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Issue 1/19

EDI Journal

European Journal for Dental Implantologists

TOPIC

Welcome to IDS 2019

Leading dental business summit
Cologne/Germany, 12–16 March 2019

»EDI News: Soon to come: 14th EuCC Practice Guideline · BDIZ EDI at the IDS · Relaunch of BDIZ EDI Quality Guideline for Implantology »European Law: Automatic recognition of foreign qualifications »Clinical Science: Augmentation using autologous bone »Case Studies: One-year follow-up of molar replacement · Soft tissue augmentation around implants · Volumetric changes in the augmented sinus · Stability without membranes

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thout Yang.

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The IDS hype

They have entered into a successful symbiosis: the International Dental Show and the city of Cologne. Every other year, the entire dental world converges on the city on the Rhine – giving Cologne some extra international flair for one week. This year, the IDS – International Dental Show, the leading global trade fair for the dental community – will be held for the 38th time. And the hype surrounding its previous incarnations only continues to build, with ever more exhibitors from ever more countries and ever more visitors. In Germany, the success of this event is only rivalled by Oktoberfest in Munich, where more and more people show up to have fun, barely impressed by possible streaks of inclement weather.

Well, the Cologne fair may not be held primarily so people can have fun; not at first glance, anyway. The IDS is primarily all about hard work and dedication: to customers, mostly dental practices and their owners; indeed to the entire practice team; to dental technicians; and to many other interested professionals who wander the halls in search of the latest trends and innovations. There are certainly many exhibitors who will be curious to see what their competitors have to offer. And exploring the possibilities of cooperation or mergers or simply drumming up some business is an integral part of life at the fair.

As usual, anyone who has spent a week at the IDS will be ready for a holiday. Your feet will hurt, your head will overflow, and so will your bags. IDS 2019 promises to be even more bombastic, as Koelnmesse, which runs the Cologne exhibition centre, and the VDDI, the Association of German Dental Manufacturers, have also increased the exhibition space. That means aching feet for those who want to see everything. Sturdy footwear is mandatory.

If you want to go to the trade fair and have an entrance ticket, you can use public transport for free, not only in Cologne but also in a wide circle around the city. Which was quite provident on the part of the organizers, as many exhibitors have had to find accommodation for their teams far outside the city of Cologne proper. Accommodation rates at the time of the IDS tend to be astronomical. Spending a night is three to five times as expensive as in "normal" times, whether you look at a five-star hotel or at a youth hostel, or at a boat hotel bobbing in the water on the banks of the Rhine. Desperate but resourceful exhibitors and visitors have already been flirting with camping bus rentals for the time of the fair.

It is a classic win-win situation. Hotels and restaurants, taxi companies, organizers, exhibitors and of course visitors – everyone stands to benefit, including the city of Cologne itself: A few years ago, the police carried out a broad-based action just as the taxis were leaving the city for the fairgrounds ... to check whether the passengers had fastened their seat belts as prescribed. To this end, observers were positioned at strategic points, scanning taxi passengers like so many hawks. If passengers had not fastened their seat belt properly, the taxi would be stopped by the police after a few meters and a hefty fine was collected. A coincidence? Possibly.

But all this does not detract from the success of the IDS. There are only a few IDS refuseniks among the major industry names – including a handful of global players, but with 2,300 exhibitors present, their absence will hardly be noticed. Something that does catch the eye is the increasing proportion of exhibitors from other countries. Organizers report that the share of foreign exhibitors has reached the 70 per cent mark for this year's IDS, with Asian manufacturers and service providers particularly well represented. In 2017, the corresponding figure was 60 per cent. All in all, 60 countries will be represented. The international appeal of the leading trade fair is therefore growing in a country that is regarded as the major manufacturer of medical products, at least where Europe is concerned.

In this issue, readers will find all the important information about the IDS. Where can we expect to see innovations? In which dental disciplines? We provide signposts and background information and hope that you will also pay the BDIZ EDI stand a visit. Here you will find legal advice, assistance in dental accounting – and of course lots of information about oral implantology.

Anita Wuttke
Editor-in-Chief

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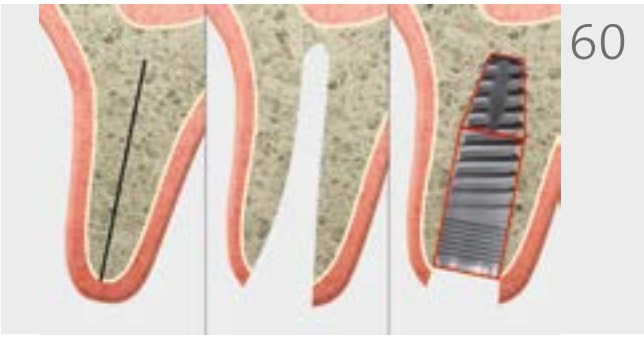
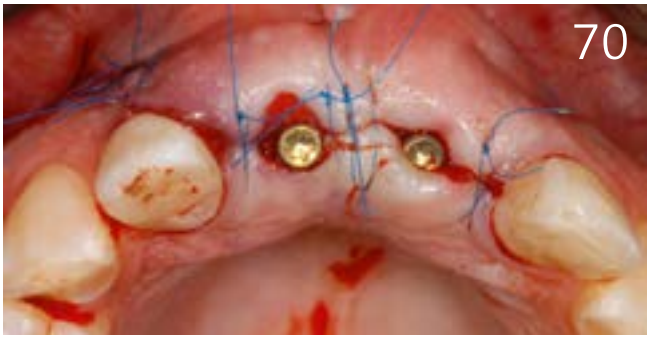


Principle of bone splitting. The cylindrical body ensures a narrow osteotomy gap, while the conical tip avoids unnecessary bone loss.



Suturing of a flap around two healing abutments with 6/0 monofilament suture (occlusal view).

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Partner Organizations of BDIZ EDI

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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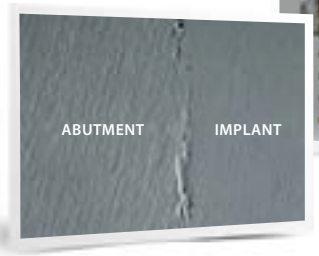

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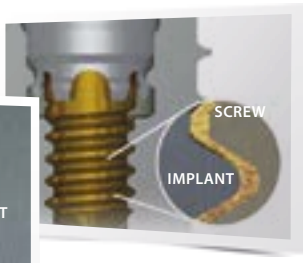

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European Consensus Conference (EuCC) under the auspices of the BDIZ EDI

Practice Guidelines – recommendations for practitioners

Every dental practice has to face new challenges daily, absorbing scientific and technical innovations, but also in terms of insurance issues and ever-changing guidelines and laws. Once a year, the European Consensus Conference (EuCC) of the BDIZ EDI provides practical recommendations on a major topic within oral implantology. The consensus paper is sent to the members as a printed Guideline and is freely available online – in German and in English. All Guidelines provide a comprehensive list of references on their topics.

EuCC Guideline 2012

EuCC Guideline 2013

The EuCC is an international body consisting of experts on a specific topic. It seeks consensus following detailed discussion of a working paper prepared by the University of Cologne, with the proceedings ultimately being solidified into a Guideline.

The individual Guidelines published since 2006 are available for download from the BDIZ EDI website. They address the following topics: Treatment errors and complications (2010), short and angulated implants (2011), the ABC risk score (2012), defect classification for bone augmentation (2013), avoiding implant malpositioning (2014), and peri-implant inflammation: prevention – diagnostics – therapy (2015), and more. The following presents the most frequently downloaded papers. Some printed copies will be available to take away at the BDIZ EDI booth at the IDS.

Cologne ABC Risk Score for Implant Treatment

Using a simple ABC system, attractively visualized in the three colors of the traffic light, clinicians are given the opportunity to rate the planned implant treatment.

There are four partial scores:

1. Medical history
2. Local findings
3. Surgical
4. Restorative

Each of these partial scores is calculated by itself, with the results – like the criteria – expressed in terms of the colours green, yellow and orange, corresponding to A, B and C ("Always" – "Between" – "Complex"). If two or more criteria for a partial score are assessed as yellow (for B, medium risk), the entire partial score is deemed to be B (yellow, medium risk). Similarly, four yellow or two orange criteria result in an overall partial score of C (orange, increased risk). The ABC classification is defined as follows:

- A = "Always", lowest assessed risk, green area
- B = "Between", medium risk, yellow area
- C = "Complex", increased risk, orange area

Red is reserved for cases where the risk assessment shows that treatment at issue may not be recommended (which is not the same as being contraindicated).

The Cologne ABC Risk Score also includes a two-page assessment form for practitioners to evaluate the above-mentioned sub-areas – for patient-specific use. This EuCC Guideline is available here:

Cologne Classification of Alveolar Ridge Defects (CCARD)

In February 2013, the European Consensus Conference led by BDIZ EDI, consisting of experts from seven countries, discussed the state of the art in oral augmentation. The result was the Cologne Classification of Alveolar Ridge Defects (CCARD) for standard cases in bone augmentation.

The aim was to develop a simple, therapy-oriented defect classification for standard cases,

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EuCC Guideline 2016

EuCC Guideline 2017

taking existing classifications into account and including various defect characteristics and recommending established therapies for the respective defect class.

The Cologne Classification of Alveolar Ridge Defects is based on a three-part code to describe the defect of the alveolar ridge as comprehensively as possible with a view to existing therapeutic options:

Part 1: Orientation of the defect
H: horizontal
V: vertical
C: combined
S (or +S): sinus area

Part 2: Reconstruction needs associated with the defect
1. low: < 4 mm
2. medium: 4 – 8 mm
3. high: > 8 mm

Part 3: Relation of augmentation and defect region
i: internal, inside the contour
e: external, outside the ridge contour

Thus, this system describes each defect by a single defect code consisting of letters and numbers.

The Consensus Conference made sure to draw attention to the fact that future therapies with autologous stem cells and recombinant growth factors may have potential to reduce the need for harvesting autologous bone. In 2013, the year in which this Guideline was published, the EuCC pointed out that these procedures were still limited to designated medical centres, especially given that regulatory issues in Europe, particularly with regard to the application of growth factors, had not yet been conclusively resolved. A revision of the Guideline will certainly be the topic of one of the next Consensus Conferences. This Guideline is available here:

Short, angulated and diameter-reduced implants

In February 2016, the 11th European Consensus Conference (EuCC) led by BDIZ EDI drafted an updated Guideline for short, angulated and diameter-reduced implants. “Provided the specific treatment parameters are observed, the use of short, angulated or diameter-reduced implants in sites with reduced bone volume can be a reliable treatment option, given the risks associated with the use of standard-dimension implants in combination with augmentation procedures”, as the conclusion of the Guideline states. In addition, the EuCC suggests that the implant surgeon and the restorative dentist must have appropriate training to choose the best possible therapy for each patient. The Guideline is available here:

Digital workflow in implant dentistry

The 12th European Consensus Conference (EuCC) under the auspices of BDIZ EDI has delivered an update on the digital workflow in oral implantology based on a working paper prepared by the University of Cologne. The eight-page Guideline is intended as a recommendation for implant dentists to help them assess the indications and limitations of the digital workflow. In conclusion, the 2017 Consensus Conference points out that “Clinical data supporting the use of surgical guides and CAD/CAM abutments are solid. Data support for a completely digital workflow for all indications in implant treatment is not yet available.” This still holds true today. You can find this consensus paper here:

Patient-oriented treatment concepts

The most recently published Guideline that is available online addresses patient-oriented treatment concepts and is intended to serve as a recommendation for dentists/physicians working in oral implantology in their assessment of indications and contraindications. It concludes: “Multiple treatment options are available to restore oral function – not only the ones mentioned [...]. 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.

Implant therapy has become more and more complex due to the great variety of existing treatment

Members of the European Consensus Conference in 2013.

concepts. Decisions on keeping or removing teeth and possibly performing implant treatment depends on the level of specialisation and knowledge of the clinician. Multiple concepts are in use, and the process of making decisions for maximum implant and restorative success and the outcome in terms of oral-health related quality of life is a multifaceted one.

The Guideline makes recommendations for improving function, rehabilitating function, retaining a healthy dentition, restoring function in a compromised residual dentition and rehabilitation in the aesthetic zone. This Guideline can be found here:

The new, 14th Guideline on complications in implant therapy and how to avoid, treat and improve them will premiere at IDS 2019 at the BDIZ EDI stand: as usual in German and in English. *AWU*

EuCC Guideline 2018

German dentists' Needle of Honour awarded to BDIZ EDI Vice President

Prestigious award for Professor Zöller

Professor Joachim E. Zöller (Cologne) was awarded the German Dentists' Needle of Honour in November 2018 in recognition of his services to the dental profession. Zöller is one of the best plastic surgeons in tumour treatment. Letters of thanks from grateful patients pile up on his desk at the University of Cologne.

Zöller received the award at the suggestion of two dental chambers: the Bavarian Dental Chamber (BLZK) and the North Rhine-Westphalia Dental Chamber. He was honoured for his services to the dental profession by BLZK President *Christian Berger*, acting on behalf of the President of the German Dental Association, *Dr Peter Engel*.

Humanitarian work

Professor Zöller, who is the director of the Department of Oral, Maxillary and Plastic Facial Surgery at the University Hospital of Cologne, actively supports humanitarian initiatives such as the German-Vietnamese Society for the Promotion of Medicine (Deviemed), which received the WDR Children's Rights Award in 2006 under his chairmanship. This medical initiative primarily operates on children with cleft lip and palates, which are particularly common in Asia. But he also supports other initiatives – or rather: people from difficult economic backgrounds, who do not have the money for treatment – pro bono. Just one example of his humanitarian commitment that made headlines in the media at the time due to its spectacular implementation: In early 2011, *Professor Zöller* made it possible for a young woman from Belarus to lead a normal life again in a 20-hour operation. A group in Erftstadt south-west of Cologne founded to support children suffering from the aftermath of the Chernobyl disaster had asked *Professor Zöller* and the University Hospital of Cologne for help. *Zöller* immediately agreed to operate on *Hanna* – the young patient's name – free of charge. The university hospital paid for the hospital stay to the tune of € 40,000.

At the age of two, the young woman had developed a tumour of her left parotid gland. Fifteen years with almost as many operations plus chemotherapy and radiation treatment bear witness to the severity of her case. The cancer and the effects of the treatment had disfigured her face, her teeth were not properly developed and she was suffering from incessant headaches.

"Great medical art"

Professor Zöller's performance reflects his expertise in the field of facial surgery: Normally, the young lady would have undergone three operations in stages and at intervals. Due to *Hanna's* long journey from home, he had decided to perform a single combined operation. *Zöller* and his team straightened *Hanna's* upper jaw, shifted the lower jaw and rebuilt the left facial area with bone from her right shoulder blade complete with arteries and veins as a replacement for the missing jawbone. Finally, the surgeons transplanted some of the back muscles, also complete with blood vessels, to underneath the cheek skin to replace the missing soft tissue. The entire procedure took 20 hours to perform.

The young patient wrote a heart-warming letter of thanks to *Professor Zöller*, referring to "great medical art" and calling him the "doctor with the golden hands". *Hanna Afanevich* has become a pretty young woman who can laugh again and has an ambitious career goal – she wants to become a physician!

"*Joachim Zöller* has so many talents that I can't begin to list them all. I've known him since our time

A highly prestigious award for services to the dental profession.

Congratulations: Professor Joachim E. Zöller was awarded the German Dentists' Needle of Honour in Munich. Uncommonly, he had been proposed for the award by two dental chambers concurrently, the Bavarian and the North Rhine-Westphalian one, which is why there are three signatures on the document. (Left to right:) Dr Rüdiger Schott, BLZK Vice President; Christian Berger, BLZK President, who had held the laudation speech; Professor Joachim E. Zöller, the laureate; and Professor Christoph Benz, Vice President of the German Dental Association.

Thanks to the commitment and expertise of Professor Zöller, the Belarusian Hanna can lead a normal life again.

together in Heidelberg, back in the 1980s", said *Berger*. His professional development soon steered him towards Cologne, where he has held a full university professorship since 1997, linking and integrating the various dental disciplines like no other dental specialist. He heads the Department of Oral, Maxillary and Plastic Facial Surgery and the interdisciplinary Clinic for Oral Surgery and Implantology of the University of Cologne. One would seem to think that this was enough to keep him busy. But he has also been a member of the BDIZ EDI Board since 2005, where he is in charge of continuing professional development in his position as Vice President. His great merit is that he developed and implemented, in 2006, the Curriculum Implantology and has since taught over 500 Curriculum attendees the basics of oral implantology.

But even that is far from all: He is the "father" of the annual Guidelines on implantology that the BDIZ EDI produces and publishes, enlisting the help and harnessing the expertise of varying groups of European experts. *Zöller* is also the originator of the Expert Symposium in Cologne – called the "Carnival Symposium" by insiders because *Zöller's* passion belongs to Carnival. For many years, he has been the highly committed President of the "Grosse von 1823" Cologne Carnival Celebrations Committee – the oldest in that city – which he carefully restored to its former glory and thus made attractive for young followers. He is personally immensely popular in Cologne; he is certainly one of the city's VIPs. The media follow him, he is frequently seen with the *Brings* (a famous carnival band in Cologne) and is close to Cologne's mayor *Henriette Reker*. He uses this status to help children in need. On the eve of 11 November 2018, his Celebrations Committee organized a Carnival party, with the proceeds going to "Wir helfen" ("We help"). And these are just a few examples of his unrivalled commitment to his causes.

Professional background

Some facts about *Joachim E. Zöller*: He studied medicine in Heidelberg and dentistry in Mainz and completed additional training as an oral and maxillofacial surgeon in Heidelberg in 1983. In 1987 he received recognition for his specialization as Doctor of Oral and Maxillofacial Surgery, followed in 1990 by his sub-specialization as a Plastic Surgeon and in 1992 by his postdoctoral thesis ("Habilitation"), also in the field of oral and maxillofacial surgery. He served as dental consultant (from 1988) and executive dental (from 1994) at the Department of Oral and Maxillofacial Surgery of the University of Heidelberg. In September 1997 he received a call as full professor to the Department of Dental Surgery of the University Hospital of Cologne.

Professor Zöller has written over 500 scientific papers and held at least as many lectures and presentations. He owns a variety of patents and has received several awards. He was and continues to be president or vice-president of various scientific associations. His scientific fields of interest include oral implantology, jaw distraction and other augmentation techniques, chemoprevention (prevention of cancer of the oral cavity by administering antioxidative vitamins), aesthetic and functional surgical reconstruction after tumour operations or accidents and so-called craniofacial surgical techniques. He has been the author or co-author of textbooks and professional publications on many topics that were ground-breaking in their respective fields for a whole generation of dentists. *AWU*

Giornate Veronesi

Implantology & General Dentistry

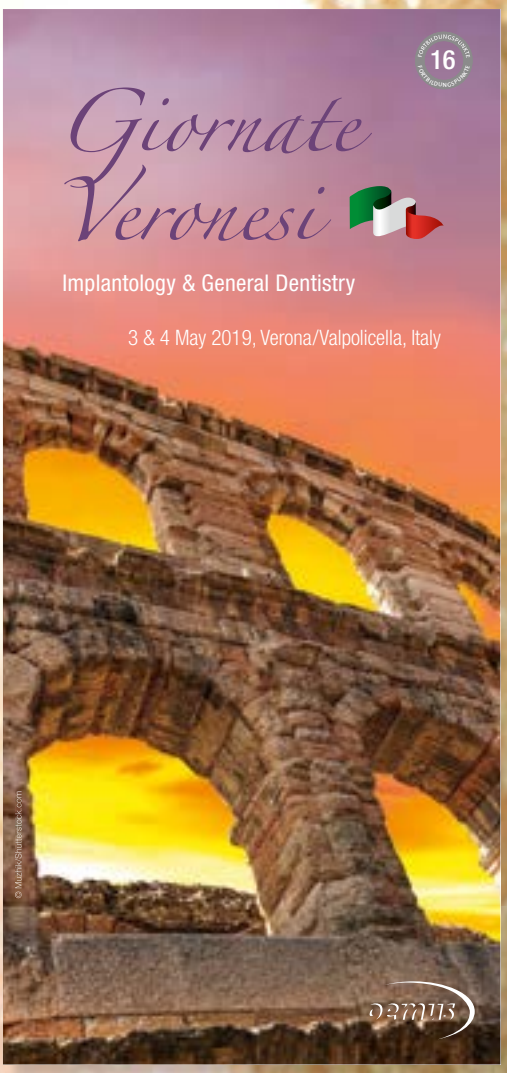
Implantology and modern dentistry in Verona/Valpolicella, Italy

From **3 to 4 May 2019**, Giornate Veronesi ("the Veronesi days"), a congress on implant dentistry with distinct Italian flair, will be hosted in close collaboration with the **13th European Symposium of BDIZ EDI** and the **University of Verona**. The latter, as well as the Valpolicella-based congress resort VILLA QUARANTA, will serve as venues for the fourth edition of the event.

The successful congress on implantology, initially hosted in collaboration with the Sapienza University of Rome since 2013, puts strong emphasis on bringing together top-notch scientific lectures and the Italian way of life. Moreover, the programme will be extended in terms of its content: in addition to the implantology main podium, there will be a consistent programme on both general dentistry and dental assistance.

The event is primarily targeted towards dentists from Germany, Austria and Switzerland and colleagues from Italy (programme section at the University of Verona). Thus, the official congress language will be German (specific segments are to be held in English). Prof. Dr Pier Francesco Nocini (Italy) and Prof. Dr Mauro Marincola (Italy) will be the scientific directors of the congress.

On Friday morning, the congress will kick off its programme of scientific lectures at the University of Verona. In the afternoon, the event will carry on with the transmission of a live operation and table clinics. Saturday will then be filled with lectures held in the congress resort VILLA QUARANTA. Giornate Veronesi will be the perfect place for having discussions with speakers and informative exchanges with both colleagues and industry representatives. Apart from the scientific programme, the get-together on Friday in particular and the dinner party on Saturday (featuring whine and music) will provide plenty of opportunity for having a chat.



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Female dentists in Europe: Professor Katalin Nagy, Hungary

An impressive career

In the present issue of EDI Journal, we introduce Professor Katalin Nagy from Szeged in Hungary. Professor Nagy has an impressive career in dentistry as well as at the University of Dentistry in Szeged, and she is also very active at international level. In 2015, she joined the European Consensus Conference (EuCC) of BDIZ EDI on peri-implantitis and worked with other international experts on the consensus paper which resulted in the guideline on peri-implant inflammation.

Name:	**Professor Dr Katalin Nagy DDS, PhD**
Profession:	**dentist, oral surgeon, specialist in maxillofacial prosthodontics**
Office:	**Head of Oral Surgery, Faculty of Dentistry, University of Szeged**
Age:	**60**
Family:	**1 son (also dentist)**
Active:	**President of the Hungarian Dental Association; President of the International Affairs Committee of the Hungarian Rectors Conference; Co-President of the Hungarian Implantology Association; Past president of the Hungarian Fulbright Association**

What has influenced you to become a dentist?

When I was a child, I wanted to be a medical doctor, but also a lawyer and a psychologist ... Later, when I completed dental school, I realized that all these professions are very much needed in dentistry and dental business these days, so I am completely happy with my choice.

Professor Nagy is a sought-after speaker at many international congresses and events.

How did your professional career get started?

After college, I was immediately admitted to dental school, where I graduated five years later with excellent results. Subsequently, I received my university training, specialist degrees, PhD and habilitation in Szeged and Budapest. Throughout my career, I continuously climbed the professional ladder, first becoming an assistant fellow, then a full staff member, senior lecturer, associate professor and director at the University of Szeged. In 2006, I founded the independent Faculty of Dentistry at the University of Szeged, became its very first dean and completed two terms of deanship (2006–2015). In November 2014, the Rector of the University appointed me as an executive director for foreign affairs of the entire university with twelve faculties, and in August 2015; I became the vice president for foreign affairs of the University.

As a former Fulbrighter, I was elected president of the Hungarian Fulbright Alumni Association. I have been member and executive of numerous dental and medical societies worldwide, as well as board member of both Hungarian and European journals. I received several awards and grants, among these the "János Bólyai" award, given by the Academy of Science of Hungary in 1999; "Fulbright Research Fellowship" 2002, New York, USA, Sloan Kettering Cancer Center; UICC Grant 2004, Los Angeles UCLA; "László Batthyány Strattmann" award, given by the Hungarian Ministry of Health for lifetime achievement in public service and professional excellence in 2014; "Pro Urbe" Award given by the Mayor and the City Council of Szeged for promoting international relations of the city in 2014; and the award "For the internationalization of higher education" in the field of intercultural cooperations given by the Tempus Public Foundation in 2014.

Among my numerous professional activities, I was elected President of the Hungarian Dental Association; besides; I am the Co-president of the Hungarian Implantology Association and Head of the Oral Surgery Department at the University of Szeged. Besides, I have been running my private practice part-time in Szeged for the last 25 years, employing young, talented colleagues to work with.

What are your specialities?

There are several fields in which I have specialized: oral cancer, oral surgery, oral implantology, and maxillo-facial prosthodontics.

What are your hobbies?

I practice gymnastics at a regular basis, enjoy travelling all over the world, like to attend theatre performances and music concerts, and last but not least I adore to cook healthy, tasty food for my family.

Thank you, Professor Nagy, for the interesting insights.

AWU

BDIZ EDI President Christian Berger

Four more years at the top

BDIZ EDI President Christian Berger, dentist and oral surgeon in Kempten, was re-elected President of the Bavarian Dental Chamber (BLZK) in early December 2018. For the BDIZ EDI, this means continued synergy effects resulting from the two honorary positions – particularly in the area of fees for private dental treatment.

Berger received the necessary majority of delegate votes in the first ballot and will thus continue to steer the fate of the largest German state dental chamber for another four years. He prevailed over *Karl Sochurek* from Munich in a secret ballot, 40–27. Incumbent Vice President *Dr Rüdiger Schott* was also confirmed in office.

In line with the integrative course that *Berger* has been steering since 2005 as President of the BDIZ EDI, he is also trying to join forces in the BLZK. *Berger* has had many years of experience in working for this organization. Having started as a public-relations officer, he became Vice President of the BLZK in 2002. For the past eight years, he has been in charge of postgraduate continuing education and training as well as the Bavarian Dentists' Congress. *Berger* represents a liberal stance, which is also reflected in the BDIZ EDI: maintaining freedom for practices and containing bureaucracy where possible.

He is also a co-author of the GOZ Compendium 2012 and the "father" of the BDIZ EDI tables published annually by the association to document for German dentists that the gap between rising practice costs and stagnating fees keeps widening. Since the BLZK, with its almost 16,000 members, is the largest state dental chamber in Germany, the vote of the BLZK President on the Council of German Chamber Presidents carries considerable weight.

Having completed his 2014–2018 term, Christian Berger will continue to hold the honorary position of President of the Bavarian Dental Chamber for the 2018–2022 term as well.

38th International Dental Show in Cologne from 12 to 16 March 2019

Meeting point BDIZ EDI

Training and education are top-notch. Like a well-trained avalanche dog, BDIZ EDI tracks down what is missing from the practice of oral implantology in terms of (continuing) education and European networking among dentists. Meet the "activists" behind the scenes – at the stand of BDIZ EDI at the IDS 2019 in Cologne (Hall 11.2, Stand O059).

At the 38th International Dental Show, BDIZ EDI will share a stand with the Croatian Dental Chamber for the first time. "Our Meeting Point Implantology is designed to bring together the different types of competence and skills and to showcase the support which BDIZ EDI can offer oral implantologists", says BDIZ EDI President *Christian Berger*. This includes the "We want you" campaign, aimed at young professionals – including the proven Curriculum Implantology, whose individual modules can be combined as needed by dentists interested in the field.

New Guideline of the European Consensus Conference: "Complications during implantological treatment: avoid – treat – improve results"
At the beginning of March, the European Consensus Conference (EuCC) under the auspices of BDIZ EDI met in Cologne on the occasion of the 14th Expert

Spin the wheel of fortune

One highlight at the BDIZ EDI stand is the twice-daily spin of the wheel of fortune. If you are lucky, you can win great take-away prizes!

Watch the daily BDIZ EDI wheel of fortune spin at 11 am and 3 pm in Hall 11.2, Stand O059!

Symposium. The result: Our 14th Guideline is ready; this year's topic is about dealing with complications during implantological treatment. At IDS, the consensus paper will be available hot off the press; it is published in German and English. The previous Guidelines on immediate loading (2006), ceramics as an implant material (2007), peri-implantitis (2008), three-dimensional imaging (2009), complications (2010), short and angulated implants (2011), the Cologne ABC Risk Score for implant treatment (2012), the Cologne Classification of Alveolar Ridge Defects (CCARD) (2013), avoiding the malpositioning of implants (2014), treatment of peri-implant inflammation (2015), short, angulated and diameter-reduced implants (2016), digital workflow in implant dentistry (2017) and last year's paper on patient-oriented treatment concepts in oral implantology can be downloaded from www.bdizedi.org.

Common congress in Verona

Coming up soon is the 13th European Symposium of BDIZ EDI in collaboration with the Oemus publishing house; it will take place in Verona, Italy, in May 2019. This joint venture of Oemus and BDIZ EDI will be held on 3 and 4 May 2019 to include workshops and a main podium. Visitors of the BDIZ EDI stand will receive information about the agenda and the side programme. Verona is worth visiting and synonymous with culture and of course the Italian lifestyle. The Arena di Verona is famous for its open air opera festivals.

Questions? We like to provide answers!

Of course, the BDIZ EDI board will be present on site: Presidents *Christian Berger* and *Professor Joachim E. Zöller*, Treasurer *Dr Wolfgang Neumann,* Secretary-General *Dr Detlef Hildebrand* and Secretary and Managing Director *Dr Stefan Liepe* as well as the entire team.

AWU

BDIZ EDI at IDS 2019: Hall 11.2, Row O, Stand 059
Programme 12 to 16 March 2019

Tuesday, 12 March 2019
Trade Dealer Day

Wednesday, 13 March 2019
EU regulations

- Information on Data Protection Policy
- EU legislation on medicinal products and EU directive on the recognition of professional qualification
- BDIZ EDI's work in the EU committee

Thursday, 14 March 2019
Postgraduate education and quality in implantology

- BDIZ EDI's continued education, symposiums, workshops, and curricula
- BDIZ EDI's new guidelines of the European Consensus Conference (EuCC)
- Indication classes of the Consensus Conference Implantology
- BDIZ EDI's quality guideline
- Material testing by the BDIZ EDI

Friday, 15 March 2019
Meet the Board of BDIZ EDI

- Special day for international guests

Saturday, 16 March 2019
We want you!

- Benefits for European members of BDIZ EDI
- Meet the Experts

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BDIZ EDI relaunches Quality Guideline for Implantology

Yardstick for assessing one's own work

It's not easy to evaluate therapy outcome when it's the own work. To support the implant clinician to evaluate his/her therapy outcome with regards to quality, BDIZ EDI has relaunched the Quality Guideline for Implantology for the second time. The new paper will be available at the BDIZ EDI stand during this year's International Dental Show (IDS) in Cologne.

Soon available: the second relaunch of the BDIZ EDI's Quality Guideline for Implantology.

For many years now, dental academics and practitioners have been thinking about quality guidelines. Very early, BDIZ EDI took responsibility to develop a quality guideline for implantology by consensual cooperation with academics and practitioners. In the early 1990ies, the so-called Quality and Registry Committee of BDIZ EDI formulated initial standards for implant systems. The BDIZ EDI developed and established a network of competent dental experts that are contributing into quality assurance in implant dentistry. However, long-term trends show that a qualitative evaluation of dental services is a difficult, if not impossible, endeavour that has given rise and will continue to give rise to much controversy and discussions.

The objective of the Quality Guideline, launched in June 2002, and relaunched 2006 and now 2019, is to give dental clinicians active in the field of implantology a system of yardsticks against which to evaluate their own work. The Quality Guideline is intended for self-evaluation and self-assessment, since only the treatment providers themselves know their own work and their patients with all their expectations and problems. The therapist is the only one who can reliably evaluate how the prevailing conditions – which will influence any medical treatment, sometimes decisively – have affected the treatment result in question, either positively or negatively. But patients, too, need reliable and comprehensible criteria to evaluate treatment results.

The criteria defined in this Quality Guideline are based on the requirements of dental science. Therefore, they're will be also valid in countries outside of Germany.

Purpose

One of the main objectives of the Quality Guideline for Implantology is to provide a tool for dental clinicians to assess their individual position with regard to various activities and treatments. There are probably hardly any dentists who will be able to call themselves "A+"-dentist with regard to their entire range of professional activities pursuant to the Quality Guideline. To a certain extent the dentist is better at some tasks and less good at others, moving daily with a broad range of assessment levels. This means, however, that dentists must have both the opportunity and the ability to identify the areas where they need to deepen or update their knowledge and skills. In times of rapid technological progress and new products flooding the market, it is almost impossible for an individual dentist to stay abreast of developments in every area of dentistry he's practicing. The new Quality Guideline permits all dentists to identify their relative positions and to improve where necessary and appropriate.

To establish the Quality Guideline in 2002 was the first attempt to describe the meaning of quality in implantology in Germany. The guideline has been consistently modified and updated and will continue to require continuous modification.

Implementation

Implementation of this Quality Guideline calls for re-thinking on the part of many dentists. However, this process would reward those who are honestly interested not only in providing "services" to their patients/customers but offering individually optimized dental treatment.

It is by conscious choice that the Quality Guideline generally disregards structure and process quality in implantological treatment. Structure and process quality have been sufficiently defined in BDIZ EDI's White Book on Implantology and many quality management systems are already available on the market. The Quality Guideline does not intend to prescribe or introduce standardized treatment

processes or office structures. The dentist's profession is a liberal profession, and it will continue to be up to dental practitioners themselves how the necessary quality is achieved. It is in their responsibility. The patients will appreciate it.

The new Quality Guideline incorporates several of the recently made or updated Guidelines of the European Consensus Conference under the auspices of BDIZ EDI.

Premiere of the relaunch will be at the stand of BDIZ EDI at this year's IDS in Cologne. Subsequently, it will be available in the online shop of BDIZ EDI's website or can be downloaded from the website in German and English language. *RED*

What do you expect from IDS 2019?

The International Dental Show (IDS) will open its doors in Cologne on 12 March. The EDI Journal asked members of the BDIZ EDI Board about their expectations of this leading dental business summit.

Christian Berger, BDIZ EDI President, Kempten

The Medical Devices Ordinance (MedDO) has been in force since May 2017 and is intended to increase the safety of patients in the field of medicine and medical technology. Next year, the new European regulation will be binding. Whoever manufactures medical devices – and Germany is said to be the largest manufacturer market in Europe – must follow the new classification rules and seek to obtain the approval for the European market from the so-called Notified Bodies. Only those who fall within the definition of a Class I medical device escape the complex process of approval by these bodies.

Dental materials are usually classified in Class II – but not so implants. In the case of dental implants, the significantly higher requirements of Class III are applied.

I am very curious to see how medical device manufacturers – including implant manufacturers – will discuss the MedDO requirements at the IDS.

Dr Stefan Liepe, Secretary and Managing Director of BDIZ EDI, Hanover

Every two years, the IDS provides an extensive spectrum of innovations and technology, and 2019 will certainly have a lot to offer, too. The further development of 3D technology (3D printing, etc.) will be of great interest to the trade visitors. The expectations of over 150,000 national and international professional visitors are high. The IDS is one of the best platforms to maintain or expand your networks and get in touch with one or another new business partner.

I am looking forward to the many personal contacts made possible by an event like the IDS. Come and visit us – we are looking forward to welcoming you at the BDIZ EDI booth in Hall 11.2, Stand O059.

Dr Jörg Neugebauer, Member of the Extended Board of BDIZ EDI, Chairman of the Q&R Committee, Landsberg/Cologne

Even the merger of many companies has not reduced competition in the implant sector. Especially the manufacturers operating in the field of the digital workflow are pushing their way onto the market.

This topic was already dealt with in 2017 in our Guidelines "Digital Workflow in Oral Implantology". Since then, the manufacturers have announced that the systems will become more open and that data will be exchangeable across different platforms. It is to be hoped that these announcements will come true and that it will soon be possible to use the digital options more efficiently in the dental practice.

About 2,300 exhibitors from more than 60 countries

The success story of IDS continues

The International Dental Show (IDS) is opening its doors for the 38th time from 12 to 16 March 2019. Around 2,300 companies from over 60 countries are awaited in Cologne for the world's biggest trade fair for dentistry and dental technology. As such, the entire dental industry is represented at the IDS, including all the international market leaders, which makes it unique in terms of depth and breadth: from dental medicine, to dental technology, infection protection and maintenance, through to customer services, information, communication and organizational materials.

Due to its entirety and high number of innovations IDS impressively underlines its significance as a forward-looking trendsetter of the dental industry. No other dental trade fair worldwide presents such a wide spectrum of offers of dental products and services. IDS 2019 covers Halls 2, 3, 4, 5, 10 and 11, spanning a total gross floor area of over 170,000 square meters. Not least due to the high number of registrations, the GFDI – the Gesellschaft zur Förderung der Dental-Industrie mbH, the commercial enterprise of the Association of German Dental Manufacturers e.V. (VDDI) and Koelnmesse are anticipating that IDS 2019 will be able to repeat the excellent result of the previous event also in terms of the number of visitors. 155,000 trade visitors from 156 countries were recorded at IDS 2017.

Of the expected approximately 2,300 companies from 60 countries well over 70 per cent of the exhibitors come from abroad – an indication of the high level of internationality of IDS. The most strongly represented countries among the exhibitors are Italy, the USA, the Republic of Korea, China, Switzerland, France and Great Britain.

In addition to this, numerous foreign group stands will be represented in Cologne again. Up until now 19 groups have registered for IDS from Australia, Argentina, Brazil, Bulgaria, China, France, Great Britain, Hong Kong, India, Israel, Italy, Japan, the Republic of Korea, Pakistan, Russia, Spain, Taiwan, Turkey and the USA.

With the integration of Hall 5, IDS is creating the necessary capacity for the strong demand on the part of the exhibitors and visitors. Here, among others several large suppliers of consumer prophylaxis will be exhibiting. Hall 5 fits in well with the natural tour of the trade fair and is perfectly connected to the 'mobile' Boulevard entrance area between Halls 5 and 10, which we will be opening

Photo: Koelnmesse GmbH

in addition to the Entrances South, East and West to ensure an optimal visitor flow. Here, the visitors will primarily be led to the fairgrounds via shuttles from the trade fair car park and the external visitor car parks. The integration of Hall 5 further enhances the overall quality of stay for the visitors of IDS: a "Food Court" in Hall 5.1, the wide aisles and the light-flooded passages provide an improved orientation and lend the event an even better structure. Furthermore, the smooth, visitor-friendly access situation guarantees a more even distribution of the visitors across all of the exhibition halls.

Once again in 2019, the International Dental Show is sticking to its recipe for success by continuing to focus on the business and product information at the stands of the exhibitors. This is why the trusted regulation will be adhered to that the opening day of the fair, 12 March 2019, will as the "Dealer's Day" concentrate on the dental specialized trade and importers. In this way, they are to be given the opportunity to hold intensive sales negotiations in the corresponding atmosphere.

A focus on digitalization

An important theme that is affecting all industries across the globe and which will also be clearly perceptible at IDS 2019 is the "digitalization". IDS has accordingly also completely relaunched its website, turning it into a digital information platform, which inspires with its visual imagery and which is intuitive to navigate through. The IDS app for mobile phones and iPads as well the newsletter information are also aligned with this digital "look & feel".

The visitors can use the IDS app in the run-up to the event to gain information on the exhibitors and products as well as on the accompanying event programme fast and conveniently. The interactive hall plan makes sure the visitors don't lose their orientation. The navigation system of the app guides the visitors through the halls to the desired exhibition stands in a targeted manner. The app also contains a list of exhibitors as well as information on the event programme and on-site services.

And the digital tool Matchmaking365 supports the trade visitors in establishing valuable business contacts even before the trade fair starts. Here, concrete advance information and offers can be requested and appointments at the trade fair can be arranged – simply from the comfort of one's own desk or even en route using the app.

Additional information and services

In addition to extensive live demonstrations and presentations that take place alongside the product presentations at numerous stands, the "Speakers Corner" of IDS opens up additional opportunities to gather information. The exhibitors can use the hosted visitor forum for lectures and product presentation as an additional means of presenting new products and trends from their offer of products and services.

Thanks to the many online services, arrival, stay and fair ticket can be booked quickly and easily on the IDS website. It has already been possible to register and purchase your ticket via the online Ticket Shop since the end of November. Anyone with vouchers should exchange these for an E-Ticket in advance in the Ticket Shop. Together with the E-Ticket the trade visitors also receive a transport ticket for buses and trains belonging to the Rhein-Sieg transport network (VRS). The ticket is also valid for the Rhine-Ruhr transport network for the first time. Hence, the trade fair guests can choose from attractive overnight offers in the outskirts of Cologne and throughout the entire Rhein-Ruhr metropolitan region and travel to IDS using public

transport free of charge. Thanks to the outstanding infrastructure connections of the fair grounds, the cities of Düsseldorf and Bonn are reachable in under 30 minutes and the metropolitan Rhine-Ruhr area comprising of the cities Duisburg, Essen, Gelsenkirchen, Mülheim or Dortmund can be reached within 45 to 60 minutes. Trade fair guests, who arrive at Düsseldorf Airport or who stay in a hotel in Essen, can use the regional express trains, suburban trains, trams and city buses and thus reach the Messe Köln-Deutz station and/or trade fair quickly and conveniently. Furthermore, this additional service also offers accommodation options of all categories in smaller cities and communities that lie on the Deutsche Bahn routes connecting the surrounding region with the Cologne trade fair location (Düren, Leverkusen, Solingen, Troisdorf, Siegburg, Hennef). Further information on the rail network of the Rhein-Sieg public transport network and the Rhein-Ruhr public transport network can be found at www.vrsinfo.de/ and at www.vrr.de

Source: IDS Cologne

Hygiene in the dental practice: a major topic at IDS

The disinfection and cleaning of hands, surfaces, instruments and special areas is a necessary prerequisite for the orderly operation of the practice. There are many regulations that serve to guarantee the safety of the practice staff and patients: The recommendations of the Robert-Koch Institute (RKI), the medical products law (MPG), the medical products operator ordinance (MPBetreibV), works safety regulations, the infection protection law (IfSG) – the hygiene team has to make sure all of the threads come together. There will be news on the subject at the International Dental Show, 12 to 16 March 2019 in Cologne, that's what VDDI (Association of the German Dental Manufacturers) promised in a recent press release.

There is still progress and new developments in the hygiene sector. The composition of the active substances is even constantly reconsidered. For example, the aim for hand hygiene agents is to achieve an improved caring effect (through special formulations based on propanol and ethanol in new mixing ration as well as dexpanthenol as a skin-regenerating component). The preparation of the sterile materials is a further innovative area. Modern thermal disinfectors are setting new records in load capacity or facilitate the documentation and organization for the practice team with convenient interfaces to the electronic practice administration.

The network integration of many function units (for example, autoclaves, thermal disinfectors, ultrasound devices) will no doubt further increase the efficiency of the hygiene management in future. For example, the automated inscription of packets of sterile materials brings added safety as well as saving time.

The IDS (International Dental Show) takes place in Cologne every two years and is organized by the GFDI Gesellschaft zur Förderung der Dental-Industrie mbH, the commercial enterprise of the VDDI, and is staged by Koelnmesse GmbH, Cologne.

Source: VDDI press release

Photo: Koelnmesse GmbH

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Photo: Koelnmesse GmbH / IDS Cologne / Harald Fleissner

The digital practice at IDS 2019

Faster and safer?

The digital world is opening up numerous opportunities for dental practices – or countless opportunities? Yes, it is not always that easy to retain the overview in this section. The International Dental Show (IDS) presents the state-of-the-art technology and helps to find the relevant solutions for one's own practice.

The impetus for digital processes is often triggered off by the patients today. A typical situation: The patient needs a crown exchanging, however he doesn't have much time so he definitely has to be treated the same day. One solution can be chairside systems or also a particularly fast digital workflow, which includes the practice and the laboratory. Considerations regarding the ideal restoration materials also play a role. IDS presents the entire palette of options to the visitor and thus also lays the basis for well-founded investment decisions.

Whereas in the above-mentioned case the priority was above all on speed, digital technologies assist with both complex and difficult treatments – for example in the field of implantology: A patient requires a fixed denture for his toothless lower jaw. Based on X-rays and model scan data the team of dentists/dental technicians plans the treatment together in the scope of backward planning from the final prosthetics to the positions of the individual implants. The digital availability of the data facilitates this process and if necessary also enables a further colleague to be involved even at short notice.

There are various ways of putting the planned work into practice – including also many that involve digital support. For example for a safe surgical treatment drilling templates can be ordered from the dental laboratory or from an industrial service providing partner. External support is also available for the virtual design and production, so that the individual work steps can be more flexibly divided up among the players (surgeons, prosthodontists, dental technicians) today than ever before. In this way, the practice aims to achieve quality assurance or indeed an improvement in the quality, while at the same time possibly saving time and money.

From orthodontics to endodontics

There is also progress in the orthodontic section: Even beyond diagnostic issues, virtual set-ups can also be created using virtual models and orthodontic appliances can even be planned (i.e. fixed appliances). Even in endodontics, a specialised discipline that is considered to be extremely analogue, motors can be controlled by tablet computers today, torques for the entire root canal treatment registered or the complete process simulated in advance. This increases the predictability of the result of the therapy and thus ultimately also the success rate.

Source: IDS Cologne

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Growing field in dentistry

Mega trend 3D printing

3D printing is still considered to be a possible “game changer”: New treatment methods, new forms of teamwork, new business models. Dentistry is one of the pioneers. The current opportunities for the practice and laboratory are within grasp – at the International Dental Show, 12 to 16 March 2019, in Cologne.

Photo: Koelnmesse GmbH / IDS Cologne / Harald Fleissner

According to a current analysis, the worldwide market for 3D printing products in the industry is estimated to grow by between 13 per cent and 23 per cent up to a volume of 22.6 billion euros by 2030. Specifically in the medical technology sector it is estimated to increase from 0.26 billion (status: 2015) up to 5.59 billion euros (2030).

According to the estimations of the experts, the development will occur in two phases: primarily the “reinvention” of existing products up until around 2020, then increasingly innovative materials and optimised printing methods. In the industry comparison, 3D printing is experiencing the strongest growth in the medical and dentistry sectors. Hence the dentists, dental technicians and the dental industry are taking on a natural pioneer role.

Big opportunities

The printing of bases using the laser-controlled method has long since established itself, whereas dental models are made out of plastic for instance. Market researchers see the biggest opportunities for orthodontic appliances, prostheses, crowns, bridges, aligners and models. Wide sections of which have in the meantime become areas of application in the laboratory and practice.

This manufacturing process continually attracts special attention with spectacular applications. For example, in the prophylaxis segment an individualised, 3D imprinted dental floss holder is one of the advanced developments. Vivid images prove effective for the communications. A digitally modelled smile agreed upon together with the patient serves here as the template for an imprinted 3D model, this is in turn used to produce a negative of the patient’s teeth in a silicone key and ultimately a thin “veneer simulation” of the actual restoration for an initial aesthetic check in the patient’s mouth.

A robot also managed to implant two 3D imprinted teeth into a patient’s mouth. And to reproduce the original form of the jaw after removing oral tumours, the defect can be scanned today and a template produced using the 3D printing method. This serves to extract a precisely matching block of bone from another part of the body (i.e. calf) which is subsequently fitted into the mouth – for the patient this is approximately an eight hour “all-in-one surgery”.

Talking about 3D printing in the singular form seems to be an underexaggeration today – there are namely so many different methods meanwhile. These include the stereolithography with a precision degree in the lower two-digit micrometre area, which is suitable for instance for drilled templates and which can be used for a wide range of resins in the dentistry sector. Furthermore, the DLP method is also available: It excels because it is extremely fast because due to the one-time exposure (instead of a dancing laser beam) the respective next layer of the object hardens as quick as lightening. The polyjet method attains an extremely high degree of precision (16 micrometres). It functions most similarly to the familiar office printer and doesn’t require support constructions and material post-processing.

From plastic to metal imprints: Here one is familiar with selective laser melting, selective laser sintering (SLS), direct metal laser sintering (DMLS) or lasercusing: The crowns, bridges and denture bases (“digital model casting bases”) are made out of non-precious metal dental alloys or titanium.

IDS in Cologne presents the entire spectrum of methods and applications already implemented today, including the 3D printing of models of all kinds, from implant masks, drilling templates, casted designs (individual), impression trays, splints (incl. occlusal splints), from transfer keys, from aligner films and from long-term temporary restorations made of plastic as well as printing crown and bridge bases, from bars and denture bases made of alloys. The suppliers will explain the characteristics of imprintable materials, software solutions and services appropriate for the practice and laboratory at the exhibition stands.

Source: IDS Cologne

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Long-term task periodontitis therapy

In dentistry it is about securing patients the longest possible retention of their natural teeth in a healthy, functional, aesthetically acceptable and pain-free state. Periodontology provides the essential prerequisites for this through the maintenance of integral structures of the periodontium. The biggest adversary here is periodontitis. How can it be prevented, stopped, repressed?

The exhibition halls of this year's IDS offer established as well as innovative methods of periodontitis therapy and prevention. Regular follow-up care (UPT, recall) is essential for long-term success. This involves the dentist checking and improving the oral hygiene, regularly measuring the probing depths and filling the pockets where necessary. IDS shows the entire range of cutting-edge tools. These include periodontal probes made of a wide range of substances (for example, plastic, carbon, titanium). There are also pressure-calibrated alternatives among them, so that the load limit (= 20 grams) is not exceeded. Manual tools, ultrasound and powder jet systems are available for the classic scaling and root-planing – in particular special ergonomic executions. This is therapy-appropriate because marathon-like staying power is required precisely when treating periodontitis.

It should be worthwhile taking a look at the delicate approaches that rely on the strengths of subgingival tools, on low-abrasive powder for the re-instrumentation – and also on current software offers. In this way, if necessary one can already document complete periodontal states with probing depths and attachment losses on up to six points per tooth as well as a furcation participation, differentiated according to gradings as well as changes over the time. An interface to the regular allocation of appointments for patients provides a close linking to biofilm and recall management. Because "keeping appointments" and "consistently sticking at it" are the key to success in periodontology.

Furthermore, all options for the adjuvant therapy can be assessed at the IDS, for example laser-controlled methods (for example, photodynamic therapy) and immune modulation (for example, probiotic provision) as well as the application of antimicrobial substances (for example, chlorhexidine, antibiotics). Beyond the minimally invasive methods, surgical operations are of course also interesting (lobe OP, soft tissue transplantations). Depending on the case at hand these cannot be avoided and then special tools are required. Today these can also include lasers for cuts with low trauma (for example, 445 nanometre diode laser). In order to be able to assess the inflammation situation of the affected periodontal pockets more accurately, the visitors of the IDS can examine the exhibited bacteria and DNA tests, among others marker germ tests (for example, for porphyromonas gingivalis (PG), tannerella forsythia (TF) and treponema denticola (TD) from the red complex) as well as testing for aggregatibacter actinomycetemcomitans (AA) – in some cases as a chairside method. The risk of genetic-based periodontitis (interleukine-1ß-polymorphism test) can also be determined or tissue destruction processes can be assessed (for example, testing for matrix metallproteinases-8 (aMMP-8) in the gingival fluid) to enable an accurate forecast and treatment planning.

Source: IDS Cologne

New compositions and new productions

Alloys play a main role

The selection of materials for prosthetics has increased considerably over the past 20 years. Alloys still play an important role here. Their composition as well as the production and processing methods are further developed at a high scientific and technical level – which is of course a main focus of the International Dental Show (IDS).

Alloys free of precious metals are used in prosthetics, orthodontics and implantology and have thus adopted a strong market position. The advantages lie above all in their material attributes, the processing versatility and comparably low costs. For the production methods, in addition to the classic precious metal-free casting process, the user can also opt between milling porous and dense blanks and the laser-supported selective fusing of powder material. Innovative digital tools facilitate to a large degree the completion of major model casting work today. Titanium also has a special standing under the precious metal-free restorative treatment of patients.

Specially assembled or individually milled abutments, crowns and bridges made of this material especially for implanting work represent a consistent minimisation of the variety of materials used inside the mouth, because the majority of artificial dental roots is also made out of titanium. People seeking information on this theme at IDS will also find a row of possible answers to the question of where a reliable adhesive bond can be found.

Classic precious metal alloys with a high content of gold rely on their strengths in special fields of application, such as for example large-spanning constructions using combined techniques, generally for tangential preparations and especially for secondary crowns (for example, telescopic technique) – or also for certain recognised methods of gnathological occlusal surface (for example, bio-mechanical occlusion the *Michael Heinz Polz* way). As ductile materials they prove to be extremely tolerant against small discrepancies between the diagnostically determined movements of the masticatory apparatus and its actual dynamics in the individual case of the patient after prosthetic treatment.

Dentists and dental technicians encounter a strongly differentiated offer at IDS: classic casting alloys, ceramic bonded alloys, copper and/or palladium-free bio alloys, more favourably priced gold-reduced alloys, ultra-pure electroforming gold. The processing can today, depending on the alloy option, take place using the casting process or partly digitally-supported (for example, CAD/CAM production of PMMA casted substructures) or by milling the restoration out of a gold blank. For an aesthetic crown, substructure material specific veneering ceramics and plastics that are tailor-made in their design options as well as in their systematics and didactics can be found at the exhibition halls of IDS.

Source: IDS Cologne

Photo: KoelnMesse GmbH

Photo: Koelnmesse GmbH / IDS Cologne / Harald Fleissner

IDS demonstrates the opportunity of endodontic therapy

Endo entering the digital world at top speed

The success of an endodontic therapy depends on many factors, including the documentation of all root canals, their hermetic sealing and the type of the subsequent coronal treatment. The IDS shows in a unique abundance how current innovations can be optimally put to use in the individual treatment stages.

The success rate in endodontics mainly lies at over 90 pe rcent today, when observed over a period of ten years. In order to optimise his personal approach, the practitioner wants to fall back on the best of the best – from the magnifying glass, to modern filing systems, through to the virtual preplanning of the root canal treatment.

Digital-based endodontics are currently offering exciting innovations. In this section the expert has long since been familiar with digital 2D X-rays (with sensors or the image plate technique) as an alternative to the classic, analogue X-rays. For a few years there have already been endo-motors that can be controlled using a tablet and which open up digital worlds with advantages in the documentation and patient communications section. Now the development is moving in the direction of a virtually preplanned root canal treatment – through to "guided endo" (similar to a guided implantation using a drilling template).

In the digital world the familiar method and the products retain their customary function in their implementation and are further developed. For example, partly heat-treated files that offer even more flexibility, which particularly proves advantageous for anatomically complex anatomies, stand out here. Furthermore, through the use of lasers the disinfection of prepared root canals will succeed more safely in the future (PIPS or SWEEPS: photon induced photoacoustic rinsing methods, shock wave enhanced emission photoacoustic streaming). And for the obturation motorised extruders can simplify the dental approach by uniting all of the necessary functions. They encompass among others the introduction of the gutta-percha, filling the canal and where necessary making space for a root post.

With the support of software the whole procedure is made more efficiently plannable and thus safer and more sure of success. A 3D X-ray and the computer programme are the basis for this. The dentist can now mark through the root canals with dots on the screen from the top to the bottom. The software recommends the right sized files, the matching obturators and much more and offers the opportunity to go through the treatment in advance virtually. Basically it is also possible to divide up the work, for instance a specialist plans the treatment, which is then carried out by the family dentist himself. As a next step we have guided endodontics: For example, a template ensures that the glidescope files are introduced into the canal at the optimal angle.

Source: IDS Cologne

International Dental Show 2019

Signpost to dental implantology

In our “Signpost to dental implantology” you will find a selection of major companies in the field of dental implantology which will be represented at IDS 2019 in Cologne with their own booth.

Company name	Hall	Stand no.
Anthogyr	Hall 4.2	J021
bicon	Hall 4.2	G070 J079
Biohorizons	Hall 11.3	A010 B019
bredent	Hall 11.1	B010 C019
Camlog	Hall 11.3	B010 C019 F020 G029
Champions-Implants	Hall 4.1	B071
Dentaurum Implants	Hall 10.1	F014
Dentium	Hall 4.2	G031
Dentsply Sirona	Hall 10.2 Hall 11.2	N010 O019 K018 L019
EthOss	Hall 2.2	C061
Implant Direct	Hall 10.1	H020 J029
mectron	Hall 10.2	O040 P041
Medentika	Hall 4.1	A090 B099
medentis	Hall 3.2	C020 E029
megagen	Hall 4.2	M060 N061

Company name	Hall	Stand no.
MIS Implants	Hall 4.1	B030
Nobel Biocare	Hall 10.1	H020 J029
Omnia	Hall 10.1	E061
Osstell	Hall 10.1	D008
Osstem	Hall 4.1	A010 B019
OT medical	Hall 11.2	L060
Planmeca Oy	Hall 11.1	G010 H011 H028 J029
Straumann	Hall 4.2	G080 K089
TBR	Hall 4.1	A058
TRI Dental Implants	Hall 4.2	J039
W&H Dental-werk	Hall 10.1	C010 D011 C018 D019
Zest	Hall 4.2	J070
Zimmer Biomet	Hall 3.1	H040 J049

Source: IDS Cologne – No liability is assumed for the correctness and completeness of the information provided.

Photo: Koelnmesse / IDS Cologne / Oliver Wachenfeld

First chapter meeting of the Academy of Osseointegration in Germany

AO gains a foothold in Europe

In January 2019, the first Charter Chapter meeting of the Academy of Osseointegration (AO) in Germany was held at the University of Heidelberg.

Professor Christian Mertens organized the first German chapter meeting of the Academy of Osseointegration as part of the "Clinical Afternoon" of the Department of Oral and Maxillofacial Surgery. On January 23, *Dr James C. Taylor* (Ottawa, Canada), Acting President of the AO, welcomed more than 120 participants and introduced the AO.

The AO is the world's leading scientific implantological association. It will hold its 34th annual meeting in Washington, DC in March 2019. "This international professional society has members from all over the world", said *Dr Jörg Neugebauer* (Landsberg am Lech, Germany), a member of the Board of Directors of the BDIZ EDI. He described the objectives of the Academy of Osseointegration as follows: "Ensuring the highest standards in patient care, research and training in implant dentistry."

In addition to the annual meeting and local working groups in North America and Charter Chapter meetings in various countries around the world, AO members gather to develop training and research programs in various committees or consensus conferences, as well as to organize the treatment of special clinical cases. At the end of his welcoming speech, *Taylor* appointed *Professor Christian Mertens* Ambassador of the AO for Germany.

AO President Dr James C. Taylor introduced the first German Charter Chapter meeting.

Professor Christoph Hämmerle (Zürich, Switzerland), gave the first presentation on the state of the art in digital prosthetics. Based on numerous studies and clinical examples, *Hämmerle* explained the possible uses of digital technologies in the fabrication of dental prostheses, concluding that digital technologies would continue to establish themselves in the dental practice. However, he also warned that digital impression-taking still needed to be optimized for more extensive restorations.

Dr Jörg Neugebauer, the first and only German oral surgeon on the AO's twelve-member Board of Directors (appointed in 2015) then spoke about the use of alternative techniques to avoid bone augmentation. Taking cues from numerous case examples, he demonstrated the use of angulated inserted and reduced-diameter implants as well as ultrashort implants as presented in the 2016 Guideline of the European Consensus Conference under the auspices of the BDIZ EDI. In the subsequent discussion, *Neugebauer*, who had chaired the 11th European Consensus Conference on that very topic for the BDIZ EDI in 2016, was able to respond in detail to the many questions from the audience.

Following the afternoon coffee break, "local hero" *Professor Christian Mertens* reported about his clinical experience with drilling templates for immediate implant placement. Users were given a wealth of information to take home, for example on when and how template guided implantology can be made safer.

Dr Peter Gehrke, who has also been a member of the AO for many years, concluded the round of lectures. He presented his research on the design and stability of CAD/CAM abutments in an audiovisually appealing presentation. In addition, he highlighted the need for standardized hygiene protocols, designed not only to support the peri-implant soft tissue by the abutment design, but also to reduce the

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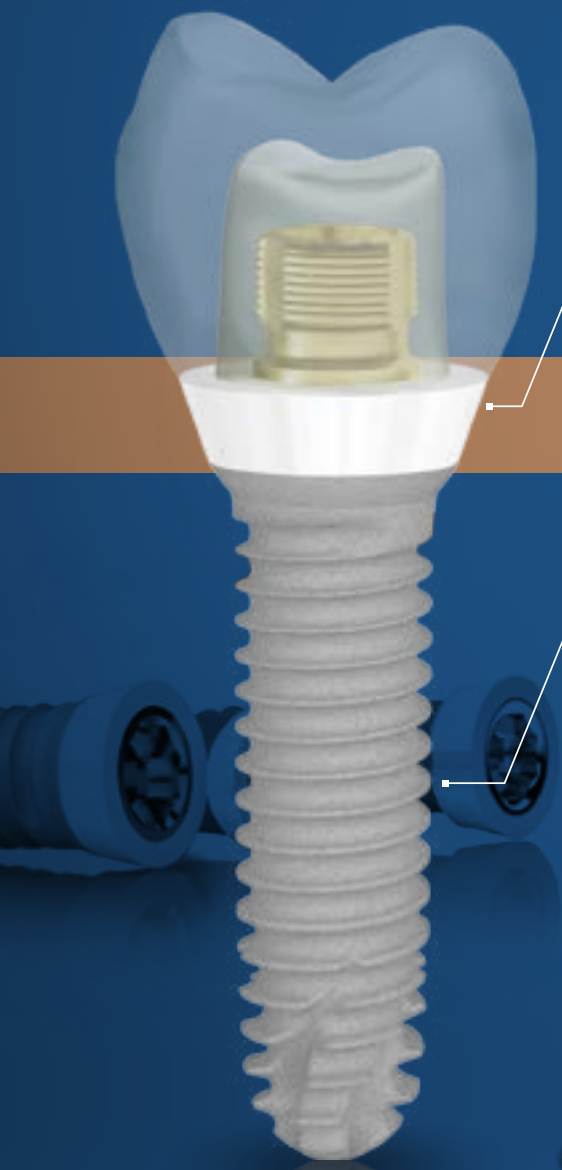

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Lecturers and organizers of the first German Charter Chapter meeting at Heidelberg University (from left): Professor Christoph Hämmerle, Dr Jörg Neugebauer, Dr James Taylor, Professor Jürgen Hoffmann and Professor Christian Mertens.

risk of peri-implantitis. This work has already been published by *Gehrke* in the International Journal of Oral and Maxillofacial Implants, which is published by AO and is one of the oldest internationally recognized professional journals in oral implantology.

But this Clinical Afternoon at the University of Heidelberg was not restricted to technical and scientific data; rather, the working methods of the Academy of Osseointegration were also presented in detail. Unlike the way German and European associations are usually organized, the Executive Board of the AO coordinates the activities of the various committees so that many colleagues with different international backgrounds and experience can exchange their views. In the committees, the local members of the AO can bring the European and especially the German view of implant therapy to the international discussion. The Executive Board consists of twelve members, but its President changes each year, and a new member is appointed to replace the outgoing President, meaning that the Executive Board is not a rigid body but is continuously rejuvenated. It is therefore a body that is open but, thanks to its sheer size, still ensures the continuity of its agenda.

A number of employees are in charge of daily operations and of organizing Academy business. Thus, in addition to the annual conference, the AO also offers various regional conferences and a constantly growing online library of webinars.

President James C. Taylor announced Professor Christian Mertens as German Ambassador of the Academy of Osseointegration (AO).

Background

The format of the annual AO meetings is different from European congresses, as the body of dentists in North America includes a large number of specialists in oral surgery, periodontics and prosthodontics. Thus, different forums exist for the different therapeutic focus areas. The research community is not at all neglected at the annual meetings; special lecture blocks are always set aside for clinical and basic research or poster presentations, as *Professor Christian Mertens* explained. *Mertens* himself regularly presents the results of his scientific work at the University of Heidelberg at these meetings. These events thus provide more than "just" a chance to hear what the big names in oral implantology have to say; rather, it is an opportunity to become familiar with the results and ideas of lesser-known implantologists and researchers.

In addition to the approximately 70 speakers on the main podiums, around 300 posters and 60 short scientific presentations are presented over the four-days events. The workshops and industrial forums in particular provide an overview of current developments, while the well-organized breaks offered in the hall where industry exhibition takes place and of course also the evening events provide an opportunity to mingle and to talk to speakers and other attendees. *NEU*

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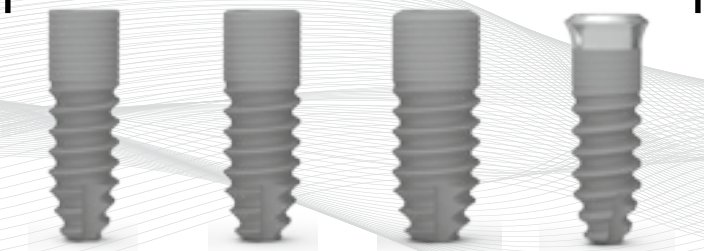

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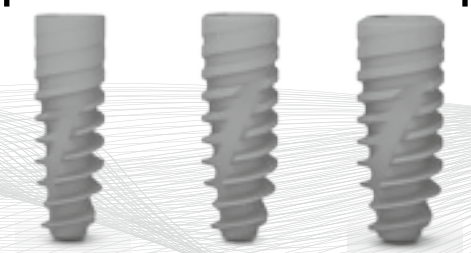

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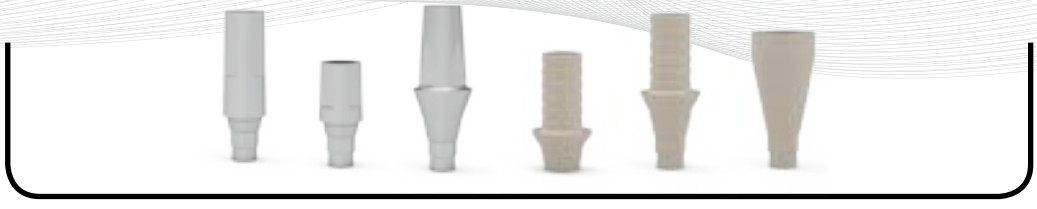
1 PROTHETIK-LINIE.



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ADI Team Congress 2019 in Edinburgh

Shaping the future of dental implantology

The ADI Team Congress is the flagship event held by the Association of Dental Implantology (ADI), with the 2019 Congress to be held from 2 to 4 May at the EICC in Edinburgh. The dynamic programme will cover a huge range of relevant and interesting topics, bringing delegates to the cutting edge of the profession and providing an opportunity for learning and networking combined. ADI UK is associate partner of BDIZ EDI.

The ADI Team Congress 2019 will present three days of education delivered by experts in their respective fields. There will be up to 19.5 hours of verifiable CPD available, with delegates exposed to a wealth of practical hints and tips that will help to enhance their everyday dentistry. The Corporate Forums and major trade exhibition will complement this perfectly, offering further opportunity to discover new equipment and materials, while networking with friends and colleagues.

With something for everyone, this will be the dental implant event of the year throughout the UK. The presentations will help delegates prepare for the challenges of modern dentistry and advance their knowledge and skills in relevant areas. The educational programme will offer a wealth of fresh ideas and inspiration for all members of the dental team.

The lecture programme will cover topics including advances in regeneration and implant design, hard and soft tissue management, surgical veneer grafts and vertical augmentation.

This year's venue will be Edinburgh, the capital city of Scotland. The earliest human sites recorded in the Edinburgh area date back to 8500 BC and the first signs of habitation on the Castle Rock, Arthur's Seat and its surroundings date to 900 BC approximately.

It is believed that the royal castle was constructed on the Castle Rock little before or during the 12th century, probably during the reign of *David I*. A settlement began to grow on the east side of the Rock, and Edinburgh and Canongate, considered royal burghs, were allowed to conduct foreign trade.

During the Medieval period, the concept of a friar was founded. Friars, unlike monks, worked for a community and could leave the monastery. In Edinburgh there were Dominican friars, dressed in black, and the Augustinian friars, dressed in grey. Both lived in the southern part of Edinburgh. During the 14th century, commerce began to grow and Edinburgh became known for its wool, exported from Port Leith along with leather goods. The cattle were sold in Cowgate, and cereal and hay were both sold at the Grassmarket. Despite constant battles against the English (the Castle was captured between 1296 and 1322, and in 1385 the Cathedral and the Town Hall were burnt down), Edinburgh developed as a prosperous city. During the 15th century, Edinburgh was made the royal capital of Scotland and the Palace of Holyrood was built between 1671 and 1678 for *Charles II*.

Internationally renowned speakers on the plenary programme are:

Istvan Urban – Hungary
Lyndon F Cooper – USA
Mark Montana – USA
Alessandro Agnini – Italy
Andrea Agnini – Italy
Markus B Blatz – USA
Tord Berglundh – Sweden
Wael Att – Germany
Anabell Bologna – Venezuela
Barry P Levin – USA
John E Davies – Canada
Markus B Hürzeler – Germany
Craig M Misch – USA
Daniele Cardaropoli – Italy
David Guichet – USA

ADI Team Congress 2019

Shaping the Future of Dental Implantology:
Techniques – Technology – Teamwork
2 to 4 May 2019, EICC, Edinburgh
Book at: www.adi.org.uk/congress19

Implementation of One Health in undergraduate education

Working together from curricula to practice

One Health is a concept that recognises interlinks between human health, animal health and the environment. The value of the One Health holistic approach is undisputed when it comes to tackling different challenges to public and animal health.

Academics, students, professionals and policy makers were engaged in lively discussions about One Health in Paris on 5 December 2018. Participants exchanged their views about the value and necessity for working together on a common understanding of the One Health concept and on promoting interdisciplinary collaboration starting from universities.

The European associations representing medical doctors, dentists, veterinarians and their students – among the Council of European Dentists – remain committed partners for future actions to be undertaken towards the implementation of the One Health approach in education and practice and call on academics and policy makers at national and European level:

- to work on the development of a clear definition to ensure a common understanding of the One Health concept;
- to foster exchanges between medical, dental and veterinary schools under the One Health approach;
- to work together on One Health Competences;
- to support and ensure the continuation of this open debate;
- to support the further investigation of implementation of One Health interdisciplinary education of doctors, dentists and veterinarians.

Source: Council of European Dentists (CED)

One Health Initiative

The One Health Initiative is a movement to forge co-equal, all inclusive collaborations between physicians, osteopathic physicians, veterinarians, dentists, nurses and other scientific-health and environmentally related disciplines, including the American Medical Association, American Veterinary Medical Association, American Academy of Pediatrics, American Nurses Association, American Association of Public Health Physicians, the American Society of Tropical Medicine and Hygiene, the Centers for Disease Control and Prevention (CDC), the United States Department of Agriculture (USDA), and the U.S. National Environmental Health Association (NEHA). Additionally, more than 950 prominent scientists, physicians and veterinarians worldwide have endorsed the initiative.

More information: www.onehealthinitiative.com

Elections to the European Parliament

A significant event for Europe's democracy

The European elections will take place from 23 to 25 May 2019 – as is the case every five years. In all 28 EU Member States, citizens are called upon to elect their representatives to the European Parliament.

The European Parliament is an important forum for political debate and decision-making at the EU level. The 705 members of the European Parliament are directly elected by voters in all 28 Member SWtates to represent 512 million people's interests with regard to EU law-making and to make sure other EU institutions are working democratically.

The Parliament sees its role not only in promoting democratic decision-making in Europe but also in supporting the fight for democracy, freedom of speech and fair elections across the globe. It acts as a co-legislator, sharing with the Council the power to adopt and amend legislative proposals and to decide on the EU budget. It also supervises the work of the Commission and other EU bodies and cooperates with national parliaments of EU countries to get their input. These are the institutions of the EU:

European Council

The European Council is made up of European Union heads of state and government, its President – elected for two and a half years renewable once – and the European Commission President. It defines the Union's general political direction and priorities. The President of the European Parliament has the right to speak at the start of each European Council, setting out Parliament's position on the subjects to be addressed by the heads of state and government. After each summit the President of the European Council presents a report to the European Parliament on the outcome.

European Commission

The European Commission is the guardian of the treaties and the EU's executive arm. The European Parliament has the right to approve and dismiss the European Commission. Since 1994, commissioners-designate have been required to appear before an EP hearing. Under the Lisbon Treaty, EU heads of state propose a candidate for Commission President, taking into account the results of European elections. The candidate is elected by the EP.

The EP can censure the Commission and ultimately dismiss it. So far, none of the eight motions of censure brought before Parliament has been adopted. In 1999, the Santer Commission stepped down before Parliament forced its resignation. The EP ensures democratic control over the Commission, which regularly submits reports to Parliament including an annual report on EU activities and on the implementation of the budget. Once a year, the Commission President gives a State of the Union address to plenary. Parliament regularly invites the Commission to initiate new policies and the Commission is required to reply to oral and written questions from MEPs.

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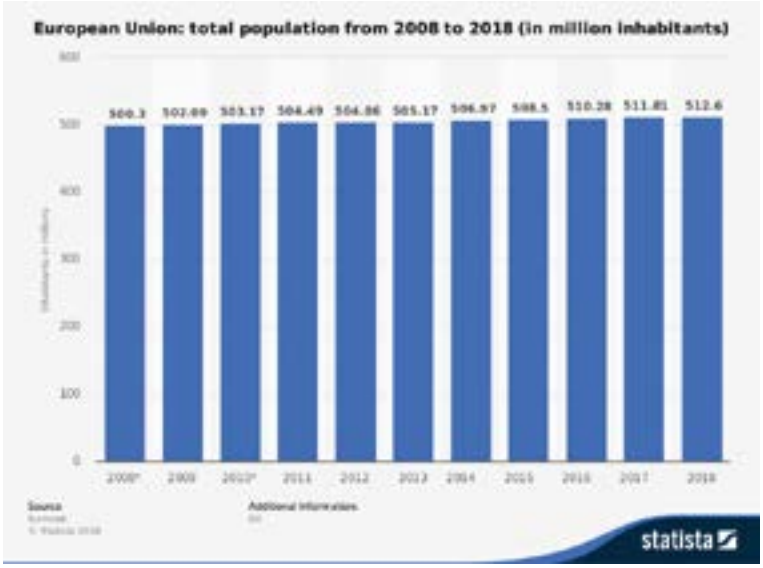

This statistic shows the total population of the European Union from 2008 to 2018. The population is based on data from the most recent census adjusted by the components of population change produced since the last census, or based on population registers. At the beginning of 2013, the total population of the European Union amounted to approximately 505,17 million inhabitants.

Court of Justice

The Court of Justice is the highest court in matters of EU law. It interpretes and ensures equal application of EU law across all Member States. Parliament can ask the Court to take action against the Commission or Council if they have acted in a way that is contrary to the spirit of EU law.

Parliament, together with Council, can ask the Court of Justice to set up specialised courts. For example, the European Union Civil Service Tribunal was established in 2005 to deal with disputes between the EU and its civil service.

European Central Bank (ECB)

The European Central Bank is responsible for conducting monetary policy for the euro zone. Parliament must be consulted before the President, Vice-President and Executive Board of the European Central Bank (ECB) are appointed by the European Council.

The ECB President presents the bank's annual report in plenary and takes part in a regular monetary dialogue with Parliament's Committee on Economic and Monetary Affairs.

European Court of Auditors

The Court of Auditors audits EU finances. As an external auditor, it contributes to improving EU financial management and acts as the independent guardian of the financial interests of EU citizens.

The Court of Auditors presents the annual report on the previous year's budget to the Council and European Parliament. Based on the report, Parliament decides whether or not to approve the way the Commission handled the EU budget by granting the budget discharge.

Parliament must be consulted before the appointment of the members of the Court of Auditors by the Council.

European Ombudsman

The European Ombudsman investigates complaints about maladministration in EU institutions and bodies. Parliament elects the European Ombudsman. He reports back to the European Parliament and presents an annual report to MEPs. The Ombudsman may be dismissed by the Court of Justice at the request of Parliament in exceptional circumstances and can start inquiries on his own initiative.

Petitions, committees of inquiry

Any EU citizen, resident, company or organisation can submit a petition to the European Parliament about EU law. Parliament can set up a committee of inquiry to look into violations of EU law by Member States.

How the elections unfold

Although elected by country, Members of the European Parliament sit in political groups based on a shared platform and identity, which gives individual Members greater influence. Parliamentary rules require that each group has at least 25 Members and represents at least a quarter of EU Member States. Political parties in the Member States generally confirm their allegiance to an existing group, or their intention to form or to join a new one, at the outset of the election and often campaign together to at least some extent. There are eight groups in the current Parliament. In the days immediately following the results, the new Members of the new Parliament work to form political groups. The political composition of the new Parliament may require new allegiances to be formed and new groups may emerge. At its first plenary session, the new Parliament will elect a new President of the European Parliament. The new Parliament will then elect the new President of the European Commission and later will examine and approve the entire Commission.

RED/AWU

More about the European elections

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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.

The commercial processing of your personal data on this form is based on the EU General Data Protection Regulation (GDPR – Regulation (EU) 2016/679 of 27 April 2016), Article 6 f GDPR by the European Association of Dental Implantologists (BDIZ EDI), Mühlenstr. 18, D-51143 Cologne/Germany. You have the right to obtain information about personal data concerning you (Article 15 of the GDPR). You can also request the correction (rectification) of incorrect data (Article 16 of the GDPR). More information: Privacy Statement on www.bdizedi.org.

Did you ever know ...

... that the BDIZ EDI has issued a quality guideline?

The aim of the Quality Guideline for Implantology, first presented in June 2002, revised in 2006 and now updated, is to provide dentists working in implantology with a standard that allows them to assess their own work. This Quality Guideline serves the purpose of self-evaluation and self-assessment, the dentist being the only one who knows the treatment that has been performed, and the only one who knows his or her patients with all their desires and problems. Only he/she can reliably assess how these framework conditions, which are sometimes of decisive importance for every medical service, have influenced the present treatment result – positively or negatively. The new Quality Guideline is available in German and English at the BDIZ EDI booth at IDS 2019.

... that the Board of the BDIZ EDI

... contributes to various national and international committees? For example, the BDIZ EDI is involved in discussions during the Consensus Conference on implant dentistry and also takes an active part in the discussions on guidelines for oral surgery, implant-supported prosthetics and many other topics relating to implants and teeth.

Photo: Knipping

... that the BDIZ EDI has been present for decades at the IDS

..., the leading international dental trade fair? Its traditional location is opposite the German Dental Association in Hall 11.2, Aisle O, Stand 059. The only variation to previous years: In 2019, the Croatian Dental Association will be a co-exhibitor. At the 38th IDS, the BDIZ EDI again underlines its international orientation. The partner associations from all over Europe will come and join the BDIZ EDI-family at the stand!

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EU Commission promotes robotic systems

Robots for medicine and patient care

The European Commission wants to promote the development of robot systems for use in medicine and patient care and their implementation in healthcare structures. It is providing around 16 million euros for an international project entitled "Digital Innovation Hubs in Healthcare Robotics" (DIH HERO). The funds come from the Horizon 2020 research and innovation programme of the European Union (EU). The project is managed by the University of Twente in Enschede (Netherlands).

DIH HERO aims to establish an independent platform for networking companies, research institutes, investors and other interest groups over the next four years. The platform is intended to help developers and manufacturers to make more robotic products and services available to healthcare providers. Their resulting broader popular application is meant to strengthen and accelerate innovation. European-based small and medium-sized enterprises (SMEs) are invited to participate.

Source: Deutsches Ärzteblatt

CPME Standing Committee meeting in Geneva

Montgomery elected President of European doctors

Photo: picture alliance/Tobias Hase für Deutsches Ärzteblatt

Professor Frank Ulrich Montgomery

The General Assembly of the Standing Committee of European Doctors (CPME) in Geneva has elected *Professor Frank Ulrich Montgomery* from Germany as its next President. The delegates elected the President of the German Medical Association by a large majority (22 : 6 votes). *Montgomery* took over his new office on 1 January 2019 from *Dr Jacques de Haller* (Switzerland). He will thus represent the interests of European doctors vis-à-vis the European Commission and the European Parliament for the next three years.

According to the medical news portal "änd", *Montgomery* will focus on two major events in Europe: Brexit and the upcoming European elections. Both, he said, represent a challenge for doctors and the health system, as European doctors provide important services in the UK, and without them, British healthcare would collapse after Brexit: "In the interest of all our patients, we must prevent that."

Commenting on the elections to the European Parliament and the election of a new commission, he said: "We physicians hope for a strong, public interest-oriented parliament and a commission that puts health issues first. 'Health in all policies' is more important than European bureaucracy and chumminess with industry representatives."

Montgomery is committed to working closely with the European Commission and the European Parliament, including on projects that could improve access to healthcare. At the same time, however, he made it clear that the CPME would keep a close eye on the legislative actors, especially if the Union violated the principle of subsidiarity and encroached on the fields of competence of the member states.

Source: änd, Germany

The Dentexia scandal in France

Commercialization of dental medicine

A scandal about the insolvent dental chain Dentexia in France in 2016 received much public attention. The chain had offered implants at half the price normally charged in France. Patients had to pay for the treatments in advance, for which a financial company that cooperated with Dentexia offered corresponding loans. More than 2,500 patients treated by Dentexia were left behind with unfinished treatments or had to suffer the consequences of treatment errors.

"In my view, the real scandal – one that the Dentexia events have not originated but merely fuelled – is the trend towards commercialization within dentistry", said *Dr Abdel Aouacheria*, founder of the "Collectif contre Dentexia" in France, a support organization for victims of the Dentexia scandal, with the aim of suing the owners of the dental chain and fighting for compensation for the victims. According to *Aouacheria*, a molecular biologist who works at the Institute des Sciences de l'Évolution in Montpellier (ISEM), the patient is objectified in this system and treated as a monetary resource

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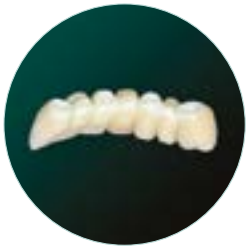

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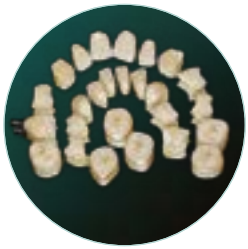

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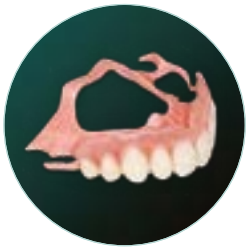

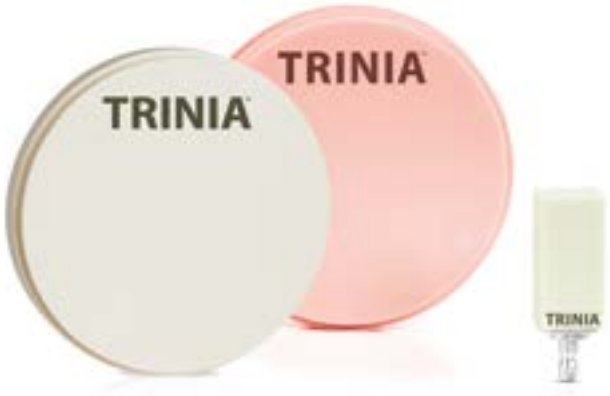

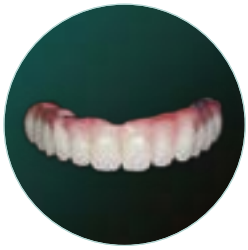

Fixed Prostheses

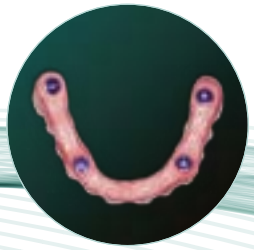

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Photo: pixabay.de/TheDigitalWay

rather than a human being – only the wallet counts. *Aouacheria* compared the Dentexia system with a pyramid scheme: Since the entire system runs on borrowed money, the treatments the patients had already paid for could never be carried out with the available funds. Only fresh money in the form of up-front treatment fees, brought in by a constant flow of newly recruited patients, could have been used to pay for the care of existing patients.

When contractually agreed targets (and unpaid invoices from suppliers) exceed the treatment and payment capacity of the system, the dental speculation bubble will burst, and the company will have to file for bankruptcy – as in the Dentexia case.

Sources: zm, Germany; france-tv-info, France, UK

CED General Assembly on financial investors

Systemic risk factors in healthcare – at the expense of patient protection

At its plenary meeting in Brussels, the European Dental Federation (CED) voiced sharp criticism of "dental chains" operated by financial investors. A resolution adopted by a large majority of CED delegates highlights the risks inherent in the increasing commercialization of dental services in Europe, which has already had serious negative effects in France, Spain and the UK. The CED finds that patient protection is acutely at risk. There is always a confidential relationship between the dentist and the patient, says the CED in its resolution. Financial considerations should impact neither this relationship of trust nor any treatment decisions.

From the point of view of the CED, large dental chains also pose an inherent systemic risk to dental care: If a chain or corporation that provides a part of or all of the dental care in a given region has to curtail its activities, there is an acute risk of that region becoming undersupplied, a problem that has already become reality in some EU member states. For any dental chains already permitted to operate in individual EU member states, the CED recommends that they should be allowed to be managed only by dentists who actively work for them.

Source: Dental Tribune

European Court of Justice

ECJ supports academic high achievers

A graduate who has studied human and dental medicine concurrently may work as each one or both of the degrees stipulate, throughout the EU, according to a decision by the European Court of Justice (ECJ). The court stated that the one prerequisite was that the overall duration, level and quality of each course of study are not lower than those of continuous full-time training.

The specific case concerned an Italian citizen who had studied dentistry in Innsbruck starting in September 2004 and had studied medicine concurrently starting in March 2006. He was able to use parts of the curriculum for both courses. In 2013, Italy recognized his dental education. But when the man wanted to work as a surgeon in 2014, the Italian authorities refused to recognize the Austrian medical degree. Italian law, they explained, does not allow students to enrol in two courses at the same time. Accordingly, it was not possible to recognize two degrees obtained at the same time.

The judges of the European Court of Justice emphasized that EU law does not prevent students from engaging in two courses of study in parallel. The EU member states had strictly agreed to require only certain minimum requirements for the mutual recognition of qualifications. This means that the only relevant fact to determine is whether these minimum requirements are met. In particular, according to the ECJ, the overall duration, level and quality of each course of studies must independently correspond to full-time training.

Source: Ärzte-Zeitung, Germany

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Automatic recognition of foreign qualifications

ECJ invalidates national regulations

The European Court of Justice (ECJ) ruled on 6 December 2018 (Case C-675/17) that a member state would be subject to the provisions of Articles 21, 22, and 24 of Directive 2005/36/EC (Directive of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications), including the automatic recognition of diplomas issued in another member state at the end of a degree course, even if the training there does not comply with the requirements in that member state.

The case

The applicant is an Italian national. He studied dentistry in Austria from September 2004 to January 2013 and medicine from March 2006 to August 2014. He was awarded the title of "Doktor der Zahnheilkunde" ("Doctor of Dentistry") on 8 January 2013 and the title of "Doktor der gesamten Medizin" ("Doctor of Medicine") on 24 August 2014, both by the University of Innsbruck.

In March 2013, in order to take up his professional activities as a dentist in Italy, the applicant submitted a request to the Ministry for recognition of his qualification as "Doctor of Dentistry". The Ministry recognized the qualification in May 2013. In October 2014, the applicant submitted a request to the Ministry for recognition of his qualification as "Doctor of Medicine" in order to take up his professional activities as a physician as well.

He submitted, inter alia, written evidence from the competent Austrian authority showing that the training complied with Article 24 of Directive 2005/36/EC and that the diploma for the award of the degree "Doctor of Medicine" satisfied the requirements of Annex V no. 5.1.1 of Directive 2005/36/EC. The Ministry then contacted the Austrian Medical Association to inquire whether the qualification conferred in Austria in fact satisfied the criteria laid down in Article 24 of Directive 2005/36/EC.

The Austrian Medical Association confirmed this, and that the applicant had studied medicine from March 2006 to August 2014 and dentistry from September 2004 to January 2013.

The Ministry nevertheless refused to recognize the applicant's qualification, citing national regulations. It stated that Directive 2005/36/EC did not provide for a person to take two training courses at the same time, something that was precluded under Italian law. Article 142(2) of Italy's Regio Decreto No. 1592 prohibits enrolment for more than one academic course in the same faculty or school at the same time, likewise at more than one university or institute of higher education at the same time.

The applicant contested this ruling and brought an action before the competent administrative court, arguing that the Ministry's decision was evidently in conflict with Article 21 of Directive 2005/36/EC. He added that the certification issued by the Austrian Medical Association recognized that the medical degree course met the minimum training conditions pursuant to Article 21(1) and specified in Article 24 of the Directive. The administrative court upheld the action.

The Ministry then brought an appeal against that judgment, citing Article 24 of that Directive which provides that basic medical training must comprise a total of at least six years of study or 5,500 hours of training. In the present case, numerous examinations were simultaneously taken recognized both for the purpose of awarding the degree in dentistry and for the purpose of awarding the degree in medicine. While this procedure is admissible under Austrian law, the Ministry argued, it is not admissible under Italian law and is also incompatible with the provisions of the Directive.

The court of appeal (Consiglio di Stato) stayed the proceedings and referred the following questions to the ECJ for a preliminary ruling:

1. Do Articles 21, 22 and 24 of Directive 2005/36/EC oblige a member state in which full-time training is required and where there is a corresponding prohibition on enrolling in two degree courses at the same time, to automatically recognize qualifications that are obtained in the home member state simultaneously or during periods that overlap in part?
2. If so, can Article 22(a) and Article 21 of Directive 2005/36/EC be interpreted as meaning that the authorities in the member state in which recognition is sought may nevertheless verify whether the condition is satisfied that the overall duration, level and quality of such training should not be lower than those of continuous full-time training?

The ECJ's decision

The ECJ came to the conclusion that Articles 21, 22 and 24 of Directive 2005/36/EC are to be interpreted as meaning that a member state is obliged to automatically recognize professional qualifications that have been awarded in a member state at the end of two training courses, some of which were completed simultaneously, even if this procedure is

not provided for in the host member state.

The ECJ first pointed out that Directive 2005/36/EC provides, as regards the profession of physician or dentist, for a system of automatic recognition of the evidence of formal qualifications based on coordinated minimum conditions for training (para. 27 of the decision).

Article 21(1) of the Directive lays down the principle of automatic recognition, according to which each member state must recognize the evidence of formal qualifications listed in Annex V. Such evidence of formal qualifications constitutes the minimum requirements for taking up the pursuit of the professional activities and has the same effect as evidence of formal qualifications obtained within the territory of the country (para. 28).

Moreover, Article 22(a) of the Directive provides that certain training, such as basic medical training (Article 24) and dental training (Article 34), may also be provided by the member states on a part-time basis, as long as the overall duration, level and quality of the training are not lower than those of continuous (para. 29). On the other hand, the Directive does not provide that simultaneous enrolment in more than one training course is by necessity precluded (para. 30).

The training must therefore be automatically and unconditionally recognized by the other member states when the relevant evidence is submitted. Conditions other than those laid down in the Directive may not be imposed (para. 31).

Furthermore, the host member state cannot reassess whether the overall duration, level and quality of part-time training have been achieved. The responsibility for ensuring that the requirements are met in the case of part-time courses of study falls wholly on the member state awarding the evidence of formal qualification (para. 34). If the member states were allowed to investigate whether a decision on the part of an authority in another member state was correct, the system of automatic recognition of professional qualifications would be seriously impeded. If the host member state has reasonable doubts as to whether the requirements are met in the specific case, it may apply to the competent authority for confirmation that the conditions are met.

Summary and conclusion

The ECJ has rightly pointed out that automatic recognition cannot be made subject to conditions other than those specified in the Directive. If a member state sets more stringent requirements for access to a profession, this must not result in the foreign degree or its related title not being recognized.

One can only concur. If the member states had the right to refuse recognition based on their own scrutiny, the system of automatic recognition would be pointless.

Likewise, it is right not to allow the domestic authority any additional testing competence. The host member state must be able to rely on the competent authority in the home member state to verify the conditions for awarding the qualification. And those who opt for training in another member state should be able to have confidence that automatic recognition is guaranteed and that the evidence of training and the qualification acquired are sufficient for them to pursue the profession anywhere in the EU at a later date. ■

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Current aspects of the use of bone block grafts and bone splitting

Augmentation using autologous bone

DR JÖRG NEUGEBAUER[1,3], DR FRANK KISTLER[1], DR STEFFEN KISTLER[1], DR MARTIN SCHEER[2], DR GEORG BAYER[1], PROFESSOR JOACHIM E. ZÖLLER[3]

Different methods for obtaining the desired prosthetic result and locating the intended implant position require different levels of effort with regard to hard- and soft-tissue management when it comes to preparing the implant site. Although different augmentation techniques have become established in recent years, it is often difficult for clinicians to identify the most suitable procedure for a given patient situation [2,17].

In addition to the application of non-vital xenogeneic or allogeneic materials, both of which are often used in combination with membrane techniques, the alveolar ridge can be reconstructed using autologous bone block grafts, or the alveolar ridge can be expanded by bone splitting [9]. Both techniques have a long history in Germany – especially the block graft with intraorally harvested bone, associated with *Professor Fouad Khoury*, and bone splitting, associated with *Professor Georg-Hubertus Nentwig* [12, 13, 19].

In the international literature, long-term data are also available for the removal morbidity and the stability of the peri-implant bone level for retromolar bone blocks as free grafts [14,27]. The scientific data regarding bone or ridge splitting or expansion are very heterogeneous as various techniques and materials have been recommended for these; but pertinent long-term data are also available [3, 6, 18, 26]. In the recent past, the option to use allogeneic bone grafts in combination with patient-specific CAD/CAM fabrication methods have been introduced specifically to avoid having to involve a second surgical site [16]. However, no results are as yet available with regard to the long-term stability of these methods [16].

Autologous bone grafts

For autologous bone grafts, the surgical effort required to prepare the implant site is more extensive because a second extraction/harvesting site is required. Different harvesting sites have been described for bone block grafting, with different levels of morbidity depending on their location [22, 23]. In particular, the harvesting of bone from the chin area is associated with a relatively long phase of sensitivity impairment even if direct injury of the mental nerve is successfully avoided, a period that has often been described by patients as a very stressful one [22].

Sufficient bone quantities can usually be obtained in the area of the mandibular retromolar triangle, especially for small to medium defects. However, depending on the specific anatomical situation, the bone supply can be very limited. In order to avoid fracture of the alveolar ridge as a consequence of extensive bone harvesting, the bone bed should be accurately assessed preoperatively.

Three-dimensional radiological diagnostics can be used to precisely represent the location and direction of the mandibular canal, making this a suitable diagnostic method that reduces the possible risk of nerve injury. An evaluation of over 1,000 CBCT images has shown that the nerve canal is directly or immediately related to the vestibular cortical structures in approximately 20 per cent of patients [21]. Since the cortical thickness is usually about 3 mm, the safest way to remove the cortical tissue is to use a diamond disk with a cutting depth of 3 mm.

When using piezosurgery, the saw teeth can injure the nerve, especially in the case of vertical cuts, as the cutting edge can only be controlled indirectly via the markings that are difficult to see in the depth of the cut. If a more extensive reconstruction is required – for example covering the entire jaw – it is advisable to remove graft tissue from the interior area of the anterior iliac crest. Sufficient bone can be obtained here for a three-dimensional reconstruction of large defects while keeping the contours of the bone intact [28].

[1] Joint private dental office of Dres. Bayer, Kistler, Elbertzhagen und Kollegen, Landsberg am Lech, Germany
[2] Oral and Maxillofacial Surgery, Johannes Wesling Klinikum, Minden, Germany
[3] Interdisciplinary Policlinic for Oral Surgery and Implantology, Department of Oral and Maxillofacial Plastic Surgery, University of Cologne, Germany (Director: Professor Joachim E. Zöller)

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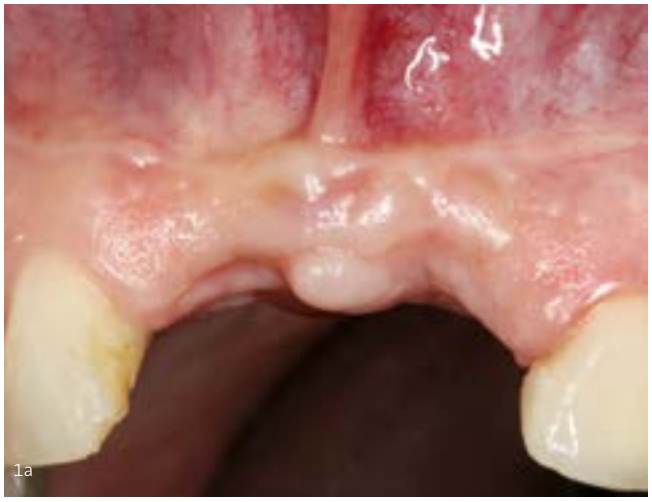
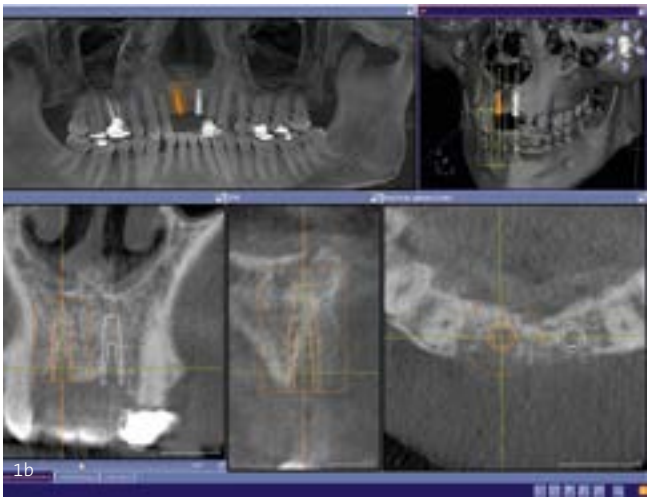
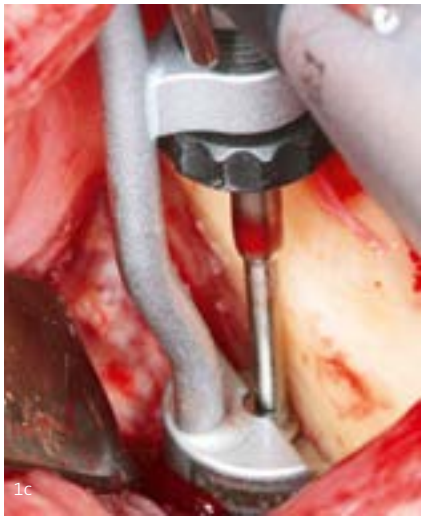
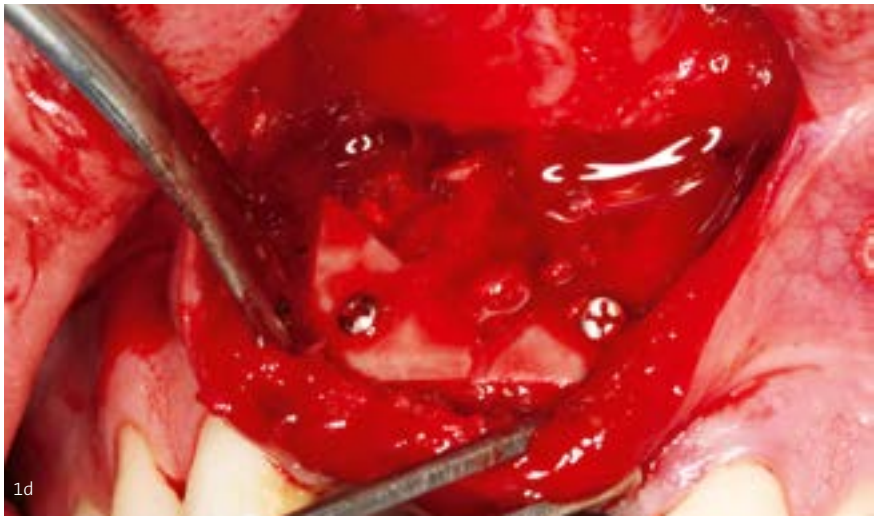
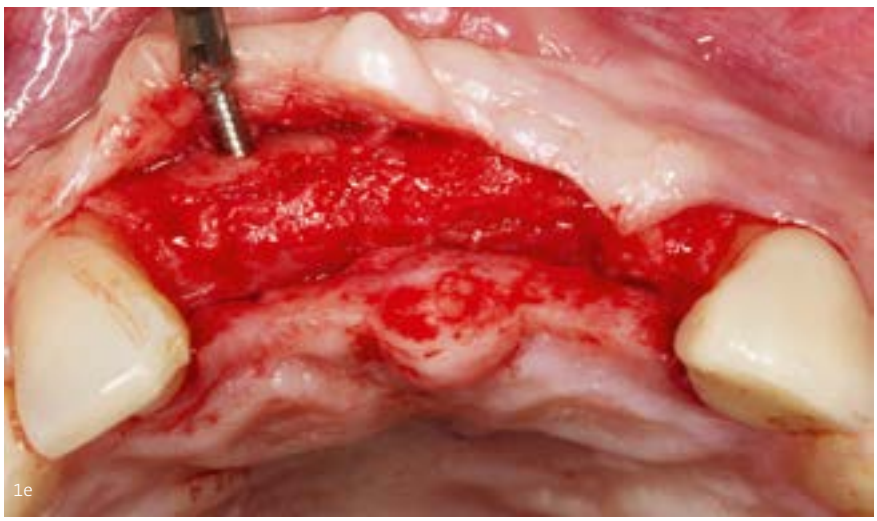






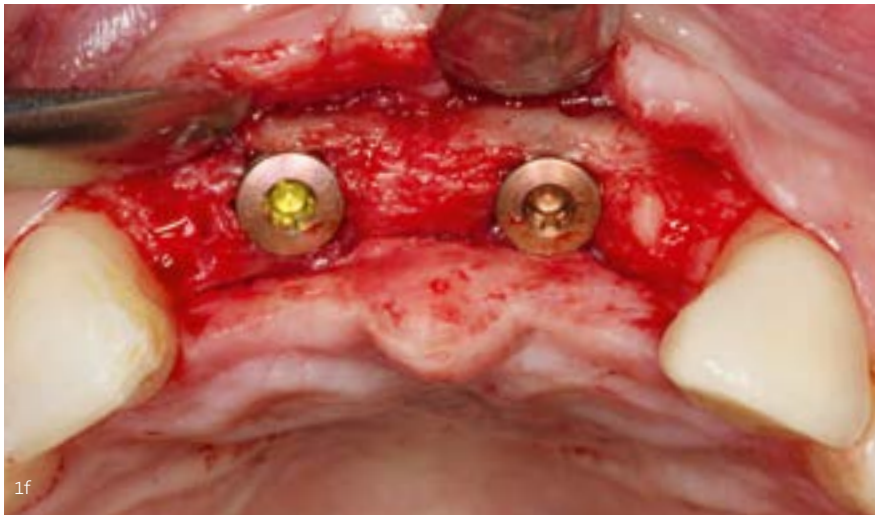




1a I Defect after removal of an implant placed alio loco.
1b I Radiological representation of the defect configuration and the sampling area by CBCT (Galileos Comfort; Dentsply Sirona, Bensheim, Germany).
1c I Basal preparation of the bone block with a contra-angle handpiece (Frios Micro-Saw; Dentsply Sirona).
1d I 3D reconstruction of the defect with several thin plates cut off from the block.
1e I Removal of the osteosynthesis screws (1.2 mm stainless-steel screws: Ustomed, Tuttlingen, Germany) two months after augmentation.

Some authors have mentioned problems with high levels of resorption associated with autologous bone grafts compared to xenogeneic partially absorbable bone replacement materials [7]. It has been shown that the resorption kinetics essentially depend on the possibility of revascularizing the bone graft. If a monocortical block with a very pronounced cortical structure is transplanted without further treatment, revascularization can only take place very slowly, and resorption will often occur. For this reason, it is necessary for bone grafts to be prepared such that rapid vascularization and bone remodeling are achieved [13]. To this end, after retromolar removal, the bone block graft is divided into sev-

1f I Insertion of two reduced-diameter implants (narrowSky; bredent medical, Senden, Germany).
1g I Control radiograph after implant insertion.
1h I Soft-tissue regeneration after insertion of narrow healing abutments prior to further individual shaping.
1g I Control radiograph after delivery of the implant-supported restoration.
1j I Fully shaped soft tissue around the single crowns, with scars resulting from previous surgical procedures.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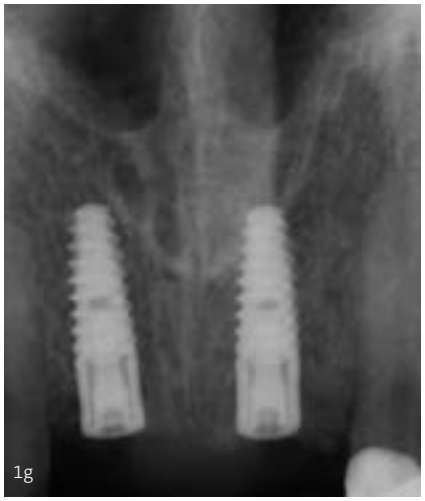
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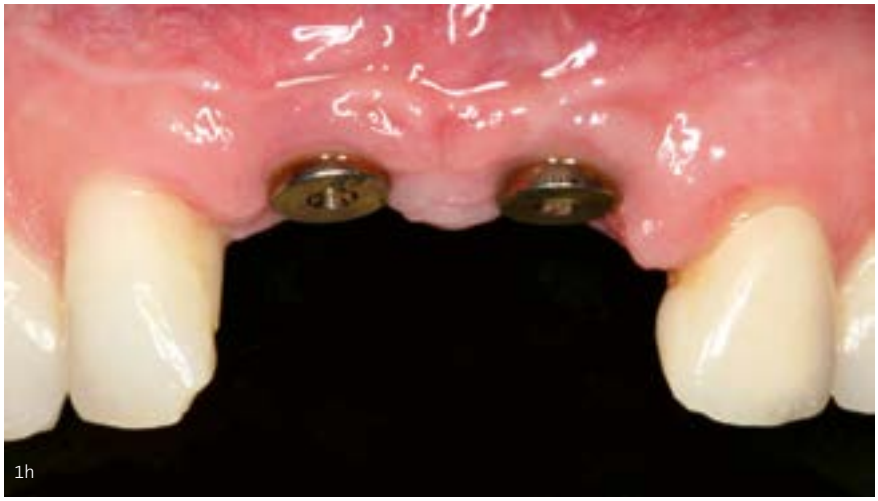
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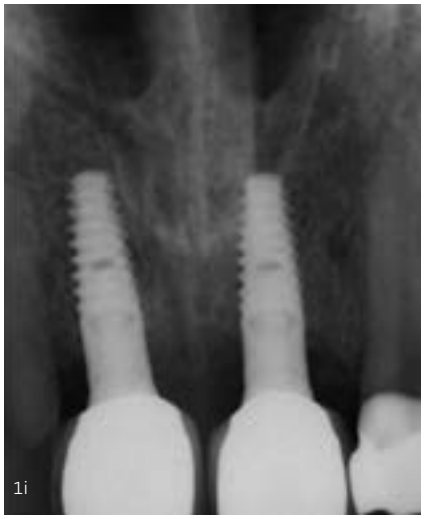
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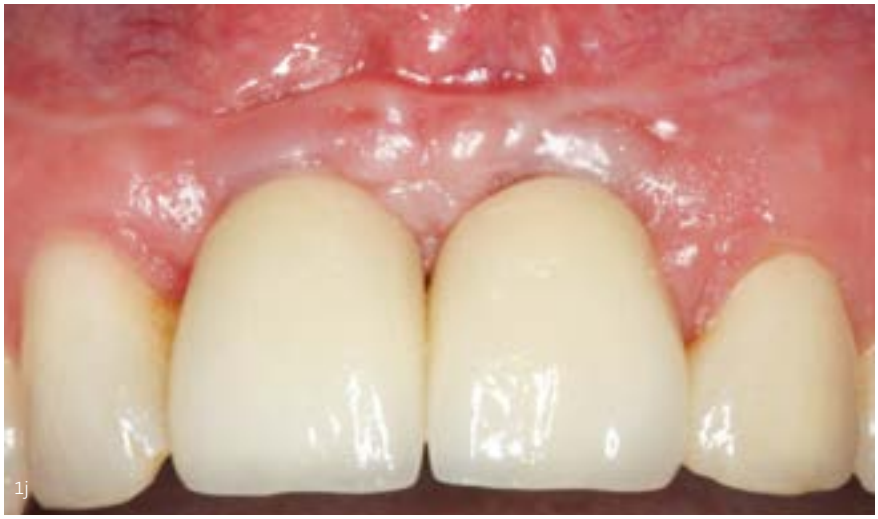
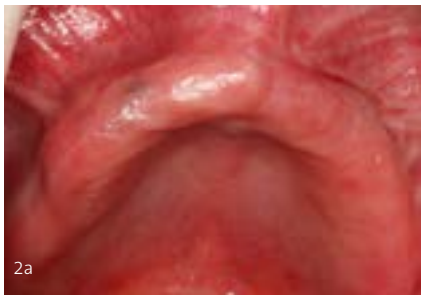
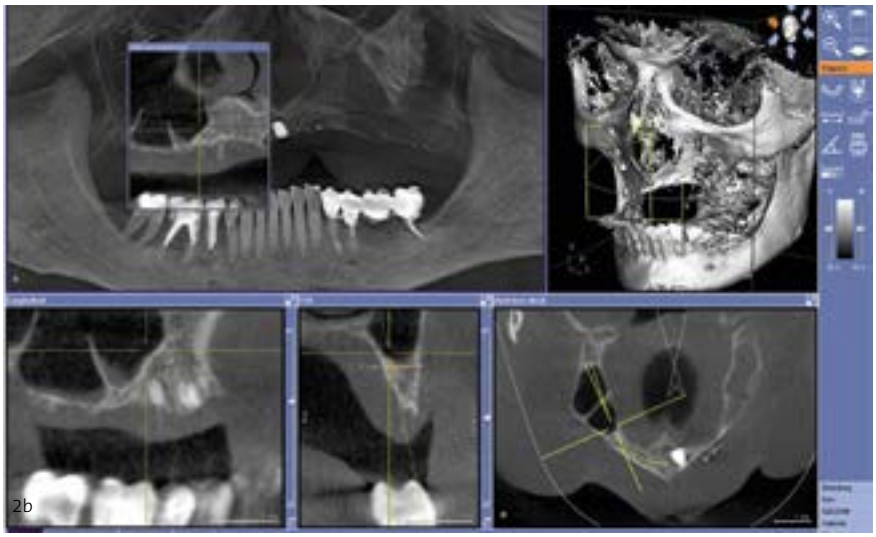

1j

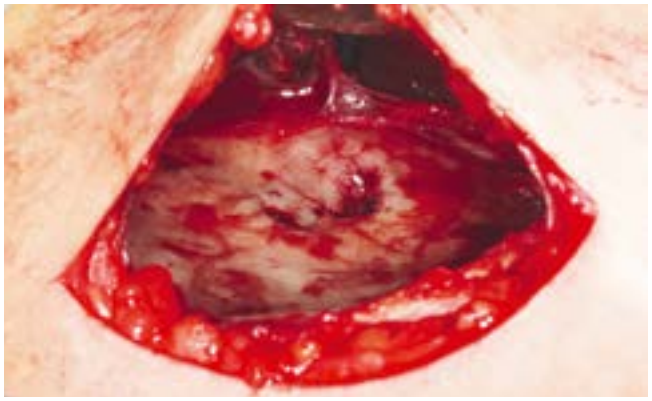
eral thin plates, depending on the thickness of the cortical bone. These thin plates – approximately 1 mm in thickness – can then be used for the spatial reconstruction of the defect. The bone not used in these plates is particulated, with the particles being used to fill the cavity between the plate and the local bone (Figs. 1a to j).

When harvesting bone from the anterior iliac crest, only monocortical strips are removed and the cavities are filled with compressed cancellous bone. This makes it possible for revascularization to take place promptly in the interstitial areas, resulting in physiological remodelling of the grafted bone.

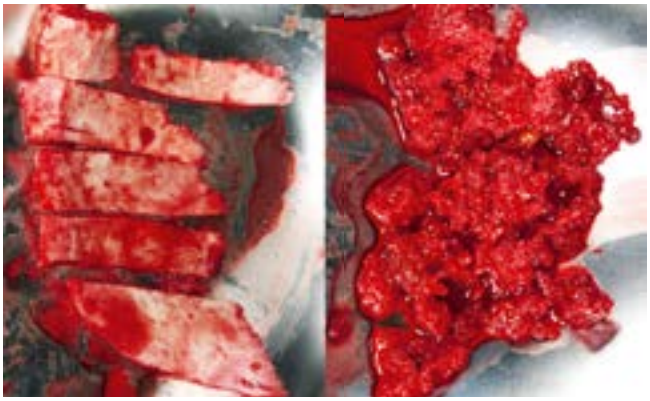


2a I Atrophied maxilla after implant loss.
2b I Analysing the amount and quality of the available bone to define the scope of therapy, with remaining implant fragment visible.

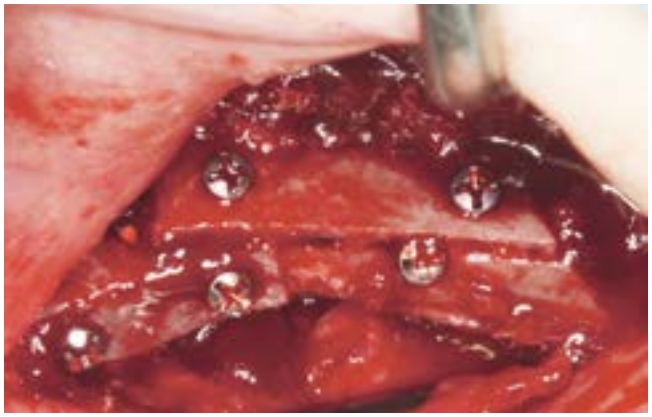




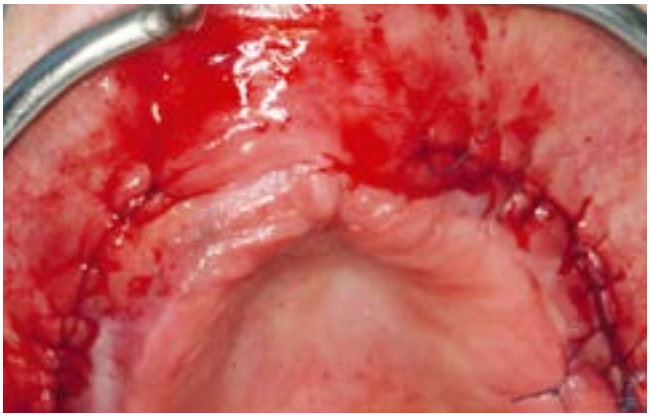
2c I Bone harvesting site at the iliac crest showing a defect that had remained after a motorcycle accident in the patient's youth.



2d I Removal of sufficient monocortical strips and cancellous bone from the anterior iliac crest.



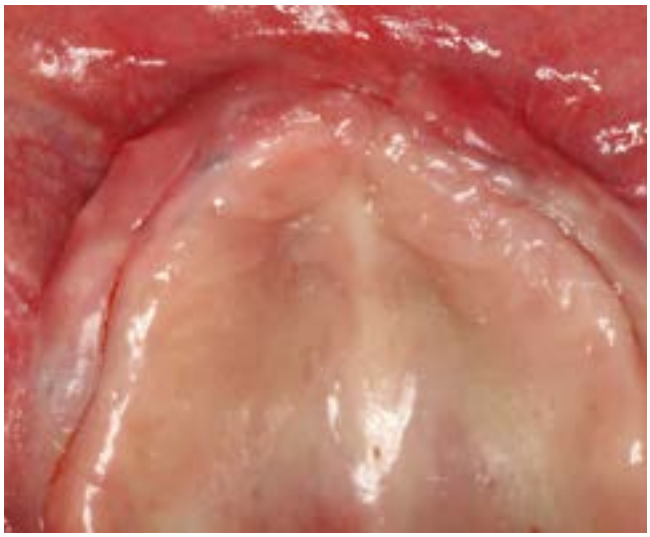
2e I Three-dimensional reconstruction of the atrophied alveolar ridge.



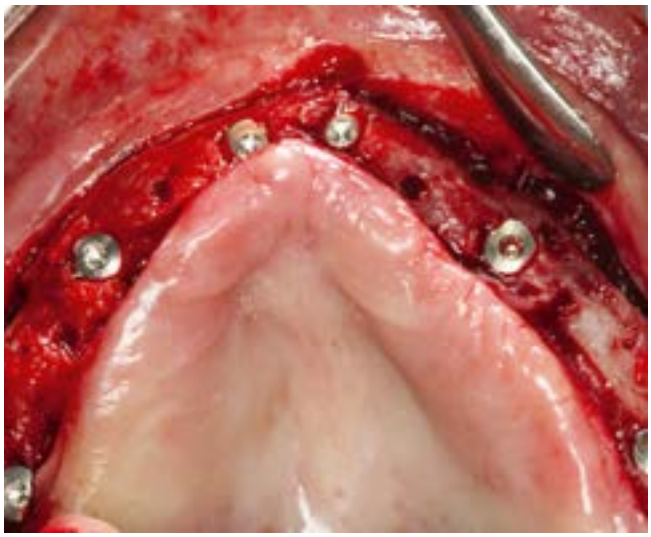
2f I Wound closure following the vestibular incision.

Soft tissue management

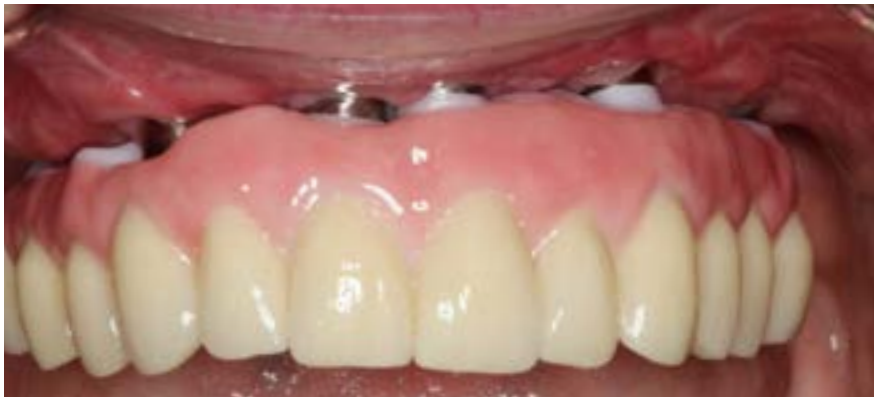
Since free bone grafts can also provide an increase in vertical height, it is necessary for covering the graft that a sufficiently vascularized soft tissue flap is present. This flap can be created by a vascular incision [28], which makes it possible to cover the augmentation material with a muco-muscular/periosteal flap (Figs. 2a to j). Alternatively, a connective-tissue graft harvested in the palatal region can be placed if the soft tissue is defective. It is known that a bone graft inserted with a complete periosteal flap shows the lowest level of resorption



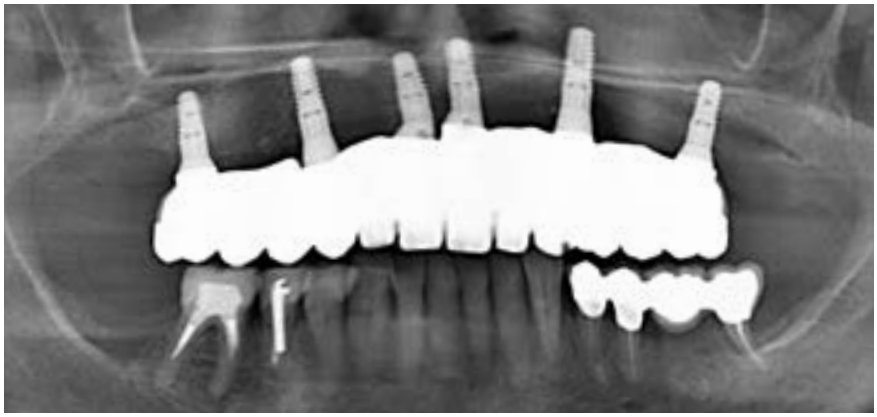
2g I Complication-free soft-tissue healing; the osteosynthesis screws are weakly visible ten weeks after augmentation.



2h I Insertion of six implants (blueSky; bredent medical) before introducing the autologous bone chips collected while preparing the implant bed.



2i I Definitive restoration.

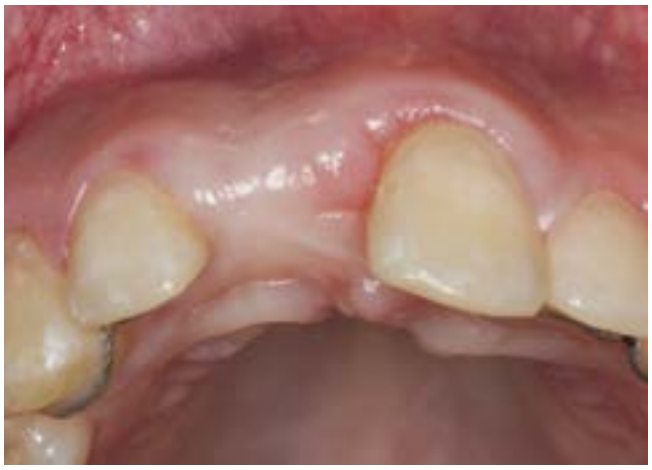


2j I Control radiograph of the definitive restoration in situ.

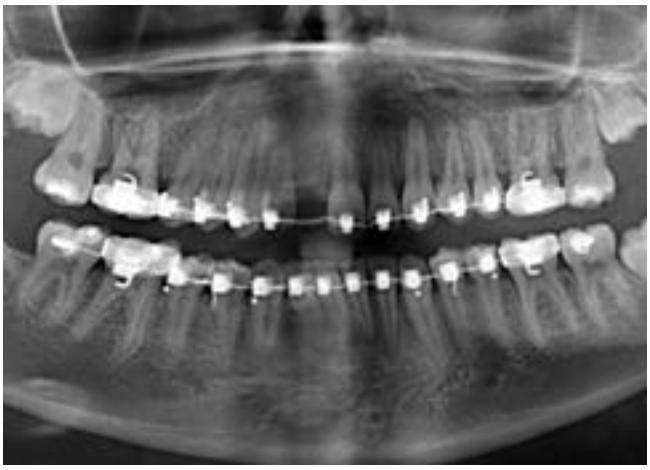
kinetics [1]. The shortcoming of the flap preparation method described, however, becomes apparent once the graft has healed – the attached gingiva will be displaced. This means that a vestibuloplasty or an apically positioned flap will be necessary at re-entry to create a situation that facilitates good oral hygiene. Furthermore, implants in augmented bone with mobile mucosa are associated with an elevated risk of vertical bone resorption [5, 13].

Implant insertion

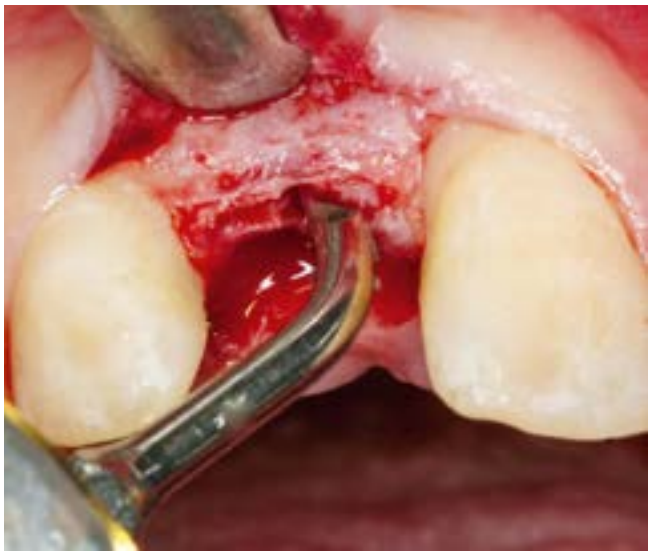
A bone bed prepared in this way does not require an extended healing phase of the graft, and the implant can be placed already after two to three months. When inserting the implants, the osteosynthesis screws required to keep the bone block in place are removed and the bone bed is prepared very gently using rotating instruments. Particularly in the crestal aspect of 3D reconstruction, care must be taken to ensure that the preparation does not result in compressive forces on the transplanted bone plates when the implants are screwed in place, because such forces lead to detachment of the transplanted bone plates and to increased peri-implant bone resorption. As regards the design of the implant to be placed, a parallel-walled crestal implant with microgrooves in addition to a microstructured surface must therefore be chosen to ensure that active remodelling can take place and a stable crestal bone level can be achieved as a result of the induced chewing forces. Autologous grafts restored in this way exhibit high biological stability and thus provide a stable long-term implant site [8]. Due to the active remodelling and the good vascularization of the graft, the osseointegration of the implants with a microstructured surface is supported by rapid apposition of bone tissue, making implant-site re-entry possible already after two months [10].



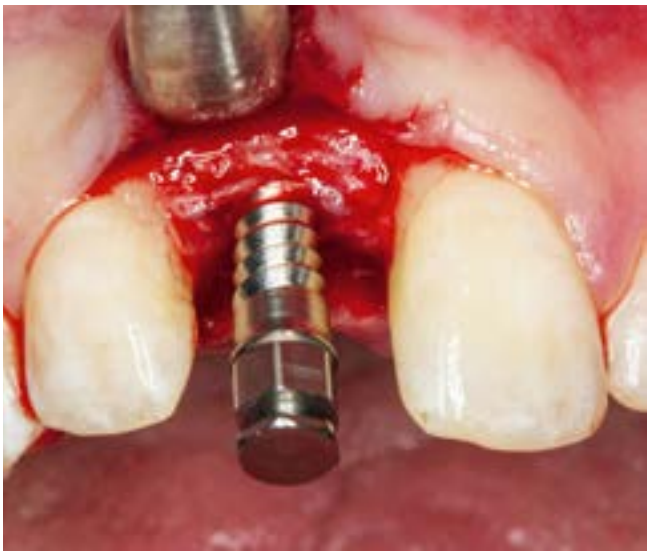
3a I Slight lateral atrophy at the site of the congenitally missing tooth 11.



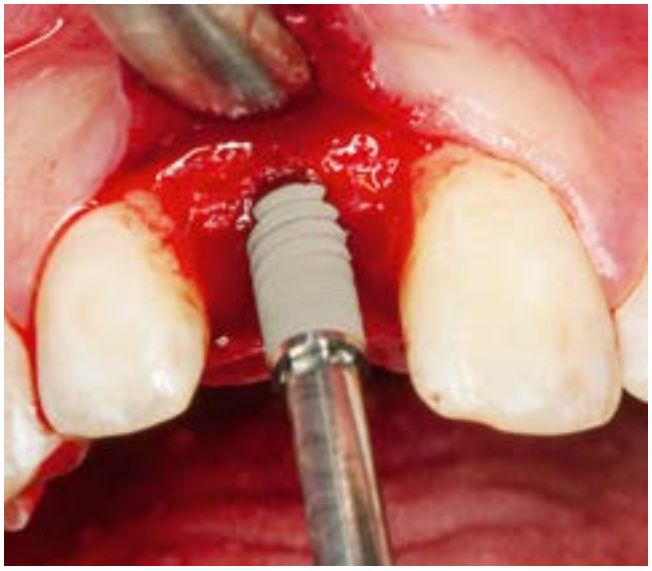
3b I Orthopantomograph taken at the conclusion of the orthodontic treatment undertaken to stabilize the gap.



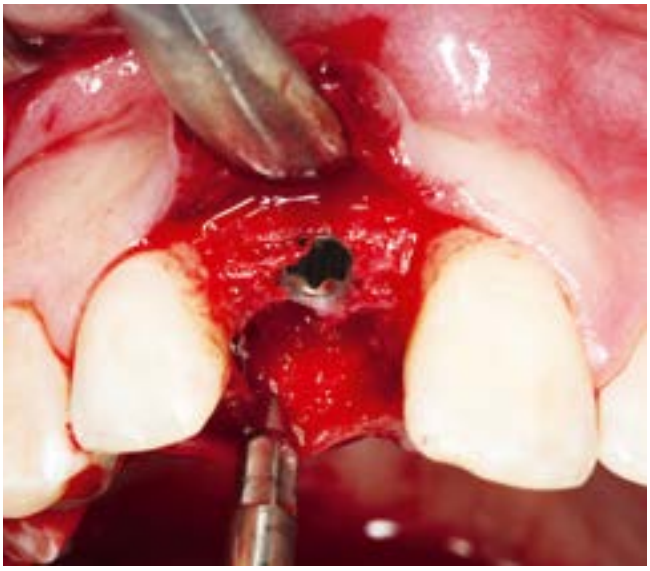
3c I Crestal osteotomy performed with a powerful piezosurgical unit (Piezomed; W+H, Bürmoos, Austria) up to the planned implant insertion depth.



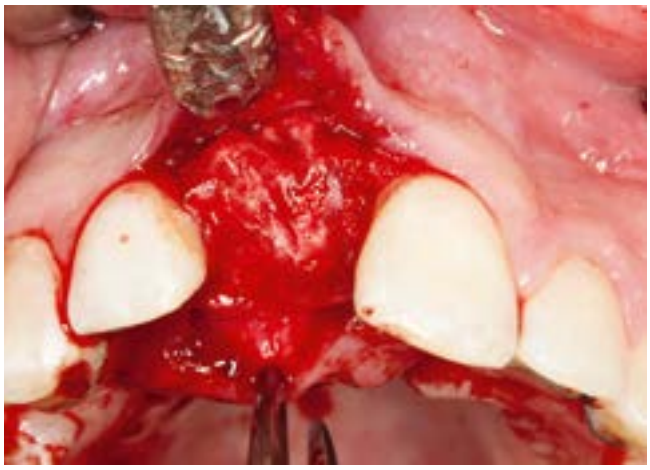
3d I Expansion of the bone using expansion screws (Split-Control; Meisinger, Neuss, Germany).



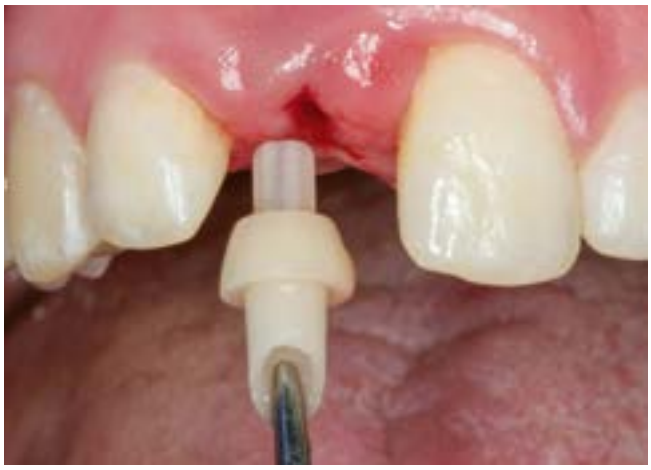
3e I Final expansion of the bone with a reduced-diameter implant while preserving the mesiodistal bone (narrowSky; bredent medical).



3f I Checking the implant, placed slightly below bone level.



3g I Stabilization of the laterally applied bone replacement material complete with cover membrane (angiopore; bredent medical).



3h I Insertion of the healing abutment (SKY temp M; bredent medical) to shape the soft tissue.

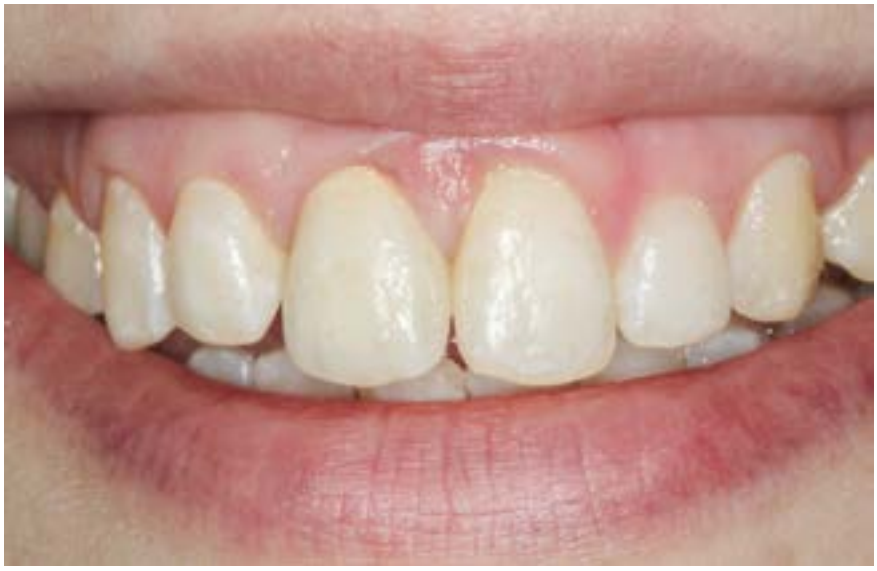
Bone splitting techniques

In bone splitting, the surgical site is usually limited to the area where the implants are to be placed. This requires a crestal osteotomy, which can be performed with a number of different tools. In addition to rotating instruments, piezosurgery and the use of oscillating saws are now commonly used [4, 15].

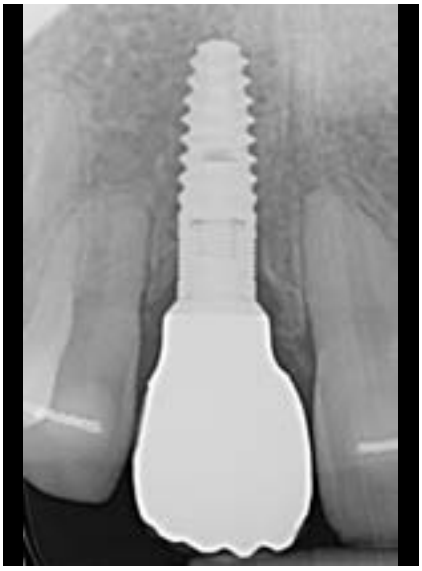
Rotating instruments are often associated with the risk of damaging neighbouring structures and are subject to the limitation that an osteotomy that extends into the periodontal space of the terminal abutment teeth allows no visual control. Piezosurgery can be time-consuming, depending on the bone structure and the device used. It is recommended to use oscillating saws, which allow deep osteotomies thanks to the availability of different blade lengths.

The expansion is performed by a sequence of thin chisels or osteotomes, which must be inserted by single hammer pulses [25] if the osteotomy is not sufficiently deep to accommodate the entire length of the implant. Since this often means additional stress for the patient, expansion screws were developed [24] which, thanks to their conical shape, allow the bone to be spread to provide a sufficiently wide implant site (Figs. 3a to j). The osteotomy and expansion should be performed such that no compression of the bone is caused by the inserted implants, as bone compression can lead to the formation of deep pockets.

To facilitate the exact positioning of the implants, it is recommended to carry out the pilot drilling first, with 3D surgical stents recommended for use in certain cases [20]. The respective implant site can then be expanded individually and the implants placed.



3i I Checking the inserted implant-supported crown 11.



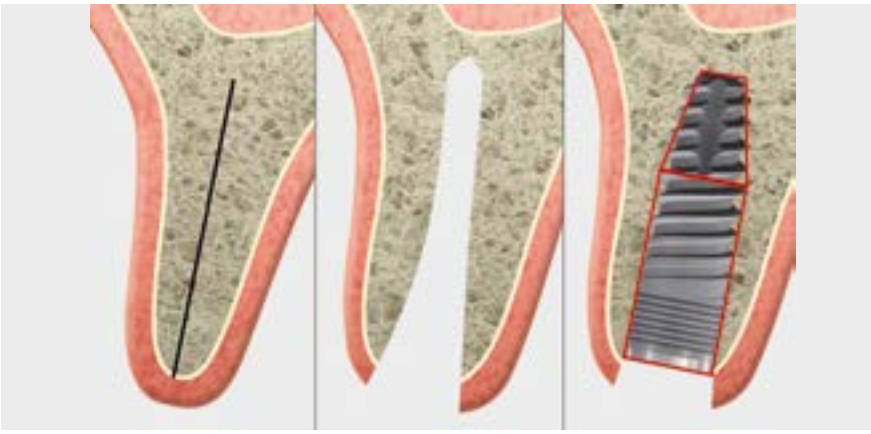
3j I Control radiograph of the definitive restoration.

In order to achieve primary stability, an implant system characterized by high cutting capacity of the self-tapping thread should be used. In addition, implants with conical tips are preferable, because they are more closely adapted and shaped to the bone cavity created by the expansion screws. The crestal part of the implant, by contrast, should be cylindrical to keep the osteotomy space as narrow as possible. If the cutting performance is low, the basal aspect of the cavity must be prepared with drills, so that the crestally expanded implant bed further increases in size – depending on the drill design – with an additional loss of substance in the already reduced bone as a consequence.

Depending on the extent of the bone splitting, a narrower or wider osteotomy gap will be evident and must be augmented with a collagen preparation to vascularize the regenerated bone. Reduced-diameter implants are used so that the osteotomy gap does not have to be too wide. Ideally, the implant body should be cylindrical, which can also reduce the width of the gap. When using reduced-diameter implants, prosthetically driven implant planning is particularly important in order to avoid incorrect loading, which can result in long-term damage to the implant. Large-span and cantilever restorations are contraindicated (Fig. 4).

A thin buccal lamella should be reinforced by introducing bone substitute material to help prevent excessive resorption. The material can additionally be supported by a membrane. Comparative animal studies have shown that this procedure results in the lowest amount of absorption of the vestibular lamella [11].

If a sufficiently wide implant bed is already present preoperatively and no lateral augmentation is necessary, no major deperiostation will be required [6]. A disadvantage of bone splitting, especially in cortical bone, is the probable presence of pressure pain over a longer period. This pain is caused by the very strong compression of the bone in the apical region where most of the bone splitting has taken place and where the body must resorb and rebuild the bone tissue. Depending on the configuration of the alveolar ridge, bone splitting has a further disadvantage: An expansion of the vestibular lamella can result in a loss in vertical dimension. Thus, this procedure for reconstruction is usually not an option, especially in the aesthetic zone, since the compensation of the horizontal bone defect in turn leads to the creation of a vertical bone defect.



4 I Principle of bone splitting. The cylindrical body ensures a narrow osteotomy gap, while the conical tip avoids the unnecessary bone loss an excessively wide preparation of the implant bed would cause.

Discussion

A comparison of the two surgical techniques shows that lateral and vertical defects can be adequately treated with autologous bone grafts. This procedure can be used in the maxilla as well as in the mandible, with similar morbidity. Particularly in the mandibular posterior region, the patient will perceive the bone harvesting and alveolar ridge reconstruction sites as a single surgical site, so that no "additional" surgical site must be accessed to facilitate the crafting procedure. Although there are actually two surgical sites involved, retromolar bone harvesting will be experienced as a single locus of postoperative wound-related pain and swelling: Iliac-crest grafts result in a slight loss of mobility in the first few post-operative days, which will subside quickly.

Bone splitting can only be used to compensate horizontal defects and carry a risk of increasing the vertical discrepancy. Therefore, when selecting the most appropriate surgical procedure, the smile line and the length of the upper lip must also be assessed to ensure patient acceptance of the subsequent prosthetic restoration. This procedure is particularly difficult in the mandible due to the structure of the cortical bone in this area, and it also results in post-operative discomfort, which can last up to four weeks, since bone remodelling must compensate for the stress loads that occur. Bone splitting facilitates coverage of the implant surface with the patient's own bone, which is associated with a good long-term prognosis [6].

Conclusion

In principle, it should be noted that long-term results have been published for both techniques. However, they represent technically complex procedures with complex instrumentation and should be selected according to the indication and the patient expectations regarding their future restorative solution.

Acknowledgements

Laboratory procedures were performed by *Klaus Pfeifer* and *Herbert Sontheimer*, Pfeifer & Bach Zahntechnik, Landsberg am Lech, Germany.

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

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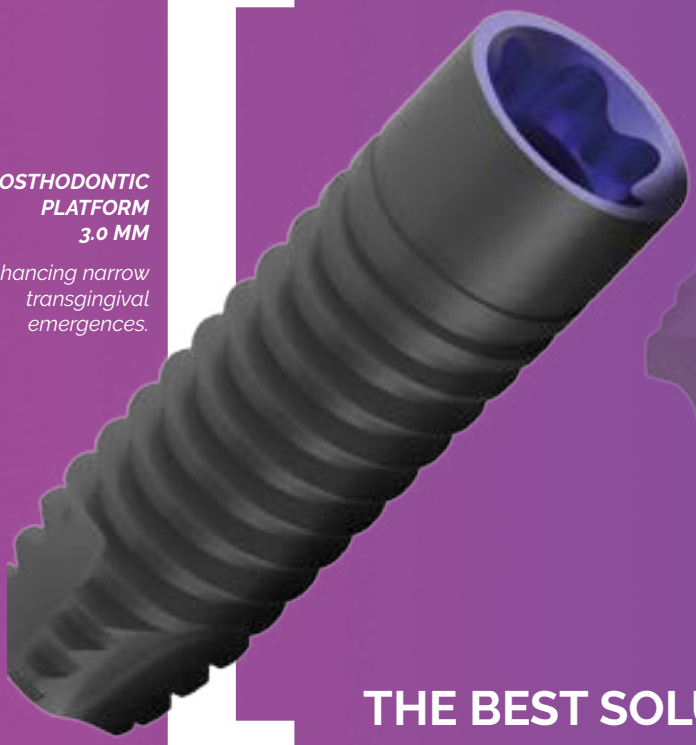

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Simplified soft tissue augmentation around implants in the aesthetic area

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A new porcine, porous, resorbable, and volume-stable collagen matrix can be used in lieu of gold standard autologous connective tissue grafts for soft tissue augmentation procedures. This can have various advantages, such as reduced patient morbidity and shorter surgical time.

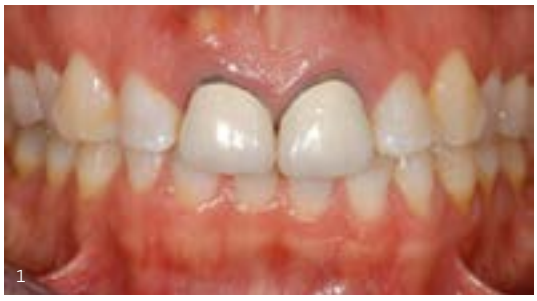
Soft tissue grafting procedures are widely performed for a variety of indications in combination with dental implant therapy [1]. Major clinical indications include recession coverage, gain of keratinized tissue, and augmentation of soft tissue volume [2–4]. These periodontal plastic surgical procedures have been suggested to establish short- and long-term favourable biological, functional, and aesthetic outcomes [1].

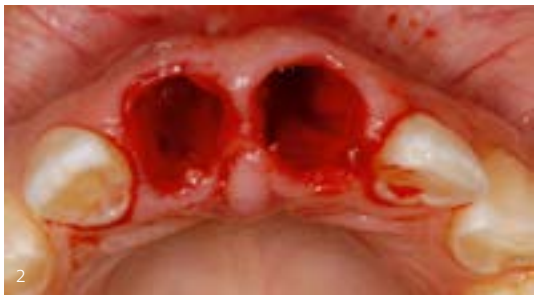
Mainly for aesthetic purposes, soft tissue augmentation is increasingly performed for a number of disciplines in dentistry to increase the soft tissue volume under pontics or around dental implants or natural tooth, based on the mucosal biotype and patient expectations [5–8]. Soft tissue augmentations contribute to more than 40 per cent of the final soft tissue volume at implant sites [7], result in superior aesthetics, more stable soft tissue dimensions and bone levels at implant sites [1–9]. Therefore, the careful management of soft tissue around implants is considered a key factor to obtain aesthetic outcomes and to support long-term maintenance [10].

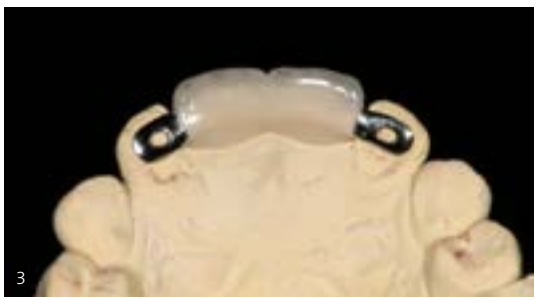
Surgical strategies

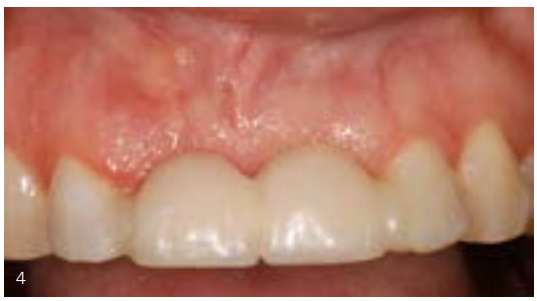
According to recent systematic reviews, the standard materials for soft tissue regeneration at implant sites include autologous free gingival grafts (FGG), subepithelial connective grafts (SCTG) [1,11], plus various types of roll and pedicle flaps [12–14].

Nevertheless, the use of autologous tissues is associated with disadvantages. Typically, the quantity and quality of tissue that can be retrieved vary depending on the shape of the palatal vault and the patient's sex and age [15], and









1 I Clinical situation before extraction. Teeth 11 and 21 cannot be preserved.

2 I Atraumatic extraction of teeth 11 and 21.

3 I Temporary adhesive bridge.

4 I Clinical situation after placement of the temporary adhesive bridge on teeth 12 and 22.

on anatomical factors such as a thick alveolar process, exostosis, and the palatine nerves and blood vessels [16-18]. In addition, because of the harvesting procedure – which leads to a prolonged healing time at the donor site – patients often complain about pain and numbness for several weeks after the surgery [19,20]. To reduce the morbidity and overcome the disadvantages of autologous grafts, research has focused on the development of soft tissue substitutes of several origins and for a number of clinical indications [21,22].

A new volume-stable collagen matrix

For the purpose of soft tissue volume augmentation, a suitable device needs to fulfill two main criteria: 1. favourable biologic behavior allowing modelling and remodelling processes, and 2. volume stability over time.

While most soft tissue substitutes recently brought to the market fulfill the biologic aspect, effective volume increase and volume stability over time has not been shown yet for most of the new products [4].

Lately, a three-dimensionally stable collagen matrix was launched. This matrix demonstrated favourable mechanical properties and biological attributes promoting the ingrowth of human fibroblasts [23], satisfactory tissue integration and promotion of angiogenesis [24], and non-inferiority compared to the gold standard in terms of two- and three-dimensional volume increase in a preclinical model [25,26]. More recently, in a randomized controlled clinical study comparing the collagen matrix to autologous connective tissue grafts at implant sites, the matrix showed – at one-year follow up – no significant difference in terms of quality and quantity of the stable augmented soft tissue. In addition, there was no need of a second surgical site and patients benefitted from a lower pain perception [4,27,28]. Similarly, *Chappuis* et al. demonstrated that soft tissue augmentation simultaneous with Guided Bone Regeneration and implant placement in aesthetic sites using a collagen matrix is safe and feasible [29].

The following case report describes the treatment protocol for an immediate, simultaneous implant placement and soft tissue augmentation from diagnosis to conclusion, with step-by-step description of the treatment procedure adopted.

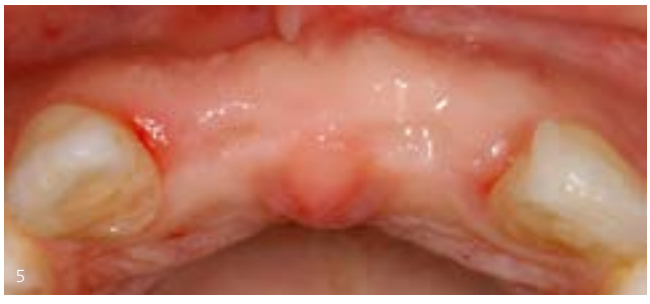
Case report

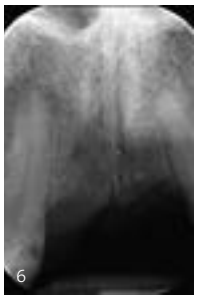
The case is presented to demonstrate a practicable solution for increasing soft tissue thickness around implants in the aesthetic area, using a new porcine, porous, resorbable, and volume-stable collagen matrix in an outpatient setting. A 46-year-old female patient was referred for an implant treatment. The patient presented with two hopeless teeth 11 and 21, which had to be extracted because of fistula, and root fractures (Fig. 1). The patient had experienced trauma in an accident at the age of nine years where the two central incisors had been involved.

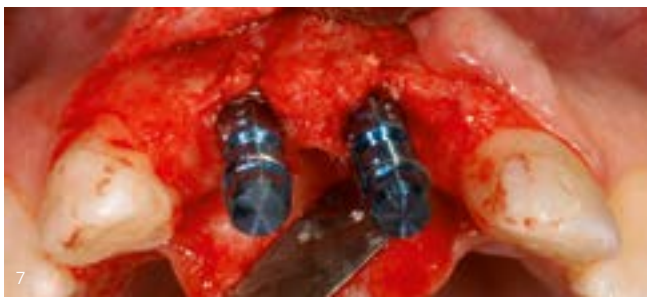
The treatment plan envisaged an extraction and then the insertion of two implants for a fixed reconstruction. An atraumatic extraction without flap elevation was carried out (Fig. 2) and a temporary adhesive bridge was placed on teeth 12 and 22 (Figs. 3 and 4).

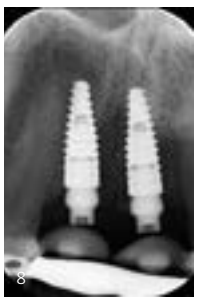
The subsequent healing was delayed because of an infection, causing a considerable resorption of the extraction sites. Five months after the extraction, two bone level tapered implants with reduced diameter (3.3 mm) were inserted at positions 11 and 21 (BLT 3.3 x 10mm, NC; Institut Straumann, Basel, Switzerland) (Figs. 5 to 8).

There was no need to augment the bone horizontally, while soft tissue was thickened at these positions by means of a porcine, porous, resorbable, and volume-stable collagen matrix (Geistlich Fibro-Gide, Geistlich Pharma, Switzerland). Two matrices, trimmed and cut in dry state to reach the final dimension of 10 x 5 x 6 mm each, were positioned buccally of the inserted implants under the mucosal part of the buccal split flap.







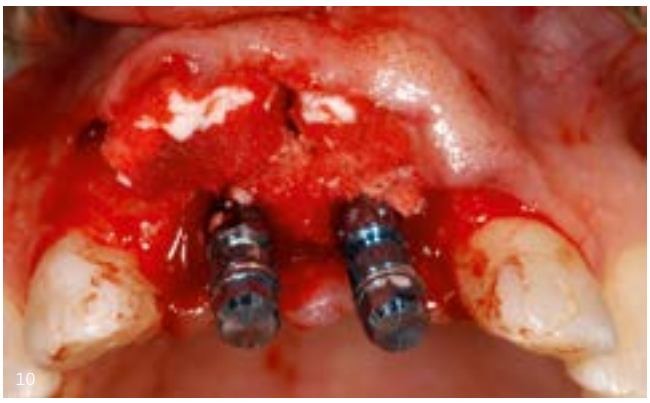


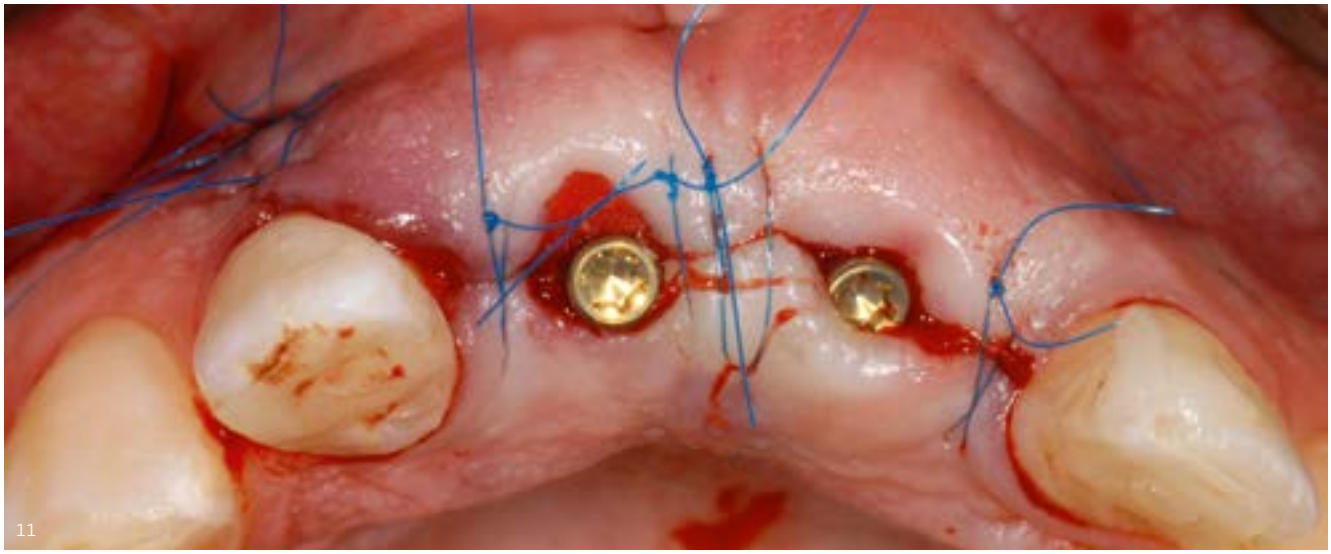
5 I Clinical situation five months after tooth extraction.

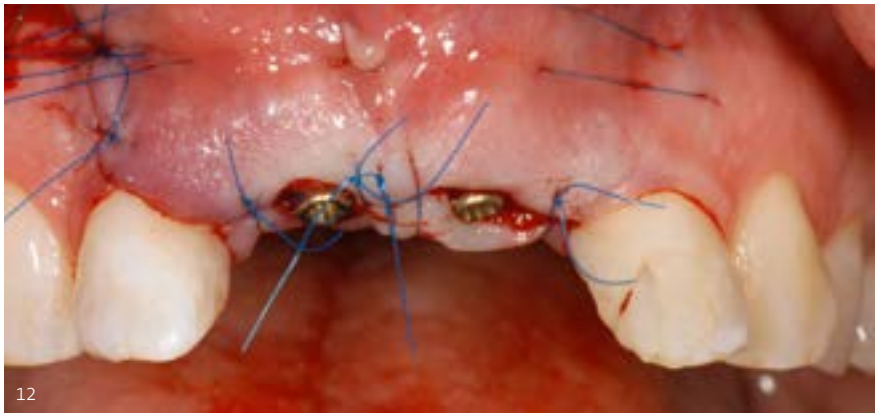
6 I Radiographic image five months after tooth extraction.

7 I Clinical situation after implant placement at positions 11 and 21.

8 I Radiographic image after implant placement at positions 11 and 21.







9 I Shaping of the collagen matrix (final dimension 10 x 5 x 6 mm) before the positioning around implants.

10 I Positioning of two Geistlich Fibro-Gide matrices buccally of the inserted implants under the mucosal part of the buccal split flap.

11 I Suturing of the flap around the healing abutments with a 6-0 monofilament suture (occlusal view).

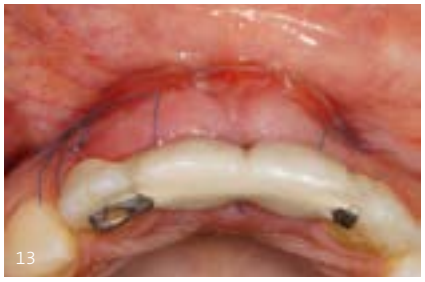
12 I Suturing of the flap around the healing abutments with a 6-0 monofilament suture (buccal view).

The matrices were secured by a horizontal external mattress suture (Figs. 9 and 10). The flap was then sutured around the healing abutment with a 6-0 monofilament suture (Figs. 11 and 12). The healing period was uneventful (Figs. 13 to 15). After three months of healing time, the two implants were reconstructed by the referring dentist (Fig. 16). The measurement of the soft tissue thickness buccally showed an increase of about 1.5 mm and the follow-up showed stable soft and hard tissue conditions after 18 months (Fig. 17), as well as after two years (Fig. 18).

Conclusion

Soft tissue volume augmentation is mainly indicated for aesthetic reasons, to facilitate oral hygiene in pontic areas, and to support long-term maintenance [10]. To overcome the disadvantages of autologous soft tissue grafts, alternative techniques, materials primarily of allogeneic origin, and more recent techniques following the guidelines of tissue engineering (for example, human fibroblast-derived dermal substitute, human skin equivalent) have proposed to restore adequate soft tissue volume [1,11].

Most of the soft tissue substitutes brought on the market in recent years showed a favourable biological behaviour allowing modelling and remodelling processes, but failed in demonstrating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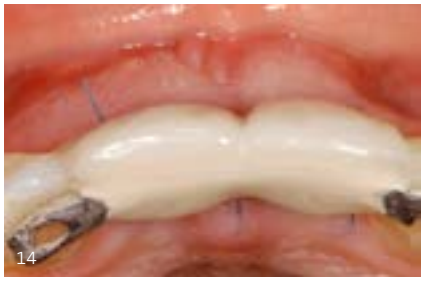
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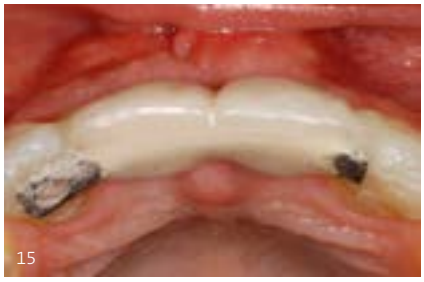
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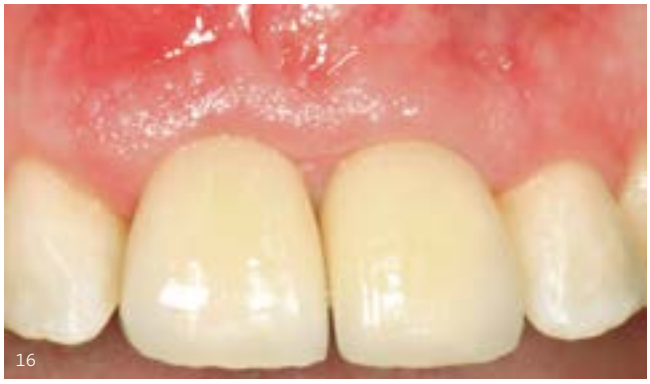
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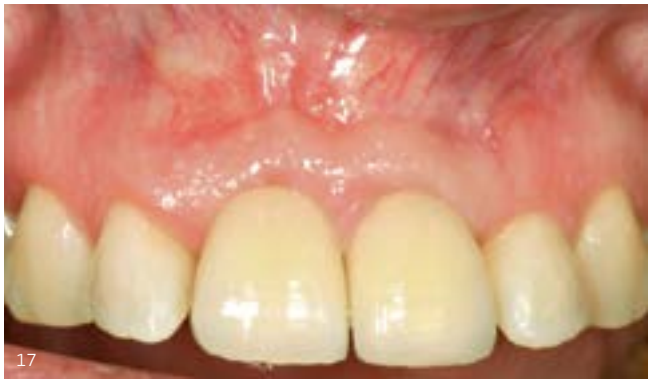
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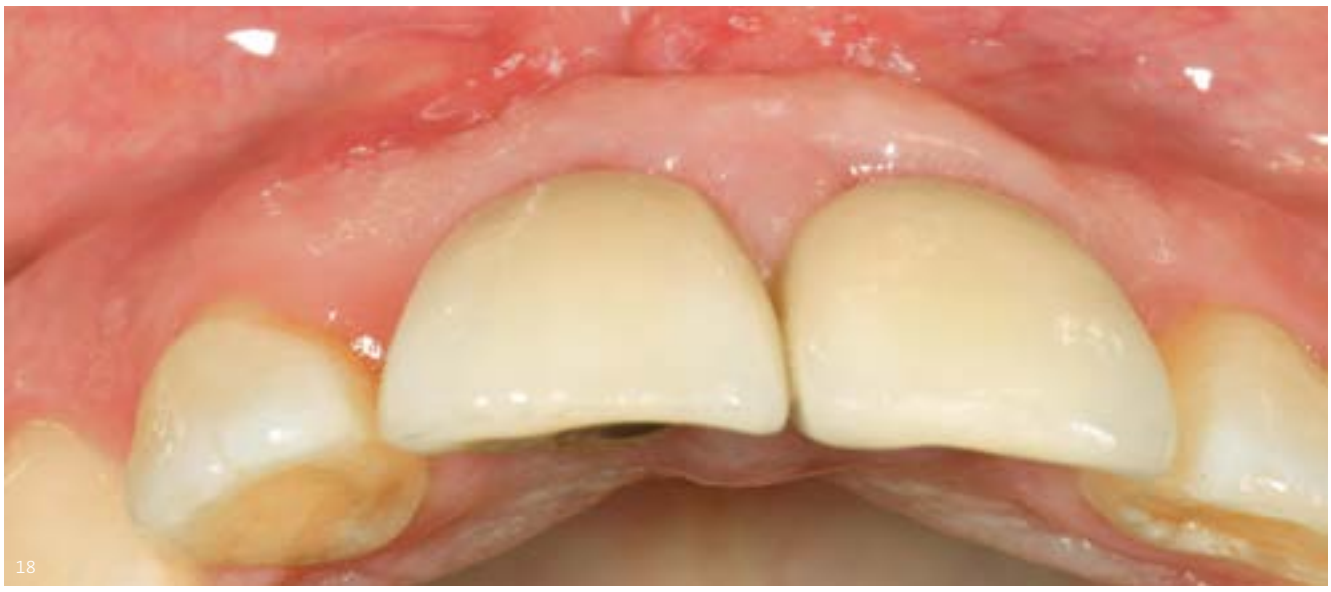
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13 I Clinical situation one week after soft tissue augmentation (occlusal view). 14 I Clinical situation two weeks after soft tissue augmentation (occlusal view). 15 I Clinical situation six weeks after soft-tissue augmentation (occlusal view). 16 I Clinical situation one month after implant reconstruction (buccal view). 17 I Clinical situation 18 months after tooth extraction (13 months after implant placement and soft tissue augmentation, buccal view). 18 I Clinical situation two years after tooth extraction.

an effective volume increase and volume stability over time [4]. A resorbable and volume-stable collagen matrix fills this gap. It is smartly cross-linked through a chemical agent to improve its mechanical proprieties. This feature enhances the space-making effect of the matrix compared to non-cross-linked collagen matrices, improving the stabilization of the blood clot and proving sufficient space for the ingrowth of host cells during wound healing [30].

This clinical case showed how to simultaneously perform a soft tissue augmentation procedure with a volume-stable collagen matrix and an immediate implant placement. The case proved that a collagen matrix can be used as an alternative to connective tissue grafts for soft tissue augmentation procedures. This new matrix has the benefit to be available indefinitely with a standardized quality and its use allows to reduce the patient morbidity and to shorten the surgical time.

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

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One-year follow-up of molar replacement with a new fully tapered implant system

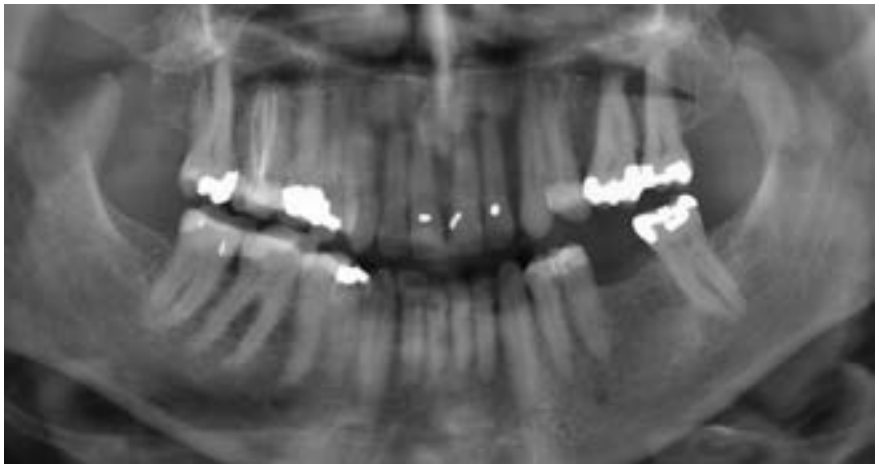
Pristine function and aesthetics

DR EIRIK AASLAND SALVESEN, HAFRSFJORD, NORWAY, AND DR CHRISTIAN RADO JARRY DDS, MSC, BASEL, SWITZERLAND

For many years, conventional fixed bridges were considered a routine treatment when replacing a missing single tooth. However, this treatment increased the risk of iatrogenic endodontic damage during the invasive preparation of otherwise healthy and undisturbed teeth, which decreased the survival of these teeth over time [1,2]. The use and success of dental implants for the rehabilitation of posterior partially edentulous jaws has been well established in the literature. In addition to its high success rate, this approach leaves the adjacent teeth undisturbed. The successful use of dental implants depends on optimal conditions of the peri-implant tissues. A three-dimensional evaluation of condition and availability to determine the dimensions of the planned implant is the standard of care and the key to long-term stability of hard and soft tissues [3,4].

The success of single molar restorations is influenced by factors such as the clinician's skills, arch morphology, proximity of adjacent teeth, vertical access, anatomy and patient-related limitations. Additionally, functional and parafunctional forces on molar restorations impose a high level of chronic loading forces. The use of wide implants has been proposed in the literature as a successful option, showing survival rates similar to standard-diameter implants [5,6]. While osseointegration remains the basis for success, patients' increasing expectations have redefined the meaning on the definition of success and failure. From a patient's perspective, success may not only be defined by the assessment of how functional and natural the outcome is, but also if the treatment required fewer visits to the clinic [3,7].

Computer-aided design and manufacturing (CAD/CAM) materials as well as chairside systems and digital workflows are increasingly used in dentistry, especially for single-unit restorations. They allow cost-effective and efficient treatment protocols that improve patient satisfaction [8]. This case report presents a one-year follow-up of an implant treatment in a healed mandibular first molar site with the newly launched BLX implant (Institute Straumann AG, Basel, Switzerland). The case was restored prosthetically with an analogue workflow in the temporary phase and a digital workflow for the final restoration.



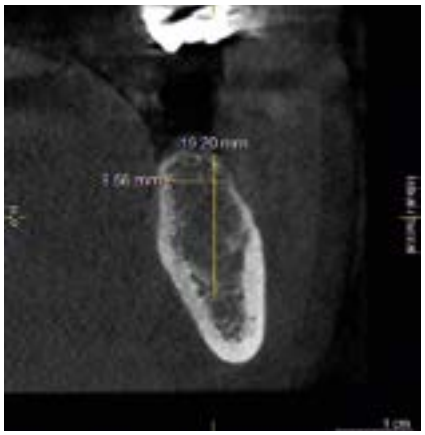
1 I Panoramic X-ray shows well-maintained anatomic conditions one year after tooth extraction.

Initial situation

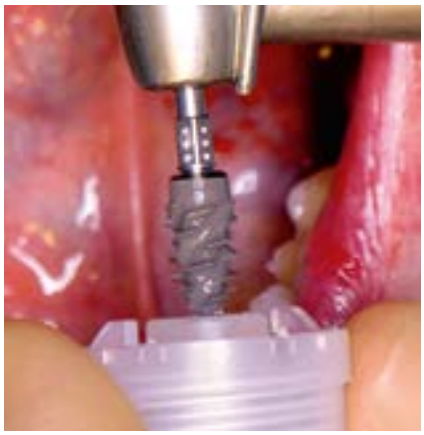
A 67 year-old non-smoking male patient without relevant medical history was referred to the office with a missing tooth 36 due to persistent apical periodontitis. The tooth had been extracted more than one year prior to the procedure and the site presented well maintained and healed (Fig. 1).

Treatment planning

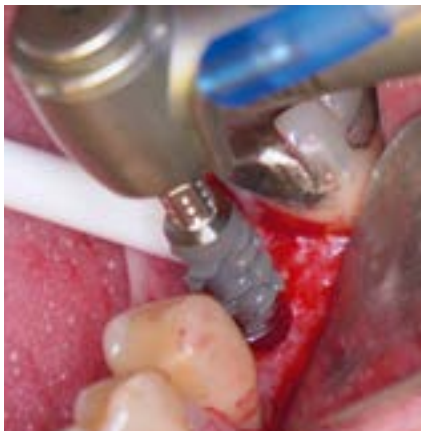
With favourable bone availability confirmed by a CBCT scan, 19.20 mm in height and 8.56 mm in width (Fig. 2), the placement of a BLX implant 5.5 x 10 mm was planned via a one-stage approach with the placement of a healing abutment to allow proper osseointegration and transgingival soft tissue healing of six weeks prior to functional loading. To bring the gingival contours as close as



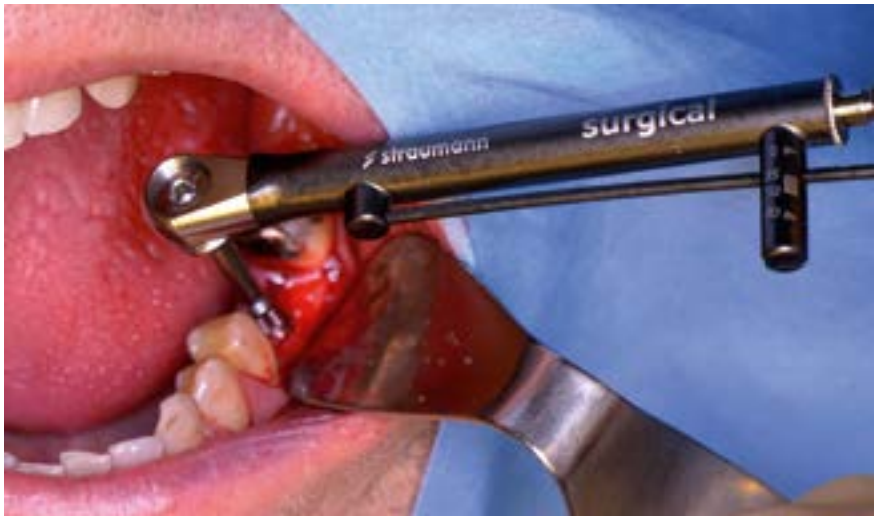
2 I CBCT scan measurement demonstrating adequate bone availability in height and width.



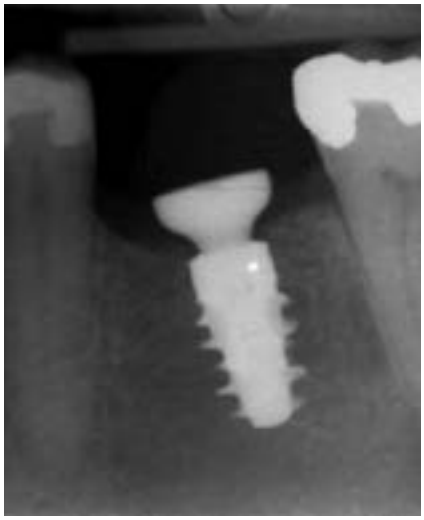
3 I Implant ready to be removed from the vial cap to be inserted in the osteotomy.



4 I Implant insertion with the handpiece at 15 rpm.



5 I Surgical torque control instrument showing the implant in final position and a torque of 35 Ncm.



6 I Radiograph confirming the seating of a healing abutment 6.5 mm in diameter and 1.5 in gingival height.

possible to natural aesthetics, a temporary crown was planned after this period to start loading the implant and allow soft tissue keratinization for an optimal aesthetic outcome of the final restoration. As for the final crown, a digital impression with a 3shape IOS scanner (3shape, Copenhagen, Denmark) with a Straumann Cares Mono scanbody (Straumann) was followed by the creation of a monolithic zirconia crown to be seated passively onto the implant in a healed and pre-conditioned soft tissue environment.

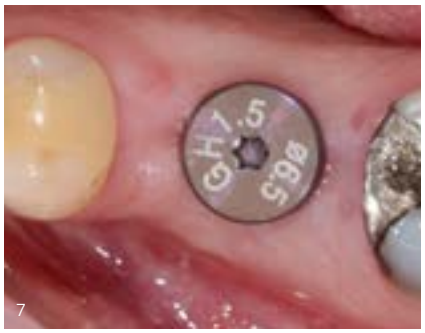
Surgical procedure

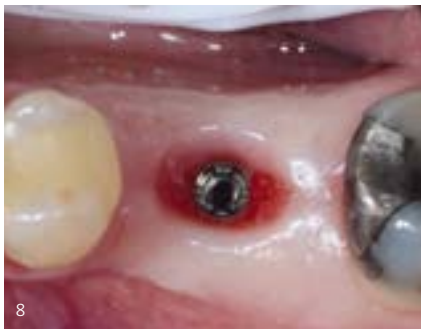
Consistent with standard procedures, local infiltration was conducted using articaine with epinephrine. The site presented thick and healthy keratinized soft tissue, so a crestal incision followed by intrasulcular incisions from tooth 37 to tooth 35 was completed with a 15C blade. No releasing incisions were made.

A mucoperiostal flap was carefully elevated and the osteotomy prepared as recommended for a 5.5-mm BLX implant in medium bone type, with the use of the needle drill to initiate the osteotomy, followed by the drills 2.2 mm, 2.8 mm, 3.5 mm, 4.2 mm and a final drill indicated on the surgical cassette to be no. 7, corresponding to the diameter of 4.7 mm. The implant was directly picked up from the vial with the insertion tool engaging into the new TorcFit connection. Mouth-opening was limited, so the implant was inserted to final position in one continuous clockwise rotation of the handpiece at 15 rpm (Figs. 3 and 4).

The CBCT estimated the bone density to be medium to soft, presenting a thin crestal cortical layer. The bone was much softer than originally expected but the implant still reached the final position with a good primary stability of 35 Ncm, verified by a surgical torque control device (Straumann) (Fig. 5).

A 6.5-mm diameter healing abutment with a gingival height of 1.5 mm was placed so the gingival healing would result in an adequate molar emergence profile (Fig. 6). Two single lateral sutures finished the surgical procedure keeping the flap in close contact with the healing abutment. The sutures were removed after 15 days.



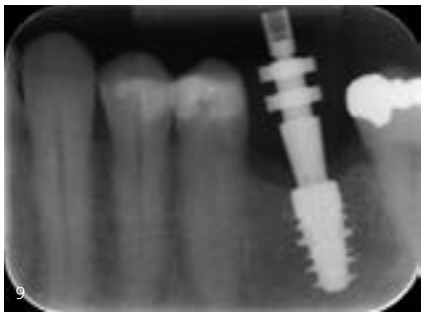


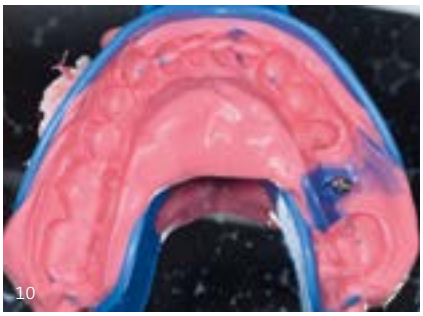
7 I Healing abutment in situ – occlusal view.

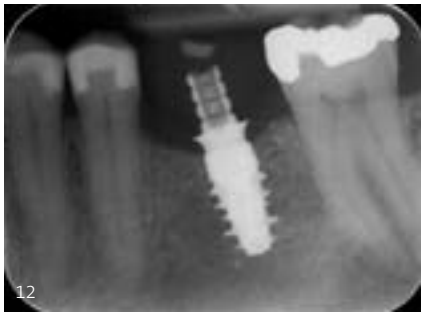
8 I Favourable soft tissue healing after six weeks.

9 I Impression post engaged on the implant correctly – no gap visible.

10 I Impression tray with captured impression post.





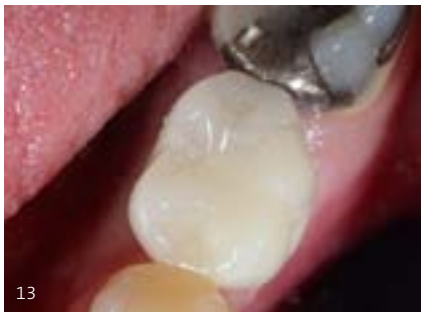


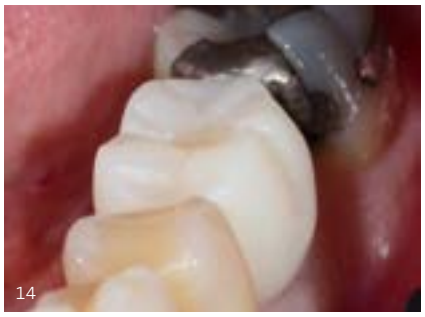
11 I Temporary PMMA crown on a Wide Base (WB) temporary titanium abutment.

12 I Radiograph confirming the correct seating of the temporary crown – no gap visible.

13 I Temporary crown in position with the screw access channel closed – occlusal view.

14 I Temporary crown in position with the screw access channel closed – lateral view.





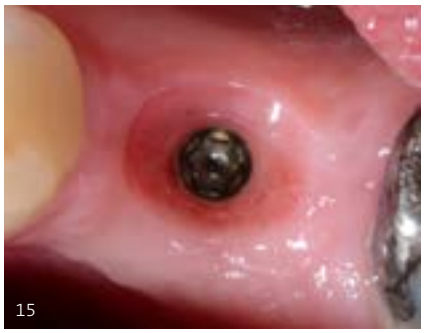
Prosthetic procedures

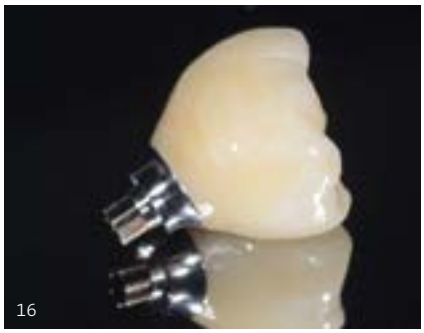
Temporary crown

After six weeks of healthy and favourable soft tissue maturation, the healing abutment was removed to initiate the prosthetic procedures (Figs. 7 and 8). A conventional analogue workflow was selected for this phase. With an open tray technique and simultaneous application of dual-density material, soft putty was injected around the impression post to copy the emergence profile, while medium putty was added to the tray to fill it up. When the impression material was properly set, the basal screw of the impression post was rotated counterclockwise so that the impression tray could be removed (Figs. 9 and 10). In the laboratory, standard procedures to create a stone master cast were followed and a temporary screw-retained PMMA crown was manufactured on a Wide Base (WB) Variobase abutment (Straumann), diameter 5.5 mm and gingiva height 1.5 mm for a crown restoration, and placed onto the implant. Once the occlusion and contact points had been optimized, the crown was secured at a torque of 15 Ncm as recommended by the manufacturer (Figs. 11 to 14).

Final crown

After twelve weeks, the temporary crown was removed and a very good soft tissue response and maturation was seen (Fig. 15). A scanbody (Cares Mono; Straumann) for the new prosthetic connection (TorcFit) was connected to the implant to carry out an intraoral scan for the digital workflow. A Wide Base (WB) Variobase abutment (Straumann), diameter 5.5 mm and gingiva height 1.5 mm, was selected to allow a consistent and wide emergence profile while still enabling platform shifting.



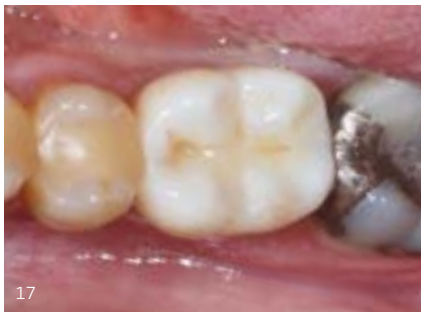


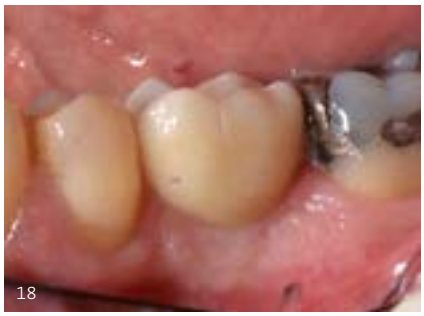
15 I Extraordinary keratinization pattern visible once the temporary crown is removed.

16 I Monolithic zirconia crown on WB Variobase ready for placement.

17 I Final crown in situ – occlusal view.

18 I Final crown in situ – lateral view.



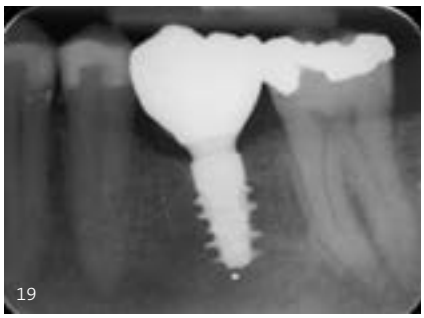


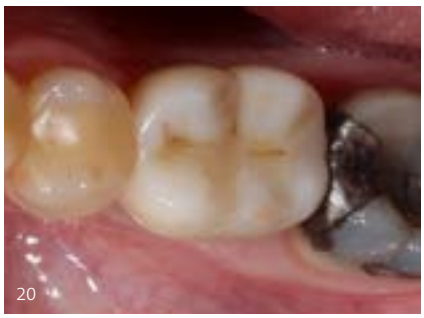
19 I Radiograph confirming the correct seating of the final crown – no gap visible.

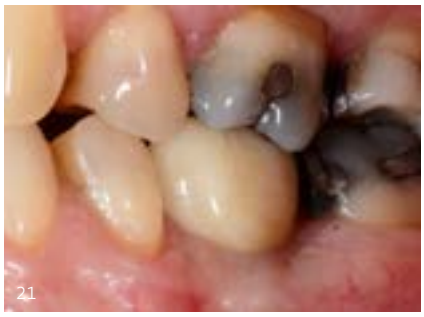
20 I One-year follow-up – occlusal view.

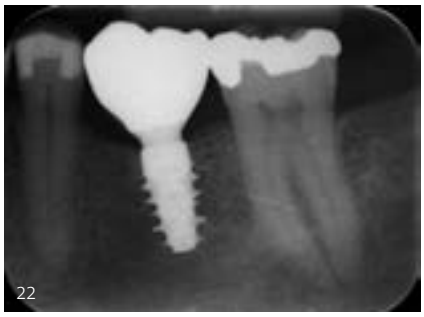
21 I One-year follow-up – lateral view.

22 I One-year follow-up radiograph.









A full-contour crown was milled in monolithic zirconia (Zirkonzahn, Gais, Italy). The subsequent laboratory steps were performed, using a primer and bond on the abutment prior to cementation of the milled crown. The screw-retained restoration was placed and torqued according to the protocol (35 Ncm). The screw access channel was closed with PTFE tape and opaque light-cured composite (Figs. 16 to 18). The patient presented harmonic occlusion and the restoration required only minimal adjustments verified by occlusion articulation carbon paper. A final radiograph was taken to confirm the crown seating (Fig. 19).

The BLX system features the new TorcFit hybrid connection, offering the option to use the inner conus or the outer shoulder of the implant as prosthetic interface. In this case, choosing a wide base abutment provided a natural emergence profile offering the patient functionality, aesthetics and a feeling similar to the natural tooth when flossing.

Conclusion

One year after finishing the treatment, the patient reported complete satisfaction with his masticatory function and aesthetics. The clinically visible stable and healthy peri-implant conditions were also confirmed radiographically (Figs. 20 to 22). The BLX implant has shown efficient and reliable performance even in soft bone under early loading conditions.

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

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One-year post-loading prospective case series

Volumetric changes in sinuses augmented with a crestal approach

MARCO TALLARICO[1], ERTA XHANARI[2], YONG-JIN KIM[3], ADEM ALUSHI[4]

The aim of the present prospective study was to evaluate the implant survival rate, complications and three-dimensional radiologic outcomes of maxillary sinus floor augmentation via a minimally invasive crestal approach and simultaneous implant placement.

Introduction

Implant placement in the posterior maxilla remains a challenge due to risks such as resorption of the alveolar bone, poor bone quality, or pneumatization of the maxillary sinus. According to recent prospective studies and a Cochrane systematic review, if the residual alveolar bone height is between 3 and 6 mm, sinus floor elevation can be accomplished with a one-stage crestal approach [1–5].

The most common technique to elevate the sinus floor by inserting a bone graft using a crestal approach employs osteotomes, as suggested by *Tatum* and *Summers* [6,7]. The major advantage of this closed surgical technique is lower morbidity compared to a conventional lateral approach. However, a main concern with this technique is the limited amount of bone augmentation. Moreover, a wide range of complications can occur [8], of which the most frequent intraoperative one is perforation of the Schneider membrane because of the limited visibility during surgery. Another possible complication is benign paroxysmal positional vertigo (BPPV) experienced after a sinus elevation with osteotomes [9]. To overcome these drawbacks, new options for minimally invasive transcrestal sinus surgery with minimal patient discomfort have been proposed to improve the safety and reliability of the procedure – using an inflated balloon catheter and hydraulic or negative pressure.

Elevation of the Schneiderian membrane using a crestal approach and hydraulic pressure was first described by *Chen* et al. in 2005 [10]. A sinus lift using hydraulic pressure included detachment of the Schneiderian membrane through injection of a liquid, filling the sub-Schneiderian space with a bone graft material, and simultaneous implant placement. This technique achieves a highly predictable clinical outcome and extremely low morbidity and shorter interventions in situations with insufficient residual alveolar bone [3,4].

Various systems are available for elevating the sinus membrane up to 7 mm using hydraulic pressure. Animal and human studies suggest that the CAS Kit (Osstem Implant, Seoul, South Korea) is a valid treatment concept for minimally invasive crestal sinus elevation surgery, although further studies are needed to confirm these results [4,11].

The aim of the present prospective study was to evaluate the implant survival rates, complications and three-dimensional radiologic outcomes of maxillary sinus floor augmentation using a minimally invasive crestal approach with simultaneous implant placement. This trial followed the provisions of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement.

Materials and methods

This study was designed as a proof-of-concept case series as part of a larger prospective observational trial. Consecutive patients requiring implant treatment in the posterior maxilla with a minimally invasive crestal sinus procedure were recruited and treated at a private clinic in Rome, Italy, between September 2014 and December 2016 [11]. The surgical procedures were performed by an expert clinician (MT) with experience in implant placement and sinus augmentation.

The study was conducted according to the principles embodied in the Helsinki Declaration of 1975 for biomedical research involving human subjects, as revised in 2013. All patients were

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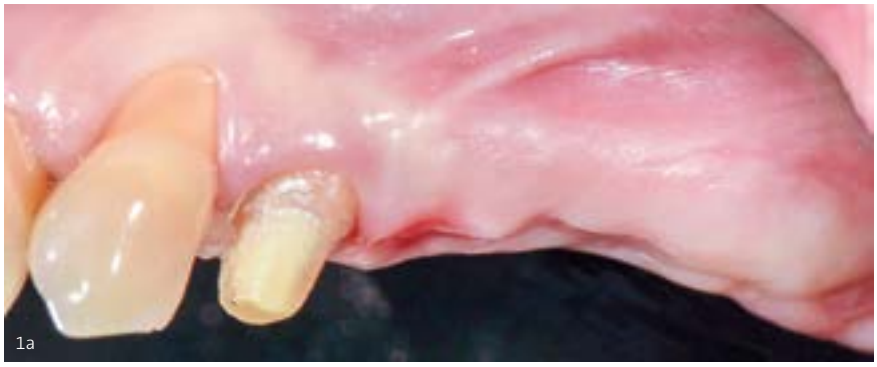
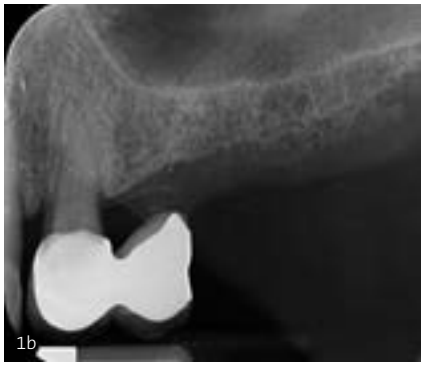


1a



1b

1a and b I Preoperative clinical (a) and radiographic (b) examination.

informed about the nature of the study and gave their written consent for surgical and prosthetic procedures and for the use of clinical and radiologic data. The radiological protocol used in this study had already been approved by the Scientific Technical and Ethical Committee of the University of Sassari (2069/CE) [1,2].

Patients aged 18 years or older able to sign an informed consent and requiring a minimally invasive sinus floor augmentation ahead of implant-supported restoration treatment, with a residual bone height of ≥ 2 mm at the prospective implant site, was enrolled in the present study. Patients were excluded if they presented with general contraindications to implant surgery, such as irradiation in the head and neck area during the year before implantation; uncontrolled diabetes; pregnancy or lactation; substance abuse; psychiatric therapy or unrealistic expectations; previous or ongoing treatment with oral or intravenous bisphosphonates or immunocompromised patients. Also excluded were heavy smokers (≥ 11 cigarettes/day), post-extractive sites, or poor oral hygiene or motivation (untreated periodontitis measured as bleeding on probing and/or plaque index ≥ 25 %).

Before the surgery, cone-beam computed tomography (CBCT) scans were taken (field of view 80 × 150 mm; voxel size 0.3 µm; 4.5 seconds; 90 kV; 6.3–10 mA; 579.7–920.9 mGy cm²) (Figs. 1a and b). Intranasal spray therapy (thiamphenicol glycinate acetylcysteinate 810 mg/4 ml) was administered twice a day, starting the day before surgery. One hour prior to surgery, a single dose of antibiotics (2 g of amoxicillin and clavulanic acid, or 600 mg of clindamycin if allergic to penicillin) was administered prophylactically. A 0.2 % chlorhexidine digluconate mouth rinse was administered for two minutes prior to surgery. Local anesthesia using articaine with adrenaline 1 : 100,000 was administered.

Surgical and prosthetic protocols

The implant site was prepared using the CAS drills (CAS Kit; Osstem Implant) according to a previously published customization of the drilling protocol suggested by the manufacturer [4]. The hydraulic membrane lifter was inserted into the drilled hole and 2 to 3 ml of saline solution was gently injected into the sinus to elevate the sinus membrane. Afterward, the bone carrier and a bone condenser were used to fill the sinus with 0.5 to 1 ml of synthetic hydroxyapatite enriched with magnesium (450- to 600-µm granules; Sintlife, Finceramica, Faenza, Italy). After the sinus lift was completed, the diameter of the drill was increased with the last stopper still connected, matching the final diameter of the planned implant and the bone quality (Fig. 2).

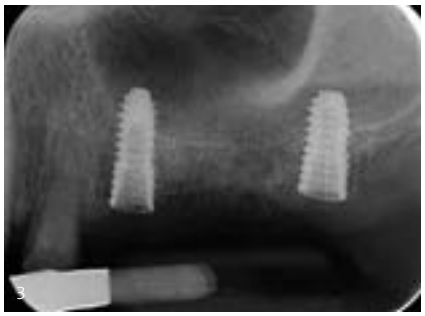
Finally, a self-tapping tapered TSIII implant (Osstem Implant) was placed at the bone level (Figs. 3 to 6). The wound was sutured with a 4-0 polyglactin 910 suture (Vicryl V271; Ethicon, West Somerville, NJ, USA). Antibiotic coverage was continued for seven days (1 g of amoxicillin and clavulanic acid or 300 mg of clindamycin twice a day) after surgery. A 0.2 % chlorhexidine digluconate mouth rinse was administered for one minute twice a day for two weeks, and a soft diet was recommended for one month. Ibuprofen 400 mg or paracetamol 1 g was to be taken in the event of pain. Immediately after the procedure and at the follow-up one year after loading, control CBCT scans were taken (field of view 60 × 80 mm; voxel size 0.3 µm; 2.3 seconds; 90 kV; 5–8 mA; 192.4–307.8 mGy cm²) .

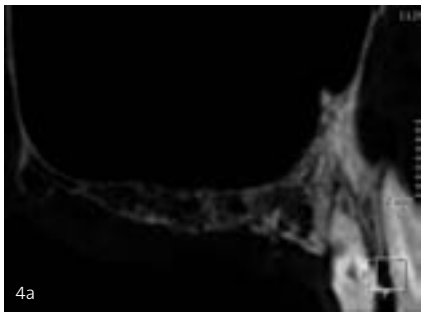
Six months after implant placement, a second-stage surgical procedure was performed, making sure to preserve the keratinized tissue around the dental implant. A healing abutment was placed; no provisional restoration was provided. A definitive digital impression was taken using the 3M True Definition Scanner (3M Italia; Pioltello, Milan, Italy). Four to six weeks after the second-stage surgery, a CAD/CAM screw-retained zirconia restoration was delivered. The occlusion was adjusted to avoid premature contacts. Periapical radiographs and clinical photographs were taken. Follow-up visits were scheduled every three months after implant placement.

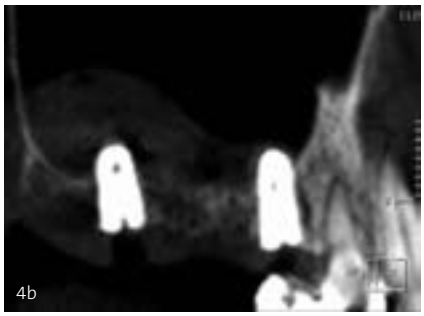
Outcome metrics included:

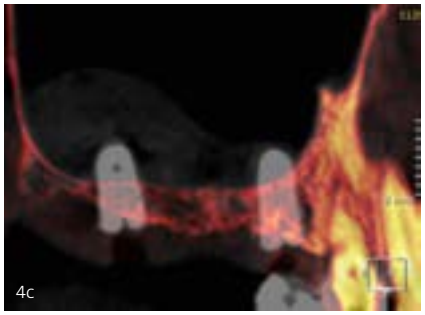
- Implant survival rate: An implant was considered a failure if it presented any mobility, implant fracture or an infection that mandated implant removal.
- A restoration was considered failed if it needed to be replaced by an alternative restoration.

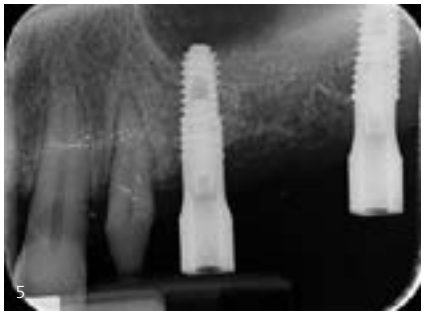
2 I Detail of bone chip formation between cutting blades of the CAS drill.



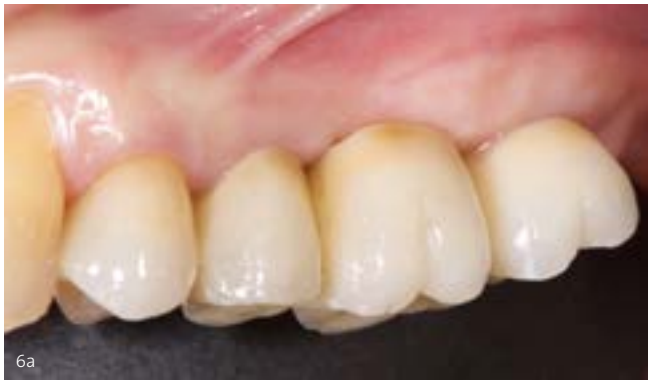


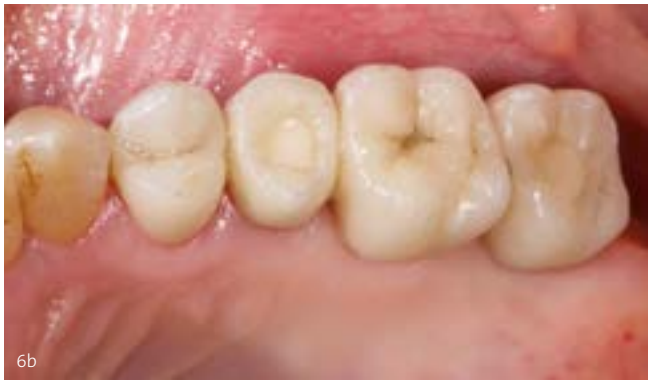


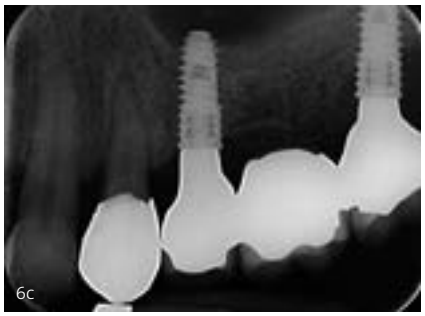




3 I Periapical radiograph taken during implant placement.
4a to c I CBCT scans taken before (a) and after (b) implant placement and superimposition (c).
5 I Periapical radiograph taken during the definitive implant impression.
6a to c I Postoperative clinical (a, b) and radiographic (c) examination.







- Presence of biological (pain, swelling, suppuration, etc.) or mechanical (screw loosening or fracture of the framework and/or the veneering material, etc) complications.
- Marginal bone-level changes as assessed by intraoral digital periapical radiographs made (Digora Optime; Soredex, Tuusula, Finland) using the paralleling technique and commercially available film holders at implant placement (baseline), implant loading, and one year after loading. The averaged mesial and distal distances from the most coronal margin of the implant and the first bone-to-implant contact was measured to the nearest 0.01 mm and taken as the marginal bone level. The difference in levels between time points was taken as marginal bone loss (MBL).
- Volumetric measurements of sinus grafts were performed on the CBCT scan using the Fusion adjunctive module of the OnDemand 3D software (Cybermed, Yuseong-gu, Daejeon, South Korea). The CBCT scans were taken before implant placement, immediately after, and at the one-year follow-up, following the ALARA (as low as reasonably achievable) principle. The SMAR (Soredex Metal Artifact Reduction) technology was also used to minimize scatter from metal artefacts. A clinician (EX) not previously involved in the study assessed all radiographic measurements.
- Patients' self-reported post-surgical pain and swelling were assessed three days after surgery on an ordinal scale (0 = no pain/swelling; 1 = mild pain/swelling; 2 = moderate pain/swelling; 3 = severe pain/swelling).
- The implant stability quotient (ISQ) was recorded by the surgeon using resonance frequency analysis (Osstell Mentor; Osstell, Goteborg, Sweden). Buccopalatal and mesiodistal measurements were taken and averaged, with the result being displayed by the device in ISQ units, ranging from 1 to 100. The values were recorded at the time of implant placement (baseline) and at the six-month follow-up (second-stage surgery).

All data were analyzed according to a preestablished plan. Descriptive analysis was performed for mean ± standard deviation (SD), median, and 95 per cent confidence interval (CI) using Number (version 5.2) for Mac OS High Sierra 10.X. Comparisons between follow-ups were made by a paired student t-test using SPSS (Version 22.0; IBM Corporation, Armonk, NY, USA) for Mac OS High Sierra 10.X. All statistical comparisons were conducted at a 0.05 level of significance. The statistical unit was one patient.

Results

In total, ten patients (five women, five men) with a mean age of 52.2 ± 7.1 years (range: 42–69) received 17 self-tapping tapered TSIII implants (Osstem Implant) and simultaneous sinus floor elevation using a crestal approach (CAS Kit; Osstem) and hydraulic pressure. No drop-outs had occurred at the follow-up one year after loading and no deviation from the original protocol. The mean follow-up time was 19.3 ± 3.6 months after implant loading (range: 12–25 months). All implants were inserted at torques between 35 and 45 Ncm. Patient and implant characteristics are reported in Table 1.

No implants and no prostheses failed during the follow-up period. No membrane tear and no other intraoperative or postoperative adverse events were observed. The mean marginal bone loss at the follow-up one year after loading was 0.22 ± 0.19 mm (95 % CI, 0.06–0.38; p = 0.000). Bone volume at implant placement was 0.81 ± 0.12 ml (95 % CI, 0.75–0.87). At the one-year follow-up examination, a slight bone contraction of 8.1 % was observed (0.74 ± 0.15 ml; 95 % CI, 0.73–0.87; difference, 0.7 ± 0.04 ml; 95 % CI, 0.04–0.08; p = 0.000). The mean pain value was 0.49 ± 0.65 (range 0–3); mean swelling value was 0.31 ± 0.44 (range 0–2). At implant placement, the mean ISQ value was 67.1 ± 4.6 (95 % CI, 64.8–69.2) and increased during the follow-up period, reaching a mean value of 72.3 ± 2.7 (95 % CI, 71.7–74.3). The difference was statistically significant (5.2 ± 3.0; 95 % CI, 3.6–6.4; p = 0.000). All data are reported in Tables 2 and 3.

Patient and implant characteristics	
Premolar region	1 (5.9 %)
First-molar region	13 (76.5 %)
Second-molar region	3 (17.6 %)
4.5 × 8.5-mm implants	2 (11.75 %)
4.5 × 10-mm implants	5 (29.5 %)
4.5 × 11.5-mm implants	2 (11.75 %)
6 × 10-mm implants	2 (11.75 %)
5 × 10-mm implants	4 (23.5 %)
5 × 11.5-mm implants	2 (11.75 %)
D2 bone quality	1 (10.0 %)
D3 bone quality	7 (70.0 %)
D4 bone quality	2 (20.0 %)
Light smokers	4 (40.0 %)

Table 1: Patient and implant characteristics.

Mean outcome metrics one year after loading	
Marginal bone loss	0.22 ± 0.19 mm
Pain	0.49 ± 0.65 (range 0–3)
Swelling	0.31 ± 0.44 (range 0–2)

Table 2: Mean outcome metrics (one year after loading).

Discussion

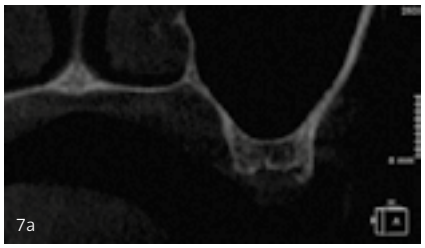
This study aimed to evaluate the clinical and radiologic data, one year after loading, of a minimally invasive crestal approach to sinus membrane elevation with special designed drills in combination with hydraulic pressure. Because this research had been designed as a prospective cohort study, its primary limitation is the lack of a control group.

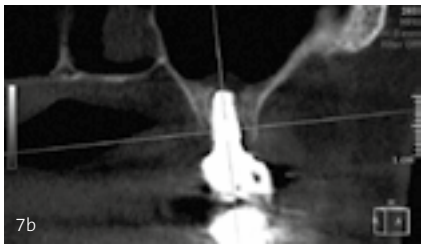
Nevertheless, the results of the present study were in agreement with a previously published report using the same drills system (CAS Kit; Osstem) [4]. During the entire follow-up period, no implant and prosthesis failed and no membrane tear was experienced. Therefore, the major clinical consideration of this study was that sinus membrane elevation can be safely performed in combination with implant placement using special designed drills and hydraulic pressure. Although this approach was used with a residual bone height of 2 mm, the data should be interpreted with caution due to the small sample size.

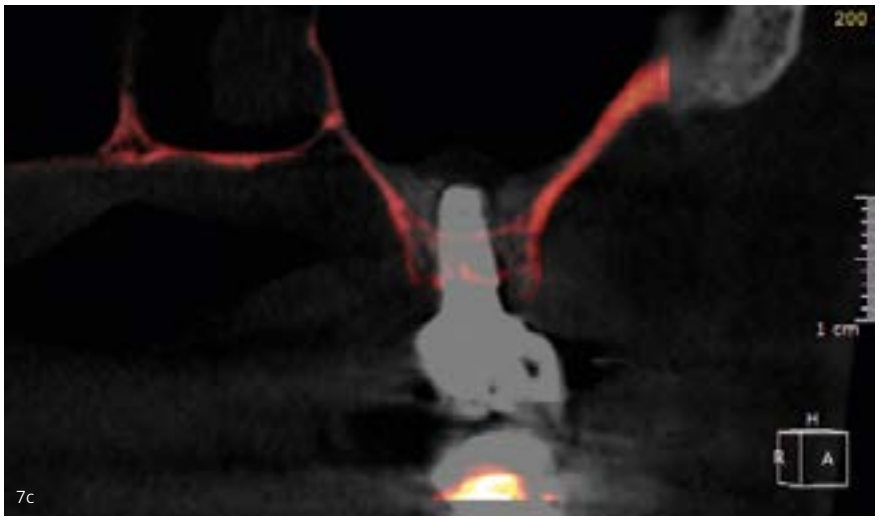
A major concern is the ability to ensure high primary implant stability in a severely atrophied ridge. In the present study, most patients presented with a bone density of class 3 and 4 according to the classification proposed by *Misch* [13]. In all these cases, the implant sites were underprepared by the manufacturer's suggestions. The drilling protocol allowed for implant stability at between 35 and 45 Ncm, with a mean ISQ value at placement of 67.1.

Mean outcome metrics at baseline and at the follow-up one year after loading				
Outcome	Implant placement	One year after loading	Difference	P value
Volumetric changes (CC)	0.81 ± 0.12	0.74 ± 0.15	0.7 ± 0.04	0.000
ISQ value	67.1 ± 4.6	72.3 ± 2.7	5.2 ± 3.0	0.000

Table 3: Mean outcome metrics at baseline and at the follow-up one year after loading.







7a to c I CBCT scans taken before implant placement (a) and one year after loading (b) and superimposition (c).

A three-dimensional comparison was performed. The data showed that a slight bone contraction of 8.1 per cent was observed at the follow-up one year after loading (Figa. 7a to c). These results are slightly better than the data reported in a previous report using the same radiographic method [1,2]. A possible explanation could be that in the present study, the sinus was filled with magnesium-substituted hydroxyapatite nanocrystals placed mechanically using the bone carrier and the bone condenser, limiting the possibility that resorbable air or saline bubble might be introduced into the sinus.

The technology used to measure bone volume contraction allows a superimposition of volume data using voxel information. This technology, known as "mutual information", calculates the statistical dependence between two volumes and the intensity and correlation values of entropy, and compares the difference in the entropy of the sum of individual images and the joint entropy of combined images to merge the data. Superimpositions of the postoperative and -year follow-up (DICOM data) were made automatically by drawing a volume of interest (VOI) overlay over an area involving unchanged anatomical landmarks (for example teeth, basal skull, implants) and manually checked for a complete match, ensuring the highest accuracy for the superimposition. Then the volumes of grafted material were calculated segment by segment in the sinus cavity using the segmentation tool (On-Demand 3D; Cybermed). This tool provides volumetric information based on the opacity of the grafted material. The segmented area included implants and graft material. However, the implants could be clearly distinguished from the grafted materials by their density and structure and were excluded from the measurements.

According to a Cochrane review [15], the use of bone substitute in combination with sinus floor elevation is questionable if more than 3 mm of bone height is present. Nevertheless, there is no consensus about the amount of bone gain to be expected using a crestal approach. A recent animal study showed that CAS Kit (Osstem) was superior to the osteotome sinus-floor elevation with added bone, for a bone gain of 7 mm in height, with a lower incidence of membrane perforation (one out of twelve cases, compared with seven out of twelve cases) [16].

Proper implant position has a significant impact in the functional and aesthetic results. Computer-assisted template-based implant placement has become increasingly popular over the last decade. With the introduction of advanced 3D imaging, it became possible to preoperatively combine anatomical information about the underlying hard and soft tissues with the ideal prosthetic parameters [17–19]. In the present study, implants were placed using a computer-guided, template-assisted approach. Nevertheless, the surgical template still had to be removed during implant site development and membrane sinus elevation. With the introduction of the OneCas Kit (Osstem), the implant site can now be prepared through the surgical template without removing it. This improves the accuracy of the final implant position, making the surgical procedure easier and faster.

Conclusions

A crestal approach to sinus floor elevation using dedicated drills with simultaneous implant placement is a viable treatment option for the minimally invasive treatment of the posterior atrophic maxilla. Further studies are needed to confirm these results.

Conflict-of-interest statement: *Dr Marco Tallarico* and *Dr Yong-Jin Kim* are global speakers for Osstem Implant. However, the data belongs to the authors, and the company did not interfere with the conduct of the trial or the publication of its results in any way.

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

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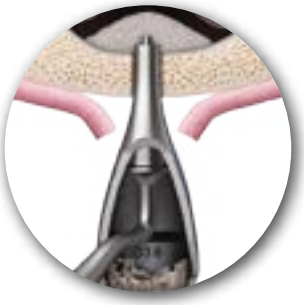
OSSTEM IMPLANT

STYLE YOUR SMILE

Lifting



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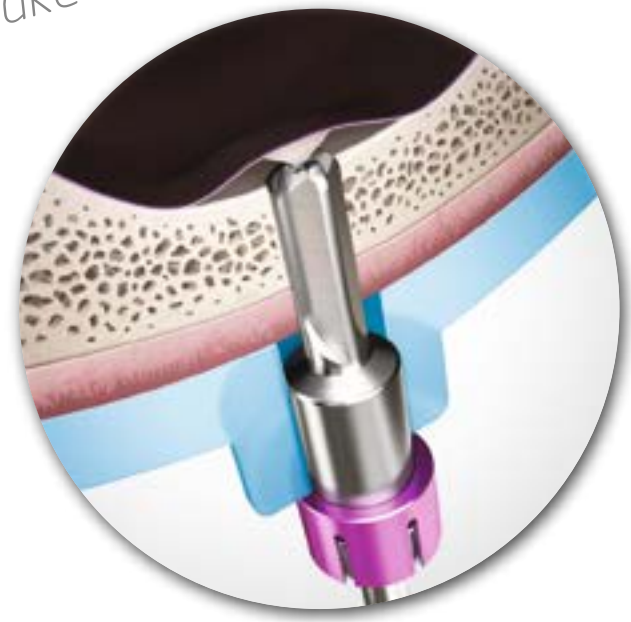

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Stability without membranes

MICHAEL AINSWORTH, BDS, SHEFFIELD, UK

Intraoral host bone regeneration may be affected by the pressures of the soft tissue as well as frenal muscle forces. To overcome these effects, many different methods have been employed including tenting screws, titanium meshes, autogenous plates (Khoury) and titanium reinforced membranes to maintain the space below the periosteum to the bone. This case report shows an interesting technique utilising "dome device" sutures to aid graft stabilisation. This technique has been utilised before, but here a new synthetic β-tricalcium phosphate (β-TCP) particulate graft material was used.

Case report

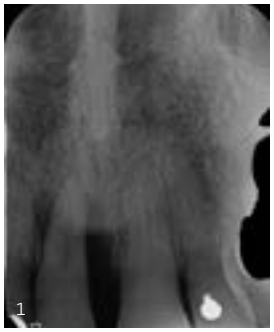
A 73-year-old male patient, non-smoker, with a non-contributory medical history presented with pain from a mobile upper right central incisor (tooth 11), that had received trauma approximately ten years prior to presentation. The tooth had been stable and the referring dentist had been monitoring the situation, however a sudden increase in mobility with associated purulent discharge precipitated referral. At presentation no discharge was noted, the acute situation having been managed with a course of amoxycillin. Clinical examination revealed that the affected tooth had deep pocketing of up to 9 mm mesially and was grade 2 mobile. The adjacent tooth (tooth 12) was grade 1 mobile and had pocket depths of 5 mm distally but no other pocketing greater than 3 mm. However, 5 mm of existing clinical attachment loss (CAL) and buccal gingival contouring consistent with underlying bony dehiscence was present. Importantly there was no other periodontal pocketing of > 3 mm in the mouth.

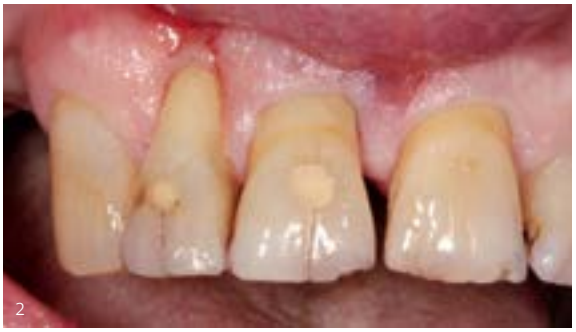
A diagnosis of lateral periodontal abscess secondary to external root resorption was made for tooth 11 (Figs. 1 and 2) and the tooth was given a hopeless prognosis. For tooth 12, a guarded prognosis was assigned due to CAL buccally and bone loss associated with proximity to tooth 11.

Given the bone loss and associated infection, an early-delayed implant placement treatment plan was proposed. The initial treatment plan involved:

- fabrication of a Maryland type adhesive bridge for immediate insertion;
- two-week post extraction CBCT;
- atraumatic extraction of tooth 11 with thorough debridement of the socket;
- implant placement at four weeks;
- simultaneous bone grafting with an in situ hardening synthetic resorbable bone substitute composed of β-TCP and calcium sulphate (CS), according to *Fairbairn* and *Leventis* [1];
- loading of the implant at twelve weeks post-op.

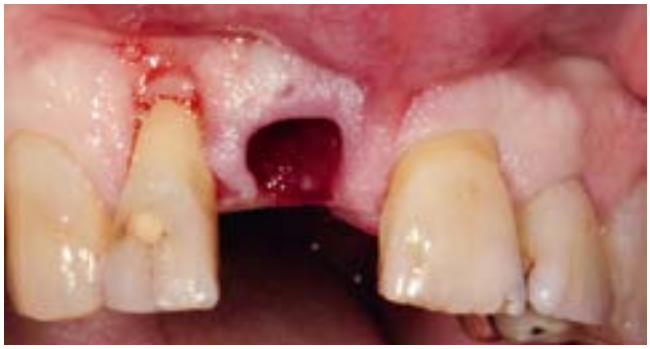
Antibiotic prophylaxis with 600 mg clindamycin one hour prior to surgery was given. Under local anaesthesia, atraumatic flapless tooth extraction was performed using periotomes (Stoma, Emmingen-Liptingen, Germany), taking special care to avoid the buccal and distal plates of intact bone. Immediately post extraction the socket was fully debrided of inflammatory tissue using Lucas curettes (Stoma) and degranulation burs (EthOss EK Strauss Degranulation Bur Kit, Ethoss Regeneration Ltd,



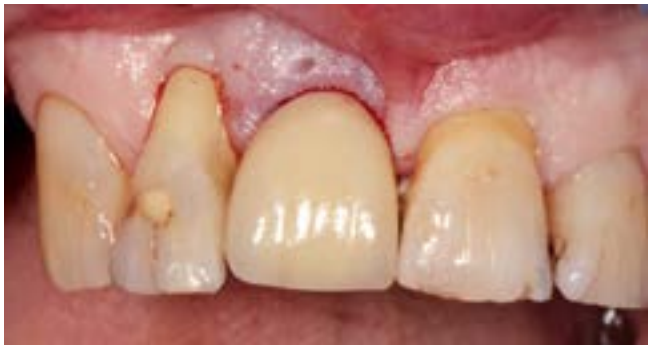


1 I Initial situation – periapical radiograph shows resorption on the mid third of the root of tooth 11. Large 100 per cent wide mesial angular periodontal bone loss and a lateral lesion in the apical third interstitially between teeth 11 and 12. Importantly interstitial bone is present in the coronal third.

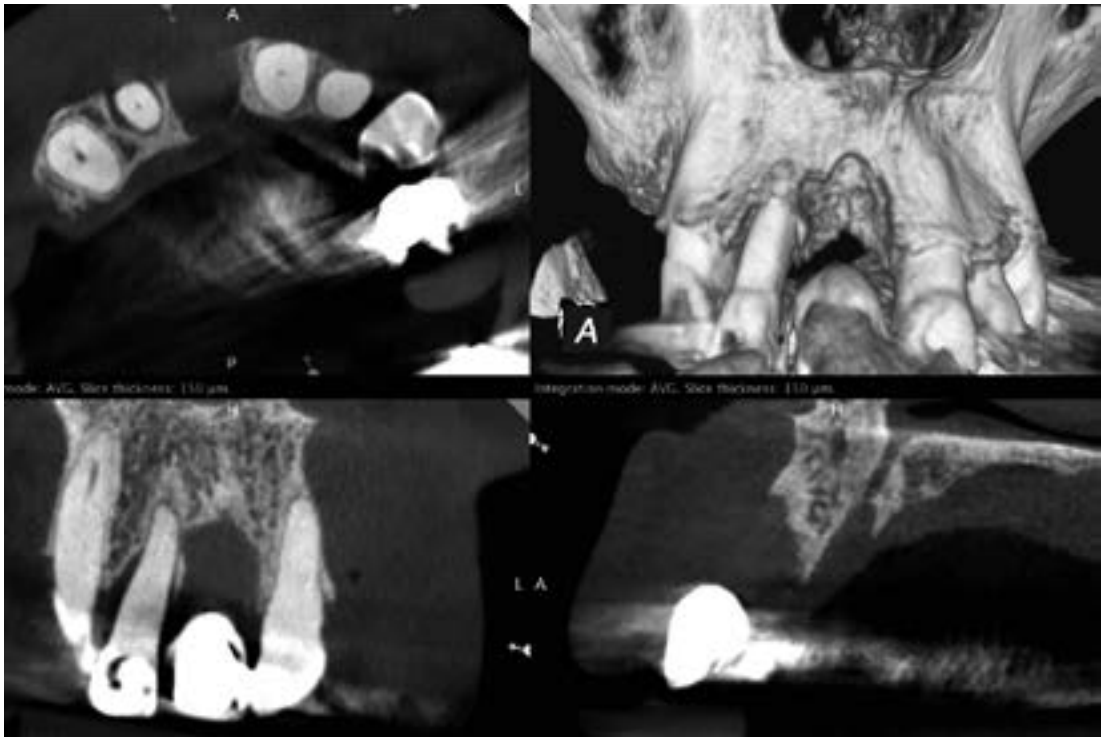
2 I Initial presentation. Systemic antibiotics had been taken for five days. Note the clinical attachment loss and thin tissue buccally on tooth 11.



3 I Atraumatic extraction leaving the socket epithelium intact.



4 I Placement of Maryland bridge, note close adaption and support of the socket periphery.



5 I Two weeks following extraction – CBCT image of the extraction socket; note angular defect on the distal of tooth 12.

Silsden, UK). A Williams probe was used to assess the buccal and palatal plates which were found to be entirely absent. Haemostasis was achieved with a stable clot (Figs. 3 and 4).

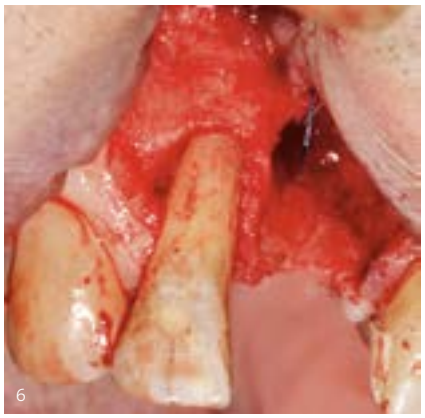
Immediate temporisation with a well-adapted adhesive FPD (Maryland design) was important to maintain clot stability and mechanically support the gingival architecture. The socket was allowed to heal for four weeks via secondary intention.

In this period, at two weeks post-op review, a sectional cone beam CBCT scan was used to accurately analyse the bony defect. The defect was significant on tooth 11 – larger than previously estimated. A distal, narrow angle, infra-bony defect was detected on tooth 12 (Fig. 5).

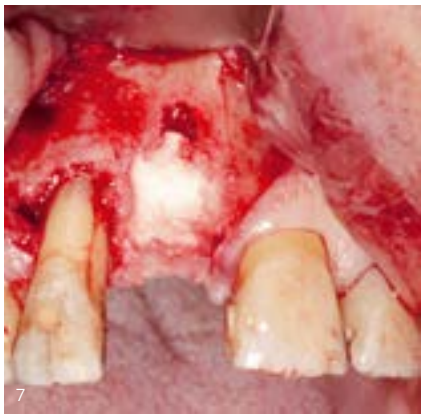
Management of these factors was incorporated into the treatment plan:

- The large defect may leave the particulate material subject to micro-movement hence stabilisation was deemed necessary: placement of PDS(II) (Ethicon; Johnson & Johnson, Somerville, NJ, USA) dome device sutures for graft stabilisation.
- Incorporation of a Modified Minimally Invasive Surgical Technique (MMIST) periodontal regeneration procedure according to *Cortellini* and *Tonetti* [2] and *Parma-Benfenati* et al. [3] to manage the distal infra-bony defect on the lateral.
- Tooth 12 flap design to be coronally repositioned to counteract potential recession.

Preoperative assessment determined that frenal pull was present, and under local anaesthesia a simple incisive frenectomy was performed to reduce muscle pull on the flap during healing for increased graft stability and closed with 5-0 Prolene (Prolene, Ethicon; Johnson & Johnson, Somerville, NJ, USA). A section of attached gingiva was de-epithelialized in preparation for coronally repositioning the flap distal to tooth 12. A full thickness papilla preservation flap that did not include the mesial papilla of tooth 11, a palato-crestal incision and split thickness distal to tooth 12 was raised using microsurgical instrumentation (SM69 blade, Swann Morton, Sheffield, UK). Full periosteal relief to mobilize the flap and careful

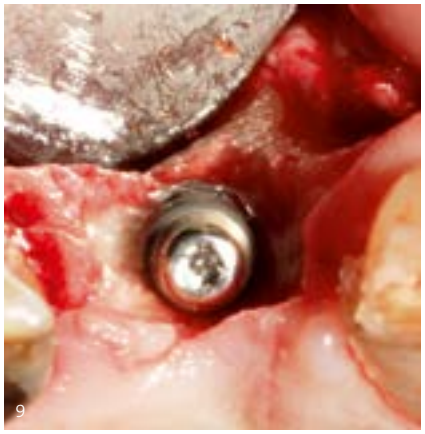


6 I Four weeks following extraction – surgery, flap raised, completion of degranulation. Note the infrabony defect distal of tooth 12 and the partial loss of palatal bone, and de-epithelialisation distal to tooth 12 for coronally advanced flap closure.

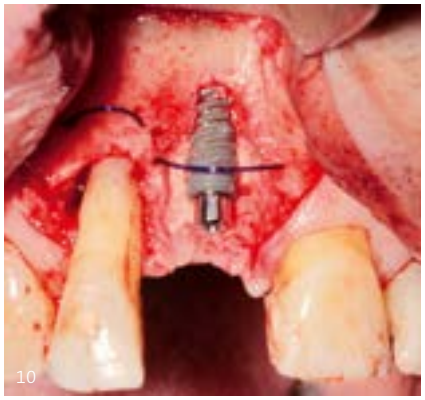


7 I Palatal defect repair with β-TCP (65 %) and calcium sulphate (35 %). Following drying with gauze, the material maintains its shape via crystal geometry and setting of CS.

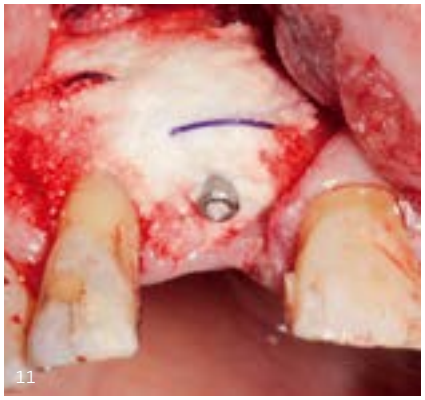
8 I Implant placement with 2 mm cover screw.



9 I Implant placed in ideal position for cement-retained prosthesis.



10 I Placement of 2-0 PDS tenting sutures to create "dome device" to prevent micromovement of the graft material.



11 I Placement of a "wetter" mixture of graft material in stages under the dome device, carefully drying and compressing with each stage.

curettage of the site was subsequently performed with hand instruments and degranulation burs. A large palatal bony defect and complete buccal bone loss was noted at tooth 11. The angular defect distal to tooth 12 had an emergence of less than 22° suggesting a regenerative procedure would have good prognosis (Fig. 6).

An osteotomy was prepared using a 2 mm twist drill creating an undersized osteotomy for a Neodent 3.5 x 11.5 implant (Neodent Batel, Curitiba, Brazil). Prior to insertion of the implant the palatal defect was augmented with a resorbable synthetic bone grafting material (EthOss; EthOss Regeneration Ltd., Silsden, UK), a novel biphasic bone substitute consisting of β-TCP (65 %) and calcium sulphate (CS, 35 %). The material was hydrated, mixed and partially dried, according to manufacturer's instructions, and placed on the palatal aspect of the prepared osteotomy site. Gentle pressure with a sterile gauze for three to five minutes "set" the material (Fig. 7). The implant was subsequently placed in an ideal position at 35 Ncm, with good primary stability and a 2 mm cover screw fixed in order to tent the flap taking pressure away from the implant shoulder during healing (Figs. 8 and 9).

Due to the large volume of particulate grafting material to be used in the area, it was deemed preferable to tent the soft tissue with a "dome device" 2-0 polydioxenone suture (Ethicon; Johnson & Johnson, Somerville, NJ, USA) in both sites. This tenting helps prevent mechanical micromovement of the graft during the healing phase and allows larger than normal volumes of graft material to be used without fear of resorption from instability during turnover. PDS(II) maintains 60 per cent tensile strength at six weeks. In the "dome" application sutures are placed under compression which is favourable. Compressive strength may be maintained

longer. Polydioxanone material is subject to hydrolytic degradation with absorption times of 182 to 238 days and only minor inflammatory reaction. The PDS material can therefore be placed within the body of the graft and safely left in situ without secondary removal surgery. A green Stabilock dentine pin drill (Stabilok; Fairfax Dental, London, UK) was used to punch four mini osteotomies in the buccal plate, to a depth of 2 mm. Two lengths of 2-0 PDS(II) suture were cut to approximately 12 mm and 8 mm and inserted into the prepared osteotomies with stability checked with digit pressure. Care must be taken not to place too long a section of suture in order to maintain the mechanical resistance to pressure (Fig. 10).

A wetter mix of the bone grafting material (EthOss) was prepared utilizing sterile saline. This was carefully placed into and underneath the dome devices in small increments, and to the adjacent infra-bony defect of tooth 12. Pressure was applied at each stage to dry and therefore stabilise the material. The dome device was partially covered with the graft material but not over-filled, contouring to the expected final bone levels. Steady pressure was applied for five minutes with sterile gauze to maintain a dry field and allow the calcium sulphate to set (Fig. 11).

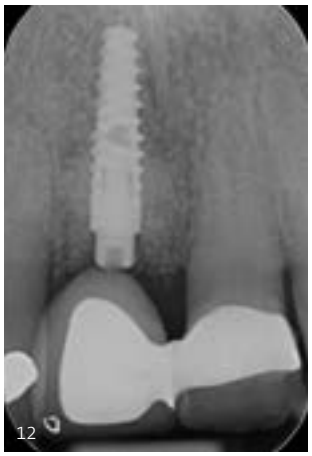
The mucoperiosteal flap was directly repositioned to cover the graft site, without a traditional collagen barrier membrane, in a 2 mm coronal reposition on tooth 12 without tension utilising 6-0 proline monofilament sling and interrupted sutures (Ethicon; Johnson & Johnson, Somerville, NJ, USA). Non-resorbable sutures were utilised in order to reduce inflammatory response at the graft site. 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 an uneventful seven-day healing period.

At twelve weeks, control radiograph showed that good bony architecture had been maintained (Fig. 12). Gingival architecture was observed to be maintained and a thickening of keratinised tissue was noted at the margin of tooth 12 with increased bulk apically. A good band of keratinised soft tissue was also noted at site 11. A small crestal incision with no relief was utilised to expose the implant and a 4.5 x 4.5 mm healing abutment placed (Fig. 13).

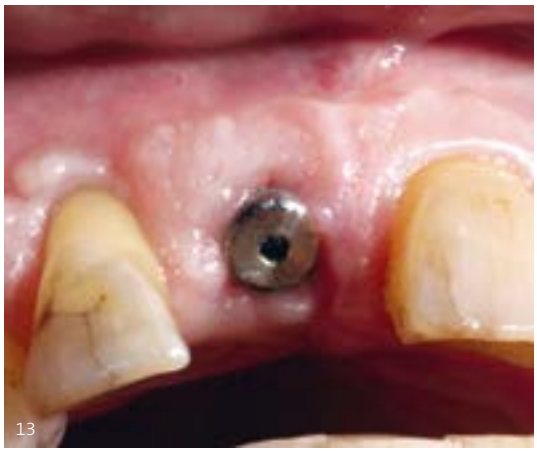
After two weeks of maturation an open tray impression was taken with monophase impression material (Impregum; 3M ESPE St. Paul, Minnesota, USA) and a milled custom abutment fabricated with layered zirconia cement. A retained crown was fitted with temporary cement (TempBond; Kerr UK Ltd, Uxbridge, UK).

Twelve months post-operatively the patient attended for review. A periapical radiograph showed no bone loss around the implant (Fig. 14). Probing depths were measured at ≤2 mm around implant at tooth 11 and the adjacent natural tooth (Fig. 15).

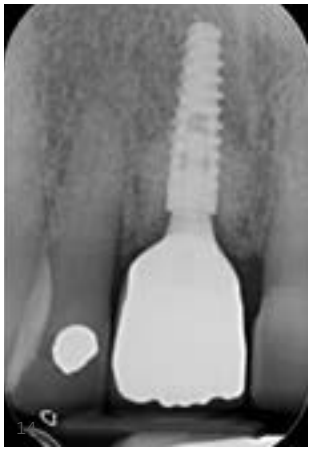
12 I Control radiograph at twelve weeks healing.



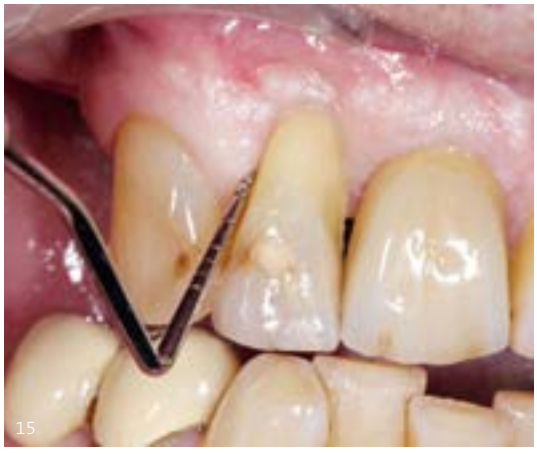
13 I After two weeks healing post second stage. Note the increased attached gingival marginal collar on the lateral incisor and thick keratinised tissue around the healing cap.

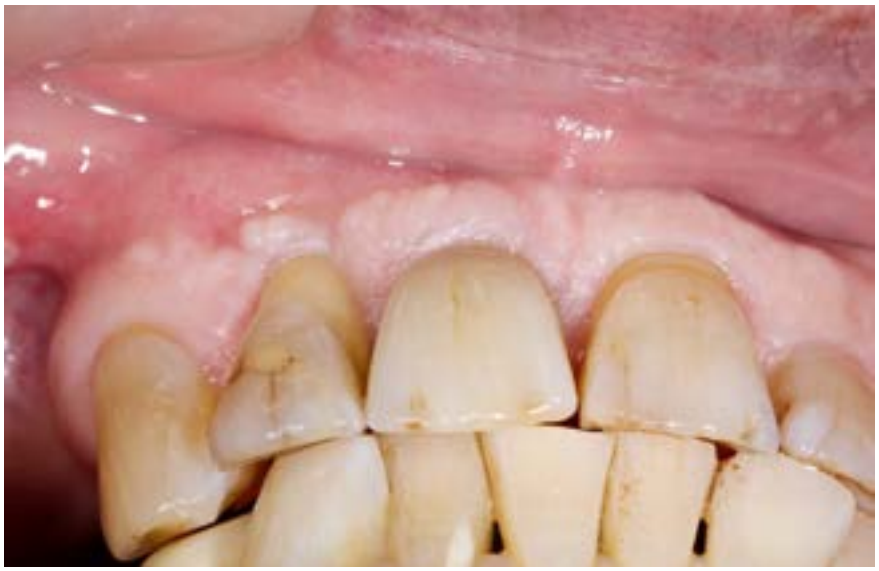


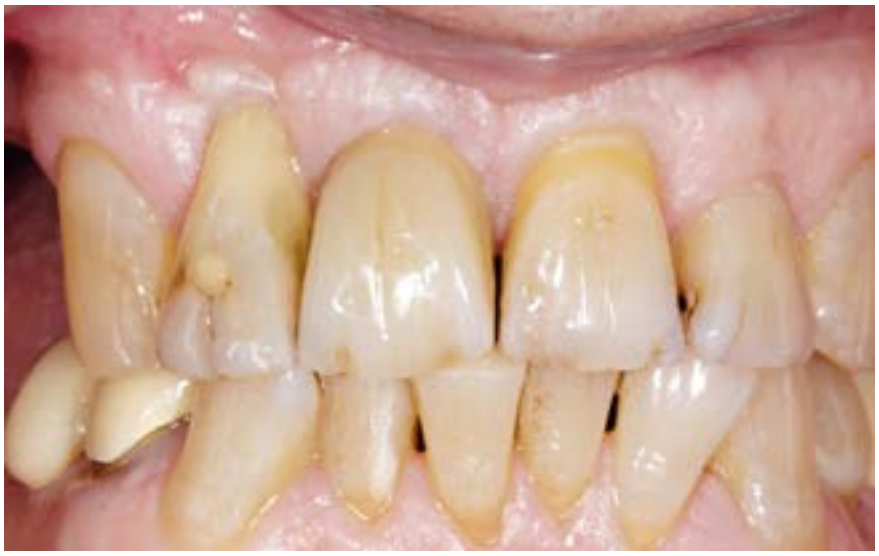
14 I Twelve months control, following crown cementation. Bone maturation continues.



15 I Probing the distal of tooth 12 shows 1 mm pocket depth indicating adequate healing response.







16 and 17 I Final tissue maturation at twelve months, shows stippling, contour and volume consistent with underlying bone health.

At all sites, no mobility or exudate was noted. The gingival architecture showed stippling and a natural contour with good maturation of the interdental papilla (Figs. 16 and 17).

Discussion

Whilst this unique protocol for tenting was first published in 2011, newer self-hardening bioactive materials which become stable in situ, and hence do not need a barrier membrane, have led to a revived interest in the method.

The combination of bioactive β-TCP and CS produces an in situ self-hardening grafting material that may not need additional stabilisation with the use of membranes or other meshes. Moreover, the CS can act as a barrier, halting the ingrowth of soft tissue during the early phases of bone regeneration. Both CS and β-TCP are fully resorbable bone substitutes, leading to the regeneration of high quality vital host bone without the long-term presence of residual graft particles. The CS element will resorb over a three- to six-week period, depending on patient physiology, thus creating a vascular porosity in the β-TCP scaffold for improved vascular ingrowth and angiogenesis, while the β-TCP element will resorb by hydrolysis and enzymatic and phagocytic processes, usually over a period of 9 to 16 months. The presented case follows a published protocol utilizing these materials in a delayed immediate procedure with placement at three to five weeks post extraction with simultaneous grafting for improved preservation of residual host hard tissue along with upregulated host regeneration [1].

The β-TCP element, apart from being osteo-conductive, shows an osteo-inductive potential which improves host regeneration of bone in the healing process. As the material was stable and in contact with the host periosteum yet supported from compression by the tenting, the host healing process improved. For further reading regarding the science behind bioactive calcium phosphates and their clinical applications, the readers may refer to papers published in previous issues of the EDI Journal [4–6] and other international journals [1,7,8].

In conclusion, it would appear that this method of tenting the soft tissue, when placing a dental implant with an associated grafting procedure, shows significant benefits, primarily by providing stability without the need for a secondary surgery to remove the tenting appliance, as well as reducing the prospect of a soft tissue dehiscence after the initial surgery. The bioactive properties of β-TCP and CS grafts might explain the successful outcomes in this case. It is always of great importance that clinicians should be familiarized with the surgical methods that they employ, and have thorough understanding 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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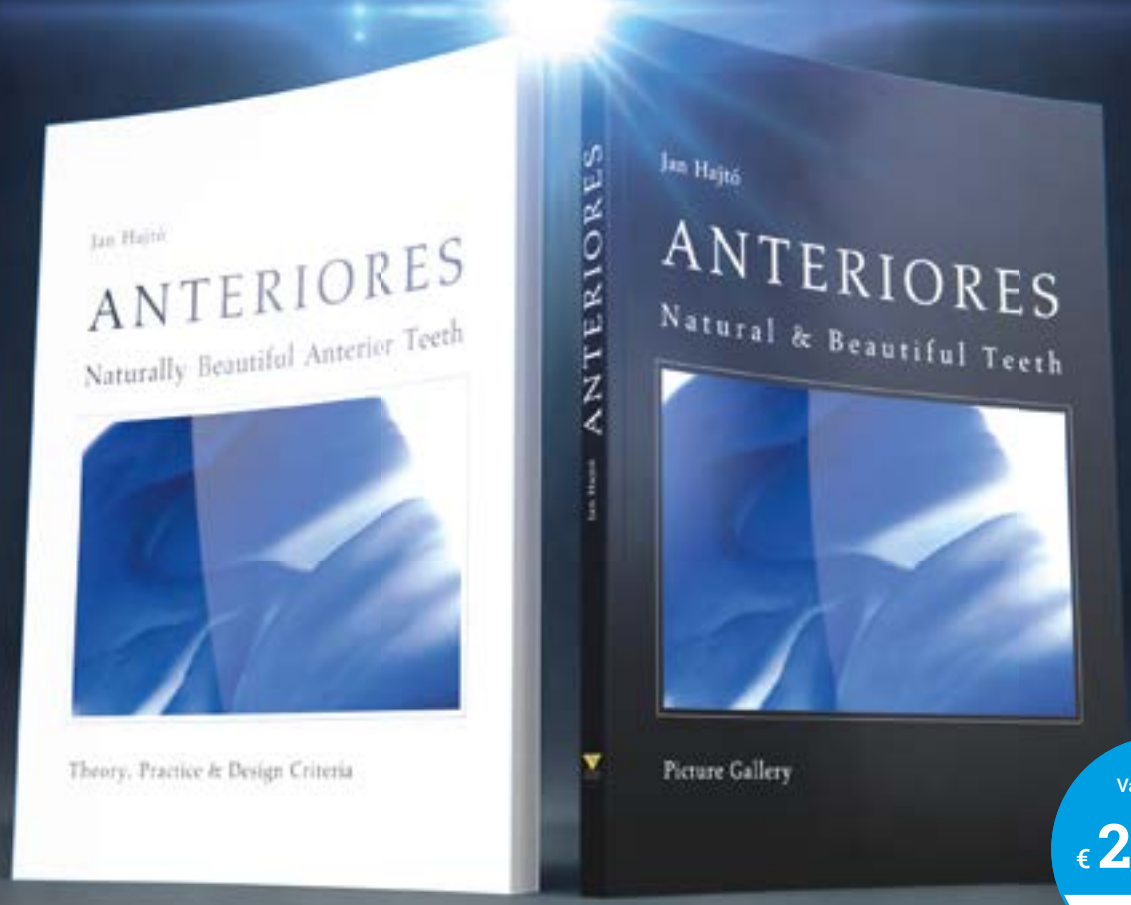

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Interview with Mariano Sanz, Christoph Hämmerle and Maurício Araújo

The countdown is on

The motto "The next **re**generation" combines the Osteology Foundation's key aspects in the upcoming Barcelona event that will take place from 25 to 27 April 2019. This includes the next generation of regenerative therapies as well as the next generation of dentists – not only as attendees of the programme, but also as future experts in the field of oral tissue regeneration. We spoke to Mariano Sanz, the President of the Osteology Foundation, and to Christoph Hämmerle and Maurício Araújo in their roles as the symposium's chairmen.

Mariano Sanz

Maurício Araújo

A new generation of dentists is entering the field – how can the Osteology Foundation support their professional career?

Mariano Sanz: Our ambition of reaching every oral health professional can only be accomplished if we have the appropriate communication tools. Direct electronic contact with the individual professional must be combined with well-planned educational and scientific transfer activities which collaborate with the most prestigious associations and educational and scientific entities from around the world.

To fulfil this mission, the Osteology Foundation needs both human and technical resources. We have an elected Board and an Expert Council that include the most prestigious researchers and clinicians in the field as well as exceptional, dedicated staff, all prepared to face these changing needs. As for technical resources, we have a powerful electronic platform which perfectly serves the needs for direct education and communication between the individual dentist and our organization.

Osteology Barcelona 2019 is just around the corner. What has changed compared to Monaco in 2016?

Mariano Sanz: In Barcelona we would like to engage more young professionals, more interested dentists, and for that we have prepared an exciting scientific programme combining lectures by the top international speakers with the upcoming new generations. We shall maintain the high quality scientific content that has always characterized the Osteology Foundation's International Symposium, with newly designed modalities of interaction within the congress which will allow the most appropriate networking using current technologies. By transferring the international symposium from Monaco to Barcelona, we want to make this congress more accessible, mainly to young professionals and for that we have introduced special registration fees for them and have designed new activities specifically suited for their perceived needs.

To focus on a younger generation, it is essential to create new formats. What kind of new formats can a participant expect?

Maurício Araújo: I strongly believe that in the fast-moving world that we live in today, we have to be dynamic and interactive when delivering information and education. We have to develop new formats and new educational initiatives. One new interactive format is the case competition where every clinician has the possibility to share his cases with a specific audience and to exchange ideas with other colleagues. Nevertheless, we did our best to consider that experience and caution would also be appreciated by the upcoming generation. Thus, when planning the programme, we tried to inspire the youngsters with novelties and advances, but without forgetting the predictability and humanity.

What can you tell us about the competition you just mentioned?

Maurício Araújo: With this interactive format, you get the opportunity to get the best out of your cases. Share your knowledge and expertise, discuss the cases with colleagues from all over the world and maximise the benefit for your patients. The Osteology Case Session and Competition is a novel format where clinical cases can be submitted online on The Box, which is the Foundation's Community Platform, in six different indication categories. The cases will then be reviewed by a jury and the best oral regenerative cases in the six competition categories will be selected for an oral presentation in the Osteology Case Session. The winner in each

category will be invited to present their case on stage at Osteology Barcelona in the Osteology Case session and receive free registration to the congress as well as a special certificate. A great chance to present your case to a targeted audience and to actively become part of "The next **re**generation".

The motto "The next regeneration" also addresses the next generation of regenerative technologies and promises new topics as well new speakers. What did you do to keep this promise?

Maurício Araújo: When we sat down to develop the scientific programme for the symposium, we ensured to always keep the motto of the congress in our mind and to maximize the benefit for the next generation of dentists. This means covering all the hot topics that currently affect dentists' everyday life in their practice, inviting the next generation of speakers and addressing emerging topics in oral regeneration such as the use of digital technologies, PRF, antiresorptive drugs for bone regeneration and use of new materials and techniques for soft tissue surgery.

Christoph Hämmerle: The world of dentistry is developing quickly in many ways. On the one hand, computers in dental medicine as well as biological and technical progress allow to improve treatment planning, patient communication, execution of therapy, fabrication of reconstructions, and maintenance of patients. These developments deeply affect the field of oral tissue regeneration. On the other hand, the dental care providers change. The young generation of dentists is primarily made up of women and the typical one-dentist one-practice is disappearing making room for larger group practices which are often organized in chains.

Which are the most important innovations in oral regeneration to be discussed in Barcelona?

Christoph Hämmerle: As mentioned above, new techniques and new materials to regenerate bone, periodontal and in particular soft tissues will be a focus of the programme. Furthermore, the use of computers to plan, communicate, fabricate and execute will be an important part of the congress. Finally, exciting new strategies and methods to manage the extraction socket will be dealt with.

What are you most looking forward to at Osteology Barcelona 2019 and what is your personal highlight in the scientific programme?

Mariano Sanz: Barcelona is one of the most beautiful cities in the world. Combined with the quality of the scientific programme and professional networking that we have come to expect at the Osteology Foundation's International Symposia, this is the perfect cocktail for success. On a personal note, what will make this congress a very special one for me is that it's taking place in my home country during my last year as President of the Osteology Foundation. I would love to personally welcome all delegates attending this International Symposium and I am sure that they will thoroughly enjoy both the congress, this beautiful city and the well-established Spanish culture, culinary delights and hospitality.

Christoph Hämmerle: The Friday sessions after lunch are my personal favourites. Younger speakers will cover exciting topics in research & development and allow us to see beyond today's horizon. Researchers will present their latest results in basic and clinical research in an extensive poster exhibition and research forum.

Maurício Araújo: Honestly, I don't have a personal highlight — everything looks so interesting! But if I had to choose, I would say that the session on ridge preservation and novelties in oral regeneration shouldn't be missed.

If your colleagues ask you why they should attend Osteology Barcelona, what would you tell them?

Christoph Hämmerle: The International Symposia of the Osteology Foundation have a long history of being greatly successful events. The one in Barcelona in 2019 will be another success. There will be a fascinating programme in a spectacular venue, all of which is being held in a marvellous European city along with the typical pleasant and collegial Osteology congress atmosphere.

Maurício Araújo: You should go because you don't want loose the chance to learn, hear and discuss the most important topics in our field in a very friendly atmosphere. We will cover everything needed to assure that you are doing the best for your patient. Don't miss out on this opportunity.

Thank you very much for this insightful interview.

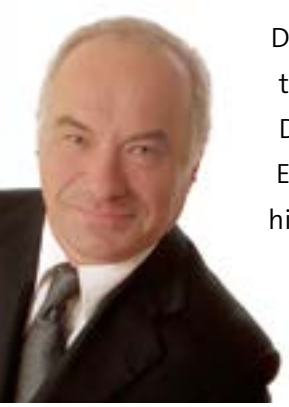
The interview was conducted by Basil Gürber.

Christoph Hämmerle

Foto: Bruno Coelho

Interview with Dr Pascal Valentini, University of Corsica, France

The first 20-year follow-up results of sinus graft material



Dr Pascal Valentini

Dr Pascal Valentini is Programme Director for European Post Graduate Oral Implantology at the University of Corsica, in Corte, France. Besides, he is Adj. Associate Professor of Implant Dentistry at the University of Loma Linda, in California, USA, and past president of the European Association for Osseointegration (EAO). In this interview, Dr Valentini talks about his research and his newest insights on graft materials and sinus lift procedures.

You recently published an interesting patient case. What was it about?

In 2000, the first study on the use of xenograft as the sole graft material in the sinus was published. In this study, there were patients who had biopsies at six months and one year post grafting. Now, we had the opportunity to repeat a biopsy on one of these patients twenty years later because he had developed a peri-implantitis. To treat the peri-implantitis, we had to perform a surgical procedure. With the patient's consent, we took a sample and this allowed us to fully compare the results of this sample to what we had obtained twenty years earlier.*

What did you observe?

We found interesting things: the graft material had increased from about 35 to 40 per cent at about six months to five per cent at 20 years. So there was a resorption of this material. This is not really surprising given that it is natural hydroxyapatite that is close to human hydroxyapatite, and knowing that it takes us humans 25 years to absorb our own hydroxyapatite. But the interesting thing is that the amount of bone formed from these biomaterials, due to the phenomenon called osteoconduction, does not increase over time. And we see that we have the same type of bone as in native bone, it is a type 3 or 4 bone. This can be interpreted as follows, provided that the results can be extrapolated from a case: It would seem impossible to obtain a type 2 or 1 bone in a site where naturally we have type 3 or 4 bone. Local cells will produce the bone they naturally produce.

We also see that if we compare native bone and newly formed bone, there is similar phenomenon for both when it comes to ageing. The degree of mineralization of native bone decreases within 20 years and the same is true for newly formed bone. It means that this new bone ages in the same way as the natural bone! It is completely part of the natural aging process of the bone physiology.

The graft material of bovine origin is then only used as a matrix?

Exactly! It means that bone cells, osteoblasts, simply do not differentiate between human hydroxyapatite, which they normally absorb during the bone remodeling process, and bovine hydroxyapatite. They are considered as identical by the bone cells.

What is your opinion on the proposal of some colleagues to use blood as a graft material?

There are Swedish studies which show that blood can be used as a graft material. The problem is that there is a re-expansion of the sinus after the graft; we will see a very thin layer of bone around the implant. So is it sustainable in the long term? I don't know, we need to obtain a lot more long-term data on this technique. The advantage of using material of animal origin is that we have a volumetric stability of the grafts over time. In addition, we know that with these materials, as we demonstrated in one of our publications in 2007, we have an increased fracture resistance with a bone obtained by osteoconduction with these materials.

What is the state of the art of sinus lift techniques?

Sinus lifting has become a routine technique in implant therapy with different approaches available. Today, the lateral approach is the most docu-

mented in the literature and perfectly codified – with some variables as to the type of material to be used for grafting.

What are your recommendations for someone who wants to start performing sinus lifting procedures?

The first thing to do when embarking on this type of surgery is to know how to manage complications, whether they are preoperative or post-operative. So, first of all, to know the physiology and the anatomy of the sinus, and especially to work in close collaboration with an otolaryngologist who can support you to better select your cases and to prepare the patient for a sinus lift.

Are implants placed in a grafted sinus more likely to develop a peri-implantitis?

Today, we may not have more peri-implantitis in the grafted sinus than in the native bone, but it should be noted that a peri-implantitis in a graft can lead to acute or even chronic sinusitis. But it is not the sinus graft that is a risk factor for peri-implantitis, it is quite the opposite. That is to say, the peri-implantitis could threaten the grafting procedure we have performed. If we go a little further, this means that patients with chronic periodontitis are not the best candidates for implants, let alone a sinus lift. So it is, again, the selection of the case that is really very important.

The International Implantology Symposium will soon take place in Corte. What can we expect?

We have conceived a completely different format and decided to give the individual lecturer more speaking time so that he or she has one half of a congress day to develop and address his or her specific topic. That's why, in two days, we will only welcome four speakers, who are luminaries in the implantology world. *Irena Sailer* from Geneva, Switzerland, will talk about implant prostheses and the different materials that can be used today; *Mauro Merli* from Rimini, Italy, will talk about reconstructions with biomaterials; *Joseph Kan* from Loma Linda University, USA, will address aesthetic issues, and *Homa Zadeh* from the University of Southern California will discuss in which cases and situations it is advantegeous to preserve a tooth instead of placing an implant.

Thank you very much for this insightful interview, Dr Valentini. *MT*

* Valentini P, Bosshardt D: 20 years follow-up in maxillary sinus augmentation using anorganic bovine bone (Bio-Oss). A case report with histomorphometric evaluation. Int J Oral Maxillofac Impl 2018;33:1345–1350. doi: 10.11607/jomi.6884.

A passport to successful aesthetic results

The BioHorizons Global Education Tour promises to shape the world of implant dentistry by bringing vibrant, cutting-edge educational programmes to five global locations in 2019. The main event, the BioHorizons International Symposium, will be held on the Caribbean coast in Cartagena, Colombia. It will focus on "Global insights on implant therapy: a passport to successful aesthetic results".

As one of the leading companies in the dental implant community, BioHorizons is committed to driving aesthetic implantology forward through science, innovation, and education. As part of this mission, the BioHorizons Global Education Tour 2019 will offer cutting-edge insights on implant therapy through presentation led by leading clinical experts in five countries around the globe: Italy, Japan, Spain, Chile, and Colombia.

The first International Symposium in Cartagena, Colombia, will be held from 31 May to 1 June 2019. Nine international speakers will cover a wide spectrum of topics, from immediate implant placement, to soft tissue management, to the myths and realities of 30 years of sinus grafting. In a pre-congress workshop on 29 and 30 May, *Dr Marius Steigmann* will focus on new approaches to aesthetic implant dentistry, teaching new incisions flap designs and new suturing techniques in hands-on exercises.

Besides the most interesting scientific agenda and the exciting accompanying programme, the symposium will offer several networking opportunities to allow clinicians to share their experiences with their peers from around the world.

More information
get.biohorizons.com

Interview with Dr Pascal Kunz on the digital implant workflow with X-Guide

Implant placement without a surgical stent

Nobel Biocare has developed a new way of performing guided implant placement without a surgical guide. Using X-Guide, the implant planning workflow created by Nobel Biocare can be implemented dynamically. In an interview with Natascha Brand, Dr Pascal Kunz, Vice President Digital Solutions at Nobel Biocare, explains the advantages of dynamic navigation with X-Guide for dental practitioners in everyday practice.

teamwork media Editor-in-Chief Natascha Brand and Dr Pascal Kunz, Vice President Digital Solutions at Nobel Biocare.

Dr Kunz, as Vice President for Digital Solutions you have been responsible for the new X-Guide. Exactly what is X-Guide?

X-Guide is a 3D surgical navigation system that supports an optimized workflow for dynamically guided surgery. This standalone unit integrates all the functions required to perform guided surgery – from the planning to the implementation stage. It allows the practitioner to perform 3D (CBCT) scans and intraoral surface scans on the day of treatment. It is even more efficient for Nobel Biocare users using DTX Studio Implant: They can plan the case directly in their familiar software environment with SmartFusion and SmartSetup and export the data directly to X-Guide, complete with all planning components. This means that a 3D-supported dental implant placement can be carried out immediately following the planning.

Every new medical technology must be measured by how well it can be integrated into the treatment process. How does the X-Guide workflow work?

With X-Guide, navigated surgery means standard surgery with standard components and without tactile restrictions, while still allowing very precise implant placement. The navigation unit "tracks" the positions of the patient and the contra-angle handpiece complete with drills and implants and simultaneously links them to the defined treatment plan in real time. All relevant information is then brought together on an easy-to-read screen that gives the operator complete control of each specific procedure. In the Nobel Biocare workflow, X-Guide closes a gap in the integrated implantological workflow. Even emergency patients can be treated immediately after the CBCT without waiting for a surgical stent to be fabricated. Surgeons will still implement everything themselves using their fine motor skills, but they can verify the results and make improvements at any time during the implementation stage, avoiding positioning errors. This is particularly important when attempting to implement the correct point of entry, but also throughout the entire drilling sequence with the various instruments, for preparing the entire implant bed and for the placement of the implant itself.

How precise is the system compared to the use of a surgical stent on one hand and the freehand method on the other?

We are in the possession of some data comparing freehand surgery with template-guided surgery. The precision of template-guided implant placement is 0.2 mm, while freehand surgery is at less accurate by at least a factor of two. X-Guide achieves approximately the same level of precision as guided surgery – which makes it much more precise than freehand surgery. But here, too, "more precise" depends on how the operator works. If he deviates from the plan, the device gives feedback on how far

away he is from the target, and he can correct himself immediately. The device never loses track of the reference points, because these are safely enshrined in either tooth-supported or bone-supported reference positions of the calibrated "patient tracker".

For which indications do you recommend the X-Guide workflow?

The use of X-Guide pays off especially when implanting in the anterior region of partially edentulous patients, and in the mandible in locations close to the nerve, and even further distally, in the posterior region, where surgical stents often conflict with the patient's mouth-opening capacity. When X-Guide users have mastered ten partially edentulous cases, the option for fully edentulous protocols can be enabled. In these cases, the tracker is screwed directly onto the bone, and calibration is performed based on predefined anatomical reference points after fixation. The protocols for edentulous indications are of particular interest in All-on-4 procedures with angulated implants, which even experienced implantologists often shy away from. Surgeons who have mastered the X-Guide workflow can concentrate fully on their clinical activities, for example in order to ensure that the bone does not overheat and that the various steps of the procedures are followed meticulously. This is where the technology comes in particularly handy.

Is the device also recommended for less experienced implantologists?

We advise all beginners in implant dentistry to first collect practical experience and know-how at a university or in a dental practice specialized in implantology, with an experienced mentor. This would be the classic win-win situation: The young practitioner brings new impulses and an affinity to new technologies to the practice of the mentor, and in return benefits from the mentor's professional experience and expertise. This can open up new possibilities for improving the quality of implant treatments and speed up the professional development of young dentists. Which is ultimately to the patients' gain.

Dr Kunz, thank you very much for this interesting interview. *NB*

What is a dental implant?

Informed patients are better patients: Bego Implant Systems supports the dental office when it comes to patient information. The dental company has produced a video which serves as a useful information tool in the waiting room.

The new short film from Bego Implant Systems was produced especially for patients. In easily understandable language, it provides an introduction to the topic of dental implants. Step by step, different treatment options are described: from conventional solutions to implant-borne prosthesis. Bloodless animations are used to show how a dental implant works, how it is set and prosthetically fitted, as well as the benefits it brings to the patient. Every step is described in a detailed and practical way and gives the patient some initial information about dental implants. The video can be found on YouTube (https://youtu.be/psss3-t2mSQ) with the QR code to the left or downloaded from the Bego Implant Systems media library (http://bit.ly/Patientenvideo) with the QR code to the right.

The new video from Bego Implant Systems answers many patient questions about dental implants.

More information
www.bego.com

Interview with Dr George Raeber, Head of Global Product Management SDIS at Straumann

Confidence beyond immediacy

At the IDS 2019, the spotlight at Straumann's booth "Arena of Confidence" will be on Straumann BLX, a recently introduced fully-tapered BLX immediate implant treatment that fills the gap in the company's premium portfolio and is positioned to win significant share in this segment. EDI Journal talked to Dr George Raeber, Head of Global Product Management SDIS, to find out more.

Dr George Raeber

Straumann's new implant BLX is said to be a game changer – what's so special about it?

In essence, it is the unique combination of three elements: the advanced implant geometry, prosthetic simplicity, and the consequent application of our best-in-class technologies Roxolid and SLActive. The implant geometry allows for dynamic bone management, meaning that the implant is designed to cut bone where necessary and to redistribute and condense it in areas with less bone density. This leads to excellent primary stability in all types of bone and to very high bone-to-implant contact directly after placement. The hybrid connection offers the benefit of just one connection and hence, one abutment and auxiliary line for all major implant diameters, which significantly reduces the system's complexity and inventory for our customers, and allows them to achieve aesthetic results with ease. Finally, Roxolid and SLActive offer clinicians the confidence to provide the best possible treatment even in the most demanding clinical situations.

Why is Straumann convinced that its first specific implant for immediate procedures is at the top of the game from the very beginning?

For our product development, we at Straumann always involve experts and run customer panels to understand market trends and needs. In this particular case, we also wanted to look at radical new ideas, so we chose to work with one of the most renowned specialists when it comes to designing implants for immediate protocols, *Dr Ophir Fromovich*. His innovativeness, clinical knowledge and experience, combined with our best-in-class technologies, precision engineering and highest development standards make us believe that we have created an extraordinary system.

In addition, we took the time to involve a large number of clinicians with various backgrounds in a second stage. In total, more than 100 clinicians have been working with BLX and specifically documented the performance of the new implant in their everyday practice setting. Their feedback is very positive.

What other benefits, besides the very good performance in all bone types, does the new implant offer?

First of all, there is Roxolid's significant clinical benefit. The stronger material made it possible to design a 3.75 mm BLX implant suitable for all tooth positions. A smaller implant preserves more of the natural tissues and reduces the invasiveness of the procedure. It also gives the clinician more flexibility in implant placement. Secondly, there is the shortened, low-temperature drill protocol with the new VeloDrills specifically designed for the BLX system. The new surface and the very specific cutting geometry of the VeloDrills significantly reduce the heat that is generated during drilling. In guided surgery, you can pass directly from pilot drill to final drill without overheating the bone, maintaining ideal conditions for reliable osseointegration.

How can BLX support dentists in today's competitive environment?

Today, dentists are facing increasing and often conflicting patient demands. Patients want perfect aesthetics and long lasting tooth replacements in fewer visits. To stay competitive, digitally enhanced workflows that translate into shorter chair time, are key. Combined with a highly reliable implant system, they allow practitioners to treat even difficult cases with confidence. This is exactly what we can offer with BLX. The system has been developed to make efficent workflows with immediate protocols predictable and manageable. Furthermore, BLX is embedded in Straumann's growing digital ecosystem. With this, BLX can support our customers to create new business opportunities and to strengthen their position in today's competitive environment.

Thank you very much for the interesting interview, Dr Raeber. *MT*

Interview with Dr Paul S. Rosen, New York City, NY, USA

Optimized patient care

Dr Paul S. Rosen maintains a full-time private practice specialized in periodontics, surgical implant placements and regenerative therapy. He also has appointments as Clinical Professor of Periodontics at the University of Maryland Dental School and Adj. Professor in the Department of Dental Implantology at James Cook Dental School in Cairns, Australia. In a lecture that he gave at the EAO event in Vienna, Austria, he reviewed dental implant patterns of wound healing and explained why a more personalized approach to treating patients is needed to achieve optimal clinical results. After his lecture, EDI Journal Project Manager My To talked to Dr Rosen about his lessons learned in his daily practice.

Has the use of the Osstell system changed the way you practice implant dentistry?

Yes, absolutely. There have been instances where I might not have placed an implant because I thought the insertion torque was very poor, but with the very good ISQ values I had, I changed my mind. Measuring the ISQ value has guided me to leave implants in place or to load implants earlier than I thought might be possible because values had increased. I have also seen scenarios where the values have diminished, which convinced me to wait longer than I might have thought should be necessary. It also challenged me to insert implants in scenarios where I might not have done so in the past. Another example: If you place an implant where there is very little stability, and you just graft around it and allow to heal, when do you proceed forward? There are no guidelines. So measuring the ISQ value gives me some sort of benchmark to make decisions, it is one of my parameters for loading an implant.

Do you use the Osstell tools systematically or only in complex clinical cases?

I use it in 100 per cent of the cases. I don't know what a complex case is versus a simple case. Patients don't follow the rules of the road. They heal the way they want to heal, not the way I think they should heal.

Are you sometimes put under pressure by patients to load an implant as soon as possible?

Absolutely. There is an old saying from the movie "Wall Street" where *Michael Douglas* says, "Time is money". If a patient has to keep coming in for added visits, that is time out of their life. And what you learn in life is that time is your most precious commodity. So anything that spares your time and allows you to do other things is very important to everybody – even to me as a clinician.

With the objective ISQ data that patients see, do you think they get a better perception of your work and decision-making?

Yes, I think they appreciate better why I make the decisions I do. They become an active participant rather than a passive participant which is a great advantage. Patients better understand why we are doing what we are doing and how we are doing it.

In your presentation, you said that sometimes the ISQ value even helps you to choose the size of the implant. Can you give us a short explanation as to that statement?

I will give you an example: I may put in a 4 x 11 mm implant and I have pretty good bone width around the area but I get low ISQs, like 56, 57, and I think, "This is not the stability I'd like to see in terms of mechanical stability. But I have enough bone, so why not put a 4,5 mm implant." So I take it out again and put a different one. That's why I said I can choose the implant design based on the ISQ level. It's not a common approach, but it does happen. And there are other instances where I don't have enough width to do that and then I may decide to submerge the implant rather than have a transgingival healing. The Osstell system is an absolutely important decision making tool in my practice.

Thanks a lot, Dr Rosen, for your time and the interesting interview. *MT*

Dr Paul S. Rosen answered the questions of EDI Journal Project Manager My To after the EAO Osstell Symposium in Vienna.

Interview with Dr Friedemann Petschelt, Lauf an der Pegnitz, Germany

Freedom and flexibility

When presenting a new implant type, the question often arises whether tweaking it here or there is really making a difference from a clinical point of view, or if the manufacturer has not just given in to the pressure from the market to present "something new" from time to time. With the new tioLogic Twinfit implant system, it has to be said that Dentaurum Implants has scored a coup. Dr Friedemann Petschelt was one of the first to use the implant in his surgery and summarizes his experiences.

Dr Friedemann Petschelt

Art for art's sake? Or what's behind tioLogic Twinfit?

Actually, it's really strange that nobody had the idea earlier – but now it's here. Dentaurum Implants has provided the market with a true innovation: For the first time ever, the dentist no longer has to decide before surgical implantation which type of connection the implant should have, conical or platform. The decision on which connection is the best from a functional and an aesthetic point of view can be made at the prosthetic stage using one and the same implant. The tioLogic Twinfit implant has a universal geometry that can take either a rotationally secure conical or a platform abutment. It's like the egg of Columbus – it's so obviously right that it's amazing nobody thought of it before.

Isn't it clear anyway from a surgical point of view which connection is the right one?

Not necessarily; and furthermore, people are increasingly working in teams today and this trend will increase as structures within the dental practice continue to change. As a dental surgeon, I no longer have to tell the prosthetist or the technician which connection he should use. He is free to choose the best connector geometry that is functional and aesthetic, be it for the anterior or the posterior region. This is also very advantageous for the referring practice because it leaves all prosthetic options open.

Have we finally got the all-in-one solution for implants?

Yes, I would say so. The tioLogic implant system has been on the market for years and has proven successful. It achieves excellent primary stability thanks to the macro-micro thread and is tissue-friendly with respect to aesthetics. These facts are well-known and clinically proven. Now, with tioLogic Twinfit, we have extra leeway for the prosthetics, so actually there are no wishes left unfulfilled. Just think of the cases we see more and more in our practices: The single tooth with a conical connection now has to act as a bridge abutment because adjacent teeth have been lost. A platform connection would be much more appropriate in this case – with tioLogic Twinfit you have one implant that can be used with both connector geometries. Another good idea included in tioLogic Twinfit is the depth stop system – an actually very simple idea that is a huge help during surgery. Of course there are depth markings on the drills, but we all know situation when it's difficult to see the marking: You're working in a tight space, the patient may have difficulties to open his mouth wide, the lighting is bad. Here, we have different sterile depth stops that are simply slotted onto the drills – a color code is assigned to the respective implant diameter. This helps enormously to prepare the bone as gently as possible.

Pour some cold water on this, will you? There must be something to complain about.

No, I can't help you there. We have been using the system for more than two years in our practice and, together with other clinicians, have now fitted more than 400 implants with a success rate of almost 100 per cent. There is a large assortment of prosthetics for tioLogic Twinfit and it has also been optimized for CAD/CAM for those opting for a digital workflow. Surgeons, prosthetists and technicians can now make the most of this opportunity, bearing in mind the freedom of choice it gives them for future prosthetic restorations.

Thank you very much for the interview, Dr Petschelt.

By courtesy of frag-pip.de

Nobel Biocare Global Symposium in Madrid, Spain

A new chapter for implant dentistry

A new and revolutionary chapter for implant dentistry will open this summer in Madrid. At the upcoming Global Symposium, the first of three international events hosted by Nobel Biocare, outstanding developments in the field of implant design and site preparation will be unveiled. Supporting these groundbreaking innovations will be new advancements in implant surface technology as well as long-term implant care.

Leading international clinicians, all experts in their field, will be on site in Madrid to share their experiences with the new solutions. They will also demonstrate how these can help clinicians to further shorten time-to-teeth and to improve long-term clinical results. Participants will be able to further explore the innovations and more through a number of dedicated hand-on sessions and product demonstrations.

Held at the Marriott Auditorium Hotel & Conference Center from 27 to 29 June, the Nobel Biocare Global Symposium in Madrid is kicking off the new global event series which was announced last year to extend the originally planned Nobel Biocare Global Symposium 2019 in Las Vegas. Following the meeting in the Spanish capital are two additional Global Symposia in Las Vegas in 2020 as well as in Tokyo in 2021. Through this unique event concept, more dental professionals than ever will be able to experience this new wave of innovations by Nobel Biocare first hand.

Commenting on the upcoming events and launches, *Hans Geiselhöringer*, President of Nobel Biocare said: "We are excited to welcome dental professionals from all over the world to Madrid in June where we will present the next evolutionary steps in dental implant care with host of new and forward-thinking innovations. With two more events to come, it will be a once-in-a-generation opportunity to experience true game changers in implant dentistry."

More information about the Nobel Biocare Global Symposium events series can be found online at www.nobelbiocare.com/global-symposia. Dental professionals who already registered for the original Nobel Biocare Global Symposium in Las Vegas will be given the opportunity to transfer their registration to any of the three upcoming events.

Nobel Biocare is also looking forward to welcoming visitors at its IDS presence in Hall 10.1, Stand H020 J029.

More information and registration
www.nobelbiocare.com/global-symposia

Hands-on courses are an essential part of all Nobel Biocare Global Symposia. This picture shows a participant of the successful Global Symposium 2016 in New York.

15th anniversary of the SKY implant system

A path to success

The success story of the SKY implant system can be traced back to the early 2000s. Today, 15 years later, the bredent group, with over one million implants sold, is not only a world leader in immediate restoration but also a trendsetter in prosthetic restoration with physiological materials such as BioHPP, and in regeneration with the Helbo antibacterial photodynamic therapy (aPDT).

The sophisticated treatment concept for edentulous or total-extraction cases, SKY fast & fixed, set the milestone in 2007 with regard to the effective treatment of patients of the 50-plus generation. The group of patients who are on the verge of edentulousness but still too young for removable dentures is growing steadily. The success was not unexpected, as this concept combines the core competencies of the bredent group – oral implantology and almost 45 years of experience in dental technology, the original mainstay of this successful medium-sized family business.

Today, oral implantologists and dental technicians trust a proven, coordinated system that can be successfully integrated into their daily practice right from the start. Well over 50,000 satisfied patients have been treated with SKY fast & fixed over the past twelve years, confirming the success and safety of this procedure. What interested implantologists can expect from the bredent group is continuing training based on clinical insights and scientific findings and also proven concepts that will sustainably improve their bottom line while increasing patient satisfaction.

Since the original development of the SKY implant system by the Star Group International founded by *Dr Manfred Lang* in 2002 and the subsequent cooperation with bredent medical starting in 2004, the SKY implant system has been consistently expanded and improved, especially in the field of implant-supported prosthodontics. For example, the engineers of the bredent group have redefined prosthetic treatment steps with the One-Time Therapy and are offering the hybrid SKY elegance abutment that no longer needs to be changed between the surgical and prosthetic phases, permitting uniquely successful gingiva management. The most recent member of the family is copaSKY, the ultra-short implant for flat alveolar ridges.

After 15 years, the SKY Implant System continues to stand for simplicity, clarity and cost-effectiveness – for increased process reliability in the dental practice and improved economic outcomes. ■

More information
www.bredent.com

Tension is rising: bredent will be presenting some interesting news at the IDS 2019. A visit at the bredent booth in Hall 11.1, Stand B010 C019 will be definitely worth it.

OR Foundation Research Award 2018/2019

Young, talented scientists and application-oriented clinicians interested in scientific advances are invited to participate in the biennial competition by submitting their studies related to one of the topics defined by the Oral Reconstruction Foundation. The authors of the best three entries are awarded attractive prizes and the winner may present his/her research paper at the next Oral Reconstruction Global Symposium taking place in New York City, USA, from 30 April to 2 May 2020.

Participation is reserved for young, dedicated scientists of any nationality. The Research Award will be allocated on the basis of the proposal made by a scientific evaluation committee. Eligible scientific papers include those that have been published or accepted for publication in an English peer-reviewed journal that addresses one of the following topics in implant dentistry, oral reconstruction, or related areas:

- Diagnostics and planning
- Hard- and soft-tissue management
- Sustainability of implant-supported prosthetics
- Physiological and pathophysiological aspects
- Advances in digital procedures

If you are interested in participating in the 2018/2019 Research Award, please visit the Oral Reconstruction Foundation's website to download the mandatory registration form and to review the eligibility requirements. The registration deadline is 30 November 2019.

More information and registration
www.orfoundation.org/awards

Ceramic – an alternative to titanium

The European Academy of Ceramic Implantology (EACim) is an independent non-profit organization looking forward to sensitizing health professionals on the use of biocompatible materials such as ceramics in dental implantology.

The EACim was created by a group of practicing clinicians, teachers or speakers with a strong expertise in ceramic implants as an alternative to titanium implants. The objectives of the Academy are to spread and promote the practice of ceramic implantology in Europe in complete independence, to create spaces for sharing experiences and know-how with a European focus, and to offer professional training for surgeons to the use of ceramic implants, and general practitioners to the fabrication of ceramic implant-supported prostheses.

Members of the EACim will profit from meetings and trainings, scientific programmes, hands-on courses, seminars, and congresses in association with other events in Europe – all aimed at sharing knowledge and experiences. The Academy will also provide a database of scientific articles on data and long-term feedback, basic sciences in biomaterials, immunology and biocompatibility, clinical cases of implants and metal-free prostheses or restorations, as well as peri-implantitis issues.

The 1st EACim Congress will take place on 28 June 2019 at the Hotel Intercontinental Avenue Marceau in Paris, France, with the congress theme: "Ceramic implants, an alternative to titanium". The event will be chaired by *Dr Pascal Valentini*, Co-Director of the Corsica University for the Implantology Diploma, Ass. Professor at Loma Linda University, USA, and Past-President of the European Association of Osseointegration (EAO). *Dr Jochen Mellinghoff,* Doctor of Philosophy in Public Health, MSc Oral Surgery, lecturer and author, will be responsible for the moderation. A detailed programme can be found on the EACim website.

More information and registration
www.eacim-ceramic-implantology.com

Zest Dental Solutions names new CEO

Zest Dental Solutions , a leading provider of dental solutions across a continuum of patient care, recently announced that Tom Stratton has been named President and Chief Executive Officer of Zest, effective immediately. Stratton replaces Steve Schiess, who announced his retirement after eight years as Zest's Chief Executive Officer and a 20+ year career in the dental industry.

Tom Stratton

Tom Stratton, who joined Zest in October 2018, has 26 years of experience in the global dental industry and a successful track record of expanding global sales and improving profitability. *Stratton* most recently served as President of Implant Direct, a company within the Danaher Corporation where he oversaw profit and loss and led the company to finishing as Danaher's top growth business in three of his five years as President. Before that, *Stratton* served as President of Deka Laser Technologies. He has also held executive positions with Zimmer Dental (formerly Sulzer Medical) and Dentsply International.

"I want to thank *Steve* for his leadership and contributions to the company", said *Stratton*. "Zest has an impressive team with a proven track record of producing world class full-arch dental solutions leading to consistent growth. I am excited to embark on the company's next phase of growth, along with the rest of the Zest team. Looking ahead, we will work to further enhance growth opportunities, introduce new products and services that serve our partners and customers, as well as explore new avenues for accelerated growth across new market segments and geographies."

More information
www.zestdent.com

Z-Systems announces strategic partnership with the Straumann Group

The broadest range of ceramic implants

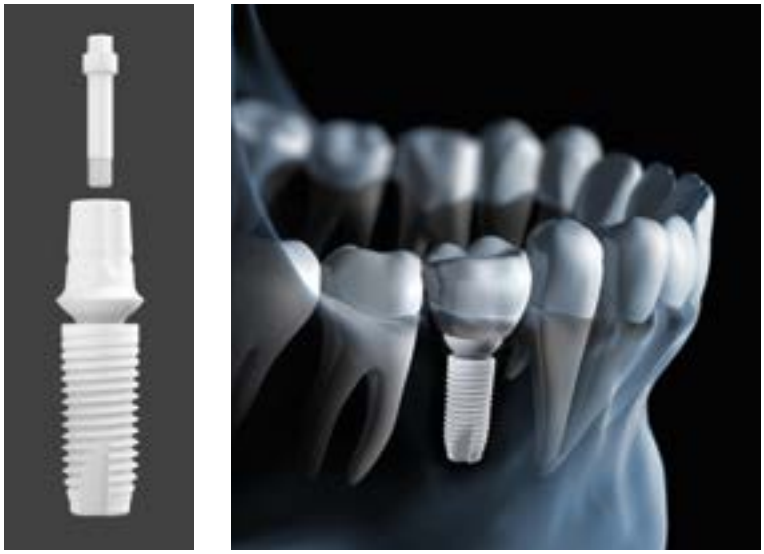
Z-Systems, a Swiss-based international leader in ceramic dental implants technology, has entered into a strategic partnership with a global leader in implant dentistry: the Straumann Group.

Z-Systems has joined forces with the Straumann group, a Swiss-based global leader in tooth replacement and orthodontic solutions. The two companies have signed an agreement that provides Straumann with a 34 per cent stake in Z-Systems in return for a capital injection to expand Z-Systems' production capability and to develop its pipeline.

Z-Systems has granted Straumann exclusive distribution rights in most major markets for Z-Systems' next generation implant line. The new implant has a bone-level two-piece design for prosthetic flexibility and convenient handling. Unlike other implants, it features a ceramic connection screw, making it the first two-piece screw-retained dental implant to be completely metal- and plastic-free. Straumann plans to launch the new line in 2019.

Ernst Thomke, member of Z-Systems' Board of Directors, commented: "We are very proud to partner with the worldwide leader in restorative dentistry."

Marco Gadola, Chief Executive Officer of the Straumann Group, commented: "We are convinced that ceramic implants offer substantial growth opportunities and will continue to gain popularity, driven by increasing clinical experience and the improved flexibility provided by two-piece solutions. Together with Z-Systems, we offer the widest range of ceramic implant options supported by digital workflows and biomaterial solutions. The combination of our expertise, research capabilities, sales power and global reach position us a leading force in the global ceramic implant market."



Z-Systems' new two-piece ceramic implant features a ceramic connection screw, making it the first two-piece dental implant to be completely metal- and plastic-free.

About ceramic implants

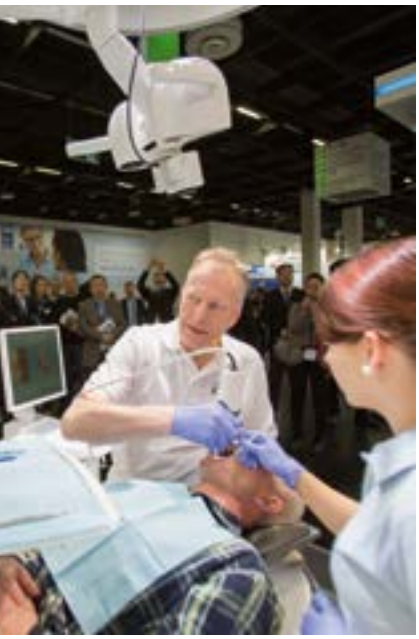
Ceramics have a significant aesthetic advantage over metals and provide an excellent biocompatible solution for patients who ask for highly aesthetic alternatives to metal. Furthermore, yttria-stabilized zirconia ceramics possess good mechanical strength [1], excellent tissue compatibility and show osseointegration comparable to that of titanium [2]. A further advantage is the reduced formation of plaque [3]. In the past, mechanical predictability presented a hurdle to their widespread use, but Straumann and Z-Systems overcame this by developing materials, designs and advanced manufacturing processes. In recent years, other companies have launched ceramic implants but only few offer the same level of experience, choice, flexibility, and clinical documentation as the two partners.

Although ceramic implants currently represent a niche market, their popularity is growing continuously.

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

More information

www.zsystems.com



Dentsply Sirona at the IDS 2019

Everything for the success of dental practice

Further improving treatment workflows, making optimal use of digital technologies and ensuring practice success both today and in the future: It is the exchange on these topics that drives forward innovation at Dentsply Sirona. The company will be presenting its very latest developments at the IDS 2019. Live demonstrations, hands-on tutorials and extensive opportunities to engage in technical discussions will all be offered at the trade fair booths.

Dentsply Sirona at the IDS in halls 10.2 and 11.2. Nearly 20 live treatments on patients will be shown on two stages every day during the entire trade fair.

Visitors to the IDS 2019 can look forward to an imaginative and exciting programme from Dentsply Sirona. Those who want to get an in-depth look at the specialist issues can take part in hands-on tutorials. Three courses on integrated endodontics, integrated implant dentistry and intraoral X-ray positioning will be offered. To support this, a seminar room equipped with modern technology will be available at the booth. Participants may receive two training points for each tutorial they attend. Registration is open on the website www.dentsplysirona.com/ids-tutorials.

The Cerec live demonstrations give trade fair visitors the chance to experience the proven CAD/CAM system firsthand and also discover the latest workflow developments. Nearly 20 live treatments on patients will be shown on two stages every day. Moreover, dentists will be demonstrating innovative workflows from endodontics, orthodontics, implantology and imaging systems.

New technologies for first-class treatments

Dentsply Sirona introduces two new solutions around their well-documented and clinically proven implant systems that will make the workflow of dental professionals easier and enable the best clinical results.

Azento is an innovative solution that offers tangible financial and time-saving benefits while enabling practices to achieve consistently excellent results. The clinician receives a precise, customized digital treatment plan based on each patient's digital scans, and all components and instruments necessary to complete an implant treatment are included. The implant planning, purchasing and delivery are streamlined and the benefits for patients include reduced number of visits and chair time.

Acuris is based on a conometric concept that uses friction instead of a screw or cement to secure the crown and the cap to the abutment in the final prosthetic part of the implant treatment. This new solution saves time, improves predictability and ensures high-quality end results in the clinic, while improving the workflow in the lab. With Acuris, placing the final crown takes seconds rather than minutes – you only need to click once to place the crown with the unique Fixation Tool.

In addition, Dentsply Sirona is introducing its new intraoral scanner – Primescan – which can be described as easier than ever, faster than before, and more accurate than previously possible. With its completely new, patent pending digital impressioning technology, Primescan enables high-precision digital impressions to be taken of the entire jaw. Primescan captures the dental surfaces immediately, in the required resolution, it requires very little time to do so, and offers a high sharpness, even at great depths, thereby ensuring a much more detailed 3D model.

Interested visitors of the IDS are cordially invited to experience Dentsply Sirona's new products and technologies and to try them out themselves with expert support. As always, there will be a special trade fair discount on purchases made at the Dentsply Sirona IDS booth.

More information
www.dentsplysirona.com

MIS to present latest enhancements at the IDS 2019

Continuous evolution

After the successful launch of the new Connect abutment system last February in the Bahamas, MIS will reveal an enhanced, broader solution at the IDS 2019 in Cologne. The new solution offers implantologists the ability to maximize the tissue-level restoration concept.

Due to its versatility, the new Connect may be used in multiple or single unit restorations, for both digital and traditional procedures. It may also be used for provisional or final prosthetic restorations. The Connect is a one-time abutment, which enables a prosthetic procedure at any level of the connective tissue.

As part of the planned activities taking place in the MIS booth at the IDS, *Dr David Norre* from Belgium will be giving a few short talks about the new Connect abutment and its key advantages.

Focus on the enhanced Seven, V3 and digitally guided implant surgical systems

MIS will also be showcasing their best-selling Seven implant system, with its new line of prosthetic components offering optimal stability and predictability. Right alongside the Seven will be the innovative V3, with its distinctive triangular design which promises a high level of aesthetics in challenging cases.

In addition, the MIS team will be presenting the MGuide system, digital dentistry solutions and complete workflow available, and promises some surprises as well. The comprehensive system is, without a doubt, one of the key players in the MIS range created for optimizing accuracy and making things simple for the doctors who take advantage of it.

Interactive booth with special announcement

This year at the IDS, the MIS booth will have a new look and feel, with a strong technological presence, including interactive tables where guests can learn all about the solutions available, through an engaging hi-tech experience.

The MIS team will announce the next Global Conference, planned for May 2020. Guests of the MIS booth at IDS will enjoy a happy hour, where they'll get a sneak peek into what's planned for the big scientific conference, with all the unique activities, locations and events awaiting them next year. Visitors of the IDS can find the MIS booth in Hall 4.1, Stand B030.

More information

www.mis-implants.com

mectron's strong prophylaxis line at IDS 2019

"We love prophylaxis"

From 12 to 16 March 2019, mectron will be represented at the International Dental Show (IDS) in Cologne and prove to be a true partner in dental prophylaxis. Under the motto "We love Prophylaxis", the mectron team will be presenting new and familiar prophylaxis highlights in Hall 10.2, Booth O040/P041 – innovative, maintenance-free and reliable.

"It is important for us to keep the interests of our customers in mind and to continue developing and marketing new products and services accordingly", says *Renato Bocchini*, Sales Manager of mectron S.p.A. "IDS offers the ideal environment for presenting innovative products, discussing new trends and exchanging ideas with experts from the dental field. We will be on site with our team and product experts to present our new prophylactic devices to our customers and other interested professionals."

combi touch – all in one

These devices include the innovative combi touch and Starjet air-polishing units – both of them true all-rounders. The combi touch combines ultrasound and air-polishing in one unit. It supports the full range of prophylaxis treatment, from the removal of supragingival and subgingival calculus to the gentle removal of stain and biofilm – and even implant cleaning. During the treatment it is very easy to switch between supragingival and subgingival air-polishing modes. Another benefit is the delicate continuous air flow that prevents clogging in the tubing. mectron's innovative soft mode avoids excessive ultrasound oscillation, allowing a gentle and efficient insert movement. Results: nearly painless treatment for patients and maximum comfort for clinicians. An ergonomically designed touch panel provides fast and intuitive control of all functions.

The right powder for every patient

mectron offers its customers a selection of high-quality prophylaxis powders tailored to variable patient needs – in line with modern prophylaxis approaches. Prophylaxis powder intense effectively removes supragingival biofilm and stubborn extrinsic stains on enamel. Prophylaxis powder smooth gently removes supragingival biofilm using spherical particles while protecting the surrounding tissue. And prophylaxis powder soft gently and effectively removes supragingival biofilm and stains from the tooth surface. Finally, mectron glycine powder is ideally suited for the safe and efficient removal of supra- and subgingival biofilms during periodontal maintenance therapy.

starjet – flexible procedures at last

The starjet is a 2-in-1 unit that can be used with both sodium bicarbonate and glycine powder. Simply twist the ring to set the unit to Prophy or Perio to choose between supragingival and subgingival treatment modes. starjet offers all the essential benefits: a constant, powerful powder jet, easy handling and absolute reliability. The device is highly versatile: The air-polisher can be used for different purposes simply by changing the type of powder used – based on bicarbonate or glycine.

mectron will present its products at IDS 2019 in Hall 10.2, Booth O040/P041.

Planmeca dental units prove successful

A great dental unit is unnoticeable in a good way

Chief Dentist Johanna Rouhiainen from the Hammas Mehiläinen Forum dental clinic in Helsinki, Finland, thinks that Planmeca's dental units were among the best in the market already 25 years ago when she first started working with them. Once you get used to a good thing, you'll never want to go back.

Mehiläinen is one of the leading providers of private medical care in Finland, and dentist *Johanna Rouhiainen* has worked for the chain's various medical centres since 1994. Three years ago, she was promoted chief dentist at the company's dental clinic located in the Forum shopping centre in downtown Helsinki.

"I have always enjoyed working in medical centres. It's a really inspiring workplace, as you get to know so many people from different fields, such as doctors of different specialties and the staff in occupational health care. All the services starting from lab services are located under one roof, and equipment maintenance and other back office functions work impeccably. You can always trust that things get done", *Rouhiainen* says.

All the dental units at the Hammas Mehiläinen dental clinic are Planmeca's – both Planmeca Compact i and Planmeca Sovereign Classic dental units are in use. The same goes to imaging devices, which are of course used side by side with the Planmeca Romexis software. All the necessary consumables are ordered using Plandent's PlanOrder material management service. "PlanOrder has hugely facilitated the ordering hassle our nurses previously had to go through. Thanks to the system, we have been able to say goodbye to writing down orders in a notebook and all the unclarities related to that."

When it comes to dental units, *Rouhiainen* says that using a Planmeca dental unit is like driving a car. "Once you learn how to use one, you know how to use all of them. I really like working with them."

The patients have enjoyed them, too: "They really like the upholstery and often comment on what a wonderful chair it is. Personally, I also like the motorised headrest a lot." *Rouhiainen* also praises the dental unit's foot control, which she uses daily. "The nurse often doesn't even get to turn off water or air from the touch panel, because I have already done that with my foot. It's also easy to adjust the speed of the micromotor from the foot control when moving from one procedure to the next."

The dental unit's Full HD display is also a valuable asset for the dental team. "It's really mandatory, I simply couldn't work without it. During treatment, you are able to see the patient's X-ray images on the display and you don't need to check them from another one. We also use it to show the images to our patients."

Rouhiainen continues that Planmeca's dental units are well adapted to all dental procedures. According to her, you can really tell that the designers have understood the kind of work a dental team does.

The most important thing, however, is their reliability and ease of use. "When you work with a great dental unit, you don't even need to pay attention to it as it lets you concentrate on your work. Unnoticeable in a good way – that's what Planmeca's dental units are."

Planmeca will be present at the IDS in Cologne. You will find their booth in Hall 11.1, Stand G010 H011. The Planmeca team is looking forward to demonstrating its wide range of products to all interested visitors.

Internal sinus lift – patient-friendly with piezosurgery

An atraumatic approach

DR MARIO KIRSTE, FRANKFURT/ODER, GERMANY

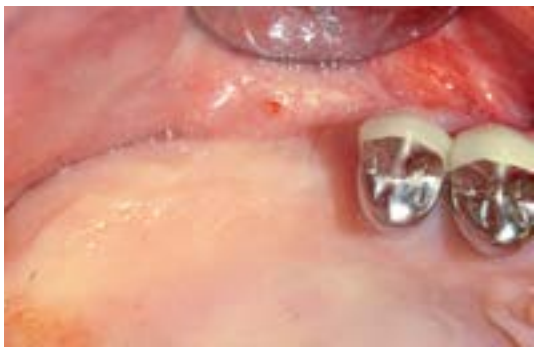
Compared with lateral access, transalveolar sinus-floor augmentation results in fewer postoperative complaints. In addition, the piezosurgical procedure also makes the unpleasant use of an osteotome unnecessary. The present patient case demonstrates a newly introduced instrument set by W&H for piezosurgical preparation of the implant bed and for lifting the Schneiderian membrane.

Short implants can be used successfully to avoid sinus-floor augmentation [1]. However, the available bone volume is often still insufficient. In addition, implants up to 8 mm in length have a less favourable five-year prognosis than longer implants [2].

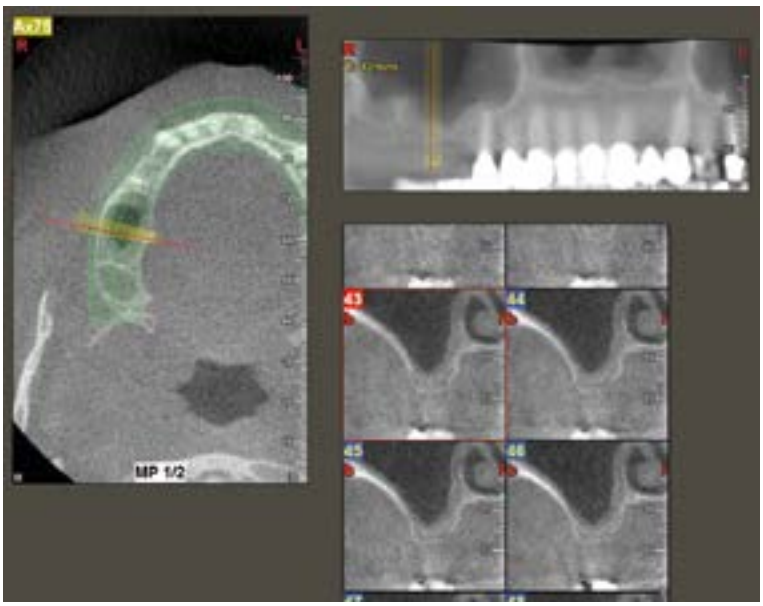
The transalveolar (internal) technique results in implant prognoses comparable to those obtained via the lateral window technique [3]. In an internal sinus lift, the anatomy of the maxillary sinus determines the attainable augmentation volume. Long and narrow maxillary sinuses should be considered more favourable to this technique than those with flat floors [4]. Postoperative complaints tend to be fewer with the transalveolar than with the lateral window technique [5].

Piezosurgical systems offer additional advantages over rotary and manual instruments, such as particularly atraumatic access to the maxillary sinus if a suitable surgical technique is used [6]. A residual bone height of approximately 4 mm is required for an adequate cavitation effect.

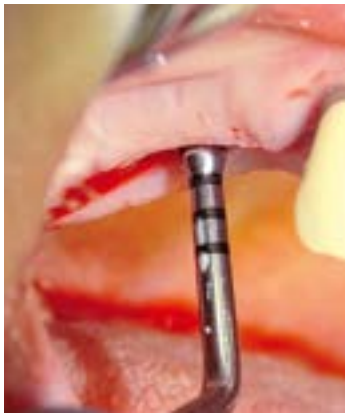
Patients perceive the transalveolar technique approach with manual instruments as more invasive than the lateral window technique [7]. However, this is probably mostly due to the hammering action associated with osteotomes. A suitable piezosurgical technique is particularly patient-friendly. The Schneiderian membrane can also be lifted atraumatically and hydrodynamically with the help of the cavitation effect [8].



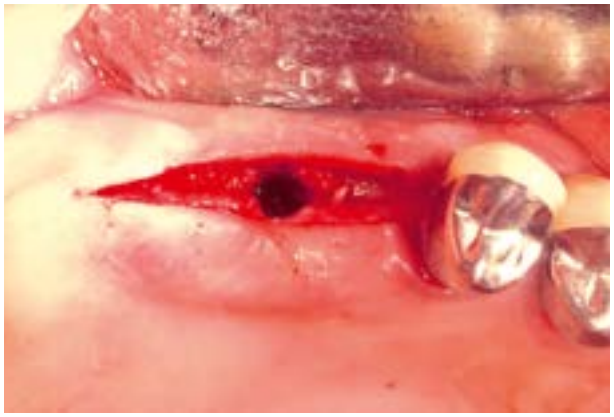
1 I Preoperative situation. The alveolar ridge has healed well, with a sufficient amount of keratinized gingiva.



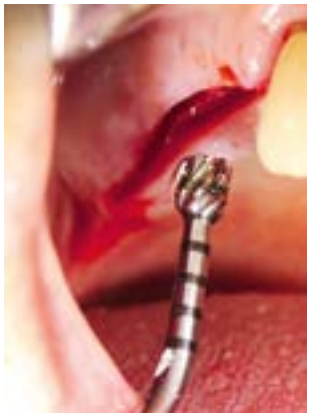
2 I The CBCT shows adequate dimensions in each of the axial (left), lateral (top) and transverse views (right). The maxillary sinus membrane is still slightly thickened.



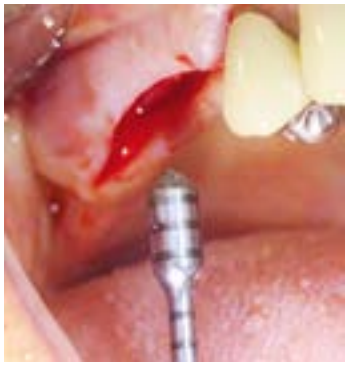
3 I After marking of the implant position and initial expansion of the bed, the Schneiderian membrane is carefully detached with the Z25P instrument (phase 1).



4 I Intermediate check. The bone height above the maxillary sinus floor is approximately 4 mm palatally and buccally; the Schneiderian membrane has been stretched 1.5–2.0 mm above the bony access.

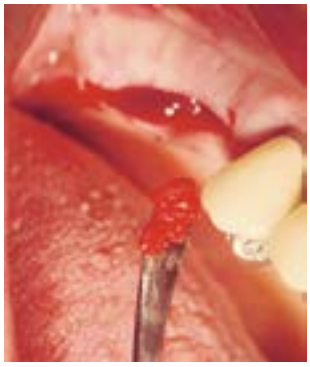


5 I In the next step, the implant bed is widened to 3.0 mm with the I3A instrument (power 100, coolant 80 %). The depth marks reliably prevent the preparation from going too deep.



6 I The Z35P instrument is then inserted intermittently and activated (power 100, coolant 50 %). The fibrous membrane is raised to its final position.

7 I Schematic representation of the final membrane lift. The coolant supply around the instrument is shown, as is the space created under the membrane.



8 I Using a periosteal elevator, augmention material is carefully introduced into the region of the internal maxillary sinus ostium in an apical direction.

Case history

A 49-year-old female patient, a non-smoker with a non-contributory general medical history, was referred to us for surgical extraction of tooth 16 and subsequent implant placement. After the extraction, the patient experienced mild sinusitis problems, with the result that we initially waited six months before placing the implant. The residual bone height at the planned implant position was 3–4 mm (Figs. 1 and 2).

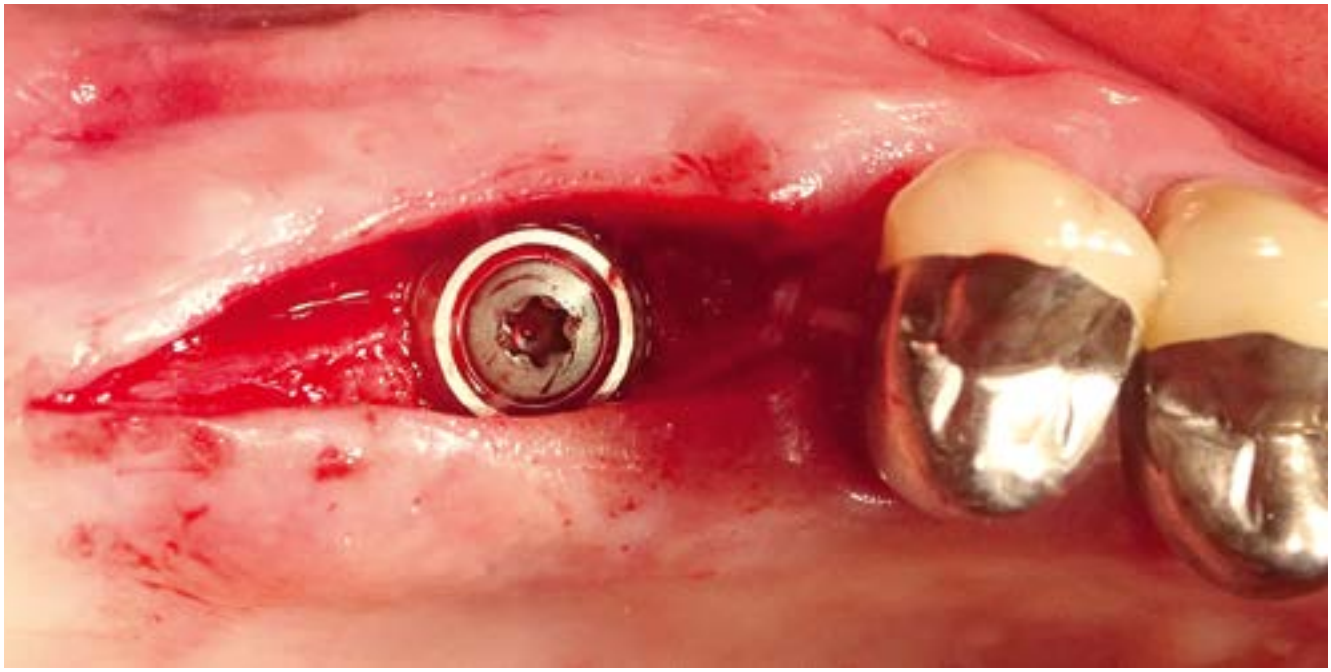
Instruments will do the work

Following atraumatic preparation of the mucoperiosteal flap, the implant position was marked with the I1 instrument and the site prepared until initial resistance was felt. Piezosurgical instruments were used in an up-and-down movement without exerting pressure – the piezoelectric vibration produced the desired and efficient cavitation.

The I2A instrument (2.0 mm diameter) was then used to perforate the sinus floor intermittently and on the smallest scale possible. This special piezosurgical method ensures that the Schneiderian membrane is not damaged. When the Z25P was subsequently used, the membrane was already lifted slightly by the coolant supplied via the instrument tip (Fig. 3). The coolant setting was just 50 per cent in order to avoid high pressure within the implant bed.

Implant bed preparation and augmentation

Following an intermediate check (Fig. 4), a further preparation step was performed (Fig. 5). Afterwards, the hydraulic Z35P instrument was used to lift the membrane to the desired position (Figs. 6 and 7). This was followed by further piezosurgical preparation of the implant bed, which was concluded with a rotary bur and a shoulder-milling cutter up to the implant diameter of 4.8 mm. The augmentation material (particle size 0.8–1.6 mm) was introduced underneath the Schneiderian membrane (Fig. 8) before the implant was inserted.



9 I Situation after inserting the implant (length: 10 mm, prosthetic platform: 6.5 mm) immediately before suturing.

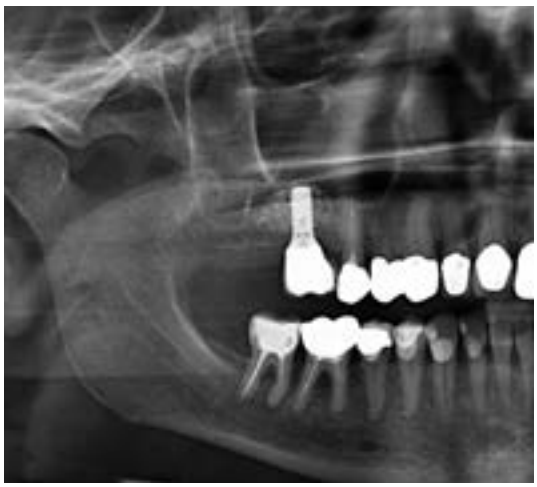
Implant placement and prosthetic restoration

To relocate the augmentation material atraumatically in the direction of the maxillary sinus, the implant was inserted very slowly by hand (Fig. 9). In the process, the membrane was pushed in the cranial direction once more. After two months, the surgical site had healed without irritation. Six months later, the control radiograph showed a significant increase in opacity, indicating ossification (Fig. 10). The implant was restored with a metal-ceramic crown.

Discussion

Internal sinus-floor augmentation is traditionally performed with manual instruments employing a hammering motion, combined with rotary implant-bed preparation. In our experience, modern piezosurgical systems render this procedure considerably less traumatic; the cavitation effect makes for a practically pressure-free procedure. The instruments prepare the implant bed and at the same time provide minimally invasive access to maxillary sinus floor and hydrodynamic elevation of the Schneiderian membrane [8].

In our surgery, the membrane is routinely lifted in two phases. Alternatively, the method specified by the manufacturer is also suitable. In this case, the implant bed is first prepared and only then is the bony sinus floor opened on a small scale with the Z35P instrument. As a result of this atraumatic procedure, the patient experienced no postoperative pain and was able to return to work the following day. In our experience, this is true of 90 per cent of patients.



10 I A good six months later, after the definitive crown had been delivered, the control radiograph shows a largely homogeneous peri-implant hard-tissue structure.

The method decides

This technique is a potential time-saver when preparing the implant bed and hydrodynamically augmenting the sinus floor. As the new instruments in conjunction with the Piezomed work very effectively, a correct technique is crucial to avoid the removal of too much bone. As the piezoelectric device automatically recognizes the instrument used at any given point, quality control is made easy.

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

More information
www.wh.com

Primescan – the new intraoral scanner from Dentsply Sirona

Perfect digital impressions

Easier, faster, more accurate – all describe Primescan, the new intraoral scanner to be introduced to the public by Dentsply Sirona. With its completely new digital imaging technology, for which a patent has been registered, Primescan enables high-precision digital impressions to be taken of the entire jaw.

As digital intraoral impressions are in no way inferior to conventional methods in terms of quality, they are becoming a real alternative for taking impressions of both individual teeth and the entire jaw for more and more dentists [1]. Originally, with Cerec, Dentsply Sirona introduced digital impression to dentistry. Now, with Primescan, the company is introducing an intraoral scanner, which enables scans that are more precise than anything known before. This has been substantiated by a new study at the University of Zurich [2].

Scans up to 20 millimeters in depth

The optical imaging system of Primescan has been decisively further developed. The scan of the tooth surfaces is done with high-resolution sensors and shortwave light, capturing up to one million 3-D pixels per second. With optical high-frequency contrast analysis, they can now be calculated more accurately than ever before. Dentsply Sirona has submitted a patent application for this process. With Primescan, it also is possible to scan deeper areas (up to 20 mm). This enables digital impressions even for subgingival or particularly deep preparations. Virtually all of the tooth surfaces are captured, even when scanning from very acute angles. Primescan captures the dental surfaces immediately, in the required resolution, and offers a high degree of clarity even at great depths, thereby ensuring a much more detailed precision of the 3-D model.

In order to monitor the scanning process simply and easily and to be able to assess the model immediately, the accompanying Primescan AC acquisition center has a modern touchscreen that can be inclined to ensure it is always set to the most favourable ergonomic position.

Primescan also scores in terms of hygienic safety. Thanks to the smooth surfaces of Primescan and the acquisition center, the hygienically critical areas can be prepared safely, quickly and easily.

Comprehensive range of applications

The precise imaging technology enables Primescan to be implemented universally. Not only does it produce high-precision images of natural teeth and preparations, but also of other materials commonly used in dentistry. For example, implant specialists appreciate the simple impressions of toothless jaws or jaws with implants, and orthodontists rate the extremely detailed scan results for soft tissues (gums, frenulum). With this new scanning technology, impressions can be done very fast.

Maximum flexibility for further processing of the scanned images

With Primescan, users can fully utilize the potential of digital processes for better treatment. The modular concept offers a suitable solution for every need within the practice. The digital 3-D model can be transmitted to a laboratory via the new Connect software (formerly Sirona Connect), and can also be further processed with different software, for example for orthodontic or implant treatment planning. The newly developed Connect Case Center Inbox enables laboratories worldwide to connect to the Connect Case Center. In the process, validated scan data from both Primescan and Omnicam can be received easily for further processing in the desired programs and workflows. Alternatively, the restoration can be planned and fabricated in the practice – with immediate effect – using the new Cerec software 5, with its fresh, new design, intuitive touch functionality and noticeably improved screen resolution.

The new Primescan intraoral scanner will be presented at IDS 2019 in Hall 10.2, Stand O010.

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

More information
www.dentsplysirona.com/Primescan

Thanks to the smooth surfaces of Primescan and the acquisition center, the hygienically critical areas, which are often difficult to clean, can be prepared safely, quickly and easily.

Camlog presents a new implant line at the International Dental Show

Reliable high initial stability with the new Progressive-Line

Camlog is a leading provider of comprehensive solutions for implant dentistry with R&D in Switzerland and manufacturing in Germany. The implant systems of Camlog are characterized by specific implant/abutment connections, an ideal number of system components and easy handling.

For modern implant concepts such as immediate restoration or loading, a reliable high initial stability is mandatory. The current concepts in market for immediacy are mainly niche implants, suitable for specific situations or bone types only.

The geometry of the new Progressive-Line implants however was developed to be an implant suitable for all indications with predictable results and increased primary stability – in this way, this apically tapered implant facilitates the implementation of these treatment concepts.

Outstanding design features

Available as Conelog implant – a real bone level implant with conical connection and integrated platform switch – or as a Camlog implant for prosthetic ease using the renowned tube-in-tube connection, both options allow to reach high initial stability especially in soft bone.

A highly efficient drill protocol offers maximum flexibility to safely place the implant according to the needs of the treatment plan – without requiring additional tools or tap. Well thought-out features make the practitioner feel at ease with all clinical standard treatments but specially assists him in critical situations, for example in the case of limited bone height.

Progressive-Line features threads up to the apex that makes it ideal for immediate implantation while also including a coronal anchorage thread for improved stability in reduced bone height. Additional features encompass a broadened thread height, and a parallel-walled section for flexibility of the vertical position.

"I am impressed about the initial stability you can reach reproducibly in soft bone with Progressive-Line and there are some other features that provide additional support. The coronal anchorage thread is of great help when doing sinus lifts, and the threads up to the apical tip are very convenient when it comes to immediate placement", says *Dr Annika Meyer,* Senior Brand Manager, Camlog, who has been involved in the development of the Progressive-Line implant.

Join us at IDS to experience the hands-on training at the BioHorizons Camlog booth in Hall 11.3, Stand A010/B019.

More information
www.camlog.com

TBR Dental Group presents the Z1 implant

Game-changing technology à la française

TBR is an international company with headquarters based in Toulouse, France, the European capital for astronautics. The company has specialized in the design, manufacture and marketing of unique dental solutions for over 30 years: implants, aesthetics and equipments.

TBR aims to become an irreplaceable partner for dental professionals around the world. Providing the dentists with the Z1 implants innovative technology, TBR concentrates its effort on being the right partner of dentists who want to boost their practice with cutting-edge products that offer unique benefits for their patients.

Z1 – the innovative tissue level implant with zirconia collar

The philosophy of the Z1 is clear: It is specifically designed to suit the anatomy of every patient. It is the only tissue level implant which adapts selected materials – zirconia and titanium – to the surrounding tissues. Several generations of Z1 implants have succeeded each other with the same goal: to bring patients the highest level of comfort regarding technology, surgical protocols, clinical outcomes, and economics.

United around this game-changing technology, the Z1 users can rapidly learn how to benefit from its advantages, ensuring peace of mind and total confidence in the quality of their implant services.

Unlike other dental implants which often require several surgeries, the Z1 implant combines two noble and biocompatible materials, ceramic and titanium, for better healing and for long-term success of the treatment. The Z1 implant is placed in the dental practice in one single procedure, thus protecting the patient's gingiva.

Today, the Z1 implant offers an aesthetic, protective and long-lasting solution thanks to the ceramic collar at the gingival level, which mimics the colour of the patient's teeth. A benefit that patients understand and love!

The TBR team is looking forward to welcoming visitors at the IDS 2019 in Cologne in Hall 4.1, Stand A058.

More information
www.tbr.dental

Z1 implant – comfort times four

Technological comfort:
- average succes rate of 98,6 per cent
- pure titanium and Y-TZP zirconia
- adapted to all prosthetic solutions

Clinical comfort:
- anti-bacterial shield
- ideal for post-extraction
- immediate aesthetic result

Economic comfort:
- less chairtime
- practice development
- patient satisfaction

Surgical comfort:
- one stage surgery
- no healing screw
- visibility of the connection

Osstell launches new innovative product solution

The most capable ISQ product to date

Osstell, the company that developed the original ISQ technology, will announce at the IDS in Cologne the Osstell IDx Pro, a new benchmark for products designed to guide implant treatments for optimal and predictable restoration results.

Osstell recently introduced the Osstell Beacon – an innovative and highly intuitive and easy-to-use tool designed to guide implant treatments for more predictable results, as a complement to the more comprehensive Osstell IDx. The new Osstell IDx Pro combines the best of both: a wireless, smart and very intuitive ISQ probe and a comprehensive user interface for implant stability visualization, combined with patient data storage and full connectivity. The Osstell IDx Pro gives access to Osstell Connect, the exclusive online service, safekeeping your data and providing relevant key insights allowing clinicians to enhance their implant treatment performance, based on more than 100,000 implant stability measurements currently.

- Optimized restorative protocol – Know when to load: Osstell assists when determining the patient specific restorative protocol. It gives indications as to when each implant of an individual patient is ready to be restored both with temporary solutions as well as with the final restoration.
- Access to in-depth analytical tool – With connectivity, there is a strong focus on not only capturing and storing the data for users, but also to be able to turn it into something useful and insightful for the users' clinical practice. Patient data and results are stored in Osstell Connect for easy access, enabling implant and patient data analyzing and optimization, and more effective collaboration with colleagues.
- Ease of use – The Osstell IDx Pro makes the stability measurement very intuitive. Having the Osstell ISQ measurements presented with a coloured stability guidance on the instruments, which is a result of the clinical evidence from using the Osstell ISQ scale, gives instant feedback on the status of the implant stability and facilitates patient communication.

Patients are increasingly well informed before seeking implant treatment and are often aware of available treatment options. They are expecting shorter treatment protocols more and more often. In addition, there is a growing number of patients with certain risk factors mainly due to an aging population where healing for many reasons can be unpredictable. In order to meet these challenges, there is a need for objective and intuitive diagnostic tools to ensure that treatment is delivered without compromising on predictability or patient comfort. Osstell ISQ diagnostics help improve outcomes and quality, using objective data to guide and optimize the implant treatment for both complex and more straight-forward cases.

"The Osstell IDx Pro is a complete solution and its connectivity gives access to almost unlimited data, allowing decision-making based on facts and real-world evidence – enabling 'factfulness' about the osseointegration of an implant. The instrument can work as two independent instruments or as a combination forming the most capable ISQ product to date", says *Jonas Ehinger*, CEO of Osstell.

The Osstell IDx Pro will be presented at the IDS on 12 March 2019. Initially, it will be available in the EU mainly upon regulatory approval. Additional markets will follow pending regulatory approval processes. The Osstell team invites visitors to its IDS booth in Hall 10.1, Stand D008 to learn more.

More information
www.osstell.com

Inicell – the proven implant surface of Thommen Medical

Rapid integration of implants in bone

Inicell represents a further development of the sandblasted and thermal acid-etched surface of Thommen implants. The innovative conditioning process creates a superhydrophilic implant surface, prerequisite for optimal wettability and rapid initiation of new bone formation. This means increased security in the early healing phase and thus greater flexibility during treatment.

Immediately upon implantation, dental implants get exposed to the patient's blood, which initiates the first phase of wound healing. Wound healing is a well-orchestrated process of an initial haemostasis, followed by an inflammation, tissue formation and tissue remodeling phase [1]. Angiogenesis is the physiological process through which new blood vessels are formed from pre-existing vessels, and sufficient blood supply is the precondition for new bone formation, which is in turn the precondition for fast osseointegration of implants.

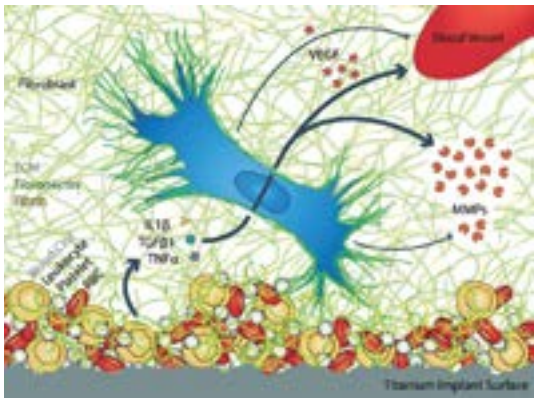
A recent study [2] performed at the ETH Zurich, the renowned Swiss university for science, technology, and engineering, evaluated whether the first contact of surfaces with whole human blood could steer the tissue healing response. The hypothesis was tested using alkali-treatment of rough titanium surfaces since they have clinically been shown to improve early implant integration and stability, yet blood-free in vitro cell cultures poorly correlated with in vivo tissue healing.

The study demonstrated that Inicell, Thommen Medical's implant surface, increased blood clot thickness, including platelet adhesion, compared to native titanium surfaces. Strikingly, blood clots with entrapped blood cells in synergistic interactions with fibroblasts, but not fibroblasts alone, upregulated the secretion of major factors associated with fast healing. This includes matrix metalloproteinases (MMPs) to break down extracellular matrix and the growth factor VEGF, known for its angiogenic potential. Consequently, in vitro test platforms, which consider whole blood-implant interactions, might be superior in predicting wound healing in response to biomaterial properties.

The illustration shows a titanium implant surface providing a substrate for the blood clot that is composed of a fibrin-fibronectin extracellular matrix (ECM), various blood cells and a pool of growth factors (VEGF and TGF-ß1), inflammatory cytokines (TNFα and IL1ß) and matrix degrading enzymes (MMPs). Blood-associated MMP secretion accelerates the degradation of the blood clot, while secretion of the growth factor VEGF promotes angiogenesis. These data, published in Nature Scientific Reports, thus suggest a mechanism how the synergy between blood and invading fibroblasts contributes to the accelerated wound healing response on the Inicell implant surface for rapid integration of implants in bone.

[1] Gurtner GC, Werner S, Barrandon Y, Longaker MT. Wound repair and regeneration. Nature 453, 314–321 (2008).

[2] Burkhardt MA, Waser J, Milleret V, Gerber I, Emmert MY, Foolen J, Hoerstrup SP, Schlottig F, Vogel V. Synergistic interactions of blood-borne immune cells, fibroblasts and extracellular matrix drive repair in an in vitro peri-implant wound healing model. Sci Rep. 2016 Feb 17;6:21071. doi: 10.1038/srep21071 (2016).



Titanium implant surface providing a substrate for the blood clot [2].

More information
www.thommenmedical.com

Anthogyr AxIN solution

An innovation for all customized single restorations

Anthogyr continues to innovate with AxIN, a screw-retained zirconia Simeda tooth with angulated access, that uses neither glue nor cement, for beautiful, functional results, no matter the sector.

Anthogyr has created a new innovation in single restorations with AxIN, a customized, screw-retained zirconia Simeda tooth. Simple to use, AxIN stands out for its biosafety and its beautiful yet functional results, no matter the sector. AxIN is unique when it comes to single restorations because it uses neither glue nor cement.

The new patented AxIN solution guarantees high aesthetics while being easy to manipulate and to maintain.

The machining specific to the bottom surface of the crown enhances the AxIN design and reduces the risk of chipping when adjusting the screw channel emergence, even for smaller teeth. The crown features free angulation from 0° to 25° and a channel a mere 2 mm in diameter. Crowns are available in three types of zirconia: multi-layer (Sina ML), opaque (Sina Z), and translucent (Sina T). There are also three prosthesis designs: homothetic, cut-back and anatomical.

The AxIN is easy to use. The zirconia prosthesis is compatible with Axiom BL and Axiom TL implants and is attached to a removable titanium Ti-base with a built-in screw that stabilizes the entire unit. Practitioners are freed from handling screws and can tighten the prosthesis quickly and easily in the mouth using the ball wrench. The ball wrench is compatible with Simeda and Connect+ prostheses with angulated access.

AxIN now gives practitioners and prosthetists the ability to choose a new single restoration model, one that combines beautiful results with biosafety.

For more information, interested clinicians and practitioners are welcome to visit Anthogyr's booth at the upcoming IDS 2019 in Hall 4.2, Stand J021.

More information
www.anthogyr.com

At a glance

The new AxIN

- is a single screw-retained zirconia solution for any sector.
- is biologically safe and requires no glue or sealing cement.
- offers comfort and beauty with a free angulated access from 0° to 25° and a 2 mm channel even for smaller teeth.
- is compatible with Axiom BL and Axiom TL implants.

Medentika titanium base ASC Flex

The new flexibility

The titanium base ASC Flex has been specially developed for demanding cases in prosthetics. In case of an unfavourable implant position or in aesthetically demanding areas, it is possible to move the screw channel in oral direction and individualize the chimney in four different lengths as necessary.

With the titanium base ASC Flex, Medentika presents its latest generation of titanium bases and underlines its role as a pioneer in this field. The new base impresses with a number of innovative and helpful features:

- Ideal step width: The step width of minimum 0.6 mm takes into account the requirements of a wide variety of ceramic restoration materials. This also allows the safe use of pressed ceramics, according to the manufacturer's specifications.
- Rounded design: The rounded design reduces stress peaks, thereby protecting the ceramic restoration.
- Optimized emergence profile: The optimized, slim emergence profile supports and protects the soft tissue.
- Internal anti-rotation protection: The internal anti-rotation protection preserves the full material thickness of the restoration and thus effectively avoids predetermined breaking points. At the same time, it ensures secure positioning of the hybrid abutment crown during bonding.
- Bio-platform design: The platform is slightly reduced on the inside to accommodate the bonding material and at the same time reduce the adhesive gap in the gingival area.
- Variable chimney height: The chimney height of 6.5 mm also supports high restorations, but it can be shortened individually to 5.5/4.5/3.5 mm and thus adapts perfectly to the clinical situation in case of a smaller vertical distance.
- Variable screw channel: The titanium base can be used with an angled screw channel, but also with a straight screw channel. The Kugel-Torx screw holder allows angling up to a maximum of 25°.

The Medentika titanium base ASC Flex is available for most common implant systems and will be presented at the IDS 2019 in Cologne at the Medentika booth in Hall 4.1, Stand A090 B099.

More information
www.medentika.com

The new innovation in implant dentistry from Dentsply Sirona Implants

All you need is Azento

Azento, a new, groundbreaking solution from Dentsply Sirona Implants that is now available in Europe, helps implant dentistry professionals to easily perform one of their most common indications – single tooth replacement.

With innovation and science at its core, Dentsply Sirona Implants brings the latest in implant dentistry to the world's largest dental fair, IDS, in Cologne, Germany. The innovation is developed around the well-documented and clinically proven implant systems – Astra Tech Implant System, Ankylos and Xive – that provide long-term functional and aesthetic solutions for many clinical situations and patients worldwide.

Azento – streamlining the implant workflow

Azento is the latest digital implant workflow solution from Dentsply Sirona Implants that streamlines the implant planning, purchasing and delivery for single tooth replacement. For the clinician, this custom implant solution increases convenience, seamlessly and efficiently connects with qualified laboratories, and creates consistent, excellent results for patients.

The clinician scans the patient and uploads the order. He will then receive a precise, customized digital treatment plan based on the patient's digital scans submitted through the Azento case management portal. After approving the Azento treatment plan, all components and instruments necessary to complete the implant treatment – including a surgical guide, a dental implant (Astra Tech Implant System or Xive) and custom healing abutment – are delivered within five business days.

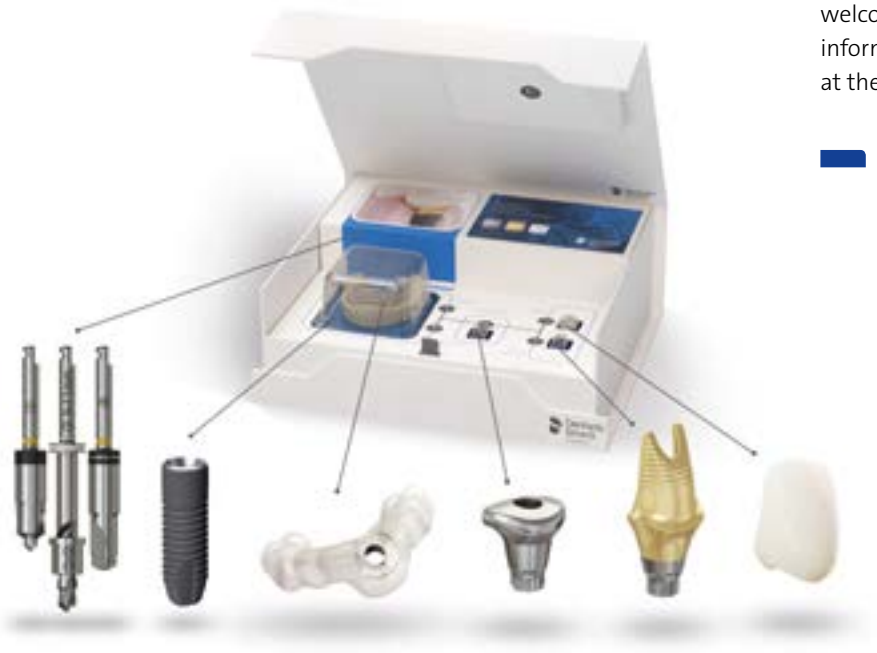
The Azento case management portal then enables seamless uploading of core files for laboratory partners that they need to create custom final restorations without requiring them to scan cases. This digital workflow improves efficiency and the ability to deliver quality restorations.

With Azento, Dentsply Sirona Implants unlocks digital dentistry, offering a streamlined custom implant solution that delivers benefits and excellent results for the clinic, the laboratory, and most importantly, the patient.

Dentsply Sirona Implants is looking forward to welcoming all dental professionals seeking more information about the innovative Azento solution at the IDS 2019 in Hall 11.2 Stand K030.

More information

www.dentsplysirona.com/Azento



Azento is a digital implant workflow solution that streamlines the implant planning, purchasing and delivery for single tooth replacement. Each patient receives a precise, custom treatment plan recommendation based on their CBCT and intraoral scanning images, including:

- surgical guide
- all necessary instruments
- implant
- Atlantis healing abutment
- Atlantis temporary restoration (optional).

creos mucogain: a natural collagen matrix

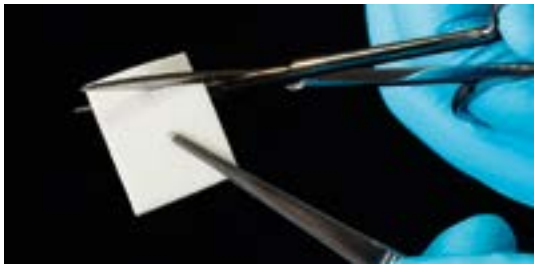
With strength comes confidence

Nobel Biocare's creos regenerative product line offers reliable solutions for guided bone regeneration and guided tissue regeneration. This product range has grown once more with creos mucogain, a natural resorbable collagen matrix designed to replace autologous graft material in several indications.

Soft-tissue management plays an important role in aesthetics and function, for the correction of soft-tissue recession and volume loss, to promote a natural soft-tissue appearance and because soft-tissue height can influence early crestal bone loss [1]. While autologous soft-tissue grafting is a well-established solution, it can present a number of challenges. Harvesting the patient's soft tissue requires a second surgical site, which is associated with post-operative pain, bleeding, swelling and infection [2,3,4] and the palate is a risky surgical site due to the existence of an artery. The quality and quantity of the harvested soft tissue depends upon the patient's health and may be limited [2,3,4].

The soft-tissue graft substitute, creos mucogain, has been designed to overcome these challenges. A resorbable collagen matrix composed of highly purified porcine collagen and elastin fibers, it is designed to provide a readymade, easy-to-handle alternative to autologous soft-tissue grafts.* Its patented production process creates an open interconnecting porous structure [5] designed to promote soft-tissue regeneration through the migration of cells and blood vessels into the matrix [6,7].

To meet the needs of several indications, such as soft-tissue volume augmentation and root coverage in submerged healing*, the matrix provides the clinician with a choice of multiple sizes and thicknesses and for easy handling can be used straight from the box and trimmed to precisely fit the surgical site [8].



creos mucogain can be used straight from the box and trimmed to precisely fit the surgical site [8].

creos mucogain is a resorbable collagen matrix, intended to provide an alternative to autologous soft tissue grafts in certain indications.

Creos mucogain puts mechanical strength on display, making fixation with sutures possible thanks to high suture retention both when dry and when hydrated [7] and its suture pull-out strength is sufficient for the tunneling technique. [8]. High stress resistance also makes creos mucogain easy to handle. The matrix benefits from the memory effect, meaning it retains its initial volume after hydration and cyclic handling simulations in-vitro [7].

Ultimately, it is clinical effectiveness that really matters, and in a prospective case series, no significant adverse events related to creos mucogain were observed during the healing phase and up to the last visit [9].

Nobel Biocare invites all interested IDS visitors to its booth in Hall 10.1, Stand H020 J029 to learn more about the company's comprehensive product range.

* See "Instructions for Use" for full prescribing information, contraindications, warnings and precautions.

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

More information
www.nobelbiocare.com

Osstem OneCAS KIT

Product
Crestal approach sinus surgery kit

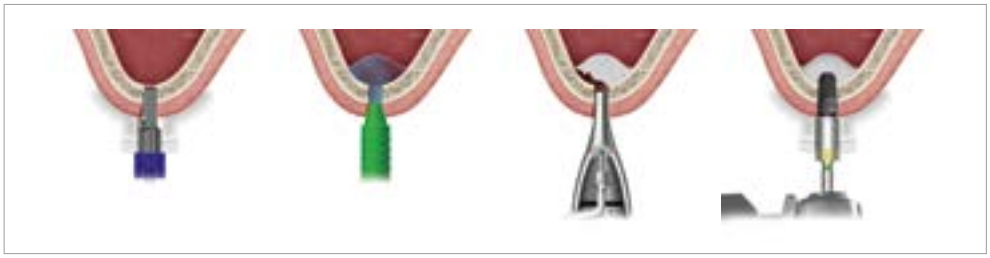
Indication
Guided sinus lift surgery

Distribution
Deutsche Osstem GmbH
Mergenthaler Allee 35–37
65760 Eschborn
Germany
www.osstem.de

Placing dental implants in the posterior maxilla can be challenging due to the reduced bone height attributed to the presence of the sinus. Osstem CASKit (CAS stands for Crestal Approach Sinus Surgery), introduced in the market back in 2010, has been making implant placement significantly easier with a set of tools designed for the simple and safe performance of crestal approach sinus augmentation.

To ensure a more accurate implant position, OneCAS Kit applies a digital guided surgery concept to CAS Kit. Implant position and specification are planned before the surgery with the help of CT and oral scan data. Based on these data, the surgical guide template will be designed with a CAD software and fabricated by 3D printer. The guide guarantees safe drilling and accurate implant placement while the special CAS drills with round ends prevent membrane perforation and the simple sequence of drills allows easy and convenient surgery.

The OneCAS Kit consists of initial drills, OneCAS drills with different diameters and lengths, stoppers, and other needful tools like hydraulic membrane lifter, bone carrier and bone condenser. ■



CAS Kit sequence (from left): Implant site preparation with CAS drill and stopper, maxillary sinus membrane elevation using hydraulic lifter, bone grafting using bone carrier and bone condenser, and implant placement.

Straumann BLX implant system

Product
BLX fully tapered implant

Indication
Immediate implant placement protocols

Distribution
Straumann Holding AG
Peter Merian-Weg 12
4002 Basel
Switzerland
www.straumann.com

The most versatile and the easiest to use of all available implants made for immediate procedures – this is what the new BLX from Straumann wants to be. All clinical learnings with fully tapered implants of the last decade, and of course also with Straumann's own apically tapered BLT implant, have been taken into account during development.

In order to combine in a single product high effectiveness in typical immediacy procedures with an exceptionally forgiving character when used in less than ideal situations, the Swiss company did not limit themselves to design just another fully tapered implant. The BLX concept relies on a mix of unique and totally new drills, called VeloDrill and preventing hyperthermia of the bone, and specific implant shapes which create high primary stability in soft bone but without overcompressing the cortical areas.

All BLX sizes have the same prosthetic connection, and already the diameter 3.75 is cleared for all indications. Thus, the new BLX will add to the field of immediacy not only versatility but also ease-of-use. ■

Aesculap

Dental Sterile Container System

Product
Dental container system

Indication
Sterile storage of
dental instruments

Distribution
Aesculap AG
Am Aesculap-Platz
78532 Tuttlingen
Germany
www.aesculap-dental.com

In 1971, Aesculap revolutionized the packaging world with the first sterile container and the systematic provision of sterile instruments. Their durability, economic efffiencyi, as well as the simple and comfortable use have made Aesculap Sterile Containers a permanent component in sterile services. Through the use of sterile containers, the entire circuit of provision and disposal of sterile goods can be standardized, controlled and documented.

Aesculap Sterile Container Systems give practitioners access to

- the right instruments
- at the right time
- in a sterile condition
- at the right place of use
- at a high level of profitability
- in a reliable packing system.

Calendar of Events

	Event	Location	Date	Details/Registration
3/2019	**14th BDIZ EDI Expert Symposium**	Cologne Germany	3 March 2019	BDIZ EDI www.bdizedi.org
	IDS 2019 38th International Dental Show	Cologne Germany	12–16 March 2019	Koelnmesse GmbH www.ids-cologne.de
	Academy of Osseointegration 2019 Annual Meeting	Washington, DC USA	13–15 March 2019	Academy of Osseointegration ao2019.osseo.org
	ITI Congress Iberia	Porto Portugal	22–23 March 2019	International Team for Implantology www.iti.org/congressiberia/
4/2019	**Oral Reconstruction Symposium France**	Paris France	4–5 April 2019	Oral Reconstruction Foundation orfoundation.org/education/national-symposia/
	International Osteology Symposium	Barcelona Spain	25–27 April 2019	Osteology Foundation www.osteology.org
5/2019 6/2019	**Osstem World Meeting 2019**	Tokyo Japan	11–12 May 2019	Osstem Implant www.osstem.de
	WID – Vienna International Dental Exhibition	Vienna Austria	17–18 May 2019	admicos.Congress Incentive GmbH www.wid.dental
	12th International Implant Symposium	Corte Corsica/France	31 May – 1 June 2019	University of Corsica – Pascal Paoli www.dentalimplant-elearning.com
6/2019	**Nobel Biocare Global Symposium**	Madrid Spain	27–29 June 2019	Nobel Biocare www.nobelbiocare.com
10/2019	**Dentsply Sirona World**	Las Vegas, NV USA	3–5 October 2019	Dentsply Sirona www.dentsplysironaworld.com
	1st European Congress for Ceramic Implant Dentistry	Zurich Switzerland	11–12 October 2019	European Society for Ceramic Implantology ESCI www.esci-online.com

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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www.teamwork-media.de

Azento™
Single tooth replacement

Some call it convenience, we call it Azento.

IDS 2019

Visit us at IDS!
Hall 11.2, Booth K-030

Azento makes the most of your valuable time by streamlining your workflow, increasing patient acceptance rates and making your everyday more convenient.

You simply scan your patient and upload the data. We then suggest a customized treatment plan, which you review and approve. After this, you receive a box with everything needed for the treatment, including the plan, surgical guide, instruments and drills, a case-specific implant and an Atlantis custom healing abutment.

With Azento you get an easier workflow —scan, approve, treat.

Outstanding flow. Great results.
Azento by Dentsply Sirona Implants.

Dentsply Sirona
Implants

LEADING REGENERATION

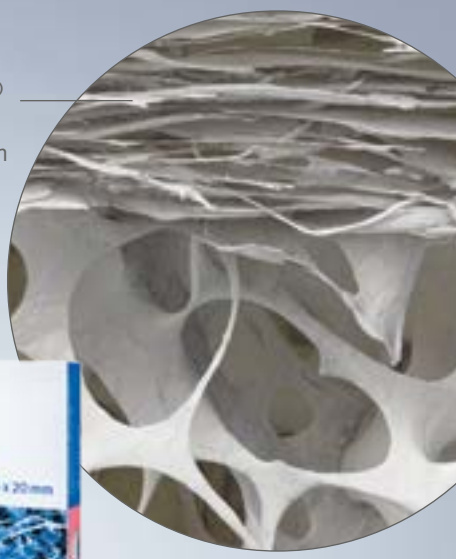
Geistlich
Biomaterials

Is soft-tissue regeneration critical for implant success?

EXACTLY. Success starts with a functional and healthy soft-tissue.[1]

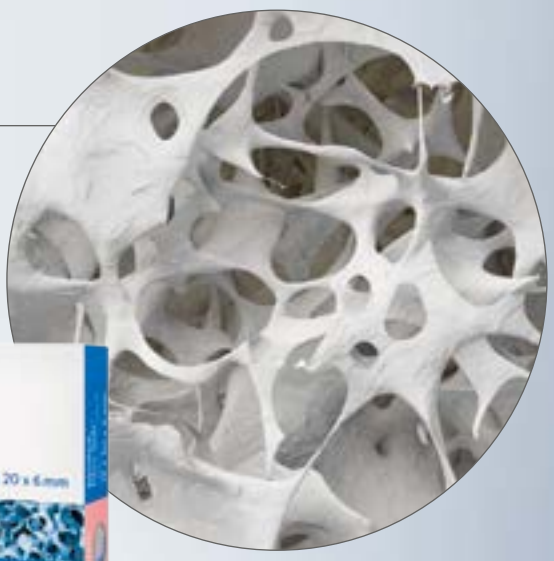
Geistlich Mucograft®

For good color and texture match in open healing situations.[1–3]



Geistlich Fibro-Gide®

The first volume-stable collagen matrix designed for gaining soft-tissue thickness.[4,5]



1 Nevins M, et al. Int J Periodontics Restorative Dent. 2011 Jul–Aug;31(4):367–73.
2 McGuire MK, et al., J Periodontol. 2014 Oct;85(10):1333–41.
3 Schmitt CM.et al. J Periodontol. 2013 Jul;84(7):914–23
4 European Patent Specification – EP 3 055 000 B1.
5 Data on file. Geistlich Pharma AG, Wolhusen, Switzerland.

swiss made