely, and controversially, discussed [1–6,8,9, 11,12,15, 18,19,21,22,27–30].

Early studies had shown that there is no need for keratinized or attached mucosa, either at all or at its proclaimed "adequate width" of 2 mm, for implant success or for the maintenance of healthy peri-implant soft tissue [1,12,29]. These clinical findings were corroborated by experimental animal studies that found no difference in peri-implant soft tissue conditions, regardless of the presence or width of KAM. Nor did the thickening and widening of the mucosa significantly affect the peri-implant soft tissue [25].

In contrast, however, more recent studies suggest that narrower (< 2 mm) KAM might make peri-implant soft and hard tissue more susceptible to inflammation and resorption. Inadequately mucosal width or thickness may facilitate plaque accumulation [2,4,14,17,34–38] and subsequently promote mucosal inflammation [2,7,8,14,17,34,36,37,39,40], possibly increasing the risk of peri-implant bone loss or soft tissue regression [2,17,30,36].

Evidently, the width of the peri-implant mucosa also has an influence on immunological factors [4,31]. Compared to the gingiva, the peri-implant mucosa appears to be less able to mount an

1 and 2 I Restricted vestibulum after maxillary ridge augmentation with expected limited access for oral hygiene after prosthetic restoration.

inflammatory response to external challenges [32]. This further emphasizes the importance of correct and successful oral hygiene, especially if the availability of KAM is limited. This was confirmed by studies in patients under regular and consistent professional hygienic surveillance [9].

Consequently, optimal oral hygiene seems to be the most important factor for maintaining peri-implant health – just as around natural teeth. Recent systematic reviews agree that an inadequate width and thickness of peri-implant soft tissue (KAM) is associated with increased plaque accumulation, inflammation, soft tissue regression, and attachment loss [5,11,12,29]. While the evidence for a need to improve KAM to maintain implant health and tissue stability and, thus, implant survival rates remains limited and indecisive [9,22,28,43], improving the quality of the peri-implant tissue may be beneficial or necessary for practical and clinical reasons, especially in order to establish optimal oral hygiene.

Techniques for peri-implant soft tissue augmentation

In general, two methods can be distinguished for augmenting soft tissue around dental implants:

1. Widening the zone of keratinized mucosa by means of an apical flap and vestibuloplasty combined with a free mucosal graft or an allogeneic/xenogeneic transplant.
2. Increasing the volume of the soft tissue by augmentation with subepithelial connective-tissue grafts or allogeneic/xenogeneic soft tissue replacement materials.

Both free mucosal grafts for widening and connective-tissue grafts for thickening the gingiva and peri-implant mucosa are firmly established and have been extensively described [17,7,26].

Different times or protocols are conceivable for implementing of these techniques to change the quality of the soft tissue around dental implants:

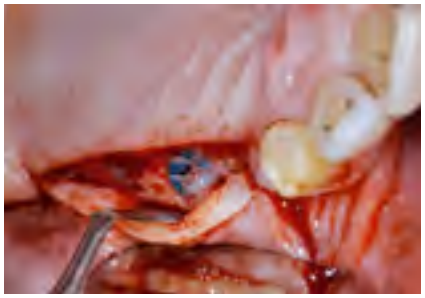
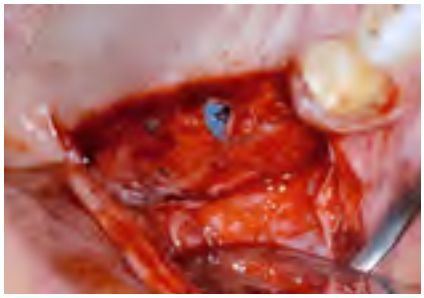
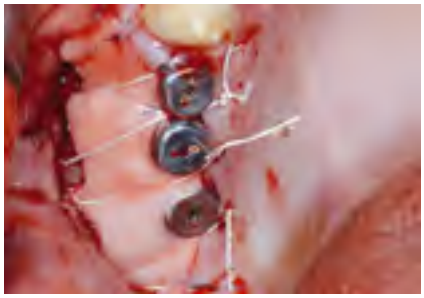
1. Before implant placement proper, to improve insufficient soft tissue
2. During implant placement surgery
3. As part of the second-stage surgery/re-entry
4. As part of complication management for implant-supported restorations already in place (soft tissue regression or inflammation)

Apically positioned flap/vestibuloplasty with a graft to widen the keratinized mucosa

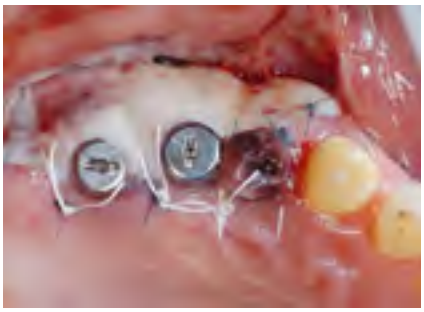
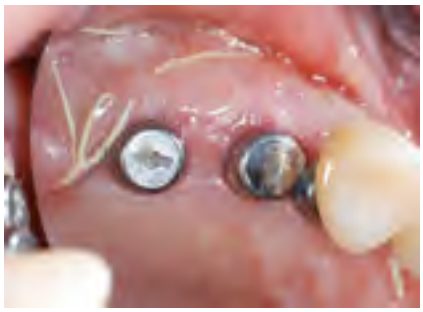
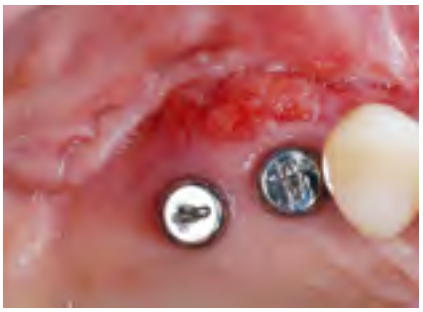
The aim of this technique is to create a sufficiently wide band of keratinized mucosa (primarily vestibularly) to simplify or facilitate adequate oral hygiene (Figs. 1 and 2).

In this procedure, a recipient bed is prepared by means of vestibuloplasty or an apically positioned flap, where a graft is introduced as a mediator for soft tissue augmentation and the development of an adequate amount of KAM (Figs. 3 to 5).

Preferably, a narrow band of keratinized tissue should be present at the coronal edge of the implant. A thinly prepared split-thickness flap may be excised or sutured in place near the top of the vestibular region at the base, creating

3 to 5 I At re-entry, a vestibular pedicled mucosal flap was designed for vestibuloplasty and an allogeneic graft was inserted and sutured in place.

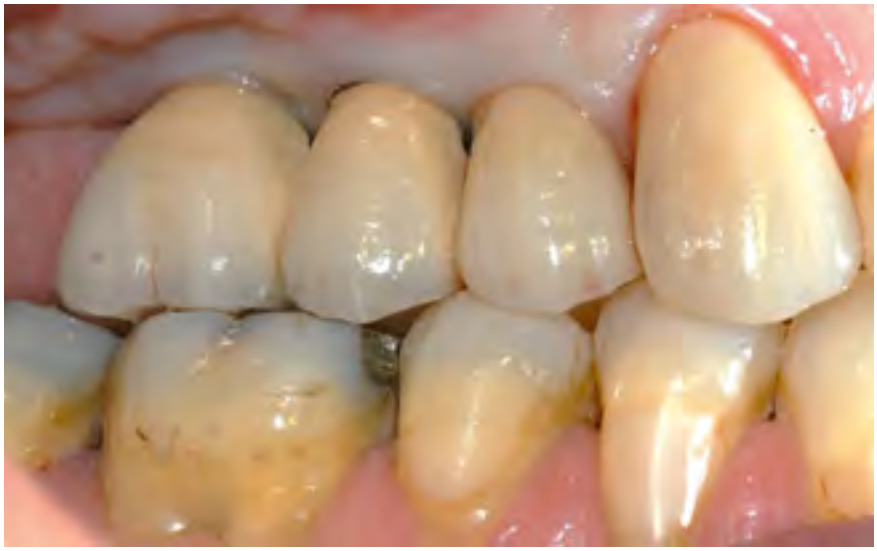




6 to 8 I Healing progress after two, three and four weeks.

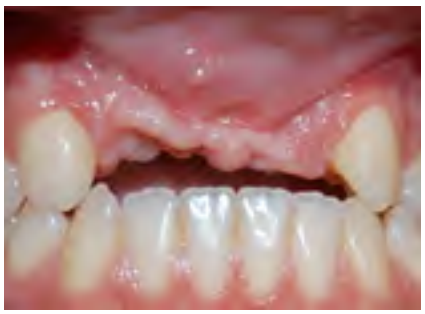
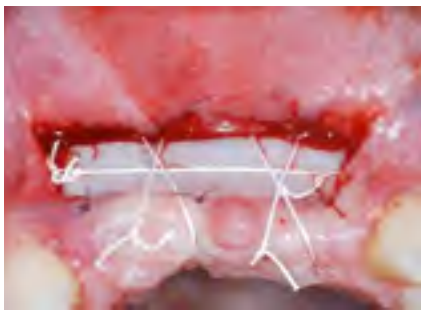
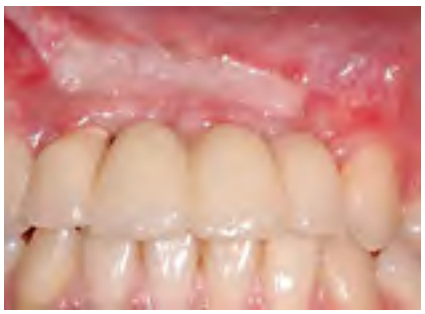
a sufficiently deep vestibule to provide easy access for oral hygiene. The recipient bed is ideally covered only with periosteum, while glandular, fatty or muscle tissue is completely removed. The site is then covered as completely as possible by the graft (wound contraction and shrinkage).

For optimal wound healing, it is important to immobilize the graft and secure it as closely as possible to the underlying tissue, to prevent any interference with the healing process by coagulate or by movement. This can be done by means of single interrupted sutures or mattress sutures. No wound dressing is necessary (Figs. 6 to 8). This method achieves the clinical objective of widening the keratinized mucosa and deepening vestibulum to ensure good oral hygiene, predominantly to be performed at home (Fig. 9). Natural grafts (free hard-palate mucosal graft) or allogeneic/xenogeneic replacement tissue are available as transplants.

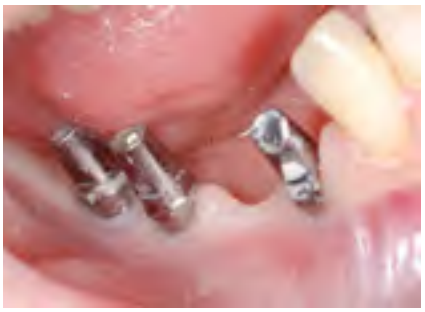
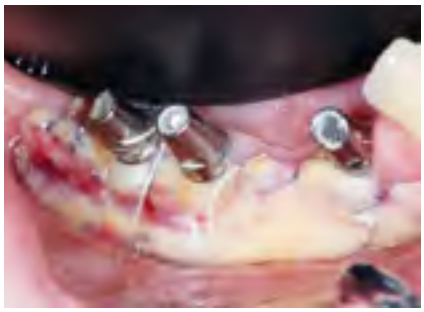
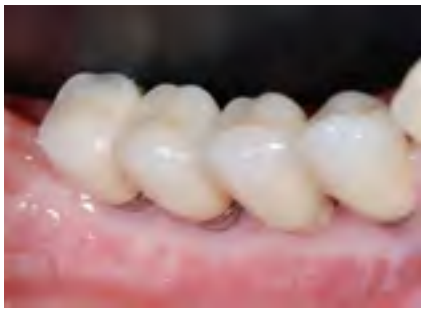
Advantages of autologous grafts include good biocompatibility and long-term persistence. Disadvantages include the wound defect at the palatal donor site, but above all the aesthetic compromise necessitated by the colour and texture of the donor region. For this reason, alternatives should be used in aesthetically more sensitive regions (Figs. 10 to 12). Alternative new substitute materials, either allogeneic (from decellularized donor skin, Figs. 13 to 15) or xenogeneic (from animal collagen), cannot match the gold standard of autologous tissue due to the lower gain in keratinized mucosa [26]. Nevertheless, these replacement materials have been tested and found to be clinically adequate; they improve patient satisfaction and aesthetics, they are available in indefinite



9 I Final prosthetic restoration after six months. Widened keratinized gingiva and a deeper vestibule ensure adequate access for oral hygiene.

10 to 12 I Augmentation with a free mucosal graft whose colour and texture match those of the palate.

13 to 15 I In this situation with a prosthetic superstructure in place, limited access for oral hygiene mandated a vestibuloplasty and augmentation of the peri-implant mucosa.

quantities and they cause less postoperative patient discomfort and shorten the procedure as the added palatal intervention is eliminated [10].

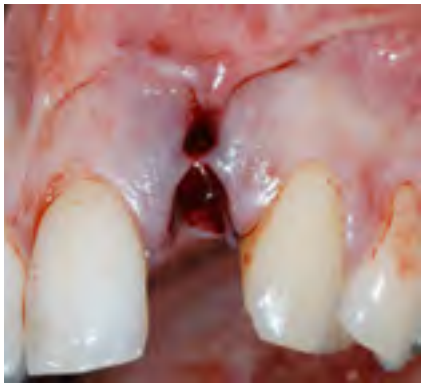
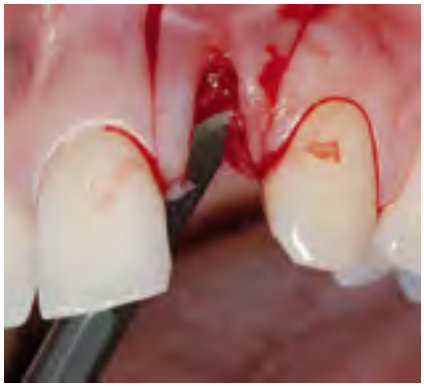
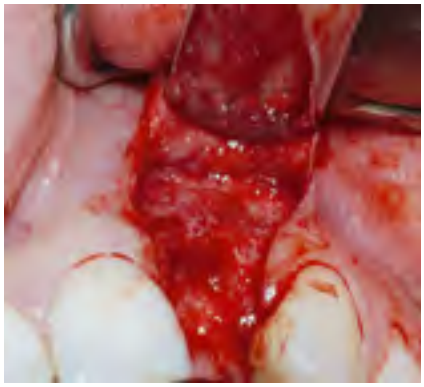
Augmentation with grafts to gain soft tissue volume

With regard to thickening the soft tissue and increasing its volume, autologous grafts (subepithelial or deepithelialized connective-tissue grafts from the palate) provide improved augmentation and good aesthetic results compared with the untreated contralateral jaw [26]; these grafts are therefore preferred for this clinical indication.

Even allogeneic and xenogeneic replacement materials have been described for this clinical application. Their results have been discussed in the literature in terms similar to the techniques for widening the keratinized mucosa [24,26].

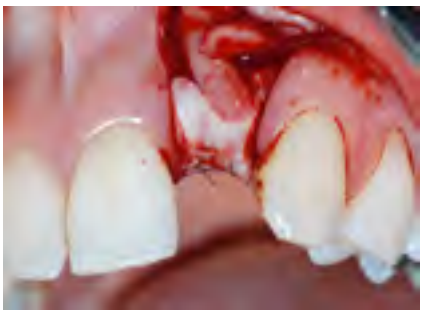
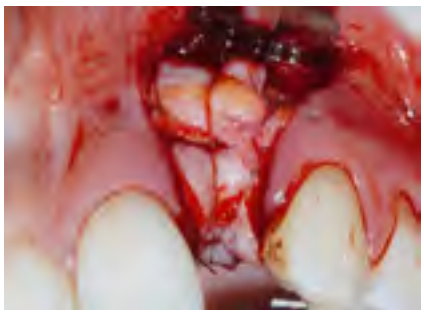
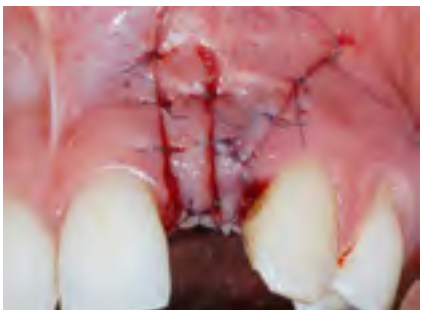
The application of, or need for, soft tissue engineering may arise at different clinical times: The example illustrated here shows how an inadequate clinical baseline situation regarding the KAM or the expected peri-implant mucosal situation (none or too thin) may require a change in quality (Figs. 16 to 26).

Augmentation may be performed during implant placement, as part of the re-entry procedure or as part of complication management for implant-supported restorations already in function, for instance in the event of soft tissue regression or inflammation.

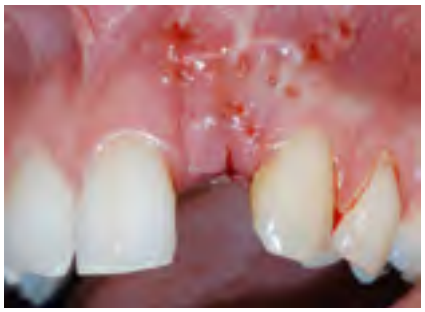
16 I Soft tissue dehiscence: lack of keratinized mucosa and volume following tooth loss due to root fracture.

17 and 18 I Preparation of a vestibular pedicled split-thickness flap.

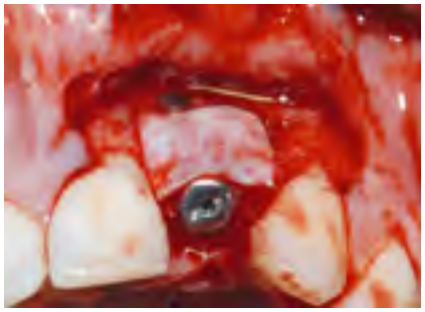




19 and 20 I Vertical and horizontal augmentation with a subepithelial connective-tissue graft.

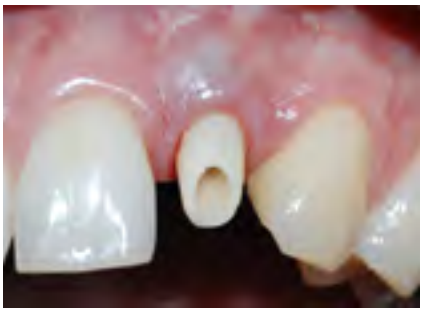
21 I Wound closure.



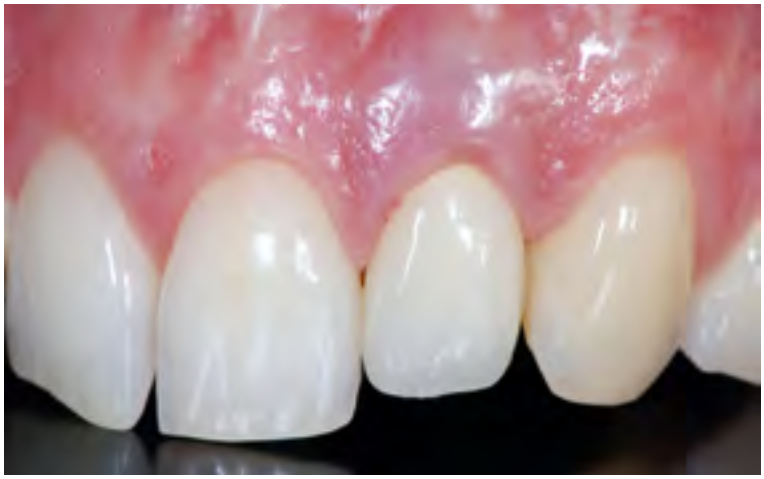
22 I Healing after two weeks.



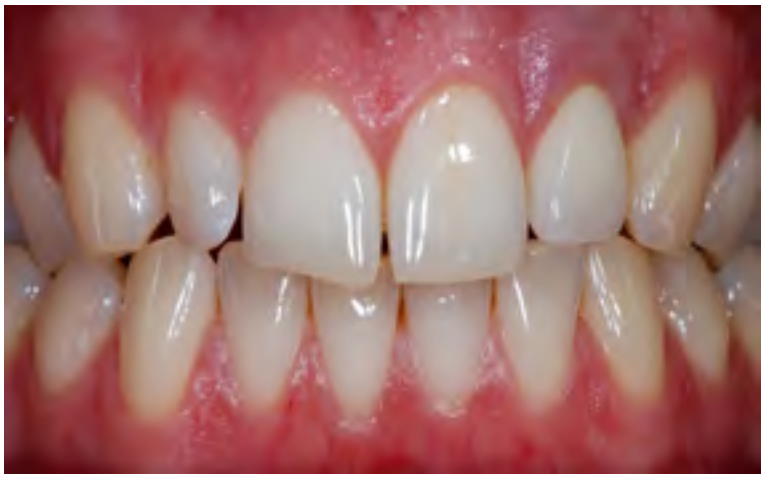
23 I Implant placement (Professor Martin Lorenzoni).



24 I Connecting the custom abutment.



25 I Definitive restoration.



26 I Situation at 60 months.

Conclusion

Adequate oral hygiene and professional maintenance are basic requirements for the success and long-term stability of dental implants. This is also true of the peri-implant soft tissue. Although not uncontroversial in the literature, a sufficiently wide and voluminous band of keratinized mucosa appears to be beneficial for the preservation and aesthetics of anterior implant-supported restorations. Often, however, morphological changes or inflammatory complications require surgical intervention with the aim of creating more favourable soft tissue conditions. What type of surgical intervention is appropriate will be determined by the location of the problem and the overall clinical situation. Acceptable results in terms of widening the keratinized mucosa can be obtained by an apically positioned flap in the maxilla or the apically positioned flap/vestibuloplasty in conjunction with a free mucosal graft or allogeneic/xenogeneic replacement material. For the augmentation of peri-implant soft tissue, various flap techniques in combination with subepithelial connective-tissue grafts are reliable treatment options.

The references are available at www.teamwork-media.de/literatur

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Prosthetic management of implants in the aesthetic zone

A digital workflow for the provisional restoration

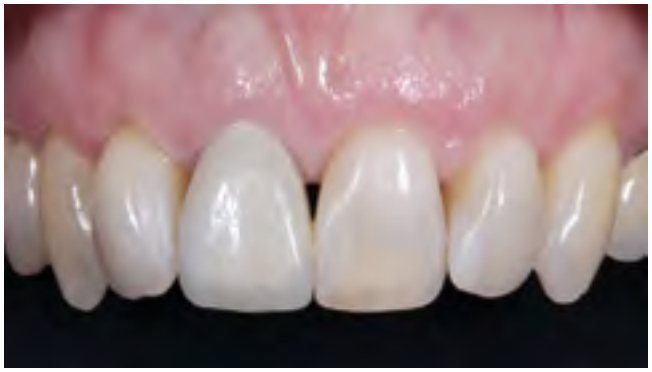
CARSTEN FISCHER, FRANKFURT, GERMANY, AND DR ANDREAS BETTENDORF, HOFHEIM, GERMANY

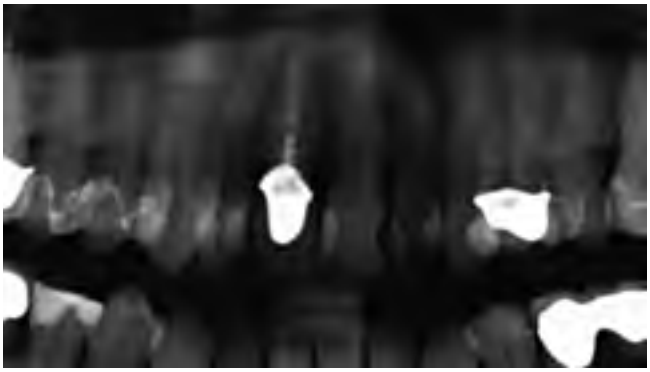
Implant-supported restorations to replace a central incisor in the aesthetic zone is the supreme discipline within modern implant prosthetics. One question that arises is how a digital workflow can contribute to predictable results and, possibly, a simplified treatment protocol. The present article focuses on the provisional restoration, presenting a feasible method illustrated by a case presentation.

When an anterior tooth is to be replaced by an implant-supported restoration, various issues arise that are inseparably linked. For example, the planned surgical procedure should be precisely tailored to the prosthetic objective. The surgical approach, already difficult enough to define, will be additionally dominated by expectations regarding the prosthetic treatment success. One important prerequisite is for the dental technician to already support the early stages of the treatment by furnishing a high-quality provisional restoration – having it ready, if possible, already for the surgical session.

Classic treatment protocols call for different provisional restoration options, such as clasp-retained restorations, Valplast restorations or similar. Removable or retrievable restorations may be an economical alternative but usually do not ensure stable or predictable soft-tissue conditioning. The challenge lies in using the provisional implant-supported restoration to maintain the existing emergence profile, that is, the natural shape of the peri-implant tissue. The aim should be to start supporting the hard and soft tissues right from the beginning, providing optimum conditions for tissue maturation.

In principle, the success of an implant therapy correlates closely with the success of the provisional prosthetic solution. Integrating digital techniques at this stage may help simplify the requisite processes. Digital intraoral scanning following implant placement and CAD/CAM fabrication of a custom implant abutment (the healing abutment) facilitate a sophisticated process chain. In the case presented here, a Maryland bridge made of monolithic zirconia was the high-quality provisional solution chosen. The bridge was fabricated in the laboratory based on data obtained intraoperatively using a contactless intraoral scanner, and inserted after connecting a custom healing abutment (Dedicam; Camlog, Wimsheim, Germany). (Note that the provisional restoration can – in theory – be fabricated before the implant surgery: based on three-dimensional CBCT data, the custom healing abutment can be designed in advance and ordered from the manufacturing service provider.)





1 and 2 I Baseline situation. Transverse fracture of the root of tooth 11, clinical and radiological view.

	Dentist	Dental technician	External	Process steps	Digital	Analogue
1	x			Baseline situation		Alginate impression
		x		Optical model scan	Laboratory scanner (3Shape)	
		x		Virtual design of Maryland bridge I/PMMA or zirconia Efficient production	Design software (3Shape) and CAM unit	Finishing/polishing
2	x			Intraoperative scanning	Trios 3	
		x		Virtual model	Design software (3Shape)	
		x		3D-printed model	Formlabs	
		x		Designing the healing abutments	Implant Designer (3Shape)	
		x		Adapting the Maryland bridge design to the healing abutment	Implant Designer (3Shape)	
			Central production	Fabrication in titanium	Camlog Dedicam	
		x		Fabricating the Maryland bridge II in multilayer zirconia	Design software (3Shape) and CAM unit	Finishing/staining/polishing
	x			Delivery		Delivering the custom healing abutment Cementing the Maryland bridge II
3		x		Virtual design of two-piece abutments	Implant Designer (3Shape)	
			Central production		Camlog Dedicam	
		x		Design and manufacture of the crowns on a two-piece abutment	Design software (3Shape) and CAM unit	
		x		Hybrid abutments		Adhesive connection in the dental lab
		x		Finishing the crowns		Finishing/staining/glazing
	x			Delivery		Delivery of the hybrid abutments and ceramic crowns

Table 1 Overview of the digital and analogue steps of the implantological/prosthetic protocol presented.

The healing abutment with its provisional restoration are delivered directly on the day of implant placement.

Table 1 gives an overview of the digital and analogue steps of the implantological/prosthetic protocol presented.

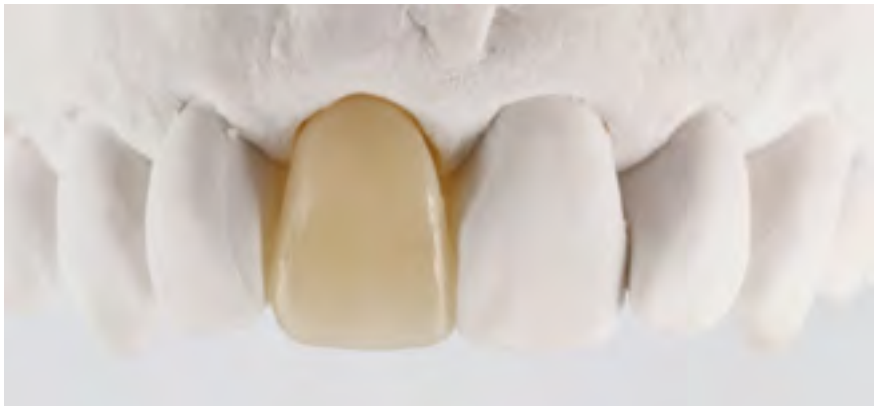
Case report

The patient presented with a fractured root of the upper right central incisor (tooth 11). The tooth was endodontically pre-treated and had been restored using a post-and-core (Fig. 1). The radiograph showed a deep transverse fracture in the root area (Fig. 2). To achieve the best possible outcome, it was decided to proceed with timely implantological therapy with immediate placement and the option of immediate restoration.

In addition to clinical and radiological diagnostics, a detailed prosthetic analysis was performed at the time of treatment planning. The baseline situation turned out to be favourable. The bony socket and the buccal lamella at site 11 were well preserved. Regarding soft tissue, the baseline situation was considered ideal for an implant-supported restoration. The gingival phenotype was comparatively thick. The risk that the expected buccal recession after extraction would result in a visible implant shoulder or an adverse vestibular aspect ratio was small.

Fabricating the Maryland bridge

Based on radiographic measurements (OPG) and the initial model, a Maryland bridge with two wings to be cemented onto to the adjacent teeth was fabricated (Fig. 3). Provisional Maryland bridges for immediate restoration can be made of PMMA or zirconia. The basal aspect exactly mimicked the emergence profile of the original tooth 11 (as per the diagnostic model). The basal aspect was made of resin and placed approximately 2 mm submucosally, providing the intraoperative flexibility to reline or reduce the basal region as needed. The CAD-designed Maryland bridge was milled from a multicoloured second-generation zirconia material. A major advantage of the digital workflow is that a virtual tooth or framework shape, once designed, can be re-milled repeatedly and cheaply in different materials as needed during the prosthetic phase.



3 I Maryland bridge milled from monolithic zirconia as immediate restoration. The initial provisional can also be efficiently milled from a suitable PMMA material.

Surgical procedure

The existing crown was removed together with the post-and-core abutment (Fig. 4) and the residual root was gently and atraumatically extracted. The goal was to preserve the integrity of the vestibular bone lamella and the surrounding soft tissue (Fig. 5). To this end, a mechanical extruder was used. Its screw was inserted into the root segment and firmly anchored, and the root was carefully removed using a pulley-like contraption. The extraction was carried out by axial tensile force, avoiding expansion of the alveolar bone. The vestibular bone wall was completely preserved. This procedure might seem somewhat time-consuming at first. But the effort pays off further downstream as it helps preserve the bone and soft tissue.

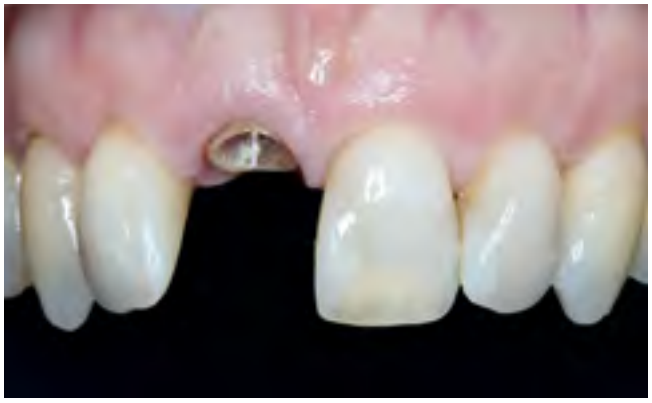
In the interest of preserving the extraction socket, the authors prefer – wherever indicated – to place the implant immediately. The prerequisites for an immediate implantation include a thick gingival phenotype, an implant bed free of inflammation and an intact buccal bone lamella. Arguments in favour of immediate implant placement include instant aesthetic rehabilitation (patient comfort) and maximum preservation of existing structures (biological comfort).

After removal of the residual root, the implant bed was prepared with the appropriate instruments and the implant (Conelog ø 3.8; Camlog) was inserted (Figs. 6 and 7). The orientation of the implant followed the socket axis, and its position provided for a slight palatal offset. Buccal angulation may result in recession, potentially jeopardizing the aesthetic outcome.

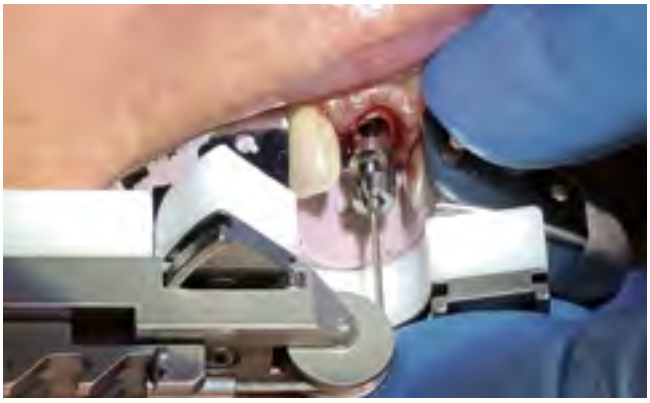
The vestibular gap between the implant and the socket wall was augmented with a mixture of autologous bone and bone replacement material (Fig. 8). Provisionalization could now proceed promptly in the interest of maximum soft-tissue conditioning. All the requirements for immediate restoration (such as primary stability) described in the literature were met.

Digital workflow

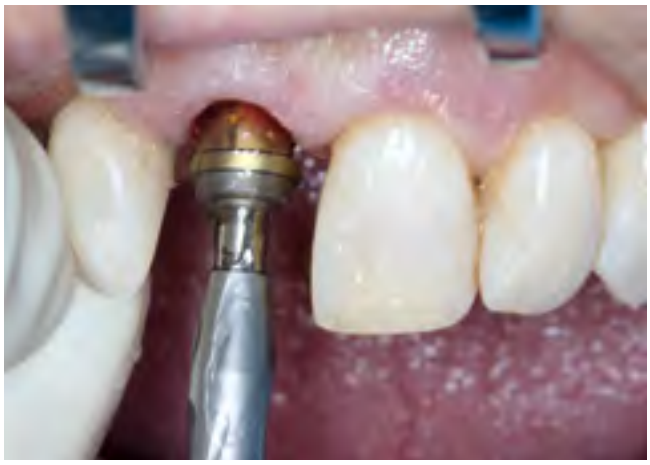
The associated scanbody was placed on the inserted implant (Fig. 9). When selecting the corresponding scanbody, a precise match with the external service provider's CAD library is needed. Scanbodies are delivered sterile and are ready



4 I Residual root of tooth 11 following removal of the crown and the post-and-core.

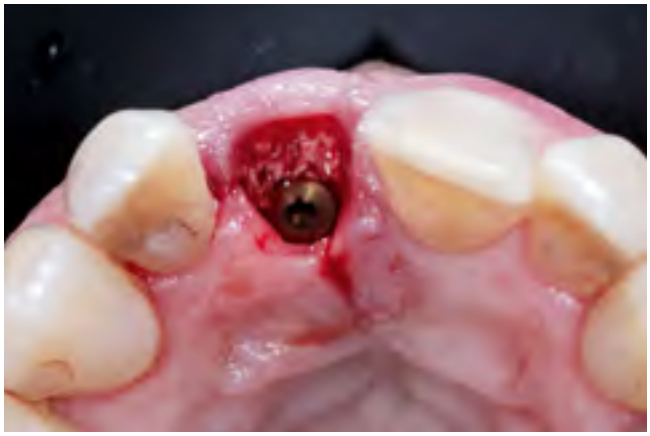


5 I Careful extraction of the residual root with a mechanical extruder.

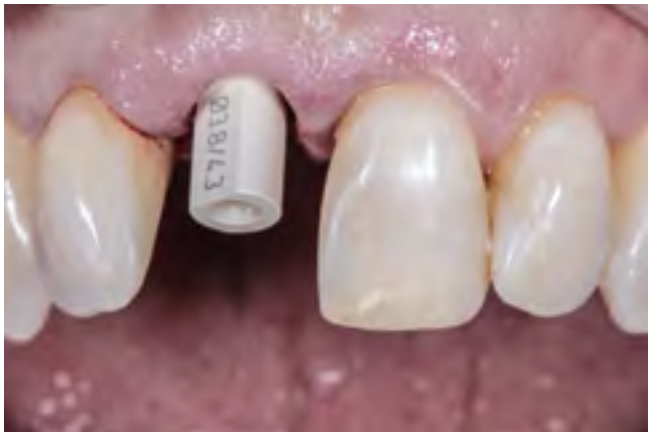


6 I Preparing the implant bed at site 11.

7 I Inserting the implant (Conelog, Camlog).



8 I Incisal view with filled vestibular gap between the implant and the socket walls. The root profile of the tooth is easily recognizable. This situation should now be preserved by the provisional restoration.

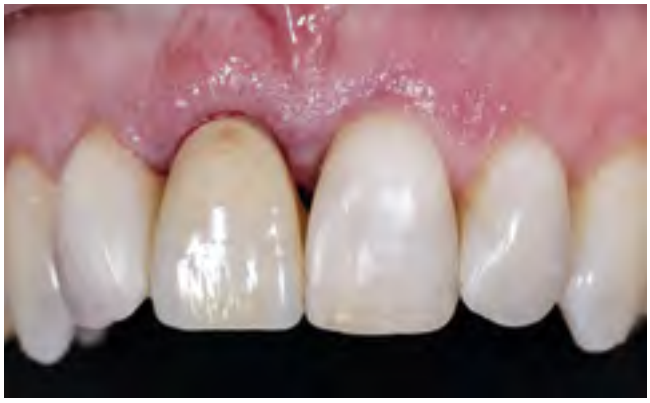


9 I Intraoperatively mounted scanbody for contactless intraoral scanning.

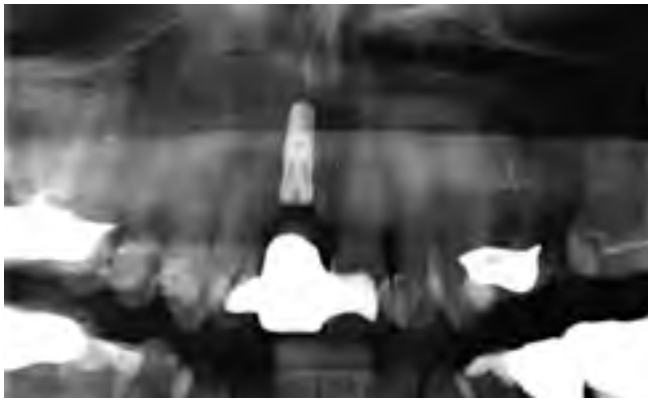
for immediate intraoral use. Moving towards reusable scanbodies would be a worthwhile goal.

The scanbody was used to facilitate three-dimensional intraoral optical scanning of the implant. The contactless "impression" maximally protects the newly inserted implant and the surrounding soft tissue (Figs. 10 and 11).

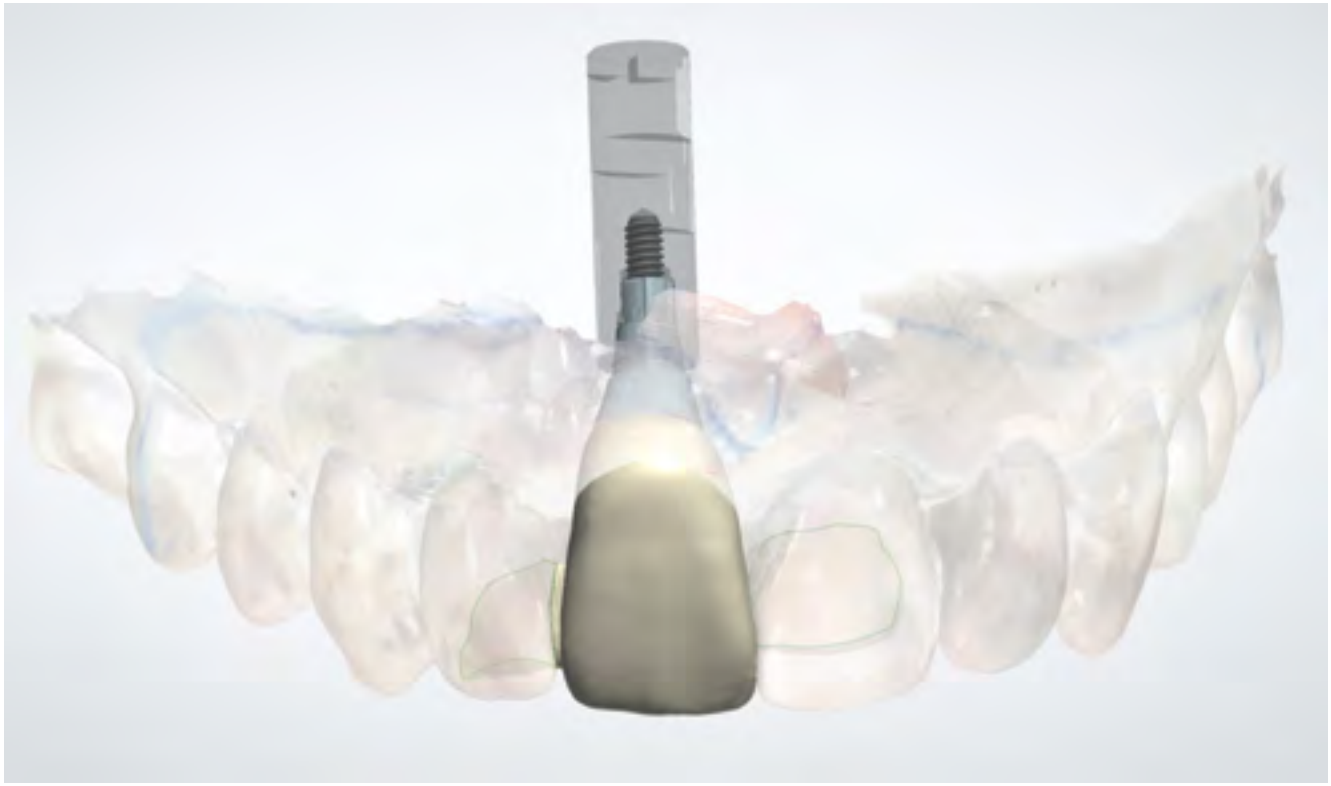
The intraoral scanner used was the Trios 3 (3Shape, Copenhagen, Denmark). In the authors' experience, this device currently offers the greatest available precision of intraoral data acquisition. At the same time, the close-to-nature shade visualization simplifies the task. This digital workflow made it possible to intraoperatively visualize the implant



10 I Inserting the immediate provisional for initial stabilization of the emergence profile.



11 I Control radiograph after the surgical session.



12 I Visual representation of the data obtained by contactless intraoperative scanning. The clinical design of the preliminary treatment plan is copied precisely and refined. The custom healing abutment is easy to recognize and forms the connection to the implant.

13 I The two-part provisional restoration. Shortly after implant placement, the provisional restoration (Maryland bridge made of zirconia) was delivered.

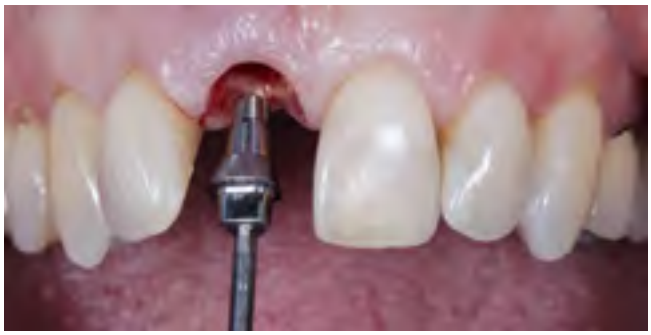
14 I Creating an ideal residual roughness in the basal area using a special rotating tool.

position on a virtual model without the need for a conventional impression of the implant (Fig. 12). The data were transferred to a manufacturing service provider (Dedicam; Camlog) commissioned to produce the healing abutment.

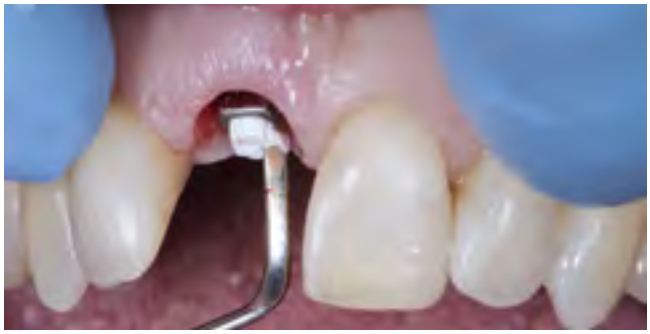
Provisionalization

Within two days, the CAD/CAM-milled titanium healing abutment was delivered (Fig. 13). Note that even with central production, the submucosal or basal area of a healing abutment requires some finishing of the surface topography. Care should be taken to maintain a certain degree of residual roughness, as the objective goal is optimal tissue apposition. The desired residual roughness of 0.32 µm was achieved with special rotating tools (Panther smooth; Sirius Ceramics, Frankfurt, Germany) (Fig. 14). For maximum infection control, a three-stage cleaning procedure followed a washing protocol in antibacterial cleaning fluid (Finevo; Sirius Ceramics) (Fig. 15). This procedure is an integral part of the authors' procedures in implant prosthodontics. CAD/CAM components have been shown to contain surface contaminants that could pose risks to tissue integration. The healing abutment was delivered to the practice in sealed packaging and intraorally connected to the implant (Figs. 16 and 17). The Maryland bridge of monolithic zirconia was adhesively cemented and the patient was released with an aesthetic provisional restoration (Figs. 18 to 20). The soft tissue can be conditioned over the subsequent course of therapy by relining with resin in the basal area of the bridge.

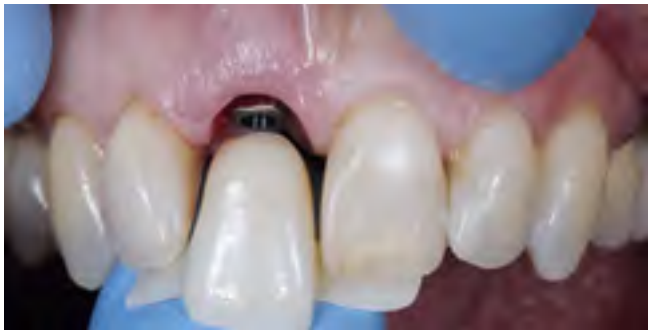
15 I All CAD/CAM components for implant prosthodontics including CAD/CAM abutments are cleaned in a three-stage ultrasonic protocol (Finevo cleaning protocol).



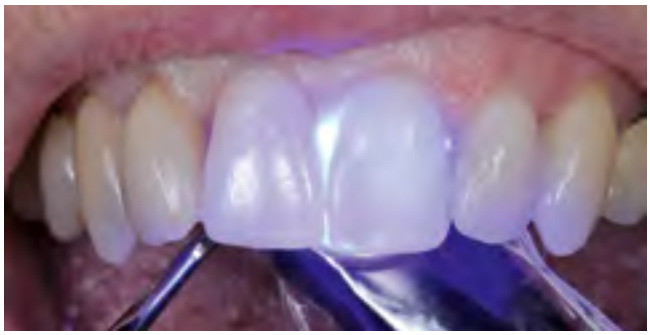
16 I Inserting the Camlog Dedicam custom healing abutment.



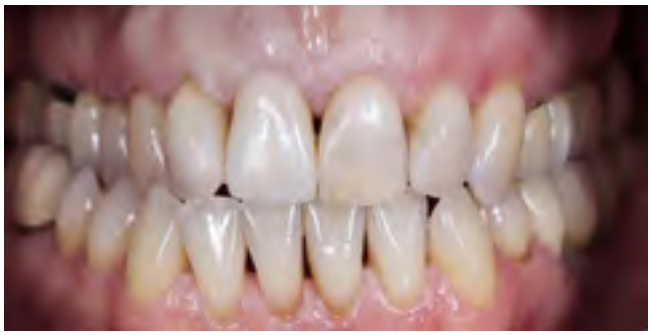
17 I Sealing the screw access channel with PTFE tape.



18 I The course of the emergence profile is exactly recorded and supported.



19 I The Maryland bridge is cemented with a drop of Panavia V5 (Kuraray Europe, Hattersheim, Germany).



20 I View of the high-quality provisional restoration three days postoperatively.

Case summary

Shortly after the implant insertion, the patient received a Maryland bridge made of monolithic zirconia as an aesthetically pleasing provisional restoration. The bridge was fabricated in the laboratory based on intraoperative data and inserted via a custom healing abutment. Over the coming months, the implant will heal and the hard and soft tissue will consolidate.

Conclusion

The treatment goal in implant therapy is to provide the patient with a high-quality restoration, right from day one. Based on optimal bony support, the emergence profile is shaped to provide permanent stabilization of the peri-implant structures and a natural transmucosal profile for the implant. This also preserves and stabilizes the interdental papillae. Digital technology opens up new paths for this. Contactless intraoperative optical impressions and the early integration of the dental technician into the treatment procedure are initial factors for predictably good surgical outcomes and high-quality immediate restorations.

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Compromised hard- and soft-tissue architecture

Immediate implant placement and provisionalization in the aesthetic zone

DANIEL D. GOBER, DDS; MARKUS L. WEITZ, DDS; AND RANDI J. KORN, DMD

Careful case selection is crucial for achieving short- and long-term success with immediate implant placement and provisionalization. Caution should be exercised for a tooth that presents with a compromised soft- and hard-tissue architecture. Nevertheless, a successful outcome can be achieved provided that the principles elucidated in the current literature are applied. The following report describes a case with a severely reduced but healthy periodontium around a tooth scheduled for extraction. Immediate implant placement and provisionalization utilizing the extracted tooth with simultaneous hard- and soft-tissue augmentation were performed in one surgical visit. This facilitated the restoration of a healthy peri-implant tissue complex and delivery of a functional and aesthetic final implant-supported restoration.

Immediate implant placement and provisionalization have been shown to have cumulative survival rates comparable with those of implants placed in healed sites [1-3]. Recently, *Tarnow* et al. [4] demonstrated that for teeth in the aesthetic zone, immediate implant placement with a bone graft and contoured provisional crown results in the smallest amount of facial-palatal contour change (less than 1 mm). Careful case selection is crucial to achieving short- and long-term success. Therefore, caution should be exercised for a tooth that presents with a compromised soft- and hard-tissue architecture. In such a case, it may be preferable to select an early or delayed protocol to augment the hard and soft tissue of the site prior to implant placement [5,6].

These nonimmediate protocols, however, present many disadvantages [7]. The number of surgical visits is increased along with the postoperative recovery time and patient morbidity. Treatment time can be as long as six months. In addition, the patient's provisionalization options are limited to either a fixed bonded restoration, which is difficult to retain in place for an extended period, or an interim removable prosthesis, which is uncomfortable and can impair healing of the surgical site if it applies transmucosal pressure.

By applying the principles elucidated in the current literature, immediate implant placement and provisionalization can even be performed for a tooth in the aesthetic zone with existing soft- and hard-tissue deficiencies. The following report describes a case with a severely reduced but healthy periodontium for a tooth planned for extraction. Immediate implant placement and provisionalization with a technique utilizing the extracted tooth with simultaneous hard- and soft-tissue augmentation was performed in one visit. Following twelve weeks of healing, implant osseointegration, soft-tissue augmentation, and emergence profile development were achieved, which ultimately facilitated the delivery of a healthy, functional, and aesthetic final restoration.

Case Report

Presentation

A 68-year-old Caucasian female presented with a chief complaint: "My front tooth has become so loose [that] it feels like it is about to fall out of my mouth" (Fig. 1). She had a history of periodontal treatment and has been compliant with a three-month periodontal maintenance schedule for the past ten years. Although she had noticed this problem for several years, she no longer had comfortable functioning with the tooth's current degree of mobility.

Clinical evaluation revealed that tooth no. 9 was extruded and facially positioned. Probing depths measured between 2 mm and 3 mm, with up to 7 mm of recession and no attached keratinized tissue. The tooth demonstrated Miller class 3 mobility with detectable

fremitus. Radiographically, severe bone loss was noted near the tooth and only a few millimeters of bone was present from the apex of the tooth to the nasal floor (Fig. 2). The adjacent teeth presented with probing depths measuring 2 mm to 3 mm, recession up to 4 mm, and Miller class 1 mobility. Although the patient had a low smile line [8], she was unhappy with the marginal gingival discrepancy between her central incisors.

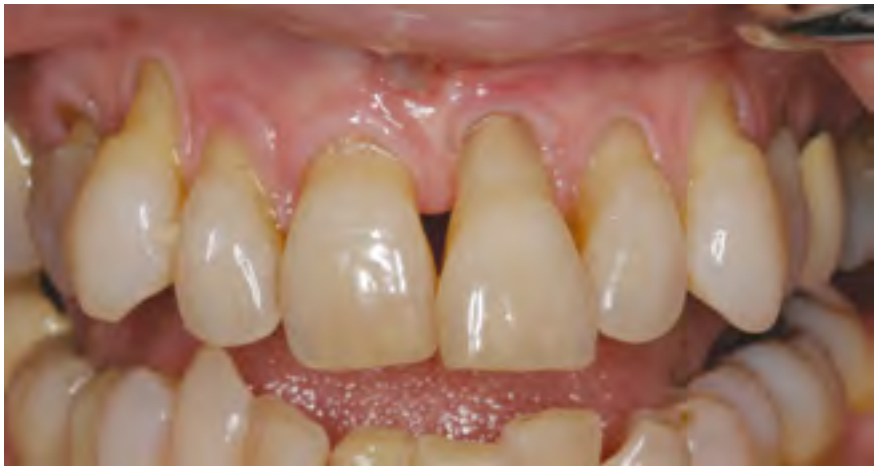
Treatment planning and procedure

Despite the dental team's recommendation to comprehensively examine and treatment plan her whole dentition, she requested to treat only this particular tooth at this time. Treatment options were offered based on whether to maintain or extract the tooth. The patient elected extraction and implant replacement.

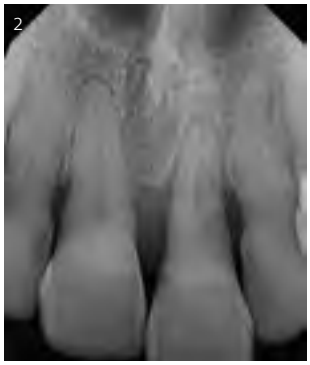
A cone-beam computed tomography (CBCT) scan was taken of the area and revealed a thin buccal plate with a crest located 2 mm apical to the palatal bone crest. The nasopalatine canal was identified 4 mm palatal to the palatal socket wall, and approximately 4 mm of bone was apical to the socket below the nasal floor (Fig. 3). The patient was informed that, due to the deficient soft and hard tissue, neither immediate implant placement nor immediate provisionalization was guaranteed. A bone graft and soft-tissue graft would be required to augment the hard and soft tissue and coronally position the facial margin. The patient stated that she understood all the findings and consented to the proposed treatment plan.

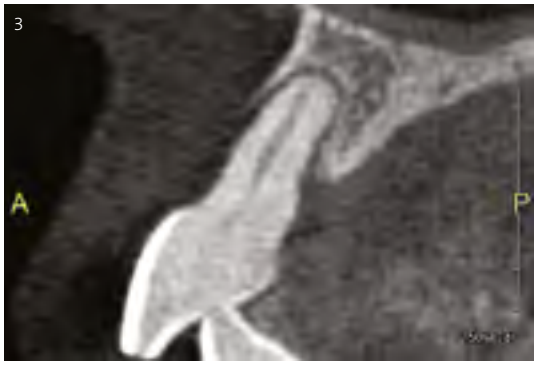
As the dental team had instructed, the patient premedicated with 2 g amoxicillin and 600 mg ibuprofen one hour prior to the procedure. Following administration of local anesthesia, atraumatic extraction was performed by severing the remaining soft-tissue attachment with a periotome and delivering the tooth with extraction forceps. The socket was debrided with a surgical curette and irrigated with a saline solution. Careful exploration of the socket with a periodontal probe revealed that the remaining buccal plate was intact with no fenestration or dehiscence and its crest was located approximately 3 mm from the free gingival margin.

Using a precision drill, the implant osteotomy was initiated at the junction of the mesial and palatal walls. Twist drills were used to progressively enlarge and widen the osteotomy as per the manufacturer's recommendations. Attention was given to ensure the osteotomy remained along the palatal wall so that a horizontal dimension would remain between the buccal surface of the implant and buccal plate. A finger was placed on the facial tissue during site preparation so that any inadvertent perforation of the buccal plate would be detected. The angulation of the drill within the osteotomy was constantly checked to assure that the access would exit just palatal to the future incisal edge to accommodate a screw-retained option. In addition, before continuing with each successive drill, sufficient resistance to movement of the drill within the osteotomy was confirmed.



1 I Initial presentation. Tooth No. 9 presents with extrusion, severe recession, lack of attached keratinized tissue.

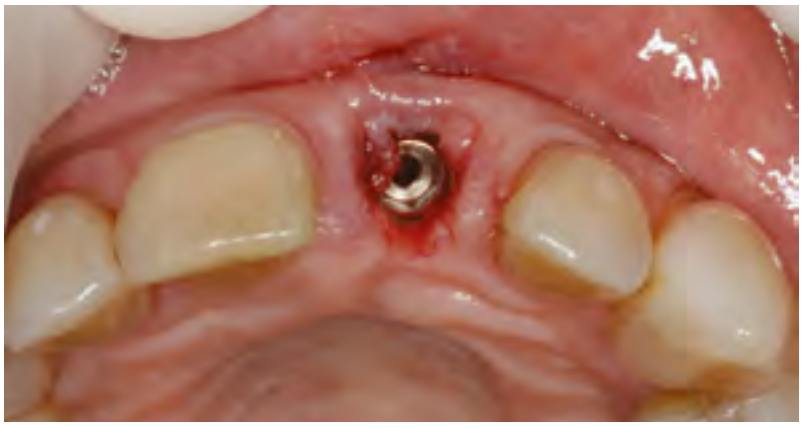




2 I Periapical radiograph demonstrating severe bone loss and widened periodontal ligament. Limited bone available between the apex of the tooth and the nasal floor.

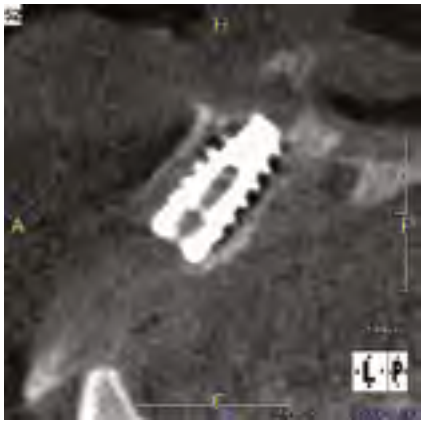
3 I Sagittal cross section of tooth. Note thin buccal plate. Minimal bone height from apex to nasal floor.

Following osteotomy preparation, a 4.2 mm x 10 mm Touareg S implant fixture (Adin Dental Implant Systems, adin-implants.com) was placed with more than 35 Ncm of torque. The head of the implant was placed slightly below the palatal crest and level with the buccal alveolar crest. The implant body was in contact with the mesial and palatal walls but was exposed to the socket space on the distal and facial (Fig. 4). A periapical radiograph was taken and suggested that the nasal floor may have been perforated during implant placement (Fig. 5). A CBCT scan was taken to confirm the position of the implant within the socket relative to the nasal floor (Fig. 6). A slight perforation was noted but determined to be of no consequence, and the implant was left in its current position [9].



4 I Immediate implant placed in socket. A horizontal defect dimension evident facial to the implant.

5 I Periapical radiograph of immediate implant. Note contact of the implant with the mesial wall of the socket but not with the distal wall. Perforation of the nasal floor with apex suggested.



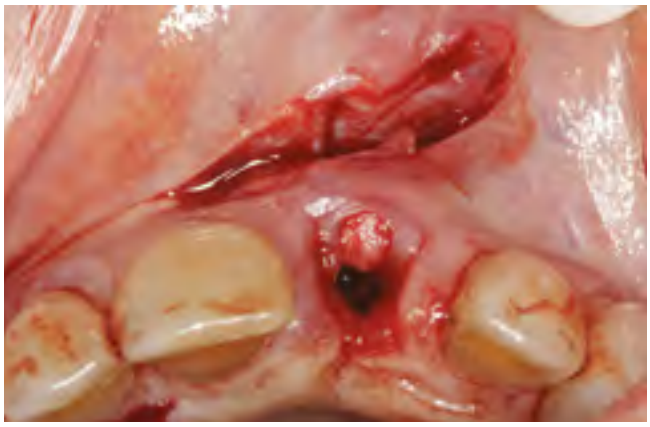
6 I Sagittal cross section of immediate implant in place. Notice the horizontal defect dimension buccal to the implant.
A portion of the implant apex has breached the nasal floor which may have contributed to increased insertion torque.

Following implant placement, a subepithelial connective tissue graft was harvested from the right palate using a single-incision palatal harvest technique and tucked into a facial pouch, which was elevated without surface incisions to augment the soft-tissue volume at the site [10]. Deproteinized bovine-bone mineral particulate graft (Bio-Oss, Geistlich Pharma North America, Inc., geistlich-na.com) was placed in the horizontal defect dimension and the remaining socket space to preserve the ridge dimension and minimize buccal plate resorption. Because a slight tension on the facial tissue was observed, a surface vestibular incision was made down to the periosteum to relieve any tension and allow for passive adaptation of the soft-tissue margin (Fig. 7).

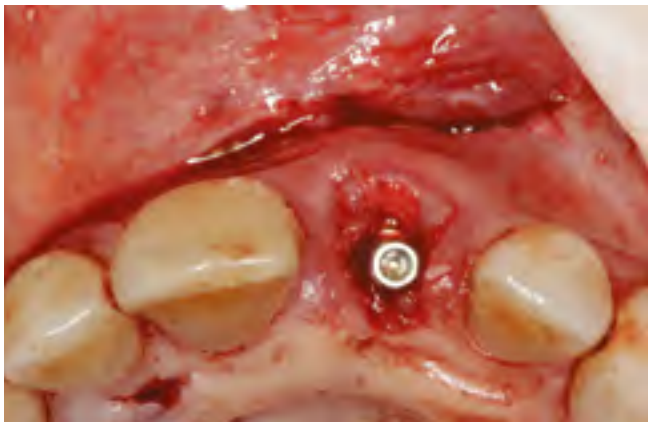
Following hard- and soft-tissue grafting around the implant, immediate provisionalization commenced utilizing an extracted-tooth provisional-crown (ETPC) technique. A prefabricated hexagonal temporary metal abutment was secured to the implant by hand and a component prefabricated polymethylmethacrylate (PMMA) sleeve was placed over the abutment (Fig. 8). The extracted tooth was cut horizontally with a carbide bur 2 mm apical to the clinical cemento-enamel junction separating the crown from the root. The crown portion was hollowed out, and the inside was etched with phosphoric acid. The ETPC was filled with acrylic, seated onto the abutment, and allowed to set for five minutes, facilitating the "pickup" of the PMMA sleeve within the ETPC. Once set, the ETPC was removed along with the PMMA sleeve inside it, leaving the abutment in place.

The ETPC was placed on an abutment replica, and acrylic was added to the subgingival portion to create an emergence profile that was circular at the subcritical level and slightly concave at the critical level, which would allow for coronal positioning of the soft-tissue margin [11] (Fig. 9). The subgingival portion of the ETPC was smoothed and polished to promote adhesion of the peri-implant tissue [12]. The ETPC was tried back on to the abutment, and the occlusion was adjusted until all centric, excursive, and protrusive contacts were eliminated.

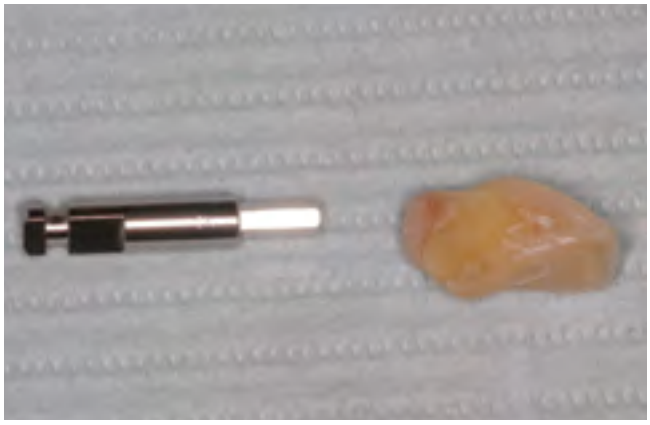
To avoid excess cement from extruding subgingivally, the abutment analog was also used to aid in the cementation. The ETPC was loaded with zinc oxide non-eugenol cement (TempBond NE, Kerr Dental, kerrdental.com) and completely seated onto the abutment analog to express excess cement and ensure only a thin uniform layer of cement lined the inside of the PMMA sleeve. The ETPC was removed from the analog and placed onto the temporary implant abutment



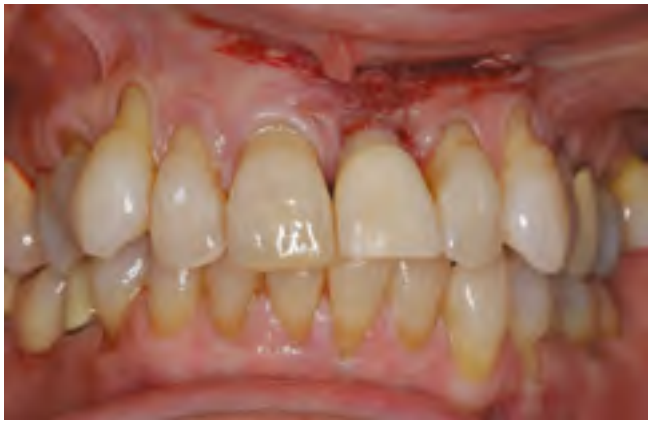
7 I Surface vestibular incision for tension release. Subepithelial connective tissue graft and deproteinized bovine-bone mineral particulate graft placed facial to the implant to augment the hard and soft tissue.



8 I Prefabricated hexagonal abutment placed into implant.



9 I Abutment analog used for trimming of ETPC. Note natural contours of ETPC.

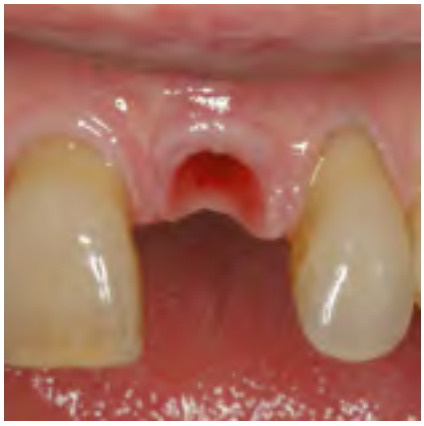


10 I ETPC in place. Gingiva stabilized coronally with sutures.

and allowed to set. A radiograph was also taken to confirm that no excess cement was present. A mattress suture was used to coronally advance and stabilize the facial soft-tissue margin against the ETPC (Fig. 10). The patient was given a prescription of amoxicillin 500 mg three times a day for seven days and diflusinal 500 mg twice a day for the first three days postoperatively and was instructed to avoid biting with the ETPC.

The patient reported minimal postoperative swelling and discomfort at the implant site. At the one-week postoperative visit, the site was healing within normal limits. No signs of delayed healing or infection were present. Slight edema of the tissue margin consistent with one week of healing of a connective tissue graft was observed. The patient was instructed to continue to avoid biting with the tooth and to make sure to keep the area plaque free by locally applying chlorhexidine 0.12 %.

After three months, the patient returned for evaluation of implant osseointegration and soft-tissue healing. The ETPC and temporary abutment were removed, and secondary stability of the implant was confirmed with a reverse torque test up to 20 Ncm [13]. The peri-implant soft tissue had stabilized coronally and was now even with the adjacent central incisor (Fig. 11). The soft-tissue profile appeared thicker, with an increase in attached keratinized tissue.



11 I Facial view of the peri-implant tissue. Coronal level of the gingival margin and an increase in the zone of attached keratinized tissue achieved.

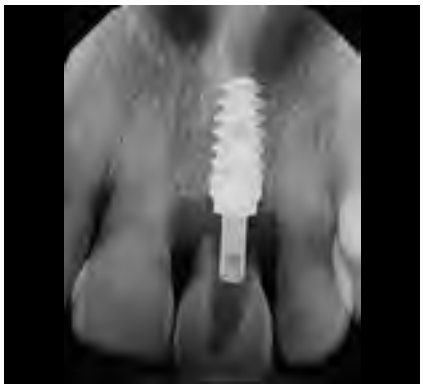
A periapical radiograph demonstrated bone healing around the implant and bone fill of the socket spaces (Fig. 12). An occlusal view of the peri-implant tissue showed the ridge contour had been re-established and an anatomic emergence profile had developed around the ETPC (Fig. 13). The patient returned to her restorative dentist for the final abutment and crown fabrication. A cement-retained porcelain-fused-to-metal implant-supported crown was fabricated, and the incisal edges of the other maxillary teeth were recontoured to improve aesthetics (Fig. 14). Bone and soft-tissue levels remained stable after 1.5 years and probing depths around the implant were limited to 1 mm to 2 mm with no bleeding on probing (Fig. 15). The patient was satisfied with the final result.

Discussion

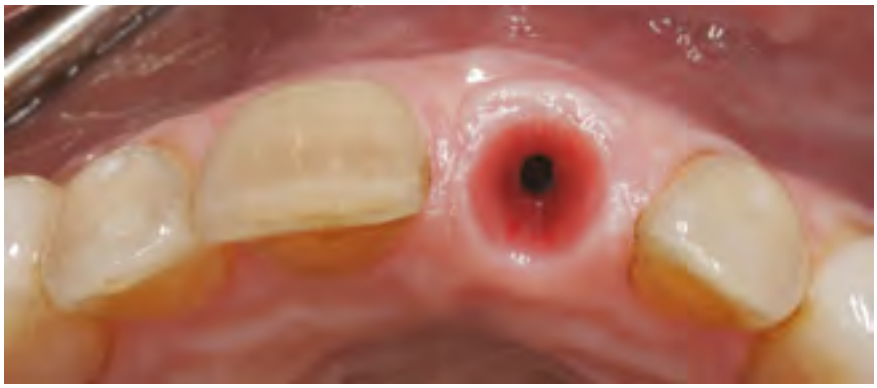
Previous authors have helped to define a predictable surgical and prosthetic protocol for anterior single-tooth immediate implant placement and provisionalization loading in cases with a normal periodontium and a completely intact residual buccal plate of bone [1,4,14-19]. According to previous classification of extraction sockets, immediate placement should be considered only in a type 1 or type A extraction site. Otherwise, an early or delayed approach is recommended [5,6]. *Buser* et al. [20] described an early approach in which the socket is left to heal for four to six weeks to gain gingival coverage of the socket and have more soft tissue for further bone augmentation. A delayed approach would include bone grafting and implant placement following three to six months of healing [1]. Orthodontic extrusion could also be employed to coronally position the hard and soft tissue of the site prior to implant placement [6]. All these approaches require multiple surgical visits, additional treatment time, and inconvenient provisionalization options.

Proper implant positioning relative to the socket is dependent on multiple factors. Slight palatal placement of the implant within the socket leaving a horizontal defect dimension or "gap distance" is recommended to compensate for some horizontal ridge resorption that can occur. This is also to ensure proper buccolingual implant positioning and avoid future exposure of implant threads. Slight palatal placement of the implant requires careful preparation along the palatal wall in an apical direction to prevent perforation of the buccal wall with the apex of the implant [4,14,18-21].

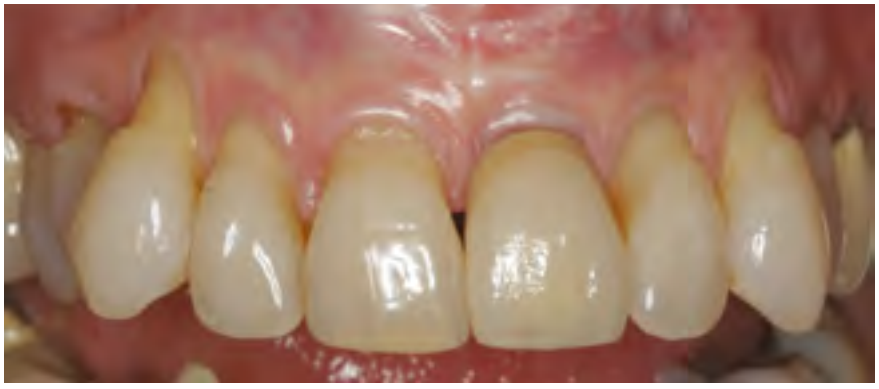
Whether the placement of a graft material into the horizontal defect dimension is necessary remains the subject of study. *Wang* et al. [22] demonstrated that as much as 80 per cent of maxillary anterior teeth was present with a facial plate of bone less than 1 mm. This suggests post-extraction resorption is more likely in this region because the facial



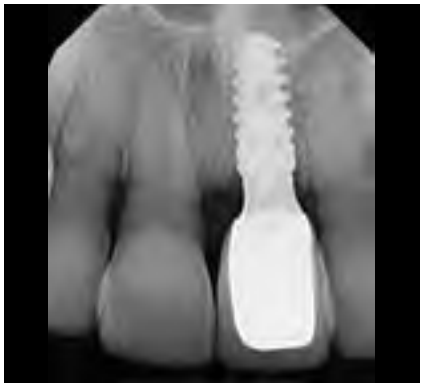
12 I Periapical radiograph at three months. Bone healing around the implant and bone fill of the socket evident.



13 I Occlusal view of peri-implant tissue. The natural ridge contour was reestablished.



14 I Final cement-retained restoration one year postoperative. Natural crown emergence restored. Aesthetic recontouring also completed.



15 I Periapical radiograph at 1.5 years post-operative. Stable bone levels demonstrated.

plate loses half of its blood supply when the periodontal ligament is severed with extraction [23]. Most authors recommend the placement of a graft material into the buccal defect dimension as a means of limiting post-extraction remodeling and resorption of the buccal bone [14,17,24]. Success has been achieved even without the placement of a graft material [25]. In addition, the placement of a connective tissue graft with a tunnel technique at the time of placement has been shown to augment the facial soft-tissue profile and is recommended to reduce any changes in soft-tissue contour following immediate implant placement [16]. In this case, deproteinized bovine-bone mineral particulate was used to fill the horizontal defect dimension and remaining socket spaces around the implant. A connective tissue graft was used successfully to augment the facial soft-tissue volume and contour, and to increase the zone of attached keratinized tissue.

When immediate implant placement and provisionalization is planned, primary stability of at least 35 Ncm must be achieved so that movement of the implant is avoided during osseointegration [1]. When ample bone height and width is available around an extraction socket, a longer or wider implant can be used to attain high insertion torque. In the case described above, limited bone height precluded an implant length greater than 10 mm. A wide body implant was not selected because it would have forced the facial surface of the implant to be placed outside the parameters of the alveolar housing possibly resulting in exposure of the facial threads of the implant following healing [14]. Despite these limitations, adequate insertion torque was achieved with a 4.2 mm x 10 mm implant due to the choice of implant used. The implant was selected based on its design, which facilitates increased insertion torque. It is designed with wide self-cutting threads of varying pitch around a tapered core in which the threads become increasingly wider towards the apex of the implant. This enhances the degree of bone compression during implant insertion and increases the amount of primary stability [26]. Immediate provisionalization of the implant was completed with confidence, commensurate with the noted stability and insertion torque.

The benefits of immediate provisionalization include more than just the convenience of a fixed interim restoration. The placement of a provisional restoration or an anatomic healing abutment has been shown to preserve anatomic emergence profile and prevent recession of the facial gingival margin [4]. Reusing the natural tooth as the provisional can help to create a soft-tissue profile that approximates the contours found around natural teeth [27]. The contour of the emergence profile of the provisional plays a key role in the maintenance of the soft-tissue architecture depending on the position of the implant [28]. When soft-tissue augmentation is desired or the implant is placed in a labial position, an emergence profile that is concave is recommended to allow room for more tissue volume. When excess tissue is present or if the implant head is placed too palatal, an emergence profile that is convex is recommended to push the soft tissue labially and prevent the margin from lying too coronally [28]. When preservation of the existing architecture is desired, the anatomic contour is recommended as a means of supporting and stabilizing the soft-tissue margin. In the case described above, the subcritical contour was designed to be circular to replicate the cross-section of the tooth at that level. The critical contour was slightly concave to encourage an increase in the soft-tissue volume and coronal positioning of the gingival margin. This successfully facilitated re-establishment of the ridge contour and maintenance of an emergence profile so that an aesthetically pleasing and hygienic final restoration can be delivered.

When cementing a cement-retained implant restoration, the choice of cement and the cementation technique employed are of critical importance to peri-implant tissue health. A cement that is radiopaque should be used so that any excess can be visualized radiographically and removed if necessary. The cement should also be able to reduce planktonic or biofilm growth of the oral pathogenic bacteria to minimize the chances of developing peri-implant disease. A eugenol-free zinc oxide cement has been shown to meet these criteria [29,30]. In addition, a cementation technique designed to minimize the amount of excess cement extruding while seating the crown was employed to prevent the possibility of a foreign-body reaction and ultimately sacrifice peri-implant tissue health [31].

Conclusion

Within the limitations of a case report, the present article demonstrates that immediate implant placement and provisionalization can be employed successfully even in a compromised situation. By applying the principles illustrated in the existing body of literature, we can offer our patients the option of immediate placement and provisionalization in situations that may have been avoided previously. Instead of being forced to resort to protocols that include increased number of surgical visits, longer healing time, and increased patient morbidity, our patients can benefit from the gratification of immediate placement and provisionalization and still receive an aesthetic and functional implant-supported restoration.

References available at
www.teamwork-media.de/literatur

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Bone grafting with simultaneous early implant placement

A new approach with an in-situ self-hardening grafting material

MINAS LEVENTIS[1,2], PHD; PETER FAIRBAIRN[1,3], BDS; ORESTIS VASILIADIS[2,4], DDS

The thickness of the buccal plate seems to have a significant influence on the amount of horizontal and vertical crestal resorption in human sockets, while the placement of an implant into the extraction socket with simultaneous implementation of bone regeneration procedures is routinely followed in an attempt to limit the resorption process and preserve the architecture of the alveolar ridge. This case report highlights the management of an upper central incisor post-extraction site with a defective thin residual buccal plate, where an early implant placement procedure, with simultaneous intentional removal of the residual buccal bone and bone augmentation, was performed. The rationale and results of removing the thin buccal bone and using an in situ hardening synthetic bone substitute composed of beta tri-calcium phosphate (β-TCP) and calcium sulfate (CS) to regenerate the area are analyzed and discussed.

Introduction

Following the extraction of the root from the alveolar socket, the buccal and lingual walls, which are mostly composed of bundle bone, will undergo substantial resorption, as a result of lack of supporting and nutritive function of the tooth and the periodontal ligament following their removal. This remodeling process, as described by several animal and human studies, will lead to severe bone loss, which predominantly involves the buccal aspect rather than the lingual aspect of the site [1-5].

Although it has been suggested that immediate or early placement of implants into extraction sockets may preserve the bony architecture, it has been demonstrated that the implant placement by itself into extraction sockets is not able to halt this remodeling process, and hence cannot adequately prevent the resorption of the buccal bony wall following tooth extraction [6-9].

Among the factors affecting the remodeling process of post-extraction sockets, the integrity and the thickness of the buccal plate seem to have a significant influence on the amount of resorption in human sockets. The thickness of the buccal bone crest markedly influences the bone fill that occurs in the void (defect) between the implant surface and the socket wall. Thus, sites with thin bony walls (≦1 mm) seem to undergo higher resorption following tooth extraction, than sites with thicker buccal plate (>1 mm). As in the majority of extraction sites in the anterior maxilla, thin and possible defective buccal walls are present, it can be concluded that in most clinical scenarios of immediate or early implant placement, the buccal bone will undergo pronounced resorption, and additional augmentation procedures are needed to achieve adequate bony contours around the implant [10-12].

Case report

A 56-year-old male patient presented with mobility of the upper left central incisor. Clinically, tooth 21 was restored with a metal-ceramic crown which was mobile, with no signs of inflammation or infection in the area (Fig. 1), while radiological examination with a periapical x-ray revealed a vertical root fracture with no evidence of pathology in the surrounding bone (Fig. 2). Given the non-contributory medical history of the patient, and absence of other contraindications, it was decided to replace the fractured tooth with an implant.

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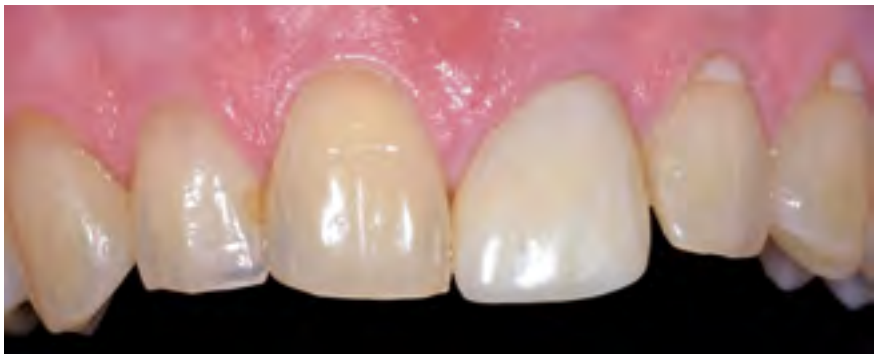
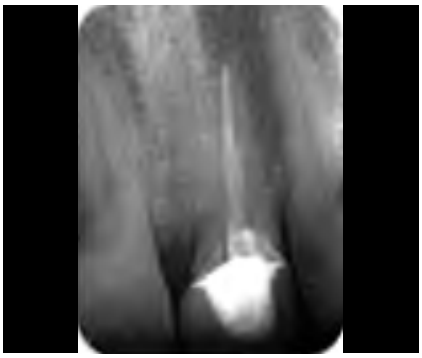
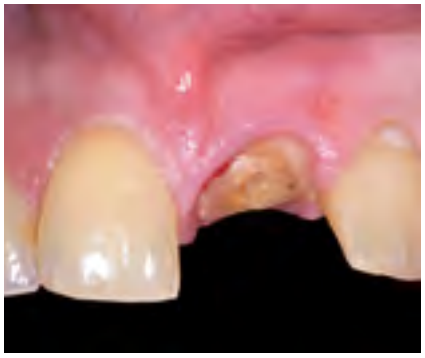
[4] Private Practice, Bad Dürrheim, Germany



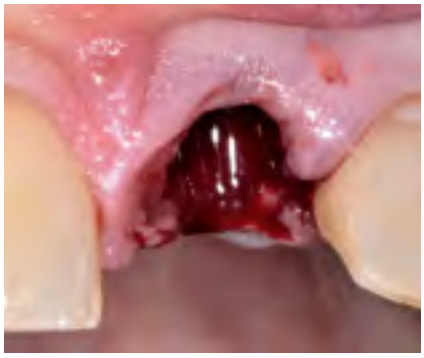
1 I Initial clinical view.



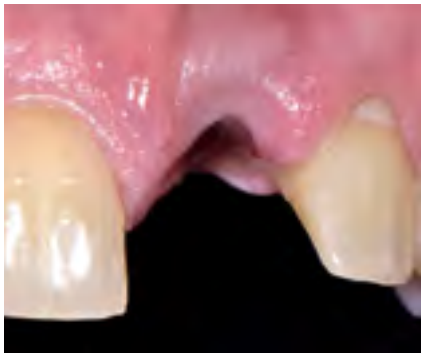
2 I Initial x-ray revealing the vertical root fracture.



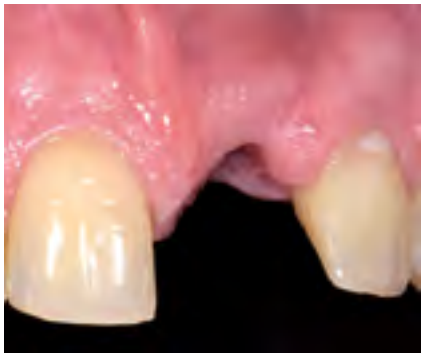
3 I Clinical view of the fractured root after removing the crown.

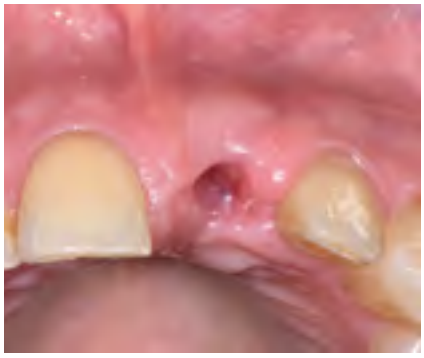


4 I Clinical view of the site immediately after "atraumatic" extraction. Note the vertical mattress suture placed to stabilize the distal papilla.

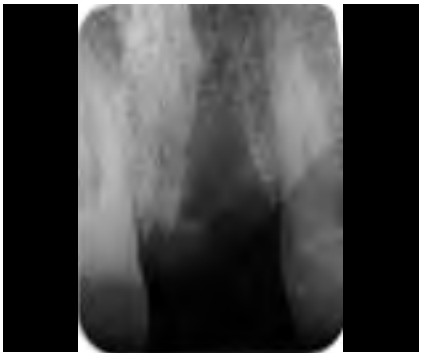


5 I Uneventful secondary intention healing one week post-extraction.





6a and b I Clinical views four weeks after extraction showing excellent healing. The socket is covered by a thin layer of newly-formed soft tissues.



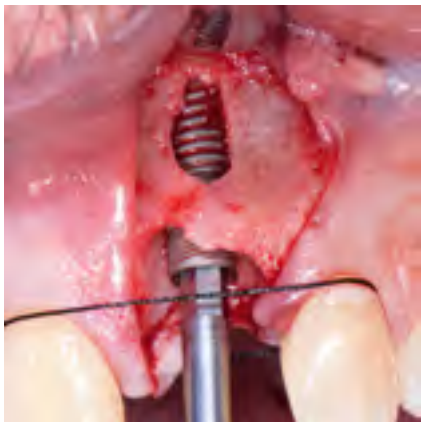
7 I Periapical radiograph four weeks after extraction.

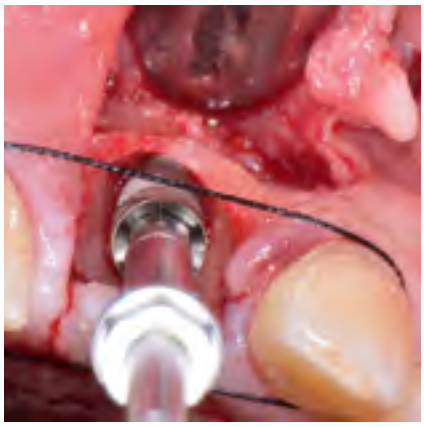
The treatment plan consisted of simple extraction, early implant placement with simultaneous bone augmentation four weeks after extraction, and loading of the implant twelve weeks post-op with the final restoration, according to a simplified standardized protocol [13].

Under local anesthesia, the non-restorable tooth was "atraumatically" extracted without raising a flap. Firstly, the crown was removed using forceps (Fig. 3) and the broken root was carefully mobilized and removed using periotomes and thin elevators. Attention was given not to damage the surrounding soft and hard tissues. After extraction, the socket was thoroughly curetted and debrided of any soft tissues with the use of Lucas hand bone curettes and degranulation burs (Ethoss EK Strauss Degranulation Bur Kit; Ethoss Regeneration Ltd, Silsden, UK), followed by rinsing with sterile saline. A vertical 5-0 mattress suture (Vicryl, Ethicon; Johnson & Johnson, Somerville, NJ, USA) was placed to stabilize the distal papilla, and the post-extraction site was then allowed to heal by secondary intention (Figs. 4 and 5). The patient used an acrylic partial denture as a provisional prosthesis during the whole healing period, but without applying pressure on the surgical site.

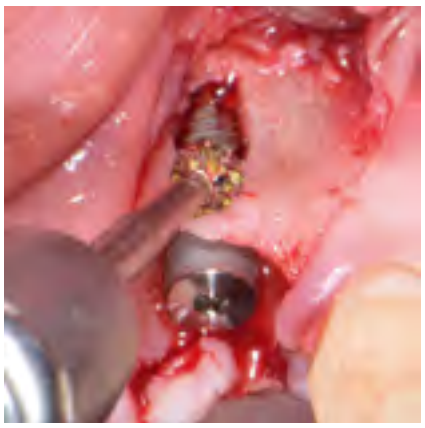
After four weeks, clinical (Figs. 6a and b) and radiological (Fig. 7) examination showed uneventful healing of the site. Under local anesthesia, a site-

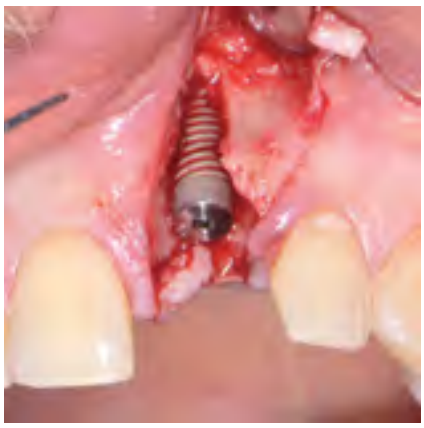
8a and b I Placement of the Paltop Advanced Plus implant. A suture placed around the cervical margins of the adjacent teeth help the precise free hand 3D positioning of the fixture.



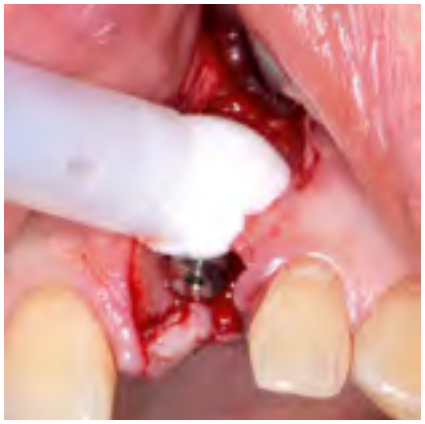


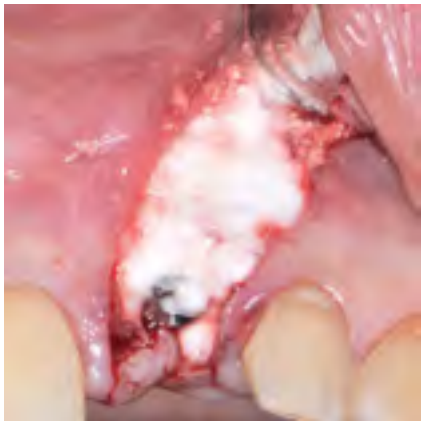
9a and b I The thin defective buccal bone plate was completely removed.



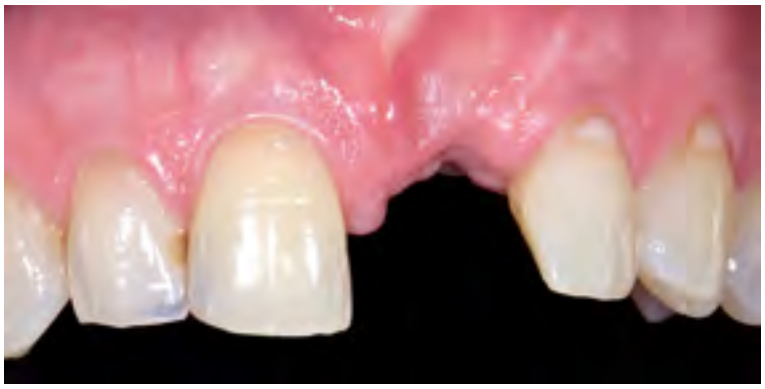


10a and b I The site was grafted with β-TCP/CS (EthOss). The bone substitute was injected directly from the carrier syringe, and set in situ. Attention was given not to overfill the site. No additional barrier membranes were used.

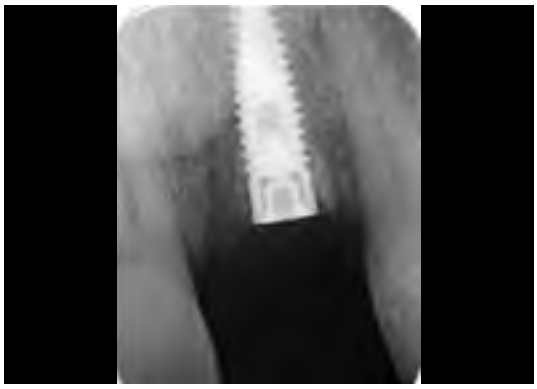




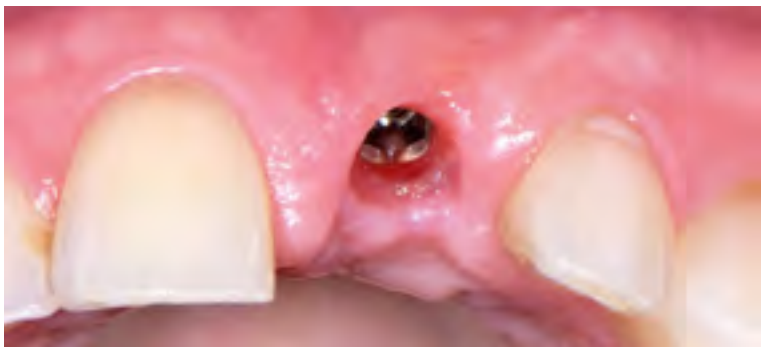
specific full thickness flap was raised using vertical releasing incisions, without including the papillae of the adjacent teeth. After flap elevation, all granulation tissue was removed from the site, revealing a thin fenestrated buccal bone plate. A 3.75 mm x 13 mm tapered implant (Paltop Advanced Plus; Paltop Dental Solutions Ltd, Israel) was placed at the optimal position (Figs. 8a and b), and the residual buccal bone plate was completely removed (Figs. 9a and b) using the degranulation burs in high speed (2500 RPM, which is the indicated speed for alveoloplasty) under copious irrigation with sterile saline. After placing the cover screw, the site was augmented utilizing a self-hardening resorbable synthetic bone grafting material (EthOss; Ethoss Regeneration Ltd, Silsden, UK), consisting of β-TCP (65 %) and CS (35 %), as described by the authors in previous publications [13-15]. The grafting material comes in a delivery syringe where the piston is drawn back and sterile saline is added to the powder. It is allowed to seep through the particles and then the excess is discarded by compression into a sterile gauze. The hydrated material is now taken to the surgical site and extruded into the defect, then compressed with another sterile gauze using an instrument to pack the material into any cavities. The gauze is then held over the graft for three to four minutes until the CS element sets, making sure to restrict the adjacent blood to the material site and remembering not to overfill the site for tension free closure. No barrier



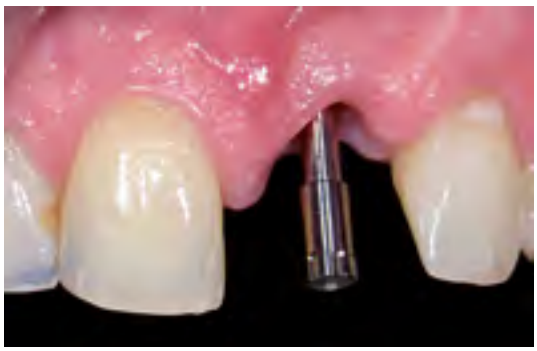
11 I Clinical view after ten weeks post-op.



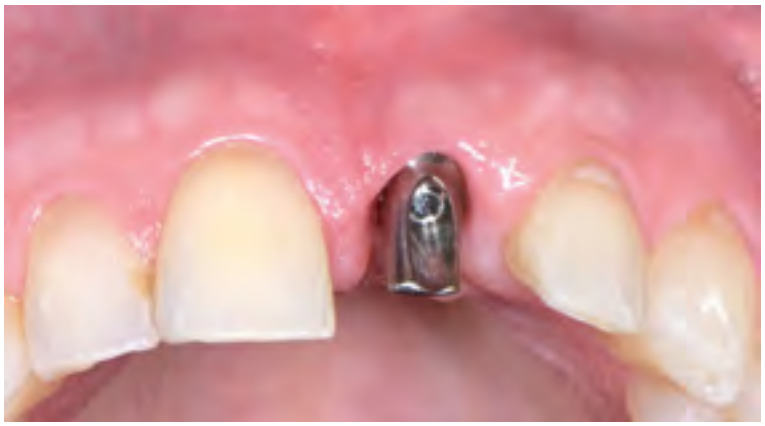
12 I Periapical x-ray view after ten weeks post-op.

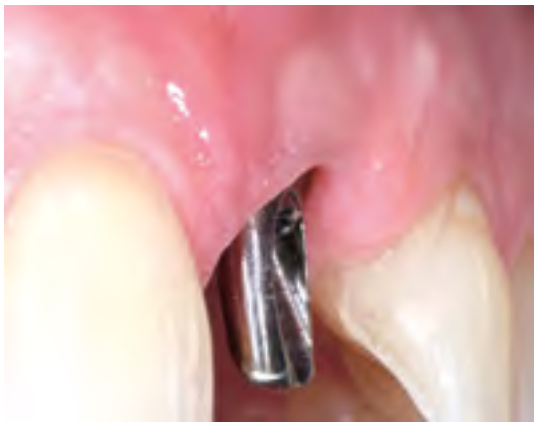


13 I Maturation of the soft tissues two weeks after placement of the healing abutment.



14 I ISQ measurement with Penguin.

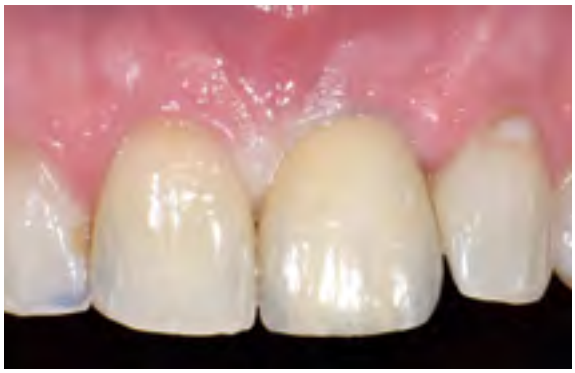




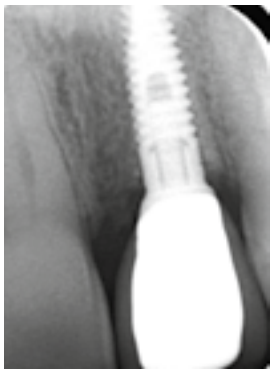
15a and b I Final abutment placed. Note the preservation of the architecture of the site.

membranes were used (Figs. 10a and b). The mucoperiosteal flap was repositioned and sutured without tension with 5-0 sutures (Prolene, Ethicon; Johnson & Johnson, Somerville, NJ, USA). Antibiotic therapy consisting of 500 mg amoxicillin every eight hours for five days and mouth rinsing with 0.2 % chlorhexidine every eight hours for ten days were prescribed. The sutures were removed after a seven-day healing period.

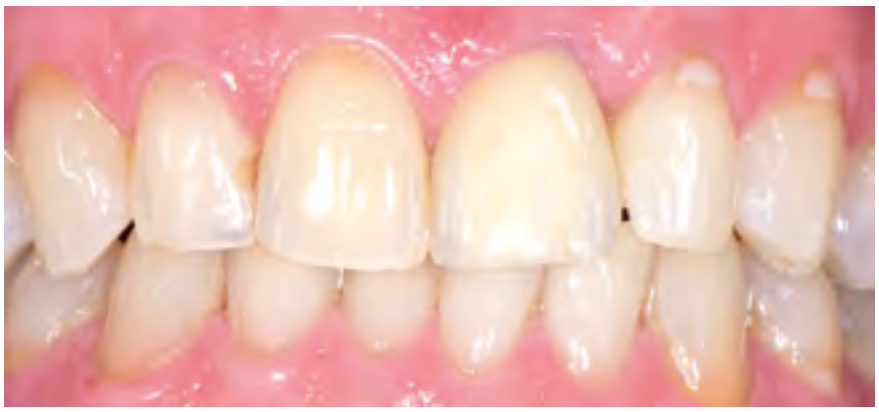
After ten weeks, the healing was uneventful. The architecture and the dimensions of the ridge were adequately preserved and the site was covered with thick keratinized epithelium (Fig. 11). A periapical x-ray showed excellent osseointegration of the implant and consolidation of the grafting material (Fig. 12). A linear crestal incision was made to access and remove the cover screw, and the secondary stability of the implant was measured by resonance frequency analysis (Penguin; Integration Diagnostics Sweden AB, Göteborg, Sweden). An ISQ-value (Implant Stability Quotient) of 72 was recorded, demonstrating high stability. An open-tray impression was taken and a healing abutment was placed. After allowing the soft tissues to mature for two weeks (Fig. 13), the ISQ was recorded again (Fig. 14) revealing again excellent stability of the implant, the final titanium abutment was placed (Figs. 15a and b) and torqued at 35 Ncm, and a metal-ceramic restoration was cemented resulting to a successful outcome regarding aesthetics and function (Figs. 16 to 18, see next page).



16 I Final crown fitted.



17 I Final periapical x-ray.



18 I Clinical view at two weeks follow-up.

Discussion

In the presented case, we decided to intentionally surgically remove the residual thin and defective buccal plate, in an attempt to enhance and accelerate the healing of the site. The presence of the thin buccal plate will trigger locally an osteoclastic activity in order to be resorbed and removed from the body, as this residual bundle bone has lost its functional support from the root, and its nutrition from the periodontal ligament. So, it can be assumed that this osteoclastic activity will interfere and probably slow down the bone regeneration in the site which is the goal of our treatment. Moreover, this resorbing thin buccal plate will isolate the periosteum from the surface of the grafting material during the first important stages of healing. Periosteum has been shown to play a pivotal role in bone graft incorporation and healing, as it contains multipotent stromal mesenchymal stem cells that are capable of differentiating into bone and cartilage, and provides a source of blood vessels and growth factors [16-18], so it can be postulated that the direct contact of the graft with intact periosteum is important and beneficial.

It could be argued that such residual bone should be kept in situ in order to provide mechanical stability to the underlying graft. However, adding CS to β-TCP produces an in situ self-hardening grafting material that may not need additional stabilization with the use of membranes or other meshes [19,20]. Moreover, the CS can act as a barrier, halting the ingrowth of soft tissue during the early phases of bone regeneration [19].

Placement of the implant and the grafting material at four weeks after the extraction takes advantage of the enhanced and activated host bone-healing environment of the post-extraction site [10]. Also, it has been found that the implant itself, due to its semi-conductive nature, increases local bone metabolism and plays a part in the host hard tissue regeneration [21]. Among bone grafting substitutes, β-TCP is commonly used in clinical practice, and extensively used and researched by the authors [13-15,22-27].

It is important that apart from being osteoconductive, there is strong experimental evidence that calcium phosphates, and β-TCP in particular, have also osteoinductive properties. Although the underlying mechanism remains largely unknown, it has been shown that these synthetic materials can stimulate osteogenic differentiation of stem cells in vitro and bone induction in vivo [28,29].

The above properties of β-TCP and CS grafts might explain the successful use of such bone substitutes for the fast regeneration of high quality vital bone and long-term stability, when used in cases of implants placed into defective extraction sockets. The successful outcomes as seen in the presented case are in accordance with published data by the authors and others [30-32].

In conclusion, when considering the immediate or early installation of implants into extraction sockets, clinicians should consider the thickness of the residual buccal bony walls, and the vertical as well as the horizontal positioning of the implants into the sockets, as these factors might strongly influence hard tissue changes during healing. Moreover, clinicians should be familiarized with the surgical protocols and methods that they employ, and at the same time they should have thorough understanding of the healing processes of the body and knowledge of the specific properties of the grafting materials that they use, in order to control and enhance the biologic mechanisms of regeneration in each individual implant case, and thus achieve successful and predictable results.

The references are available at www.teamwork-media.de/literatur

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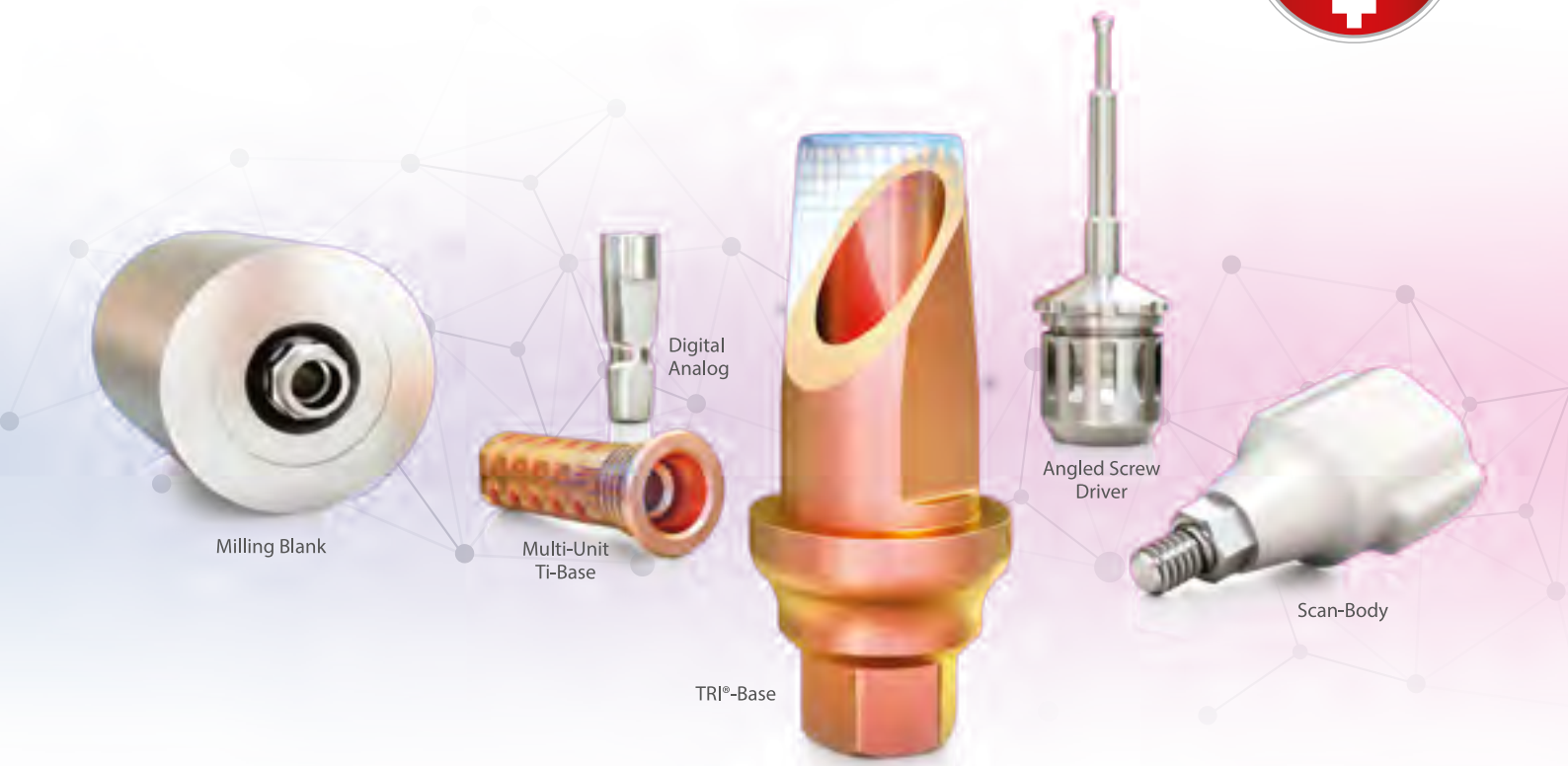

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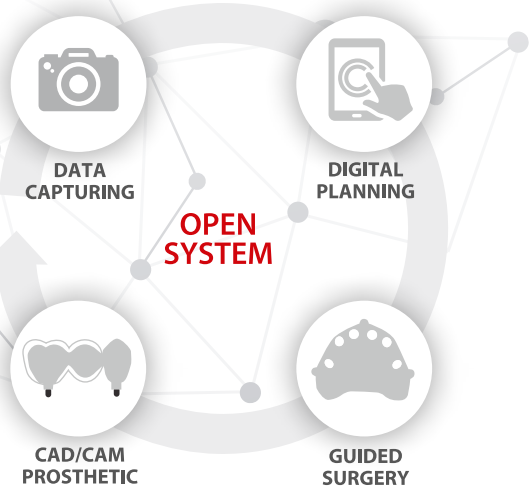

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Gum disease and caries, the most common human conditions

The EFP launches Perio & Caries campaign

Gum disease and tooth decay are the two most widespread oral conditions in the world, and in fact the two most frequent noncommunicable human diseases.[1] Both are preventable and share common genetic, aetiological and environmental factors. Given that they follow different trajectories, they have traditionally been studied separately. Not anymore.

Now, for the first time, the European Federation of Periodontology (EFP) puts forward a new, common approach by launching Perio & Caries, an ambitious European-wide project aimed at raising awareness among scientists, health practitioners, and the public about the associated causes, risk factors, interactions and prevention measures that may affect both periodontal diseases and dental caries.

The core element of the project is the newly-created dedicated site perioandcaries.efp.org, which contains a wealth of educational materials freely available and downloadable. These publications include a specially-written scientific report compiled by *Professor Nicola West*, as well as five targeted recommendation brochures, each bringing concise advice for oral health professionals, other healthcare professionals, researchers, policy-makers, and the population at large.

The Perio & Caries initiative, sponsored by Colgate, has been designed to disseminate the outcomes of Perio Workshop 2016, a major scientific meeting jointly organized by the EFP and ORCA (European Organisation for Caries Research) and co-chaired by *Professor Mariano Sanz* (EFP) and *Professor Andreas Schulte* (ORCA). All Perio & Caries publications are based on the knowledge generated at Perio Workshop 2016.

Based on the contributions from 75 leading global cariologists and periodontologists, Perio Workshop 2016 pioneered the exploration of "The boundaries between dental caries and periodontal disease." It reviewed all available scientific evidence on common links between these oral conditions, including identified similarities – and the distinct characteristics of each – and recommended clear preventive strategies to help tackle them.

The scientific conclusions of Perio Workshop 2016 are publicly available in a special open-access supplement of the EFP-edited Journal of Clinical Periodontology.[2]

Furthermore, the Perio & Caries site offers a series of related videos, news, additional documentation, and all the scientific papers produced by the working groups at Perio Workshop 2016, which examined the role of microbial biofilms; the interaction of lifestyle, behaviour and systemic diseases; prevention and control; and age-related effects, all in relation to dental caries and periodontal diseases.

Perio & Caries materials are to be shared with all 30 EFP-affiliated national societies of periodontology in Europe, northern Africa, the Middle East, and Caucasia, and their members – around 14,000 periodontists, dentists, researchers, and other oral healthcare professionals interested in gum health. Stakeholders can freely take advantage of this Perio & Caries content in their dental practices, schools, laboratories, and companies. The same applies to any other people who may be interested.

[1] Petersen P.E. The World Oral Health Report 2003: Continuous improvement of oral health in the 21st century - The approach of the WHO Global Oral Health Programme. Community Dent Oral Epidemiol 2003; 31(Suppl. 1):3-24: http://www.who.int/oral_health/media/en/orh_report03_en.pdf

[2] JCP, special issue: Proceedings of the 12th European Workshop on Periodontology, "The Boundaries between Caries and Periodontal Diseases": http://onlinelibrary.wiley.com/doi/10.1111/jcpe.2017.44.issue-S18/issuetoc

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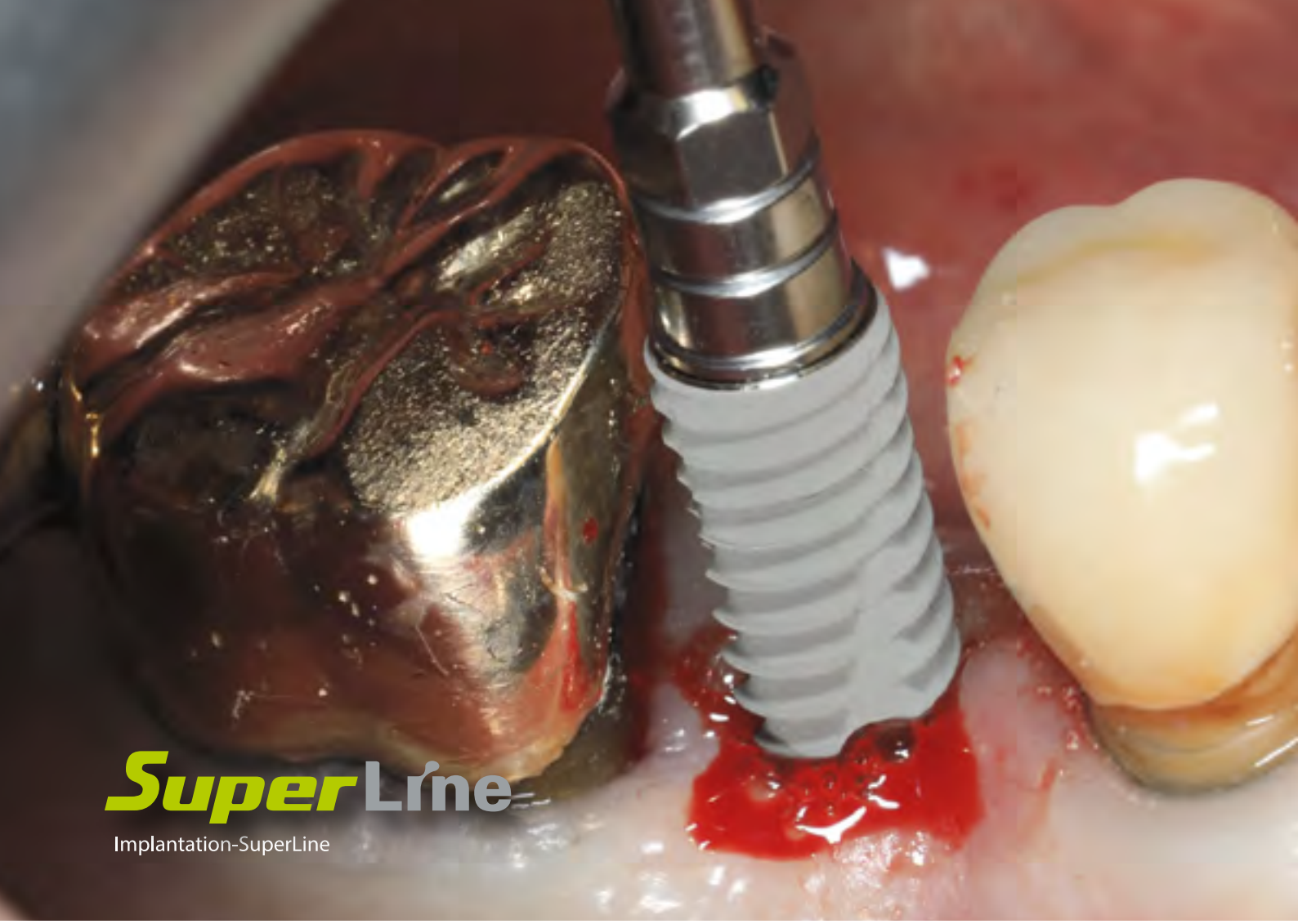
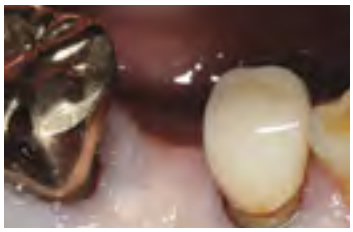
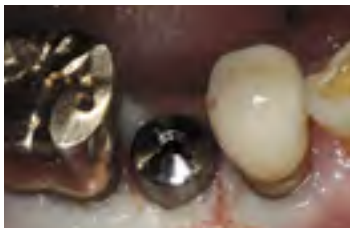


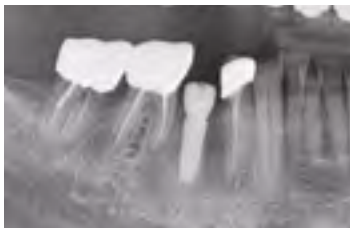
Higher joint strength for zirconia crown / Concave gingival design for more soft tissue space
Less internal space for higher fixture strength / Sharper and higher thread for early loading

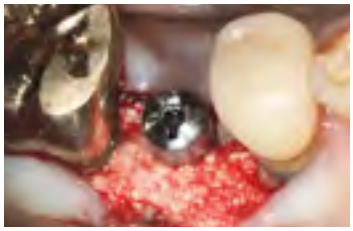
Clinical Case

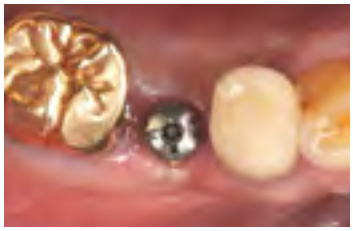

Pre-Op

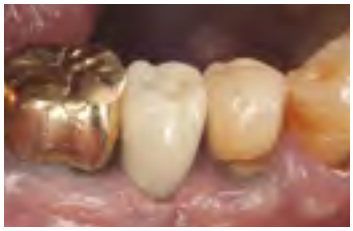

SuperLine

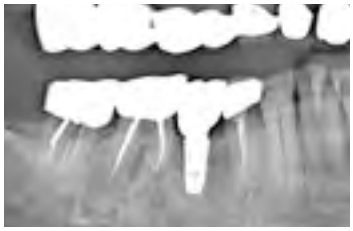

Post-Op


Post-Op


Second Stage Surgery


Healing 3months
(After Second Stage Surgery)


Final Prosthesis


Final Prosthesis

4th Bego Implant Systems Global Conference in Dubai

Finger on the pulse

Bremen – Sitges – Belek – Dubai: The locations that Bego Implant Systems has chosen for its international conferences over time is self-explaining and demonstrates the progressive global expansion of the company's activities. About 500 visitors from all over the world had accepted Bego Implant Systems' invitation to expand their knowledge and get inspired by new pathways in implant dentistry, and gathered in Dubai early on 9 and 10 February 2018. The InterContinental Festival City with its striking architecture and its position right on the Dubai Creek was a premium location for the successful fourth edition of the Bego Implant Systems Global Conference.

Managing Director Walter Esinger welcomed the international audience on behalf of the Bego Implant Systems team.

Day one of the event was dedicated to a series of workshops that provided special insights in different relevant issues, starting from digital workflows and chairside luting techniques to new treatment concepts for full-arch restorations to the outcome of implants in the aesthetic zone in the case of periodontally compromised patients.

The future of implantology is digital, certainly, but there is still a lot of reservation and uncertainty towards the subject with most dentists. That is why the workshop participants visibly enjoyed receiving first-hand information on the opportunities of the digital workflow and integrated digital dentistry by experts in the field. The vivid questions & answers sessions at the end of each workshop proved the great interest and the importance of qualified information. The same enthusiasm could be observed during the hands-on exercises that completed the workshop about the easy and safe luting of attachments and Easy-Con abutments chairside.

In his highly informative and didactically refined presentation under the headline "From periodontal downs to aesthetic heights on implants", *Dr Gerd Körner* from Bielefeld, Germany, shared his profound knowledge on the interface of implantology and periodontology with a focus on the aesthetic zone. "Preserve the original, minimize the defect, reconstruct the bone level, optimize soft tissue conditions and organize supportive treatments – these five steps are key for successful tissue integration", *Dr Körner* explained.

Dr Joost Brouwers from Amersfoort, the Netherlands, a dentist with more than thirty years of practical experience, presented a wide scope of cases from his practice to illustrate the use of the Multi^{plus} concept for fixed full-arch restoration on four, five or six implants in one day. "On condition of a good morphological distribution of the implants, tilted implants are a promising possibility in edentulous cases and offer many advantages, one of them being the concept's compatibility with a digital workflow", was *Dr Brouwers'* conclusion.

Walter Esinger, Managing Director of Bego Implant Systems, started the official scientific programme on Saturday. He extended a warm welcome to the visitors from 15 countries, underlining that besides all the groundbreaking developments and challenging technical innovations it is still the patient who should be the centre of attention of all involved parties – dental companies, scientific researchers and dental practitioners. "Why are we doing all this? Because we want to make people smile and be happy", as *Esinger* put it in his opening speech.

Dr Gholamreza Ghaznavi from Tehran, Iran, member of the scientific board besides *Professor Stefan Fickl* from Würzburg, Germany, and *Professor Erhan Çömlekoğlu* from Izmir, Turkey, introduced the speakers of the morning session. The programme started with a brilliant lecture by *Fickl* about contemporary protocols for implants in the aesthetic zone. He explicitly explained the prerequisites for successful results – "We need soft tissue around the implant!" – and underlined the importance of choosing the respective protocol for every individual case. His clearly structured presentation followed the thread from immediate loading in cases with ideal conditions to cases that require augmentation of bone or soft tissue, ending up with procedures with a delayed loading protocol. He clearly outlined the most helpful approaches to preserve as much of the existing hard and soft tissue as possible and also

explained the techniques that are, depending on the initial situation, best suitable for augmentation.

The following speaker, *Professor Florian Beuer* from the Charité University of Medicine, Berlin, Germany, presented new ways of approaching implant dentistry. Drawing a comparison with a three-storey building, he explained and compared three innovative yet reliable protocols: immediate restoration, the two-step Munich Implant Concept MIC, and prosthetic treatment after bone healing. *Professor Beuer's* final conclusion: "Surgery and prosthodontics must be considered together, an approach that enables biologically driven concepts and increases treatment opportunities."

After the markedly scientific and facts-based lectures of *Fickl* and *Beuer*, *Dr Eduardo de la Torre* from Madrid, Spain, ignited a firework of passion with his fulminant presentation on emotional patient experience and DSD business implementation. Trust and an emotional connection between patient and doctor, supported by the visualization of the possible result with a mock-up and photographs will, so *de la Torre's* strong conviction, persuade any patient to agree to a treatment.

After a relaxing lunch break at Dubai Creek's waterfront, *Professor Çömlekoğlu* took over the moderation and skilfully accompanied the afternoon session. The next speaker was *Dr Brouwers*, standing in for *Dr Detlef Hildebrand* from Berlin, Germany, who had unfortunately been ill. In his instructive and entertaining presentation, the experienced practician from the Netherlands affirmed that implant dentistry is facing a new era of hard and soft tissue management around implants. Drawing on cases from his daily practice, he explained the use of plasma rich in growth factors (PRGF) to accelerate soft tissue regeneration, a topic that attracted the special interest of attendants from Russia and China, as the concluding discussion would reveal.

Last speaker of the thorough programme was *Dr Marc Thom*, Global Senior Business Development Manager of Sony Mobile Communications International from Düsseldorf, Germany, the conference's only "non-dentist" speaker. Bursting with energy and enthusiasm, the IT specialist made clear how digitalization will continously change the way people and companies do business in the future. "Choose the position you want to take in the internet loop and use it to focus on human interaction – that's my recipe for success in the digital world of tomorrow", was *Thom's* advice to all attendees.

The ensuing panel discussion brought all lecturers back to the stage. Many questions from the floor proved the vivid interest for the topics of all lectures and provided the best evidence that Bego had its finger on the pulse when drawing up the conference programme.

The marvellous social programme, including a Bedouin dinner under a starry sky and a delicious gala dinner with live music in a relaxed atmosphere, provided the perfect frame to engage in both professional and interpersonal exchanges, contributing to the success of the event. And even more: Despite the multicultural background of the many attendants, the international scope of lecturers, and the high-class scientific programme of its 4th Global Conference, the Bego Implant Systems team succeeded in making every guest feel like they were part of a community, a community reunited under the conference's headline: Art of Implantology. *IL*

More information
www.bego.com

Finale of a very successful event (from left): Walter Esinger, Professor Erhan Çömlekoğlu, Dr Gholamreza Ghaznavi, Professor Stefan Fickl, Professor Florian Beuer, Dr Joost Brouwers, Dr Eduardo de la Torre and Dr Marc Thom.

360° Implantology: 4th MIS Global Conference

360 degree view – 100 per cent success

Even though the Israel-based implant manufacturer MIS Implants had spared no effort to offer a perfect ambiance for their 4th Global Conference, a short glance at the speakers' list was enough to confirm that it was not only the paradisial location that attracted 1,100 dentists to Nassau, Bahamas, from 8 to 11 February 2018. A vast array of internationally renowned experts in implant dentistry gathered to share their knowledge with the eagerly interested participants. After the great success of the MIS Global Conference 2016 in Barcelona, Spain, MIS Implants again proved that there is no limit to improvement.

The first day was reserved for a packed programme of workshops fully booked out in advance. But many more people showed up and looked for a chance to take part in the interactive workshop format. The lively interest was also reflected by the many questions and the spontaneous exchange between speakers and audience. The topics ranged from the rehabilitation of the edentulous patient with a "fixed hybrid prosthesis" protocol, to conical prosthetic connections, to novel bone substitutes for the augmentation of bone defects prior to implant placement. *Vincent Fehmer* from Switzerland presented his comparison of monolithic versus veneered implant reconstructions, while *Ignacio Sanz Sanchez* from Spain informed about the key factors for decision-making during 3D implant planning and execution with guided surgery.

Make it simple – but striking!

After an exciting welcome evening at the waterline of Paradise Harbor Beach, offering a unique setting for personal and professional exchanges in a relaxed atmosphere, the second day started with a welcome speech by *Doron Peretz*, Senior Vice President of Marketing & Development at MIS Implants, and *Professor Lior Shapira*, chair of the scientific committee.

The lecture day was divided into four big subject areas, all of them featuring renowned specialists in their field. It started with "Evolution and horizons in implant therapy", moderated by *Professor Leila Jahangiri* from the USA, who treated the overarching issue of success and failures in implant dentistry. Among the reasons for failure, she mentioned occlusal overload as a key factor: With natural teeth, the forces can also be distributed to the

periodontium, which does not happen in the case of implants. Instead, the forces are directly transferred to the coronal structure of the implants. *Jahangiri's* conclusion, "The right occlusion is vital, which again requires the right prosthetic rehabilitation."

Dr Eric Van Dooren from Belgium, the next speaker, lectured on new concepts to optimize the perio-prosthetic interface of implant restorations in the aesthetic zone. In his opinion, not many changes have occurred in terms of surgical techniques, but quite a few changes have taken place in the way clinicians treat their cases due to increasing digitalization. *Van Dooren* emphasized that placing implants with a guide makes surgery more predictable and facilitates the use of screw-retained rehabilitations, a prerequisite to preventing cases of peri-implantitis that result from cementation.

Professor Myron Nevins from the USA, a luminary in the field of periodontology, concluded the first session with his speech on the prevention of peri-implantitis to achieve long-term success. "Patient and hygienist must be able to clean the area. There is no other way to prevent any form of inflammation", was *Nevin's* urgent demand (see "A question on the sidelines" below). During the following discussion, the speakers extensively answered questions from the audience.

The second session topic, "Biological principles and predictable aesthetics" was introduced by *Dr Ariel Raigrodski*. *Professor Joseph Kan* from the USA enthralled his audience with his vivid and compelling presentation on immediate implant placement and provisionalization in the aesthetic zone, based on his 20 years of practical experience. His precise requirements for promising results: minimum bone quantity of 3 mm, stability taper, a 3 to 4 mm implant depth position with less than 15 degrees of angulation, and an implant diameter of less than 4.3 mm.

Dr Mauro Fradeani concluded the second session with his interdisciplinary approach to aesthetic rehabilitation, describing the development from the traditional to the digital approach. *Fradeani* stated that there are measurable criteria for an "optimal" smile that can be achieved with the help of digital techniques. ››

A question on the sidelines

Professor Myron Nevins DDS, editor of the International Journal of Periodontics & Restorative Dentistry and internationally recognized periodontologist with multiple professorships and a wealth of practical experience, comments on one of the basic ideas of his speech.

The message at the end of your presentation implied that the work of hygienists is an essential factor for the long-term outcome of an implant even for periodontal patients. Could you elaborate on that statement?

Periodontitis and peri-implantitis are chronic diseases, unlike an abscessed tooth which can have successful endodontic treatment and the patient is hopefully cured for evermore. If periodontal patients have therapy and the disease is eliminated, they need to be kept under supervision every three months. It's almost as if you go to Weight Watchers: As long as you're being weighed, you are careful with what you eat. But as soon as the programme is finished, you begin to drift back to your old habits. With periodontal disease, if people have reached an age of 35, 45, 50 years and have not discovered dental floss, if they don't know how to clean between their teeth, where the worst of the problems come from, that is an issue.

Professor Myron Nevins and EDI Journal Project Manager My To

Dental implants exist in the same environment as your natural teeth. And the patients' susceptibility to inflammation does not change. We don't have a vaccine or pill or anything to give them. If you have a population with tens of millions of people and you have no dental hygienists, which as came up this morning does happen, it is very difficult to maintain the results. With periodontal treatment, you cannot mistake pink tissue and non-bleeding examination to be synonymous to periodontal health. We need to have a final result of treatment that the patient and the hygienist can keep clean. It has to be decontaminated. And this would be a major step to the prevention of peri-implantitis and the preservation of the results. *MT*

Creative professionalism: MIS allows insights.

After a well-deserved lunch break, *Professor Carlo Marinello* from Switzerland introduced the third session, "Long term prediction of implant therapy", with a chronicle of the developments in the field of implant dentistry during the last 30 years. His conclusion: "The trend is going towards shorter implants, tilted implants and less implants."

The following speaker was *Dr Christian Stappert* from Germany, who focused his presentation on successful biological tissue regeneration in the aesthetic zone and explained the technique of "pedicle gingival grafting" to achieve a surplus of tissue and bone. Following this, *Dr Eward P. Allen* from the USA shared his expertise on the management of soft tissue around implants with minimally invasive surgery. *Dr Lesley David* from Canada concluded the third part of the programme and answered the question on whether or not to graft in cases of complete arch rehabilitations.

The fourth and last part was moderated by *Professor Stefan Koubi* from France and was dedicated to the digital workflow: "Going digital: Where, when and how". *Dr German Gallucci* from the USA talked about digital technologies as a factor that considerably influences the long-term implant-prosthodontic outcome. He encouraged practitioners to familiarize with modern treatment planning tools to improve the accuracy of care delivery and to widen their treatment options.

Final speaker of the high-quality programme was *Dr Wael Att* from Germany, who dicussed 3D engineering in dentofacial rehabilitation. He compared the possibilites and advantages of conventional and digital approaches and addressed the question of whether digital tools can already meet the expectations placed on them: improve the accuracy in data acquisition and assessment, lead to superior efficacy in treatment planning, and allow for more controlled and faster manufacturing processes.

Not only have MIS Implants proven their ability to organize a high-quality scientific, practice-oriented congress; they were also able to provide a 360 degree view on the state of the art of implantology. Emphasizing its commitment to innovation in all fields, the dental company also introduced a new information format by cooperating with TEDx. Thus, the last conference day was completely dedicated to a unique series of fast-paced, eye-opening talks that inspired all participants and provoked meaningful conversation and connections among all. A great finale for a great event.

MT

4th National Osteology Symposium in Zurich, Switzerland

Tips and tricks for successful augmentations

The year had just started, when on 12 and 13 January 2018, the 4th National Osteology Symposium in Switzerland took place. 240 participants, and not only from Switzerland, attended the four Osteology and industry workshops and the excellent scientific programme.

The hands-on workshops on Friday were held by *Dr Goran Benic* and *Dr Nadja Nänni*, *Dr Simone Janner*, *Dr Marco Zeltner* and *Dr Samuel Huber*, as well as *Dr Beat Wallkam*. In the main programme on Saturday, some of the most renowned experts on oral tissue regeneration from Switzerland were on stage, as well as international experts, such as *Dr Karin Jepsen*, Germany, *Dr Daniele Cardaropoli*, Italy, or *Professor Frank Schwarz*, Germany. The chairmen, *Professor Daniel Buser* and *Professor Ronal E. Jung*, had put together an excellent programme covering all aspects of oral tissue regeneration therapies. True to the motto of the Osteology Foundation "Linking Science with Practice in Oral Regeneration",

Dr Simone Janner, Dr Daniele Cardaropoli, Professor Martin Rücker, and Professor Frank Schwarz (from left) engaged in a vivid panel discussion.

the latest insights from research were presented and their relevance for the practice was highlighted.

The first session addressed the topic soft-tissue management. *Professor Anton Sculean* talked about different techniques for recession coverages and presented a novel technique with a laterally moved flap, which showed good and predictable results. In the same session, *Dr Rino Burkhard* presented different options for soft-tissue harvesting, underlining that the best choice depended on the indication and the patient. *Dr Karin Jepsen* talked about aesthetics and function in implantology, pointing out that bone augmentation alone was not sufficient. Whether autologous bone and soft-tissue grafts are still necessary, was discussed by *Adj. Professor Daniel Thoma*. The answer varies according to the type of intervention, but autologous tissue is still the gold standard, *Thoma* explained.

In the second session, hard-tissue management was addressed. *Dr Simone Janner* started the session with a presentation on predictable and long-term stable bone augmentation. *Dr Daniele Cardaropoli* discussed the decisions that practitioners have to take at the time of tooth extraction. CAD supported techniques for the augmentation of the deficient ridge with autologous bone were presented by *Professor Martin Rücker,* who stressed the importance of backward planning.

The last presentation was held by *Professor Frank Schwarz*. He discussed different treatment options for periimplantitis and answered frequently asked questions: when to remove an implant, when to regenerate, and when debridement is sufficient. According to *Schwarz*, the answers mainly depend on the implant surface and the defect type.

The Osteology Foundation thanks all presenters, moderators, industry partners, exhibitors, participants, and the local organizers, who made the event a big success.

More information
www.osteology.org

A question on the sidelines

Dr Goran Benic is Adj. Professor at the Center of Dental Medicine at the University of Zurich. At the 4th National Osteology Symposium in Zurich, he led the hands-on workshop "Modern clinical concept for the management of peri-implant bone defects" together with Dr Nadja Nänni. EDI Journal asked him a question from the clinical practice.

Dr Benic, guided or not guided – how do you decide whether or not to resort to guided surgery?

3D diagnostics and guided surgery belong together. Therefore, the first question is: Do I need the third dimension, do I need a CBCT? If the clinical examination and the 2D radiographic imaging provide the information about the adjacent anatomical structures and show that there is sufficient bone quantity, then there is no indication for CBCT. On the other side, if based on the clinical exam and conventional radiograph there appears to be need for bone augmentation, it is worth taking a 3D radiograph. This allows to better judge the necessity of a bone grafting procedure and, possibly, to identify a way to avoid this intervention. Moreover, cases in which the instrument guidance through the surgical guide offer advantages are indications for 3D diagnostics and guided surgery. These encompass the situations with unfavourable bone morphology and low tolerance for the correct implant position, need for flapless surgery and need for immediate loading. In the last case, CBCT and guided surgery provide more predictability for achieving sufficient primary stability of the implant, which is the main requirement for the success in immediate loading procedures. Summarizing, the indications for CBCT and guided surgery are: uncertainty about the adjacent anatomical structures, bone defects, flapless surgery and immediate loading. *MT*

Nobel Biocare 2017 Symposia

Voices in the crowd

The final Nobel Biocare symposium of last year, held in London on 10 and 11 November 2017, has proven as successful as all the others that took place earlier that year in all parts of the world. There is one common focus of all Nobel Biocare symposia: the science behind the products.

From locations as widespread as Portugal, the United Arab Emirates, Spain, Mexico, Russia, China, the USA, Japan, the Netherlands, Croatia, and the United Kingdom, reports from organizers and participants alike have been enthusiastic: They all seem to want to do it again.

The Nobel Biocare symposia merged leading learning opportunities with breakthrough innovations for dental professionals by combining lectures and master classes with opportunities for hands-on learning. The speaker line-up was tailored for each symposium and each country – some of the most renowned lecturers and educators in the world appeared alongside respected local speakers to offer a truly rewarding learning experience for dental professionals across the globe.

In addition to the comprehensive educational programme, each symposium gave attendees the chance to network with peers and discover the latest Nobel Biocare products and solutions in interactive exhibitions.

Just a little choice of voices from the thousands of dental professionals who attended Nobel Biocare symposia this year: "The scientific programme in Dubai was outstanding," said *Professor Nabil Barakat* from Lebanon. "The renowned clinicians who lectured succeeded in relating how Nobel Biocare has always joined science and innovative technologies in the constant evolution of their products to better serve dentists and their patients."

Dr Beatriz Aranguena from Spain, who attended the symposium in Santiago de Compostela, agreed. "We enjoyed a top-level scientific programme. For me, the highlights were the interdisciplinary approach, the live surgeries, and also an excellent programme for the laboratory technicians, who play a very important role in treatment."

On the other side of the globe, *Professor Ye Lin* from China said, "The Nobel Biocare symposium in Huangzhou was well-organized with important academic topics. It provided dentists with a good chance to be exposed to the latest ideas and technologies of the dental implant industry."

More information
www.nobelbiocare.com

Hands-on workshops and panel discussions with world-renowned experts contribute to the success of all Nobel Biocare symposia.

Alpha-Bio Tec International Congress 2017

Big in Madrid

Alpha-Bio Tec's 2017 International Congress for European and Latin American customers took place in Madrid, Spain, in November 2017 and revealed to be a resounding success.

Open forum with Dr Devorah Schwartz-Arad, Dr Gadi Schneider, Dr Henriette Lerner, Dr Beatriz Vilaboa, and Dr Débora Vilaboa (from left).

The congress, tailored for global dental professionals, which hosted 14 international keynote speakers from 12 countries, offered delegates from more than 30 countries exclusive experiences and knowledge exposure to the latest strategies and methods in aesthetic implant treatments. It was an opportunity for Alpha-Bio Tec dental professionals to share their insights and expertise on some of the key challenges in today's dentistry and implantology.

750 participants from all around the world attended the congress, which focused on one of the most important issues that dental implantology faces today: the management of aesthetic challenges in implant treatment strategies, recognizing the importance of aesthetics in addition to biological compatibility and product quality.

The congress also showcased the company's innovative NeO implant system, the Alpha-Universe Multi-Unit, and the graft products. Also presented was the line of digital enablers products, including the sought-after CAD/CAM and guided surgery tool kit.

"This congress brought forward our core values of customer value, quality, simplantology, implant expertise and our excellent training & education programme, which manifested itself through a line of 14 leading international speakers demonstrating professionalism at its best", stated *Shani Biran*, Alpha-Bio Tec VP Marketing. "This congress proved Alpha-Bio Tec's ability to reach high professionalism, and highlighted the company's values of excellence and service."

Visit the Alpha-Bio Tec website to learn about their upcoming 2018 events.

More information
www.alpha-bio.net

bredent group days in Goa, India

Discovering new horizons

The bredent group days in Goa, India, were held between 2 and 4 March 2018 and turned out to be a very special event, as there has never been a convention with a comparable high-quality line-up for both dentists and dental technicians in India before. Participants and speakers unanimously agreed that the excellent programme with its very interesting lectures and the entertaining gala evening was worth visiting and will certainly be talked about for a long time in the dental world of the Indian subcontinent.

For the first time, the bredent group held its "bredent group days" convention outside of Europe. This was not only a highlight for the company, but also for the participants from India and Nepal as well as for those from Eastern Europe, Africa, the United Kingdom and Germany.

About 300 dentists and dental technicians travelled to Goa and listened to highly informative presentations on immediate restoration and physiological prosthetics, held under the bredent group's well-known motto of "Leading in immediate restoration – powered by physiological prosthetics". On the stage, both Indian and international speakers presented their clinical cases and held countless expert discussions with interested participants during the breaks. Innovative solutions and restoration options that facilitate a natural and conservative, but also fast and cost-effective treatment of patients were presented.

The "SKY Digital Summit" preconvention, held the day before the main programme, was a splendid prelude to a successful convention weekend. At the summit, the many interesting talks focussed on the immediate restoration of edentulous jaws using bredent's SKY fast & fixed therapy concept in conjunction with the high-performance physiological polymer BioHPP with a complete digital workflow.

The exotic backdrop of the former Portuguese colony of Goa and the atmosphere in the convention hotel Alila Diwa also gave the visitors of the bredent group days the opportunity to immerse into the magical Indian culture. The gala party under the motto "Hollywood meets Bollywood" was certainly the highlight of the supporting programme. Culinary specialities and a colourful music mix made the evening an unforgettable experience for all participants.

India has become an important strategic growth market for the dental sector. The bredent group, which as a family run company has been developing and marketing therapy solutions for dental technology and dentistry for nearly 45 years, has been following this development for several years and announced the formation of the "bredent group India" subsidiary at the bredent group days in Goa. The organizer, speakers and guests were united in their conclusion: Interesting talks, fantastic people, wonderful atmosphere – the bredent group days in Goa were an unqualified success. ■

All hands on deck: The bredent group's Team India thanks the speakers and participants for a memorable convention.

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PRIME MOVER IN IMPLANTOLOGY

Interview with Dr Teresa A. Dolan, Chief Clinical Officer and Vice President at Dentsply Sirona

A holistic approach

After serving as Professor and Dean of the University of Florida College of Dentistry for many years, Dr Teresa A. Dolan now acts as Chief Clinical Officer and Vice President at Dentsply Sirona. EDI Journal Project Manager My To talked to Dr Dolan about the chances and challenges of contemporary medical education.

Dr Teresa A. Dolan

You are providing the strategic directions for Dentsply Sirona's global professional education activities. What impulses do you give to the programme?

As Chief Clinical Officer, I have the wonderful opportunity to transition my career from academic dentistry to industry. Using my university experience, I work with colleagues at Dentsply Sirona to really be thoughtful about how we engage and empower dentists and dental professionals through clinical education, while also looking to the future and setting strategic directions for how we can best serve our customers. My role is to take the broadest perspective and think about dentistry, dental care delivery, dental technologies and then work with our leaders in each business unit to ensure that we are providing the best possible education within that business concept while also thinking about how we can better meet the needs of clinicians across our businesses. The challenge is to bring all possible perspectives together in a cross disciplinary fashion. What drives clinicians is their desire to provide the best possible care for their patients, so we embraced that notion of empowerment and use it as the basis of all our clinical education activities.

Which topics should be included in the curriculum of dental students to improve the quality of education?

Universities today must provide strong foundational education, while also including new methods and technologies in the curriculum. So one of the ways that we partner with universities is to offer granting programmes, share KOLs or experts, work together to develop curricula, and also partner with schools in their continuing education so that we can offer jointly excellent educational programmes for the graduate dentists who want to continue on and advance their expertise. University relations is an important part of my job and it is really important for our company. Like universities, Dentsply Sirona honors the traditions and core principles of quality dental care, and at the same time we want to be future-thinking and explore new materials, procedures and technologies that can improve dental care delivery. Great research is being conducted at leading universities around the globe, and that's where collaborations with these universities can really advance dentistry and take clinical care to the next level.

Which teaching methods support effective teaching and learning today?

Educational literature suggests that active learning, or engaging the learner in a way that they are actively involved, is a hallmark of adult education. Working to really live this concept of active learning and engagement is one of our opportunities. Professional development will always include traditional lecturing and hands-on clinical courses. We can now supplement those teaching methods with new technologies, including on-demand learning, virtual or augmented reality, technology-enabled professional social networking and the like. Mentoring will always be an important part of the learning process: The more you have the opportunity to learn from mentors and more experienced clinicians and technicians, the more it helps to advance your professional development.

Do you see any specific trends for the future of continuing education?

There are aspects of learning dentistry that have not changed, including the desire to belong to a learning community. The dental schools enroll students as a part of their learning community. So students learn from each other, from peers, from senior mentors, and they learn in a very hands-on or active fashion. When people graduate from school and enter practice, they are looking for that sense of community. With technology, we can help build those communities, either virtually or face to face. Some of the fundamentals of adult learning will continue because they are sound and effective, but they will

be supplemented by technology. Let's take implant dentistry as an example: Using educational technology or augmented reality, you can practice surgical procedures and implant placement virtually before you apply them on a patient. I think there is going to be some amazing things in the near future.

Which requirements does an increasingly ageing population impose on dental practitioners?

I had the opportunity early in my career to complete a two-year fellowship programme in geriatric dentistry. When I joined the faculty at the University of Florida, I developed a curriculum to teach dentists how to best meet the needs of their older patients. It is interesting that the clinical procedures are not necessarily the more challenging aspects of dental care for older adults. What can be more important is understanding how we change with ageing: the chronic diseases that we may develop over time, the number of medications that a patient would take, or may be a cancer treatment in the past. As you provide dental care for older individuals, you really have to understand their underlying medical conditions as well as any psycho-social issues. Challenges including dementia and mobility problems can creep up on you as you get older. Geriatric dentistry requires a holistic approach to patient care, taking into account many factors when planning treatment for an older adult.

Nowadays, many companies offer dental training programmes. How does the Dentsply Sirona Academy differ from other offerings?

In my opinion, the way we are thinking about the Dentsply Sirona Academy matches our company's breadth and expertise in a way that meets the needs of all dental professionals. We have categorized our clinical education offerings in three ways: clinical excellence, technical excellence and practice excellence. The clinical excellence is based on our knowledge on what clinicians need and want. It is helping them with the clinical protocols, understanding current science, how science underpins clinical decision-making. Courses combine the best science available with the best practice experience to create evidence-based clinical education. As to the technical excellence, our company offers many new technologies, and when a dentist or a technician decides to adopt technology, they really need someone to guide them and help them implement it into their practice. So this is more product-centric with an emphasis on technical education. And the third component of the Academy focuses on practice excellence. The clinician serves as the team leader, but a practice is only successful when all members of the team – dentist, dental hygienist, assistant, office manager – work well together to support the needs of the patient. And so the practice excellence piece supports that team-delivery of quality dental care. And we make sure that we have all the expertise and the external experts to support the three types of education.

Thank you very much for your time and the very insightful interview, Dr Dolan. *MT*

Interview with Dr Karsten Wagner and Thomas Lange from Dentsply Sirona Implants

International Congress on Ankylos 2018

Dr Karsten Wagner and Thomas Lange, Dentsply Sirona Implants

On 29 and 30 June 2018, Dentsply Sirona Implants will once again hold an international scientific congress on the Ankylos implant system. Over 1,000 participants are expected to attend at the Berlin Estrel Congress Center. Dr Karsten Wagner, Global Director Platform Implant Systems Ankylos/Xive, and Thomas Lange, Senior Product Manager, Ankylos and Global Platform Implant Systems (Dentsply Sirona Implants) answered questions about the congress by Natascha Brand, Editorial Manager Dentistry at teamwork media.

Dr Wagner, what do the visitors expect from the Congress on Ankylos? Who is your target audience, the experienced implantologist or the newcomer to oral implantology?

We are pleased that we can once again tempt the international Ankylos family with an event where participants can exchange views in an attractive location. Our worldwide sales organization will take this opportunity to bring both experienced users and new prospects to Berlin, as the congress will provide a comprehensive overview of the performance of the Ankylos implant system and related treatment solutions, especially in a digital environment. After more than 30 years of clinical use, however, the system is so mature that further development will mostly be aimed at improving details.

Mr Lange – you could quite aptly be called "Mr Ankylos" instead as you have been Product Manager for the system since 1993. What makes this implant system so successful?

At the core of the excellent performance of Ankylos there is certainly its conical connection. The steep cone angle provides enhanced mechanical stability, which allows the implant shoulder to be placed subcrestally, providing for excellent long-term results in both red and white aesthetics. In addition, the progressive thread ensures primary stability in different bone qualities, which is important not least for immediate loading. At the time of its launch, the implant design may have been well ahead of its time – and the design has remained essentially unchanged to this day. Unfortunately, this success is also reflected in the number of imitations or "me-too" systems, but this is ultimately confirmation of the viability and relevance of this implant concept.

Dr Wagner, why did you choose the Estrel in Berlin as your venue?

There are few venues that can accommodate both the professional and the social aspects of a congress of this size under one roof. And maybe some participants are tempted by Berlin as a vibrant city and would like to extend their visit. Last but not least, Berlin is easy to travel to both from Germany and from abroad, and that is another point in favour of this venue.

Finally, a personal question, Dr Wagner: What is it like to have worked for Astra Tech for almost ten years and then to suddenly find yourself to be the "Ankylos anchor"?

The Astra Tech Implant System is one part of our product portfolio. Since the merger of Astra Tech Dental and Dentsply Friadent in 2013, I have been responsible for sales of all three implant brands. As the same year saw the market introduction of the Astra Tech Implant System EV, which was important for us, some customers may have felt that the other two systems were being neglected. We are sending a clear signal to the market that the company's Ankylos and Xive lines are just as important to our company and that their visibility will be further enhanced.

Dr Wagner, Mr Lange, thank you very much for sharing your views. *NB*

Interview with Dr Eduardo Anitua, Vitoria, Spain

A fixed prosthesis despite a narrow crest

With a focus on biology and supported by the knowhow of his research & development team, Dr Eduardo Anitua, founder and director of the BTI Biotechnology Institute in Vitoria, Spain, works on trendsetting innovations, guided by the needs of colleagues and patients. The results are treatment methods that are easier to implement for dentists and help patients to obtain therapeutic success in a gentler way. On occasion of the 4th BTI Day in Frankfurt/Main, Germany, Dr Anitua answered the questions of EDI Journal project manager My To.

Dr Anitua, you have just given a lecture about treatment of the atrophic maxilla. Can you summarize the key points in the pre-planning phase of a surgery?

First of all, it is important to know what the patient wants and then define the surgical objective. Does the patient want a removable overdenture or a fixed prosthesis? For example, here in Germany a removable overdenture is quite common whereas in Spain people would prefer by far a fixed prosthesis. Then it is important to know both the bone quality based on our classification from type 0 to 5, and the thickness of the bone, from the CBCT of our patient.

What are the consequences for you as a surgeon in terms of surgical technique?

First of all, the reversibility of the treatment is very important for me, and secondly I will always prefer a minimal invasive over an invasive surgical treatment if I can. The classification of the bone type in the pre-planning phase already gives me a hint on what surgical techniques are possible. For example, for a bone type 0 where only cortical bone is present, a split crest is impossible as the danger of breaking the bone is too high. Moreover, the bone is so poorly vascularized that the risk of resorption is too high. In the mandible, the situation is even worse because the mandibular bone is even less vascularized than the maxillary bone. On the other hand, with a bone type 5, we might have a very wide crest but the bone quality might be so poor that the implant will not find enough anchorage for a good stability.

Bone types 2 and 3 are always perfect conditions for implant placement and immediate loading. So based on the knowledge of the bone quality, we can decide on the diameter, the length of the implant and the surgical technique. For a bone type 3 with a narrow crest of 4 to 5 mm, I would suggest a ridge expansion. I use the BTI bone expanders, which are favourable because the kit consists of different expander drills with progressive diameters that allow the surgeon to perform a controlled movement of the vestibular bone wall, finishing with the implant insertion because the implant will be the last expander. Today we know that we have to pay more attention to the lateral forces than to the vertical ones. With the help of finite element analysis, I have been able to show that the smaller the diameter of the implants, the higher is the increase of the tension in the first threads when bending forces occur. Therefore I now use two or three splinted implants to restore very narrow crests in the posterior region.

So what are the advantages for the patients?

The splint of the implants reduces the lateral forces on the implants drastically. I would therefore suggest implants with diameters no bigger than 3.5 mm for a thin crest. The splinting of the implants is less invasive and more predictable than a bone block graft. The final result would be that the patient can have a fixed prosthesis despite a narrow crest and with a less invasive surgery.

Thank you, Dr Anitua, for taking the time to answer our questions. *MT*

Dr Eduardo Anitua

W&H acquires Swedish specialist Osstell

Creating significant technological synergies

W&H President and CEO Peter Malata announced the acquisition of the Swedish medical technology company Osstell AB on 1 March 2018. This purchase continues the international growth of the Austrian family-owned company W&H Dentalwerk Bürmoos GmbH.

Osstell was established in 1999 and specializes in the development and production of innovative dental solutions for implant stability measurement and osseointegration monitoring. The Swedish company is well-known for its patented ISQ (Implant Stability Quotient) technology, which helps dentists to decide on the optimal loading time of an implant.

Osstell is one of the leading suppliers in the global dental market today. With the current incorporation into the worldwide W&H Group, the aim of both companies is to create technological synergies and significantly expand their joint product portfolio in the future. Expansion of the resources available and of the key opinion leaders' network will bring further advantages for international market cultivation. "The aim is to further expand our expertise and thus strengthen our position as a specialist in oral implantology", W&H President and CEO *Peter Malata* points out. By acquiring Osstell, dental manufacturer W&H is emphasizing the strategic significance of oral surgery and implantology as an important growth area for the company.

W&H and Osstell have already been cooperating successfully in the dental market since September 2016, which resulted in the latest generation of Implantmed, an innovative surgical device with implant stability measurement. Equipped with the optional W&H Osstell ISQ module, the primary stability of implants as well as the optimum time for implant loading can be determined by measurement of the resonance frequency. At the beginning of 2017, the cooperation was further intensified with the exclusive distribution of Osstell products by W&H in selected regions. "The specialized company with its structure fits perfectly to the character of a family business, which is why we are confident that Osstell is a good fit and will become a valuable member of our W&H family", says *Peter Malata*. The new W&H subsidiary will continue to be managed by *Jonas Ehinger* who has been confirmed in his position of CEO. "Osstell and W&H have cooperated very successfully in the past, so it is a natural step that Osstell now becomes a part of W&H. As such, we have the opportunity for both stronger and broader global representation and greater delivery capacity – always with the aim to serve our customers and users with even better products and services as well as helping them to provide best practice services to their customers, the patients. Patients' well-being is always the top priority", says *Ehinger.* Osstell AB will continue as the 19th W&H subsidiary with its own legal entity at the company location in Gothenburg, Sweden. The company name Osstell AB remains unchanged.

Photo: © W&H

W&H President and CEO Peter Malata (left) and Osstell CEO Jonas Ehinger are joining forces with the aim of further strengthening the expertise of W&H in the field of oral surgery and implantology.

One outcome of the cooperation with Osstell is the latest generation of the W&H Implantmed with implant stability measurement.

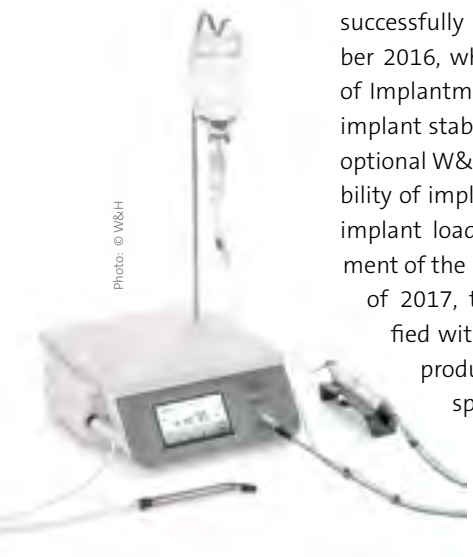


Photo: © W&H

More information
www.wh.com

Oral Reconstruction Global Symposium 2018

The Oral Reconstruction Foundation drives progress in implant dentistry and related areas, for the benefit of the patients. Education and training are the Foundation's utmost priorities and are realized through the organization of top-class events. With the Oral Reconstruction Global Symposium 2018, formerly International Camlog Congress, the foundation intends to build on its successes from 26 to 28 April.

In Rotterdam, implant dentistry topics will be presented and discussed in theory and practice through practical workshops, scientific lectures, and podium and audience discussions. Under the theme "The Future of the Art of Implant Dentistry", a diversity of education and training will be offered thanks to the combination of instructive workshops, an informative scientific programme with top-class speakers, an innovative event concept, and a high-end evening event for networking with opinion leaders and colleagues.

More information and registration
www.orfoundation.org/globalsymposium

bredent Helbo – the original

On the occasion of the EuroPerio9, the European Federation of Periodontology's annual international scientific congress taking place in Amsterdam, the Netherlands, from 20 to 23 June 2018, Professor Arthur Novaes, Chairman of Periodontology at the University of São Paulo, Brazil, will be on site to present his latest results on the high effectiveness of the Helbo therapy.

For many years, the use of photodynamic therapy (PDT) in combatting bacterial infections of the oral cavity has been an innovative topic in dentistry. Meanwhile, a whole range of product concepts are being marketed under this general term and an increasing number of PDT providers are flooding the market. Reason enough to take a close look at expert opinions regarding their actual effectiveness.

A definitely proven and clinically tested photodynamic method among the different applications is the Helbo therapy, which has been scientifically investigated and documented in several respects for more than 15 years.

Professor Arthur Novaes, one of the experts who has been researching on the aPDT for many years, will be present at the booth of bredent medical every day after the lunch break. During one hour, he will be answering questions and discuss the proven positive effects of the aPDT.

bredent medical welcomes all interested visitors to join them at their booth 11.07 and gain comprehensive insights.

More information
www.helbo.de


Professor Arthur Novaes

Paving the way for ceramic implants

A highly skilled group of clinical experts has recently been created by Swiss implant manufacturer Z-Systems. Their objective: to open the field of ceramic implants to a wider community and to foster the knowledge about this topic.

Cumulated competence (from left): Dr Ralf Lüttmann, André Siegrist*, Dr Jochen Mellinghoff, Dr Maria Judith Gelfo Flores, Dr Simon Tordjman, Professor Sami Sandhaus, Thomas Moser*, and Dr Franco Giancola. (*Z-Systems)

Ceramic implants have recently grown from an exotic approach to a very serious clinical alternative in dental implantology. The currently available ceramic implants are technologically far away from those in the early days and have become very reliable. Most notably, the main issues of mechanical robustness and easy osseointegration have been addressed successfully. Clinical experts can nowadays focus on clinical and scientific aspects of ceramic implantology. But in spite of excellent treatment results in the hands of numerous early adopters, the majority of dental surgeons today still have very little knowledge about the ceramic implants at their disposal – clinical documentation and information must definitely be improved in the future.

Taking these facts into account, Swiss implant manufacturer Z-Systems has recently created a highly skilled group of clinical experts. The group's foundation meeting was held in January 2018 in Prangins, close to Geneva, Switzerland. The expert group is exclusively composed of clinicians with a long and broad experience in ceramic implants – starting with the legendary *Professor Sami Sandhaus*, Switzerland, to *Dr Maria Judith Gelfo Flores*, Spain, *Dr Franco Giancola*, Italy, *Dr Simon Tordjman*, France, as well as *Dr Jochen Mellinghoff* and *Dr Ralf Lüttmann*, both Germany.

During their first meeting, this international group of recognized experts has identified the most important steps to improve the general knowledge on ceramic implants. As a first contribution to this educational project, the programme of a major scientific congress on ceramic implantology has been defined. It will take place on 29 and 30 June 2018 in Valencia, Spain. During these two days, the congress will feature speakers from all over the world, informing the attendees about today's state-of-the-art in ceramic implantology and creating opportunities for an inspiring exchange of knowledge.

More information and registration
www.zsystems.com

The MIMI procedure: primum nihil nocere

The Association of Innovative Dental Practitioners will hold its congress in Cracow, Poland, on 11 and 12 May. Dr Armin Nedjat, president of the Association and CEO of implant manufacturer Champions Implants, provides information.

What are the news about Champion Implants' zirconia implant?

At last year's symposium, I was proud to present the innovative pZircono implant for the first time. Now the time has finally come for the impending production start of the certified one- and two-piece zirconia implants, which are expected to be available in sufficient quantities after the congress. You will hear exact details from our designated speaker, whose name I would prefer not to reveal at this point.

What awaits the participant of this year's congress?

Primum nihil nocere ... no phrase from the Hippocratic oath describes the Mimi procedure better: first, do no harm. If you would like to further deepen your knowledge about this patient-friendly implantological method, I would like to cordially invite you to attend the sixth iteration of our successful implantology congresses in Cracow. I am proud that we have once again succeeded in attracting a whole flock of internationally renowned speakers – you can find the complete programme on the internet at kongress.vip-zm.de.

Will your Mimi procedure be the core topic of the congress?

The focus of the congress will not only be on the Mimi procedure. Dentists are increasingly forced to deal with legal and business issues. A specialist lawyer for medical law will speak about pitfalls in the expert opinion and litigation process and on recent court decisions. Also, there will be a lecture on operational and performance audits by the tax office and the Association of Statutory Health Insurance Dentists – rather tedious but important topics. This is where our congress can offer important updates. "Magic Air"/nitrous oxide in the dental practice, innovations in infection control, Champions Smart Grinder, diode lasers and photodynamic therapy will be other topics. And the concurrent industry exhibits will offer more in-depth information. Work hard and play hard ... The first day of the congress will end with a dinner event and party with live rock music.

I can promise you an exciting time at our congress and I look forward to welcoming you to the Sheraton Hotel in the centre of Cracow – doubtlessly one of the most beautiful cities in Poland.

Thank you very much for this interview, Dr Nedjat.

MT

Dr Armin Nedjat

W&H supports everyday heroes

W&H has launched a new image campaign under the motto "From a patient to a fan". It will be turning a spotlight on dentists and dental professionals.

These "everyday heroes" ensure that their patients are in safe and reliable hands whatever treatment situation might occur. They show great dedication and devote their work and time to a particular goal: to put a smile on their patients' faces, simply because they care. Dentists and dental professionals take account of even the smallest concern of their patients and make every effort to make their patients happy again – reason enough to put a focus on that profession for once. The new W&H image campaign gives dental professionals the recognition they deserve. With a perfect balance of know-how, empathy and technology, they can achieve optimal results. W&H supports the practice team in its daily tasks and, with its innovative product portfolio, is a cornerstone of its success. "The daily challenges that a practice team faces are our motivation. As a solutions provider, our products go a way towards making the workflow in the dental practice as smooth as possible", states W&H Managing Director *Peter Malata*. "With innovative dental technologies that meet the users' needs, the team can give their full and undivided attention to what really matters: the patient. We attempt to play a crucial role in our customers' success and help them in turning patients into fans."

More information

www.wh.com
#patient2fan

Interview with Dr Daniel Thoma, University of Zurich, Switzerland

Unlimited quantity, standardized quality

Dr Daniel Thoma is Adj. Professor and Head of Academic Unit at the Clinic of Fixed and Removable Prosthodontics and Dental Material Science – Center for Dental Medicine at the University of Zurich. We asked him about his experience with and impressions of Geistlich Fibro-Gide, the new porcine, porous, resorbable, and volume-stable collagen matrix, specifically designed as an alternative treatment option to connective tissue grafts.

From your personal experience, what do you like about Geistlich Fibro-Gide?

What I like most about Geistlich Fibro-Gide is its unlimited availability and its standardized quality. In contrast to subepithelial connective tissue grafts, Geistlich Fibro-Gide does not give a reason to worry about limitations in terms of quantity and quality. Moreover, avoiding a second surgical site reduces patient morbidity as well as the surgical time of the clinician.

Do you see any risks in the use of Geistlich Fibro-Gide?

Every surgical intervention is associated with certain risks. Thus, in the case of Geistlich Fibro-Gide, incomplete wound healing might occur with exposure of the material to the oral cavity. Based on our experience, however, such complications do not result in any local infection, and the material does not have to be removed. As such, I would even expect less risk than with the use of a subepithelial connective tissue graft.

Dr Thoma in consultation with a patient.

When patients need a soft-tissue augmentation procedure, what do you tell them?

I usually offer my patients two options when a soft-tissue grafting procedure is indicated. Option one is the use of a subepithelial connective tissue graft. This procedure is well-documented in the literature with long-term outcomes and it is considered the gold standard.

As an alternative, I suggest the use of Geistlich Fibro-Gide, which offers benefits in terms of reduced patient morbidity, shorter surgical time and unlimited availability. My patients are informed that the use of Geistlich Fibro-Gide is less documented, but that in pre-clinical and clinical research performed over a ten-year period, the outcomes were non-inferior to the subepithelial connective tissue graft.[1,2]

How do your patients benefit, and how do you benefit yourself, from using Geistlich Fibro-Gide?

My patients benefit in different ways. They profit from shorter treatments, less post-treatment swelling and less morbidity since no second surgery is needed to harvest subepithelial connective tissue graft. Larger areas and more sites can be treated at the same time. For me as a clinician, the unlimited availability and the standardized quality are considerable advantages and give me a sense of reliability and security. Furthermore, I appreciate the ease of use and the time savings due to faster surgeries.

Thank you very much for your time and the interview, Dr Thoma.

MT

[1] Thoma DS. et al. J Clin Periodontol. 2016 Oct; 43(10): 874–85.
[2] Zeltner M. et al. J Clin Periodontol. 2017 Apr; 44(4): 446–453.

Interview with Éric Genève, President and CEO of Anthogyr, Sallanches, France

A long tradition of maximum precision

French implant manufacturer Anthogyr designs, manufactures and sells a complete range of implants and instruments to support dental health professionals in treating millions of patients across the world. EDI Journal Project Manager My To spoke with Éric Genève, President and CEO, about the company's past and the future.

Anthogyr has been a family business since 1947. Mr Genève, can you tell us something about the company and its origins?

Last year we celebrated the company's 70th anniversary. Originally, Anthogyr was a manufacturer of dental instruments and parts for the Swiss watch industry. In fact, our production centre in Sallanches, France, is just 55 kilometers from Geneva. The first catalog, which came out in 1947, already appeared in five languages, reflecting the ambitions of the then CEO *René Anthoine* to give the company an international outlook right from the beginning.

In 1950, Anthogyr filed its first patent for a motorized contra-angle handpiece – the beginning of a long period of specialization in dental instruments. Thanks to its recognized medical and technical know-how, Anthogyr was able to start manufacturing OEM implant systems in the mid-1980s. In 1997, the company produced its first implant under its own brand, Anthofit. The launch of the Axiom product range in 2009 soon led to a reorientation of the business strategy towards oral implantology.

After five years of development, we launched the Axiom Multi Level in Europe last year. Thanks to in-Link, a patented innovative precision attachment system integrated into the Simeda CAD/CAM custom prosthesis, we can offer a solution that is compatible with two implantological concepts – bone-level and tissue-level implants. Today, we sell 62 per cent of our implants abroad and invest 8 per cent of our revenue in research and development.

What can customers expect from Anthogyr in 2018?

The year 2018 will be dominated by encounters with German dentists. *Christian Grau*, Managing Director of Anthogyr GmbH, and his team have organized two large series of events. The Axiom Multi Level Tour will be stopping in eight major cities to showcase the benefits of this novel solution in oral implantology and the new therapeutic possibilities they offer, especially with screw-retained plural restorations.

The upcoming events "Le Cercle by Anthogyr" in Berlin, Dortmund and Frankfurt are intended primarily for Anthogyr implant users to let them share their experience and know-how in a constructive and friendly atmosphere – an aspect we attach the greatest of importance to.

Finally, this year we will also bring several innovative products to the market, for example AxIN, a special Simeda solution for screw-retained single crowns with an angled screw access channel. AxIN will be part of an integrated digital workflow, from the intraoral scan to the completion of a customized Simeda restoration, supplied complete with the 3D-printed model. We will also introduce Xpert Unit, a connected implantology motor.

Éric Genève, President and CEO of Anthogyr

There are many players in the international markets. How is Anthogyr different from its competitors?

Above all, we distinguish ourselves through our ability to innovate and the user-friendliness of our products. Axiom Multi Level is the best example of this. We offer this innovation in a premium package available to the majority of dentists. As the managing director of a medium-sized business, I am very careful to make sure that we maintain the flexibility and responsiveness that is vital for innovative momentum. It is based on the expertise of our team and our close contact with a network of experienced practitioners who appreciate working very closely with our development department. I also travel a lot to establish a direct and personal relationship with our customers. Our performance depends primarily on our ability to listen to our customers and understand their needs.

Many thanks for this interview, Mr Genève. *MT*

Interview with Thomas Fiekens, CEO OT medical, Bremen, Germany

Produced nationally, marketed internationally

For almost ten years now, OT medical has been offering a comprehensive implantology concept "Made in Germany". The Bremen-based company relies on continuous research and development, uncompromising quality controls and high-precision state-of-the-art manufacturing processes. CEO Thomas Fiekens explained to EDI Journal Project Manager My To why "Made in Germany" is very popular with international sales partners and what is most important to OT medical when it comes to customer service.

Thomas Fiekens, CEO OT medical

You have been acting as distributor for Keystone Dental in Germany and Europe for more than a year. Did this cooperation deliver what you expected?

The cooperation between Keystone Dental and OT medical is about harnessing as many synergy effects as possible for users and patients. One of the advantages of this cooperation is the decentralized distribution structure: Users throughout Europe benefit from the expertise of an experienced sales team. Dentists, patients and our company itself all benefit from insights and experience gained in the various markets. New findings related to the products from both our product ranges are continuously discussed and evaluated. These findings are fed back directly into research and new developments – and that, again, benefits our customers. Seen in this light, our expectations have been fully met.

Which marketing strategie does OT medical pursue?

While marketing our implant system directly on our home market, we rely on the cooperation with exclusive sales partners to market the OT medical product range on international markets. Together, we do not only share success, but also maintain a close and collaborative relationship and support common activities at home and abroad.

Besides an ongoing exchange within the frame of international partner meetings, industry exhibitions and fairs, we collaborate, for example, in the field of scientific research at university level and also offer support when it comes to approval procedures.

What are the advantages of this strategy for the international customers of OT medical?

Geographical proximity allows for intensive contact with European users, who can contact our branch office in Verona and will receive service in their respective languages. Or in other words, they will enjoy uncomplicated and competent support without geographical or linguistic barriers. Direct and open dialogue with users is the hallmark of our service and as such it is the focus of our customer-related activities. Our corporate policy is based on honesty and openness, which is the basis for successful cooperation. Every customer is important to us. No exceptions. Priority is given to personal advice and assistance by an experienced, motivated and dedicated team, complemented by external consultants from clinical practice and from research and science. With the help of our foreign distribution partners, we can now realize this system in an international context.

OT medical is domiciled in Germany. What role does "Made in Germany" play today – is it still a product seal of approval, including yours?

Innovative precision "Made in Germany" is what we stand for. It is a clear commitment to producing in Germany. Effective, reliable and safe patient care is the ultimate goal of all our business decisions. There must be no compromise on safety and quality. "Made in Germany" is still globally regarded as a guarantor for reliable, high-quality products.

Thank you for this interview, Mr Fiekens.

MT

WIN – Inspiring and engaging women in implant dentistry

“Inspire. Engage. Be part of the change.”

In October 2016, successful women in implantology met the same ambition: to take action to enable adequate future patient access to dental implant treatment. WIN wants to build a strong community of women who are active in implant dentistry. This network connects female dental professionals at local, national and international levels.

The reason: Why WIN was founded

Dental professionals always strive to find the best solution for each patient. Success is when a patient can smile as openly and chew as easily as with his natural teeth, which in many cases, requires implant therapy to achieve it. Nowadays, it is mostly men who specialize in implantology and there are fewer female role models when it comes to surgeons, speakers, key opinion leaders and practice owners. Although the percentage of women dental school graduates is constantly on the rise, only a minority become active in implantology. If this trend continues, patient access to implant therapy and proper maintenance is at risk.

This is what motivates WIN members. Having a successful career as surgeon, business owner or in academics, WIN members want to inspire and engage more women in implant dentistry. “With the increasing percentages of women dentists worldwide, I feel we have a collective professional duty to offer our patients a whole spectrum of dental options. This means a substantial number of us must become involved in implant dentistry”, comments *Charlotte Stilwell*, WIN International Core Group.

The mission: A strong community

WIN aims to embody, embrace and harness the power of gender differences. By inspiring and engaging women colleagues, WIN’s network of energetic and successful women will drive innovation, bring positive change in the field of implantology, and increase future global access to implant therapies.

The approach: How to achieve it?

WIN has elaborated different key aspects in order to reach its goals:

- Identifying and removing barriers to involvement
- Supporting individual progress and growth at all career stages
- Fostering peer support across genders, age groups, and experience levels
- Offering networking platforms and creating opportunities
- Acknowledging the need for a healthy work-life balance.

Join the WIN community by registering on the website. Be part of the change!

More information

www.straumann.com/win.html

Advanced All-on-TRI course in Zurich, Switzerland

TRI offers global training worldwide

TRI Dental Implants, the dynamic Swiss dental manufacturer, not only sets great value on 100 per cent Swiss precision and quality, but also on the development of innovative products and procedures. To make sure that customers can take full advantage of these innovations, TRI doubles its global online, master and advanced training seminars for 2018. Early December 2017, a well-attended Advanced All-on-TRI course, conducted by Dr Luis Bessa from Portugal, and Holger Kast, Training & Education Manager Global at TRI Dental Implants, took place in Zurich. EDI Journal project manager My To talked to Mr Kast about TRI's advanced training initiatives.

Holger Kast, Dental Technician/Training & Education Manager Global at TRI Dental Implants

Mr Kast, what is TRI offering in the field of professional training and continuing education in 2018?

Our training programme is very comprehensive and globally designed. We have added new courses for 2018 and increased our education activities worldwide. The highlight of the first half year is our special workshop about soft tissue management with *Dr Marius Steigmann* on 2 and 3 May on the island of Ibiza, Spain. Besides our renowned master courses at the University of Zurich, we will also offer courses with international key opinion leaders in our training centre in Freiburg, Germany, as well as in Hong Kong, Australia, Dubai, Turkey, Morocco and many more cities. Those who do not want to visit a classroom course, can join our Online Webinar Sessions. It's important for us to offer multi-channel education opportunities for dental practitioners worldwide. One of our main goals is to make online education accessible to a broad audience. All sessions are also available as recordings. You will find our complete programme and all the information you might need on our homepage tri-implants.swiss.

The Advanced All-on-TRI course in Zurich was not your first course together with Dr Bessa. How did the cooperation evolve?

Dr Bessa and I met about two years ago and got along very well right from the start. Due to my background as a dental technician, we had the idea to develop a course programme that we could offer to our clients in Switzerland and Portugal, and – in the course of time – in other countries worldwide.

Due to our close cooperation, the courses are constantly getting better and more detailed. We also integrate all our products updates and innovations, such as our new digital portfolio, into the courses.

Who is the target group of your courses?

Our courses are open to all our international customers. This time, we had participants from Tunisia, Lebanon, Switzerland and the UK. We really see that there is a great interest on the part of our clients. But we decided from the start that we want to limit the courses to a small number of participants to make sure that we get in close contact to every single attendee. We want interactivity, we want the participants to go home with something essential in hand.

How is the course designed?

Here in Switzerland, the course lasts two days, including a guided tour of our production facilities that visualizes what "Swiss quality" means to us. The participants are always very impressed when they experience our knowhow and the high quality of our products first-hand.

For the hands-on part, we have recorded a live surgery in *Dr Bessa's* institute. We show this high quality video and then use maxilla models to do practical exercises of the All-on-TRI protocol with four implants. First, it's about the cutting technique, that is the management of the gingiva at that moment, then the implant placement, the use of our multi-unit products, the perfect positioning of the abutments, the tuning of the angulation and the simulation of the impression taking. Finally, we look at the suture techniques, the screwing of the temporary superstructures, and the polymerization into the existing restoration. That's what the participants learn, and we note time and again how focused and dedicated they are.

Thank you very much for the interview, Mr Kast.

MT

Nobel Biocare All-on-4 treatment concept

The next level

Nobel Biocare's minimally invasive fixed, full-arch solution just keeps getting better. The All-on-4 treatment concept stands for a rapid improvement in quality of life, as a fixed full-arch prosthesis on the day of surgery can quickly lead to improved patient satisfaction in terms of function, aesthetics, sense, speech, and self-esteem. Now, some new components make it even more effective.

The Multi-unit Aligning Instrument reduces the time required to place the implant in the proper position and facilitates selection of the most suitable Multi-unit Abutment. The new healing caps are partially threaded for easy positioning and screwing onto the abutment.

Quite a revolution when it was first introduced almost two decades ago, the many benefits of the All-on-4 treatment concept are now well proven.

A key enabler of the concept today is the Multi-unit Abutment, a catalyst of the trend for restoring multiple teeth using tilted implant placement. First developed by Nobel Biocare in 2000, the technology continues to evolve.

The introduction of the Multi-unit Abutment Plus in 2016 supported a significant reduction in chair time for the All-on-4 treatment concept by eliminating the need for screw fixation during try-in and adjustment of the provisional prosthesis. Now, the latest innovations, the Multi-unit Aligning Instrument and Titanium Multi-unit Healing Caps represent another step forward in the All-on-4 treatment concept.

Three angulations in one

For speed and efficiency, the Multi-unit Aligning Instrument makes it easy to identify the angulation of the most suitable Multi-unit Abutment and the rotational position of the implant, helping to optimize the final abutment position and prosthetic design. This is further helped by easy-to-see laser-etched markings. Clinicians can easily identify the screw-hole trajectory to avoid facially protruding screws and to optimize prosthesis design.

Compatible with existing implant drivers and the manual torque wrench, the new and reusable aligning instrument complements the Nobel Biocare product range in facilitating straightforward placement of the abutment.

An individualized approach to soft tissue healing

The Titanium Multi-unit Healing Cap assortment is a new facilitator for the placement of the provisional prosthesis. Designed to help individualized treatment, this newly expanded portfolio provides clinicians with a choice of dimensions and designs to suit the thickness of the soft tissue, in order to gain improved access to the Multi-unit Abutment.

The new healing caps have been developed with ease of use in mind, helped by a new internal design. The inside of the cap is only partially threaded, with 0.3 mm of smooth surface at the tip. This makes it easy to slip the cap into position and place it onto the abutment. For strength and ease of placement, the new caps are one-piece components made of titanium.

Next generation of the All-on-4 treatment concept

The All-on-4 treatment concept is now accepted as an industry standard. Nobel Biocare's ongoing development doesn't just help experienced surgeons in offering their expertise faster, but supports the next generation of All-on-4 treatment concept practitioners.

More information

www.nobelbiocare.com/mua

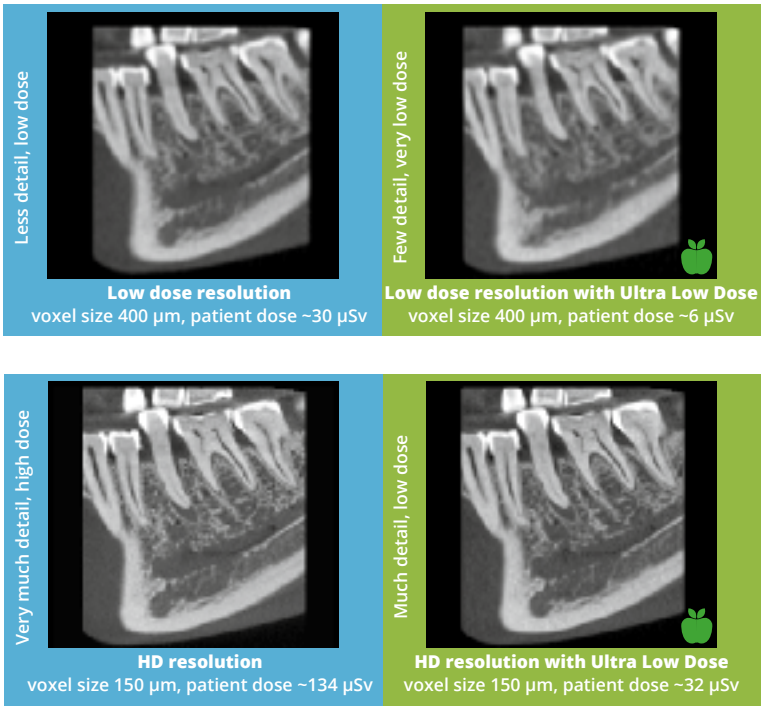
Planmeca Ultra Low Dose

The highest standards with the lowest doses

Planmeca Ultra Low Dose is a leading method for acquiring CBCT images at low effective patient doses without a statistical reduction in image quality. It allows clinicians to gather more information than from standard 2D panoramic images at an equivalent or even lower patient dose.

Cone beam computed tomography – CBCT – has been one of the most essential technological innovations in dentistry over the past two decades. The imaging technique is used to capture high quality 3D images of the oral and maxillofacial region, revealing intricate information on soft tissues, teeth, nerves, and bone in a single scan.

Three-dimensional CBCT images provide clinicians with vastly more information than traditional two-dimensional panoramic images. This enables more precise treatments to take place, and consequently improves the overall level of care.



Doses of a standard CBCT protocol compared to those of the Ultra Low Dose protocol.

Proven low dose imaging

While standard patient doses have been lowered significantly over the years, the pioneering Planmeca Ultra Low Dose imaging protocol allows to further reduce effective patient doses. It can be used with all voxel sizes and in all imaging modes to capture 3D images at a significantly lower dose than standard imaging. All this can be done without a statistical reduction in image quality.

The Planmeca Ultra Low Dose imaging protocol's effectiveness has been confirmed in a scientific study led by the renowned radiologist *Dr John Barrett Ludlow*. His conclusion states as follows:

"An average reduction in dose of 77 per cent was achieved using ULD protocols when compared with standard protocols. While this dose reduction was significant, no statistical reduction in image quality between ULD and standard protocols was seen. This would suggest that patient doses can be reduced without loss of diagnostic quality."[1]

Knowledge is power

Attentive clinicians can make out differences in image quality for themselves, but they still need to rely on others to tell them what the effective patient dose is. Planmeca can give prospective and existing customers clear information on the effective patient doses of its CBCT units, and the Planmeca Ultra Low Dose protocol allows Planmeca's units to achieve amazingly low doses.

More information

www.planmeca.com

[1] Ludlow, John Barrett and Koivisto, Juha: Dosimetry of Orthodontic Diagnostic FOVs Using Low Dose CBCT protocol

tioLogic digital. from Dentaurum Implants

A complete CAD/CAM workflow

tioLogic digital. provides dental technicians access to the entire CAD/CAM workflow and offers clever solutions for implants. The product range comprises all data sets and original materials for the fabrication of customized one-piece abutments, hybrid abutments as well as bar and bridge restorations using CAD/CAM technology.

There are only two types of scanbodies and these cover all indications and enable a production workflow that is simplified, reproducible and precise. Each position is exactly reproduced in the CAM software, be it directly from the implant interface in the case of customized one-piece abutments and hybrid abutments, or from the mesostructure in the case of bar and bridge restorations. Even angled abutments (AngleFix) are exactly reproduced digitally like the other abutments.

Manufacture of customized one-piece abutments using CAD/CAM is uncomplicated thanks to tioLogic PreForm titanium blocks which are compatible with, for example, the Medentika abutment holders. They are also guaranteed to fit the inner connection of the tioLogic implants. Pre-formed tioLogic titanium bases can be offered for individual hybrid abutments. The geometry has been developed specially to suit zirconium and therefore guarantees a safe, aesthetic connection to the ceramic mesostructure.

Dentaurum Implants offers comprehensive digital solutions to dental technicians and dental offices for manufacturing high-precision dental restorations that are tailored to the customers' needs. In addition, they are economical, reproducible and quickly manufactured.

Dentaurum Implants' service point for tioLogic CAD/CAM can be reached at www.dentaurum-implants.com/tiologic-digital. Data sets for 3Shape, Dental Wings and exocad can be downloaded at the service point and integrated into the software.

More information
www.dentaurum-implants.com

mectron Sinus Physiolift II

A redefined protocol

For clinicians, the replacement of lost teeth with an implant-prosthetic restoration may prove difficult due to the absence of sufficient bone quantity. The new mectron Sinus Physiolift II now allows sinus lifts by crestal approach for a wider range of patients.

Among the multiple choice of techniques available for a suitable bone restoration in the maxillary area, the Sinus Physiolift approach allows a minimally invasive sinus floor elevation by crestal approach, using hydrodynamic pressure and bone graft substitutes.

The principle of incompressibility of liquids and the uniform, progressive distribution of pressure within their physical structure suggested the use of hydrodynamic pressure to induce the elevation of the sinus membrane (hydrodissection).

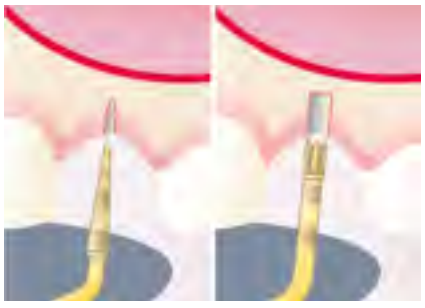
The use of piezoelectric inserts and the conic-shaped sinus elevator CS1 guarantee a watertight system in a way that the pressure of the physiological solution, contained in a dedicated instrument called Physiolifter, effectively detaches the sinus membrane. By the use of a specifically shaped new CS2 elevator, the membrane elevation can also be performed in cases where the bone is insufficiently mineralized, and where watertightness is not perfect and may lead to leakage of the physiological solution. This approach constitutes a great advantage for the clinician and provides a higher guarantee of success. Furthermore, the new insert P2-3 SP represents the chief innovation for the erosion of the basal cortex as its conical shape reduces any risk of accidental membrane perforation.

The initial preparation for the CS1 elevator, allowing the access to the membrane, is performed with piezoelectric inserts IM1 SP and IM2 SP and diamond-coated insert P2-3 SP. In case that the CS1 elevator does not guarantee a watertight system due to an inadequate mineralized bone (D3, D4) or implant site overpreparation, it will be necessary to use the CS2 elevator, inserted by an implantology contra-angle.

Once the elevator is inserted, tube and syringe are connected to the elevator, allowing the membrane's elevation thanks to a physiological solution introduced step by step into the sinus with the Sinus Physiolift II. When the Schneiderian membrane is elevated, it will be possible to insert the grafting material and eventually place the implant.

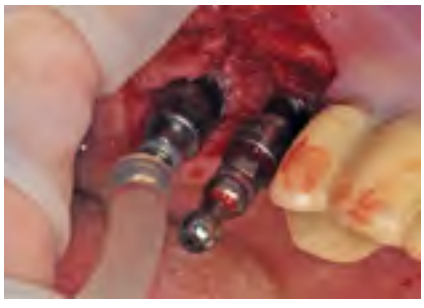
Thanks to the piezoelectric bone cutting technology and the crestal elevators, it is possible, by means of hydrodynamic pressure, to cover a wide range of clinical situations that need sinus elevation. This all with ease and minimum invasivity, and thus minimal discomfort for the patient. ■

More information
www.mectron.com



Initial preparation for the CS1 elevator with piezoelectric inserts IM1 SP and IM2 SP.

Tube and syringe are connected to the elevator, allowing the membrane's elevation with the aid of a physiological solution.



Example from the practice: CS1 elevator in place and connected to the tube.

Thommen 3.0 Implant System for narrow spaces

A further example of Swiss precision manufacturing

The new Element PF 3.0 implant is now available from Thommen Medical, the Swiss designer and manufacturer of a dental implant system known for its high precision and impactful design. The implant was specifically developed for replacement of the lateral incisors of the maxilla and the central and lateral incisors of the mandible.

Dr Daniel Snétivy, CTO of Thommen Medical, proudly presents the Thommen 3.0 Implant System and adds, "We retained the tried, tested and very successful characteristics of the Thommen Implant System during development. An important factor for us in the design of this product was maintaining our "fail-safe engineering". We always develop products that will minimize any possible damage to the patient, even in exceptional circumstances such as excessive mechanical force in an accident (for example, fracture of the abutment screw for the sake of the protection of the implant)."

The Thommen 3.0 also succeeds in combining important new and existing product characteristics: It is designed for simplicity, uses the smallest abutment screw, is manufactured of proven, cold-formed pure titanium grade 4, and features the reliable superhydrophilic Inicell implant surface.

Dr Konrad Meyenberg, experienced oral implantologist from Zurich, is impressed. "The 3.0 is an excellent advancement of the application spectrum of the Thommen Medical implant line. The small diameter of the abutment screw, in my opinion a unique selling point, allows for a minimally invasive procedure without compromise, due to the highly precise and elegant screw connection and choice of material."

Like all products from Thommen Medical, the Thommen 3.0 Implant System is remarkably straightforward and easy to use. The new line of products includes the reduced diameter implant 3.0, the VarioUnite abutment, and a range of associated instruments.

More information

www.thommenmedical.com

copaSKY – ultra-short implant for reduced bone volume

The newest member of a popular family

With the new copaSKY – an implant with a length of 5.2 mm and a diameter of 4.0, 5.0 or 6.0 mm – bredent medical is expanding its SKY implant family at the beginning of 2018.

For short, wide alveolar ridges: the new ultra-short copaSKY implant.

copaSKY has the tried and tested OCS (osseo-connect-surface), the surface that has enabled SKY implants to set milestones in recent decades in the fundamental implantology discipline – immediate restoration. The thread design and the special surface finish of the SKY implants guarantee high primary stability and rapid osseointegration.

The conical parallel-walled connection on the copaSKY is reversible and can be calculated in terms of height, thus avoiding a complicated Morse taper effect, in which a height divergence of up to 0.4 mm makes the production of a precise prosthetic unnecessarily difficult.

With the copaSKY, bredent medical now offers the ideal solution for short, wide alveolar ridges. The available bone is used optimally by the ultra-short implant and so time-consuming bone augmentations can be avoided. As a result, the surrounding bone tissue, the adjacent teeth and the maxillary sinus in the upper jaw or, similarly, the nerve in the lower jaw are preserved as far as possible when using the copaSKY.

The resulting shortening of the treatment time and the lower overall costs could convince patients to choose an implant therapy.

As with expansions of the SKY family in the past, bredent medical has paid particular attention to updating the proven surgical and prosthetic protocol for the copaSKY so that dentists can seamlessly integrate the new copaSKY into clinical workflows at their practice. Only a special drill set is required for the ultra-short implant and it also finds its place in the current surgical tray.

As to the prosthetic portfolio, the specialist in implant restorations has put special value on developing a clear, almost reduced range of prosthetic parts that is nevertheless able to meet all requirements, thus generating reliable processes and low costs for the practice.

Particularly noteworthy are restorations with physiological high-performance polymers, such as BioHPP, which not just make an abutment change superfluous thanks to the one-time therapy, but also act as a “stress breaker” thanks to its near-natural properties – in elasticity comparisons, BioHPP has similar values to compact and spongy bone when used as the only framework material.

copaSKY is available for delivery since February 2018 and can be ordered anytime.

More information
www.bredent-medical.com

Solutions for hard-tissue regeneration

Zimmer Biomet's Puros family of hard-tissue grafting products provides an effective and predictable [1] clinical outcome for patients requiring bony enhancement in a timely manner.

Puros Cancellous Particulates act as an osteoconductive scaffold, enabling the ingrowth of vascular and cellular connective tissue [2]. In large-volume applications, prospective studies have documented faster bone regeneration at six months than grafts containing sintered bovine bone matrix [3,4]. Puros Cortical Particles are slow resorbing and remodel into viable bone with a dense lamellar structure without sacrificing ridge contour [5]. Puros Allograft Blend Cortico-Cancellous Particulates – the newest member of the Puros Allograft family – is an anatomic-based mix of cortical and cancellous bone particulate which combines the space maintenance of cortical bone and the rapid remodeling of cancellous bone [6].

Puros Allograft Particulates and blocks are processed using the proprietary Tutoplast process. The Tutoplast process gently removes cells, antigens and pathogens while preserving the valuable minerals and collagen matrix leading to complete and rapid hard-tissue regeneration [3,7]. Terminal low-dose gamma irradiation ensures sterility and five-year shelf life at room temperature. For over 40 years, Tutoplast processed tissues have been safely used in more than five million procedures [8]. Puros Allografts, a leading allograft brand, are distributed worldwide and have more than 200 studies in dental applications supporting their reliability and predictability during bony augmentation procedures. A face-to-face study shows superior bone formation and remodeling compared to freeze-dried allograft particulates [9].

Besides Puros Particulates, there are also cortico-cancellous bone blocks of different sizes available.* The block grafts have documented graft and implant success rates [10,11], save time [12], help to reduce pain, and can shorten the patient's rehabilitation period by eliminating the need to harvest an autogenous graft [12].

*Product clearance and availability may be limited to certain countries/regions.

The references are available at www.teamwork-media.de/literatur

More information
www.zimmerbiometdental.com

Puros Allograft Blend 1–2 mm, 25x magnification

Bego Implant Systems Adhesive abutment

Product
PS TiB
adhesive abutment

Indication
CAD/CAM-fabricated restorations

Distribution
Bego Implant Systems
GmbH & Co. KG
Wilhelm-Herbst-Straße 1
28359 Bremen
Germany
www.bego.com

After providing CAD/CAM libraries for many years for individual prosthetics with full abutments, adhesive abutments with an additional gingival height are now available for Bego Semados implants.

The new abutments are available with a gingival height of 1.5 mm and are supplied, as usual, with two screws. The new adhesive abutments can be reliably and comfortably supplied in the high-tech production centre of Bego Medical in Bremen either with or without an anti-rotation mechanism for bridge restorations. For additional access to location-independent fabrication options, the associated implant libraries for Bego Semados adhesive abutments for 3shape* and Exocad* are provided for downloading at the company's website www.bego.com.

* Commercial name/registered trademark of a business that does not belong to the Bego Group.

Thommen CAD/CAM implant analog

Product
Implant analog

Indication
3D model printing

Distribution
Thommen Medical AG
Neckarsulmstrasse 28
2540 Grenchen
Switzerland
www.thommenmedical.com

Thommen Medical announces the release of their new implant analogs for CAD/CAM. These analogs convey an exact representation of both implant connection geometry and implant position in 3D-printed models. The sophisticated design of the external geometry and the configuration of the analog seat create the perfect conditions for a precise fit and easy handling.

The implant analog features a snap mechanism which locks firmly in place in its final position. Manufacturing the digital model requires a digital recording of the implant position by use of a Thommen scan abutment at the implant level. The new implant analogs for CAD/CAM are now available for all Element/Contact implant platforms. The proper use of the implant analog for CAD/CAM and the Thommen scan abutment is described in the electronic "Instructions for use", located on the Thommen Medical website.

MEMBERSHIP REGISTRATION FORM

I hereby apply for a membership in the BDIZ EDI
(European Association of Dental Implantologists)

Name: .....

First Name: .....

Country: .....

Zip code / City: .....

Street: .....

Phone: .....

Fax: .....

E-Mail: ..... @ .....

Homepage: .....

Date of Birth: .....

Practicing implantology since: .....

Member of other Societies:

☐ ICOI ☐ BDO ☐ DGI ☐ DGZI ☐ DGMKG ☐ EAO

Continuing education Courses: .....

.....

Fellowship status / diplomate status in implantology

☐ Yes ☐ No ☐ Organization .....

Entry in BDIZ EDI Directory: ☐ Yes ☐ No
(For information on BDIZ EDI Directory of Implant Dentists see overleaf)

The annual membership fee for:

FULL MEMBERSHIP

☐	Full member - clinical	345,00	Euro
☐	Assistant dentist / young professional (up to 5 years after graduation)	172,50	Euro
☐	Second membership / family member	172,50	Euro

EXTRAORDINARY MEMBERSHIP

☐	Co-operative Member (Professionals without practice and dental technicians)	165,00	Euro
☐	Students	non-contributory	
☐	Supporting Membership (Companies etc.)	530,00	Euro

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Commerzbank Bonn

Account Number:	310 144 100
Bank Code:	380 400 07
IBAN:	DE96 3804 0007 0310 1441 00
BIC:	COBADEFFXXX

Membership cards will be sent upon receipt of the annual subscription fee.

City / Date : .....

Seal / Signature: .....

Please return the completed registration form to:

European Association of Dental Implantologists e. V.
Mühlenstr. 18 • D-51143 Köln
Fon: + 49 (0) 2203-8009-339
Fax: + 49 (0) 2203-9168-822
E-Mail: office@bdizedi.org
Homepage: www.bdizedi.org

Calendar of Events

	Event	Location	Date	Details/Registration
4/2018	**Osteology Symposium**	London United Kingdom	20 April 2018	Osteology Foundation www.osteology-uk.org
	ITI Annual Conference 2018	Amsterdam Netherlands	21 April 2018	International Team for Implantology www.iti.org/ITI-Annual-General-Meetings
	Oral Reconstruction Foundation Global Symposium 2018	Rotterdam Netherlands	26 – 28 April 2018	OR Foundation www.orfoundation.org
5/2018	**Dentsply World Summit Tour**	Shanghai China	19 – 20 May 2018	Dentsply Implants www.worldsummittour.com
	WID – Vienna International Dental Exhibition	Vienna Austria	25 – 26 May 2018	admicos.Congress Incentive GmbH www.wid.dental
	mectron Spring Meeting 2018	Venice Italy	25 – 26 May 2018	mectron dental www.mectron.com/spring-meeting
6/2018	**EuroPerio 9**	Amsterdam Netherlands	20 – 23 June 2018	European Federation of Periodontology www.efp.org
	Focus on implant dentistry – International Congress on Ankylos	Berlin Germany	29 – 30 June 2018	Dentsply Implants www.dentsplyimplants.com
	6th International Z-Systems Congresss	Valencia Spain	29 – 30 June 2018	Z-Systems www.zsystems.com
9/2018	**FDI Annual World Dental Congress**	Buenos Aires Argentina	5 – 8 September 2018	FDI World Dental Federation www.worlddentalcongress.org
	27th Central European Dental Exhibition	Poznan Poland	20 – 22 September 2018	Exactus www.exactus.pl
10/2018	**EAO Annual Scientific Congress**	Vienna Austria	11 – 13 October 2018	EAO European Association for Osseointegration www.eoa.org/eao-congress

EDI Journal – Information for authors

EDI Journal – the interdisciplinary journal for prosthetic dental implantology is aimed at dentists and technicians interested in prosthetics implantology. All contributions submitted should be focused on this aspect in content and form. Suggested contributions may include:
· Original scientific research
· Case studies
· Product studies
· Overviews

Manuscript submission
Submissions should be made in digital form. Original articles will be considered for publication only on the condition that they have not been published elsewhere in part or in whole and are not simultaneously under consideration elsewhere.

Manuscripts
Pages should be numbered consecutively, starting with the cover page. The cover page should include the title of the manuscript and the name and degree for all authors. Also included should be the full postal address, telephone number, and e-mail address of the contact author.
Manuscripts can be organized in a manner that best fits the specific goals of the article, but should always include an introductory section, the body of the article and a conclusion.

Illustrations and tables
Each article should contain a minimum of 20 and a maximum of 50 pictures, except in unusual circumstances. Our publishing house attaches great importance to high quality illustrations. All illustrations should to be numbered, have a caption and be mentioned in the text.
The photos should have a size of 10x15 cm, the image or graphic files must have a resolution of 300dpi. Tiff, eps and jpg file formats are suitable. Radiographs, charts, graphs, and drawn figures are also accepted.
Captions should be brief one or two-line descriptions of each illustration, typed on a separate page following the references. Captions must be numbered in the same numerical order as the illustrations.Tables should be typed on a separate page and numbered consecutively, according to citation in the text. The title of the table and its caption must be on the same page as the table itself.

References
Each article should contain a minimum of 10 and a maximum of 30 references, except in unusual circumstances. Citations in the body of the text should be made in numerical order. The reference list should be typed on a separate sheet and should provide complete bibliographical information in the format exemplified below:
[1] Albrektsson, T.: A multicenter report on osseointegrated oral implants. J Prosthet Dent 1988; 60, 75-82.
[2] Hildebrand, H. F., Veron, Chr., Martin, P.: Nickel, chromium, cobalt dental alloys and allergic reactions: an overview. Biomaterials 10, 545-548, (1989)

Review Process
Manuscripts will be reviewed by three members of the editorial board. Authors are not informed of the identity of the reviewers and reviewers are not provided with the identity of the author. The review cycle will be completed within 60 days. Publication is expected within nine months.

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FIXED-HYBRID EMERGENCY!

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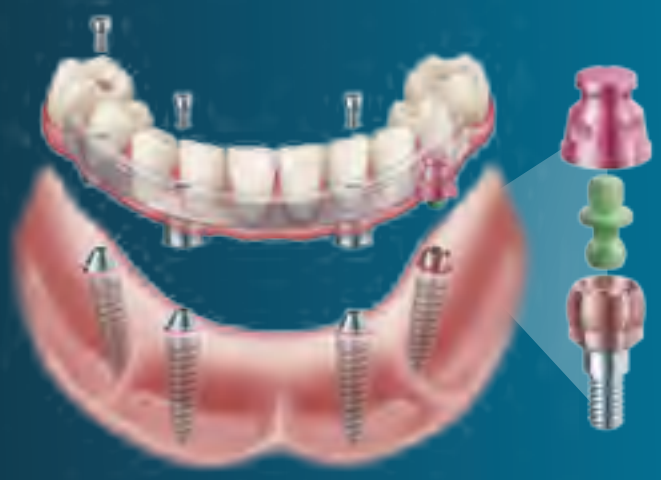
The LOCATOR F-Tx® Fixed Attachment System is the ONLY immediate treatment solution available today that can rescue a patient's existing fixed-hybrid prosthesis after replacing an implant. The novel, "snap-in" attachment is picked up chairside, ensures a passive fit, and works in harmony with the existing screw-retained fixtures saving both clinicians and patients substantial time, money and frustration.



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