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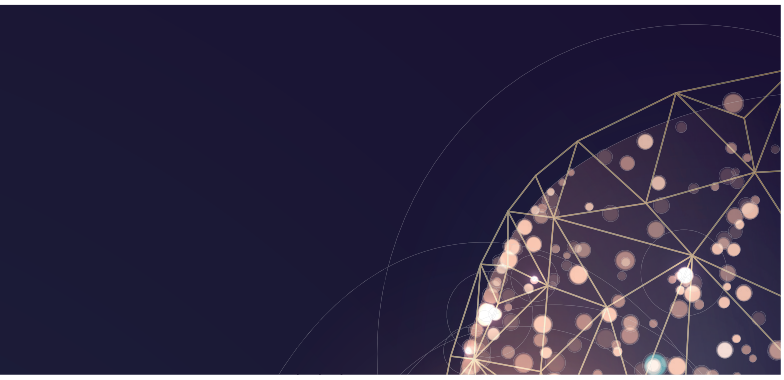
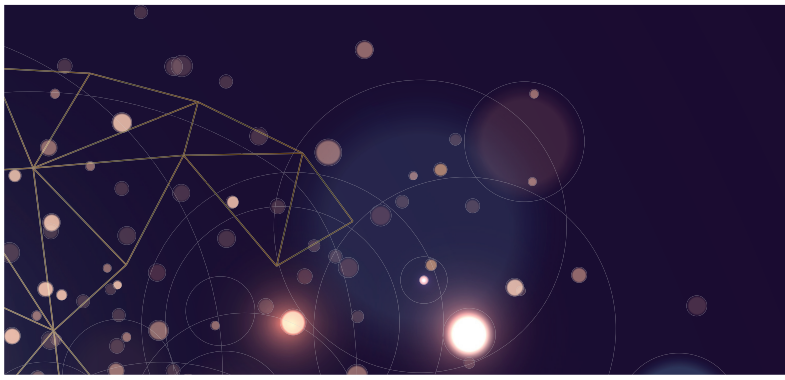
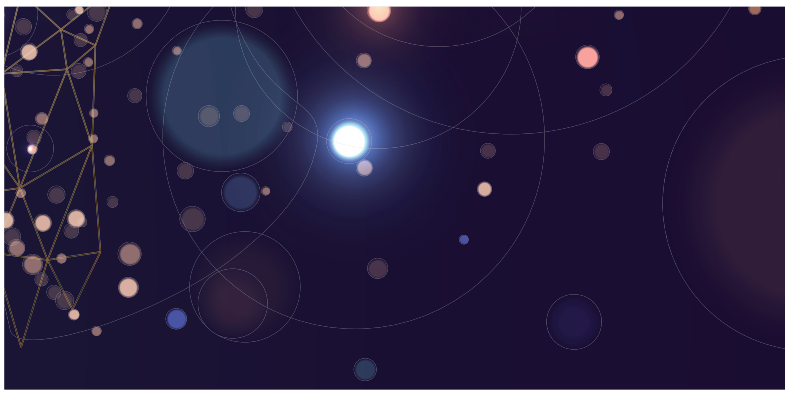
European Journal for Dental Implantologists





TOPIC

Digitisation in implant dentistry



BDIZ EDI

Bundesverband der implantologisch tätigen Zahnärzte in Europa e.V.
European Association of Dental Implantologists

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You will not want to miss your favorite team as it progresses towards the final championship. Make sure to mark your calendars with the remaining rounds!

- Round 2 - October 4th – 7th: Regenerative
- Round 3 - November 8th – 11th: Digital
- Round 4 – December 3rd: Esthetic

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CE transcends borders

Dear reader,

Continuing dental education in face-to-face settings is finally picking up steam again. Still, we are nowhere near where the dental world had been before the Corona pandemic. Thus, although this year participants flocked to EuroPerio in Copenhagen and EAO in Geneva, European CE enthusiasts never had to travel very far. The FDI World Dental Association also preferred to stay at its home in Geneva rather than hosting the political and organisational segments and the associated professional congress in Mumbai (India), as originally planned.

As dental world is taking a cautiously optimistic outlook, it is longing for the dazzling metropolises of this world. The FDI Congress in Shanghai had to be cancelled on account of COVID-19. But in 2023, we will be looking at more remote pastures again—as seen from our European viewpoint, at any rate, as the FDI is heading for Sydney (Australia) next year.

When we listen to the organisers of IDS Cologne, what we are hearing is entirely devoid of this kind of reticence, particularly since IDS will be celebrating its 100th anniversary in March next year. The organisers hope to build on the successes of previous years, when virtually the entire dental world met in Cologne for a week every other year. Looking at the number of exhibitors who have registered, optimism reigns supreme. The self-styled "platform for innovations and market trends" will again be held in Cologne, 14–18 March 2023.

As always, BDIZ EDI will present its international dimension at the IDS. All partner associations will also be invited to attend. The focus will be on a hot topic: the European Medical Device Regulation, MDR. The new cooperation partner of BDIZ EDI, EDI India, will certainly be presented at the BDIZ EDI booth. This autumn, BDIZ EDI will be launching a modular continuing education programme for Indian dentists who wish to further their education in the field of oral implantology: a fellowship/diploma programme will be held that builds on the BDIZ EDI's well-established Curriculum Implantology, which is hosted in cooperation with the University of Cologne. The event will be a hybrid event, with most of the modules going virtual but supplemented by face-to-face sessions with speakers from BDIZ EDI scheduled to deliver presentations in Hyderabad, where the final exams will also be held. With this cooperation, BDIZ EDI takes a big and adventurous leap beyond the European confines. Participants will become members of the association, enjoying full membership privileges including receipt of the *EDI Journal*. In our next issue, we will take an in-depth editorial look at this new BDIZ EDI project, which has evolved over the past few years and has the potential to serve as a beacon for similar activities in other countries as well.

If you do not want to wait until IDS, you are cordially invited to Cologne in February to attend the 18th Expert Symposium of BDIZ EDI. The 2023 incarnation will provide an update on short, angulated and reduced-diameter implants, with the European Consensus Conference of BDIZ EDI updating its pertinent 2016 Guideline. Did you know that all BDIZ EDI Guidelines produced to date can easily be accessed on our website? Simply scan the QR code.

The present issue reports on the digital transformation in dentistry, the political work of FDI and CED as well as BDIZ EDI.

Anita Wuttke, Editor-in-Chief

Focus on dental chains
FDI European Regional Organization (ERO)

ECJ-Judgement: Combating corruption vs. protecting personal data

Digital support for simulating bite alterations in the periodontally compromised dentition

EDI News

Case Studies

Business & Events

News and Views

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- superior positional stability in comparison to other conical systems [1,2]
- easy positioning with excellent tactile feedback
- integrated platform switching supporting the preservation of crestal bone

[1] Semper-Hogg, W, Kraft, S, Stiller, S et al. Analytical and experimental position stability of the abutment in different dental implant systems with a conical implant–abutment connection Clin Oral Invest (2013) 17: 1017
[2] Semper Hogg W, Zulauf K, Mehrhof J, Nelson K. The influence of torque tightening on the position stability of the abutment in conical implant-abutment connections. Int J Prosthodont 2015;28:538-41

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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 organisation 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 organisation 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 (Certy kat Umiejetnosci 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 recognised 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)

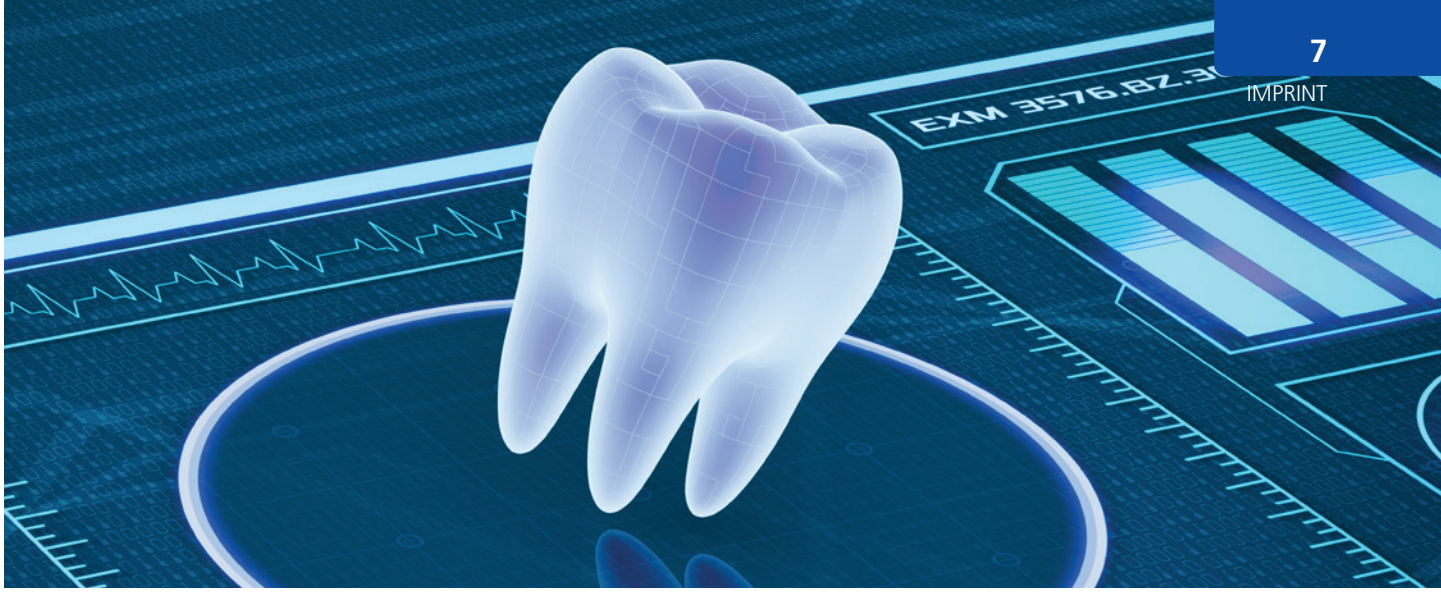
USSI EDI was founded in 2010 with the desire to enhance dentists' knowledge of dental implants, as well as to provide the highest quality of continuing education in dentistry. The most important aims of the organisation are to make postgraduate studies meeting the standards of the European Union available 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.

EDI of Macedonia

The Association is Albanian Implantology Association of Macedonia—AIAM was founded in 2013 as a branch of Albanian Dental Society of Macedonia. The association was created to advance education in the field of dental implantology for the benefit of the population. The objectives of the association are:

– To promote the progress of education, research and development of dental implantology in Macedonia
– To encourage postgraduate education, study and research in dental implantology through:
  - Appointment of meetings, lectures, seminars and courses either individually or with others
  - Encouraging the publication of dental implantology articles!
  - To cooperate and make agreements with relevant, national, local, foreign and different institutions.

In 2017, AIAM & MAOS (Macedonian Association of Oral Surgeons) became EDI of Macedonia and signed a Cooperation Agreement with BDIZ EDI to cooperate in dental implantology!



Scientific Board

Imprint

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BDIZ EDI General Meeting in Frankfurt am Main

An association with sound prospects

With every crisis comes opportunity—and BDIZ EDI has made good use of this opportunity during the COVID-19 pandemic. Its online seminars reach all members and other interested dentists and dental teams, quickly and uncomplicatedly. In this third year of the pandemic, our "BDIZ EDI informs" online series demonstrates the flexible association's flexible reaction to new laws and regulations.

In his review, delivered before the General Assembly in Frankfurt, BDIZ EDI President Christian Berger addressed two disastrous developments with a global impact: the ongoing COVID-19 pandemic and the Russian war of aggression in Ukraine. He reported that BDIZ EDI, along with its European partner associations, had issued a statement of solidarity with the people in Ukraine, and especially with the local health professionals, calling for support of relief efforts: "For example, Dr Markus Tröltzsch, member of the BDIZ EDI Board, has organised humanitarian aid transports to Ukraine."

Berger also addressed three current issues within German health politics from a dental perspective.

1. Dentists have recently been included in the COVID-19 vaccination regulation. BDIZ EDI welcomes the fact that the 5th amendment to this regulation now allows us to vaccinate the public against COVID-19 on our own responsibility and after appropriate training. While the demand for vaccination appointments is fairly low at this point, this may change quickly in view of higher incidence rate and with the autumn season approaching.
2. Facility-based mandatory vaccination for nurses and other health care workers is consistent with the German constitution, as ruled by the Federal Constitutional Court in late May. The court held that the need to protect vulnerable groups outweighs the abridgement of the affected individuals' fundamental rights.
3. On 1 July 2021, a new perio guideline came into force in Germany. At the same time, the catalogue of available services for patients covered by statutory health insurance (SHI) was amended to include the additional perio services. But the German health services landscape rests on two pillars—in addition to SHI, there is a not so small group of patients covered by private health insurance (PHI). Services provided to these private patients are subject to a standard schedule of fees – which is dated 2012 and 1988 and does not reflect the new guideline-based standard. This is a dilemma BDIZ EDI has pointed out for years: PHI patients are increasingly treated as second-class patients, and a comparison with the new SHI rules for perio treatments drives this fact home only all too clearly.

Expert Symposium and EuCC

Berger also reported that the Expert Symposium had been held in Cologne in 2022, this time once again as a live event. The 17th European Consensus Conference, convening remotely, had produced the updated (2022) Cologne ABC Risk Score for risk assessment ahead of implant treatments. The printed Guideline will be sent out to members shortly; it has also been published in issue 2/2022 of our *EDI Journal*. A place and date for the 18th Expert Symposium has also been set (Cologne, 18–19 February 2023).

"BDIZ EDI informs"

The "BDIZ EDI informs" webinars have been successfully held since the pandemic began. Berger announced the series' upcoming events in the second half of 2022, covering topics such as billing questions, legal issues, and high-quality dental continuing professional development: "From the beginning of the pandemic until the end of 2021, we were able to welcome 12,000 participants. By now, we should be approaching the 15,000 mark as our online seminar schedule continues to be very popular in 2022." BDIZ EDI, Berger reported, uses mostly its own resources to fund the online seminar series: "At this point I would like to thank all those who are involved in board activities, whether as speakers, as hosts or as organisers in the background. In particularly, I would like to mention Stefan Liepe, Wolfgang Neumann, Jörg Neugebauer, Freimut Vizethum and our legal adviser, Thomas Ratajczak. Special thanks is due to Anita Wuttke, who has designed, organised and co-hosted the series."

Curricula

October 2022 will see the launch of the 24th Curriculum Implantology by BDIZ EDI and the University of Cologne. The Curriculum has been an overwhelming success story, with some eight hundred participants to date successfully completing the course. More than 80 per cent of them have been retained as BDIZ EDI members.

Communication

In order to save on money and other resources, BDIZ EDI keeps its members informed in a timely manner through the medium of its newsletter, "Subscribers will regularly receive news about current developments and, of course, about impending virtual and face-to-face events", Berger reminded the audience. The newsletter currently has 2,300 subscribers.

Fee-related issues

The BDIZ EDI hotline for private dental billing issues was established in 2017. Berger reported that it was now quite heavily frequented. This is in addition on practical tips on billing and accounting in BDIZ EDI publications.

Consensus Conferences

BDIZ EDI not only participates in the Consensus Conferences on implantology, but also in the guideline conferences of DG PARO, DGI and DGZMK to contribute the broad professional competence of its oral implantologists. "It is important for us to be represented there so we can address in a timely manner any developments that seem to be going the wrong way", explained Berger.

Expert opinions

The 32nd Expert Conference on oral implantology had been held only a few hours before the General Meeting in Frankfurt. Berger pointed out that it was the first Conference led by Dr Stefan Liepe, who became Chair of the Expert Conference in 2022.

Europe

The 15th Europe Symposium was held in Karlovy Vary in May 2022, jointly with the dental associations of Czechia and Austria and the dental chambers of the German states of Saxony and Bavaria. BDIZ EDI was represented bay speakers Christian Berger and Professor Joachim E. Zöller.

IDS 2023

The 100th International Dental Show (IDS) will be held in March 2023, once again in Cologne as tradition dictates. The BDIZ EDI will be present there again, Berger reported. For BDIZ EDI, participation there is a must to "stay in the game", presenting itself together internationally with its partner associations as a go-to instance for all questions related to implantology, dental billing and health care law.

Publications, web, social networks

Berger reminded the participants that the BDIZ EDI newsletter with up-to-date news and online seminar announcements is available for subscription on the BDIZ EDI website (www.bdizedi.org/newsletter-registrierung). He encouraged members to use of the member access on the website. "This is where to re-watch the webinars, download important forms or checklists, and peruse the database of court rulings." BDIZ EDI is also present on social media channels such as Facebook, Instagram, Twitter and YouTube. Members are encouraged to follow BDIZ EDI there.

The board

The work of the BDIZ EDI board did not go unmentioned in Berger's review: "In these times of pandemic, our board members have worked with great passion and commitment to pass on valuable information and our recommendations to you. I would like to thank Joachim E. Zöller, Jörg Neugebauer, Detlef Hildebrand, Stefan Liepe, Wolfgang Neumann, Freimut Vizethum, Renate Tischer, Nathalie Khasin and our most recent addition, Markus Tröltzsch. Thank you so much for your great support!"

Membership

BDIZ EDI currently has 2,300 members – a minor decrease that is owed to demographics, despite gains in new members in 2020 and 2021 owed especially to the

online seminar series and the Curriculum. "It is becoming clear", said Berger, "that we have still many first-generation members who have been in working in their practices for more than twenty or even thirty years, but there are also members who are gradually resigning from their practices. Most of them nevertheless choose to remain members—which makes us happy. This clearly and favourably reflects on the association and its work. On the other hand, we also need new blood to remain strong in the face of internal and external challenges and to be able to react to new laws, regulations and ordinances. I would like to appeal to you to help us remain strong. Talk to your junior staff in your practice, show them what we are capable of—not least in these difficult times."

Concluding his review, the BDIZ EDI President thanked the employees of BDIZ EDI: Brigitte Nötzel in Cologne, Helga Karanikas in Munich and Marion Kerstin Salhoff, who is in charge of the billing hotline.

Continuing professional development

For years, Professor Joachim E. Zöller has been the Scientific Director of the association. His duties include the search for suitable topics and speakers at the Expert Symposia, the European Consensus Conferences and the annual symposia. Zöller, who is also BDIZ EDI Vice President, has not only initiated the Curriculum Implantology but is also responsible for its contents. Curriculum 23 has now been completed with two parallel courses. Curriculum 24 will start in October. The participants are highly satisfied with the highly relevant Curriculum Implantology of BDIZ EDI with their modular design, Zöller reported. "Previously, we'd be getting participants who had already placed a thousand implants or more. Today, the trend is that we are seeing newcomers to the profession." Zöller considers the uniform received opinion taught in the Curriculum the secret of its success—being able to draw on reliable sources is important for newcomers to the profession.

For Zöller, the Curriculum Implantology and the Expert Symposium in Cologne are flagships of BDIZ EDI. The annual guidelines developed by the European Consensus Conference are pioneering and groundbreaking endeavours. Zöller announced that the next, that is, the 18th Expert Symposium in February 2023 will provide an update on short, angulated and reduced-diameter implants. With its combination of the Expert Symposium and the European Consensus Conference, BDIZ EDI promotes new scientific findings every year. Most recently, the 2012 guideline on the Cologne ABC Risk Score for implant treatment has been updated, now available as the current 2022 guideline. All told, Zöller considers the European Consensus Conference of BDIZ EDI the top source of received knowledge on the European level—even if, or specifically because, it is not always fully in agreement with official guidelines.

Guidelines offer extra latitude

Professor Jörg Neugebauer, BDIZ EDI Secretary General, spoke about his involvement with the European Consensus Conference and his work as Chair of the Quality and Registration (Q&R) Committee. In the latter, there is now a trend away from material testing and more in the direction of concepts and ideas—often as a complement to official guidelines. "Our guidelines — their name notwithstanding—offer much more latitude than the official guidelines", he pointed out. Looking at implantology indication classes, which have hardly changed for years, we see how sustainable the efforts of BDIZ EDI have been.

The Chair of the Expert Committee, Dr Stefan Liepe, thanked Dr Michael Frank, President of the Hesse State Dental Association, this year's cooperation partner of

In Frankfurt am Main, the board reported on its work during the past year.

the Expert Committee in Frankfurt. He announced the 33rd Expert Conference on behalf of the Consensus Conference, to held on 1 July 2023 with the Schleswig-Holstein State Dental Association.

Digital transformation within BDIZ EDI

In his role as Secretary and Managing Director, Liepe explained the restructuring process that BDIZ EDI was currently undergoing, with the digitalisation of many processes and the relocation of the BDIZ EDI office to Munich. "Our team member Brigitte Nötzel will embark on her well-deserved retirement at the end of the year, so the board has decided to close the Cologne office." There has also been a change in banking provider, from Commerzbank to Deutsche Apotheker- und Ärztebank. The new association software will allow invoices and office documents to be increasingly generated digitally. Liepe held out the prospect of cost savings in the future.

Financials

Dr Wolfgang Neumann, BDIZ EDI Treasurer, presented the budget, citing IDS 2019 as one of the major line items on the expenditure side. To be able to finance the digital transformation mentioned by Liepe, a reserve fund of €60,000 has been created, made possible in part by reduced board travel expenses during the pandemic. Following the presentation of the budget for 2023 and the report by auditor Dr Maximilian Grimm, who certified that the accounts were sound and properly kept, the general meeting unanimously granted the board discharge and approved the 2023 budget. For some years now, provisions have been made in accordance with the specifications of the board in order to be able to finance major projects (legal steps to be taken in the area of the standard schedule of fees [GOZ], publications such as the new BDIZ EDI table of fees, etc.).

AWU

18th Expert Symposium in Cologne in February 2023

Update on short, angulated and reduced-diameter implants

The 18th Expert Symposium will be held in Cologne on Sunday, 19 February 2023. It will examine the state of the art for short, angulated and reduced-diameter implants. The BDIZ EDI last addressed this topic in 2016; now, new findings will be the focus of the one-day symposium.

At the same time, the 2016 Guideline will also be updated. On 6 February 2016, the European Consensus Conference (EuCC) under the auspices of BDIZ EDI concluded: "Provided the specific treatment parameters are observed, the use of short, angulated or reduced-diameter 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. The implant surgeon and the restorative dentist must have appropriate training to choose the best possible therapy for each patient."

Do these statements still apply, or do they need to be fundamentally revised? What is the status of inserting short implants compared to augmentation procedures? In February in Cologne, this treatment option will be put to the test for the third time. In 2011, the focus was on its readiness for practical use; in 2016, the focus was on advantages and limitations. "In view of the rapid development in the field of short implants, we decided to address the topic again", said Professor Joachim E. Zöller, Scientific Director, in his foreword at the time. Do the short implants live up to their promise? What is the prognosis for restorations with short and an-

The European Consensus Conference Guideline from 2016.

gulated implants? Can we offer patients simple restorations without augmentation and still promise long-term success?

The symposium is traditionally held at the Dorint Hotel on Heumarkt on the last weekend of the Carnival season. BDIZ EDI members enjoy reduced registration fees. To view the previous Guidelines on the subject, visit the BDIZ EDI website at www.bdizedi.org/en/european-consensus-conference.

You will find the most up-to-date information on continuing professional development events at: www.bdizedi.org/en/further-education

Incidentally, the Cologne Carnival will be celebrating its 200th anniversary with its 2022/23 session. The main focus will be on the 200th anniversary of the oldest Cologne Carnival Celebrations Committee, the "Grosse von 1823"—whose President is Professor Joachim E. Zöller.

AWU

Save the date!

18th BDIZ EDI Expert Symposium

Update on short, angulated and reduced-diameter implants

Cologne, Sunday, 19 February 2023, at the Dorint Hotel

BDIZ EDI will provide online lectures in 2022 and 2023

Seminar offers

There is a great demand for information on advanced dental topics in continuing professional development. European and international members and other interested parties can choose from several BDIZ EDI online seminars. For members of associated partner organisation, the seminars are free of charge. Just tick the topic you would like to be presented online.

Send your selection either to the Editorial office at office-munich@bdizedi.org or by fax to +49 89 72069889

☐ **Topic 1: Update on peri-implantitis; Guideline of the European Consensus Conference in 2020**
Presenter: Professor Jörg Neugebauer (Landsberg/Germany), Secretary General of BDIZ EDI, 7–8 p.m.
About this seminar: Biological complications cannot be avoided completely; they occur at different times following the delivery of the implant restoration. The etiology of these complications is diverse as the way in which they manifest themselves. This issue has been addressed three times before by the European Consensus Conference under the auspices of BDIZ EDI; this panel of experts has re-evaluated the current literature and updated the recommendations of the Guideline. Prof. Neugebauer will present the most recent findings form the literature with numerous clinical examples to ensure the best possible care for patients with peri-implantitis, with a view to avoiding implant loss and eliminating risk factors.

☐ **Topic 2: Update on bone augmentation surgery**
Presenter: Dr Dr Markus Tröltzsch (Ansbach/Germany), Member of the BDIZ EDI Board, 7–8 p.m.
About this seminar: For implantological restorations to achieve long-term stability, both hard and soft tissues must be available in sufficient quantity and quality. There are many ways in which this can be achieved or maintained. In this online seminar. Dr Tröltzsch, who was in charge of the new DGI/DGZMK-Guideline on implantological indications for the use of bone replacement materials, will highlight the various "minor" and "major" techniques. One of the topics Dr Tröltzsch will discuss how tissue volume can be (re)built or maintained and which of the relevant techniques are suitable for practitioners with different types of practices and different levels of experience.

☐ **Topic 3: Update on short, angulated and diameter-reduced implants—**
Guideline of the European Consensus Conference to be updated in 2023
Presenter: Prof. Jörg Neugebauer (Landsberg/Germany), Secretary General of BDIZ EDI, 7–8 p.m.
About this seminar: "The use of short, angulated or diameter-reduced implants in case of reduced bone availability represents today—if the specific treatment parameters are taken into account—a reliable therapy option compared to the risks associated with the use of implants with standard dimensions in combination with augmentative procedures." The conclusion the BDIZ EDI Practice Guide 2023 will be put to the test in this lecture.

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23rd Curriculum Implantology is now completed

Congratulations to the Curriculum graduates!

The 23rd Curriculum Implantology, jointly arranged by BDIZ EDI and the University of Cologne, is now completed, following the conclusion of the final exams. The participants had completed eight modules on oral implantology over a period of one year.

In view of the ongoing corona pandemic, arranging the modules reflected an immense organisational effort. The courses were held in hybrid form—partly online and partly in small groups that were physically separated.

The 23rd Curriculum Implantology has been the most recent chapter of a long success story. A total of 650 graduates have been trained in oral implantology since 2004, the year of the first curriculum.

"In addition to theoretical presentations and hands-on demonstrations, personal experience in the field is obtained through practical exercises or the treatment of actual patients", as Professor Joachim E. Zöller, Director of the Department for Oral and Maxillofacial Plastic Surgery at the University of Cologne, had said at the time. Zöller, today Vice President of BDIZ EDI, was and continues to be responsible for implementing the curriculum and its objectives; over the years, he has proven, again and again, that it is possible to do so successfully.

Eight modules—one curriculum

Today the curriculum consists of eight modules in two-day courses, which include observation and are supervised by experienced instructors. The overall objective is practical relevance. To achieve this, the teaching modules and its contents are subject to constant updating. After successful observation and supervision, participants can sit the exam for the formal professional focus on oral implantology if they can show proof of the required practical experience.

The successful graduates of the 23rd Curriculum Implantology at the University of Cologne with Professor Hans-Joachim Nickenig.

Graduates of the 23rd Curriculum		
	Eleonora Elisa	Angioni
Dr	Jennifer	Antritter
	Archanah	Arjunan
cand. med. dent.	Samira	Arzt
	Bilge	Atay-Sahin
	Polina	Bardina
	Philipp Peter Christian	Bartels
	Marina Julia	Bialas
Dr	Viktoria	Bosch
Dr	Justin	Brosig
Dr	Hendrik	Desinger
	Jana	Dohmen
	Tobias	Drefahl
	Jana	Flatten
Dr	Marius	Grubenbecher
	Leonie	Grundmann
	Jade-Shanice	Heidemann
Dr	Malin	Janson
Dr	Gesa	Jenniches
	Nataliia	Kibenko
	Arda	Kizilkan
	Esra	Macit
	Christina	Marr
	Ann-Christin	Nolting
Dr	Sun-Ha	Park
Dr	Marc Alexander	Poelder
	Katharina	Rabehl
	Maryam	Ramezani Moghaddam
Dr	Niklas	Reisenauer
	Maximilian	Reuber
	Puyan	Rezaei
Dr	Richard	Schmidt
	Karl	Seelbach
	Daut	Shishani
Dr	Anna Sophia	Spatz
	Mathias	Tönsmann
Dr	Lisa	Trippe
Dr	Daniel	Vigano

No closed-shop policy

All modules can be booked individually. Modules completed with other providers can be approved for credit with proper documentation. Professor Hans-Joachim Nickenig, who had modernised the content of the curriculum when he took over several years ago, is the point of contact for all participants.

Our instructors

The instructors are experienced implantologists and have presented the training units with videos and live patient demonstrations for many years. Each course includes practical sessions, most of which use realistic training models or human specimens rather than the usual plastic jaw replicas. "The training units were designed to highlight the interrelationships between the prosthetic and surgical aspects, even where the major topics concentrate on one or the other subject area", said Zöller. "A limited number of participants—an aspect that is important to both BDIZ EDI and the university team—ensures a lively exchange of ideas between instructors and participants."

24th Curriculum Implantology already started

The 24th Curriculum Implantology will kick off in October. Thanks to the strong demand, like the year before, BDIZ EDI and the University of Cologne have set up a second group. You can therefore still register for the curriculum with Brigitte Nötzel at the BDIZ EDI office (office@bdizedi.org).

For more information, visit the BDIZ EDI website at www.bdizedi.org/en/curriculum-implantology.

Curriculum Implantology programme

24th Curriculum Implantology

The BDIZ EDI Curriculum Implantology is a must for beginners—but not only. BDIZ EDI offers profound basic training in oral implantology in cooperation with the University of Cologne, which stands out for the great emphasis it places on hands-on exercises. Due to the pandemic, training units will be held as online events as the flow and content of the Curriculum permit. The sophisticated hygiene concept and social-distancing rules practised by the University of Cologne, with participants divided into small groups in terms of time and space, aim to ensure health and safety during classroom events.

Training modules completed elsewhere than with BDIZ EDI can be integrated into the Curriculum Implantology if their scientific character is recognised.

Benefits include:

- Top-quality instruction
- Small group sizes (maximum attendance: 20–25)
- Affordable fees

Participants will be guided through all eight modules by the Cologne team (Prof. Dr Dr Joachim E. Zöller; Prof. Dr Hans-Joachim Nickenig, MSc; Prof. Dr Dr Matthias Kreppel; Heidi Krumbach; Brigitte Nötzel).

Up-to-date scripts for each module ensure that the common thread is never lost. Each module is designed to systematically build on previous modules. Curriculum participants will receive a complex and comprehensive implantological package to assist them in their future practical work. It ranges from simple standard protocols to 3D-supported augmentation techniques within modern implant prosthetics and maintenance care and also includes complication management.

In keeping with the in-service part-time nature of the Curriculum modules, some presentations that address theoretical aspects of the Curriculum will be held in the form of interactive webinars. Workshops and comparable sessions, by contrast, will always be held face-to-face.

Easy to get started

To ensure easy access to oral implantology as a whole, coverage will be very broad—deliberately including even seemingly self-evident aspects such as protocols, different implant systems, required instrument sets, simple and advanced diagnostics and implant-prosthetic restorative concepts.

The accompanying workshops facilitate subsequent implant surgical and prosthetic training. In addition to the scheduled live surgeries, and following previous joint preparation, implant surgery may be performed on patients presented by participants by one of the Cologne-based speakers, assisted by the participant who introduced the case. To complement the learning results, participant cases will regularly be presented within the group. Towards the end of the Curriculum, the techniques acquired will practised on human specimens.

The integration of current topics and treatment methods (3D-supported surgery, surgical templates, Integration of 3D printing and digital impressions, bone preparation using ultrasound, CAD/CAM technology for bone regeneration, etc.) round off the practical benefits of the Curriculum Implantology. For the final examination, candidates are expected to present and discuss two surgical and/or prosthetic cases.

EB

Info

Course schedule:
1st day: Friday,
2:00 p.m. to 6:30 p.m.
2nd day: Saturday,
8:00 a.m. to 5:00 p.m.

The 24th Curriculum will be in German language only. If you are interested in equivalent training, please contact our office:

BDIZ EDI office
Anita Wuttke
office-munich
@bdizedi.org
+49 89 72069888

The eight modules of the BDIZ EDI Curriculum Implantology

Module 1
14–15 October 2022
Fundamentals of oral implantology

Joachim E. Zöller, Hans-Joachim Nickenig
- Anatomy and histology of the stomatognathic system
- General diagnostics in oral implantology
- Patient education
- Cologne ABC Risk Score

+ *External presenters:*
Thomas Weischer: Complications and legal aspects in oral implantology
Christian Berger: Infection control and documentation; German standard schedule of fees for private patients (GOZ)

Module 2
2–3 December 2022
Indications, diagnosis and treatment planning

Joachim E. Zöller, Hans-Joachim Nickenig, Matthias Kreppel
- High-risk patients and monitoring
- Description of indications
- Avoiding malpositioning
- Patients with coagulation disorders

+ *Workshop I:*
Surgical and prosthetic protocols "implant system"
+ *External presenter:*
Peter U. Gehrke: Prosthetic treatment concepts based on implants I + II

Module 3
10–11 February 2023
Implant systems, instruments, advanced diagnosis

Joachim E. Zöller, Hans-Joachim Nickenig
- Diagnostic tomography
- Fundamentals of 3D diagnostics
- Surgical templates/guide sleeves
- Choice of implants Comparison of implant systems

+ *Workshop II:*
3D workshop with interactive planning
Demonstration of various instrument sets
Case presentations by participants I

Module 4
24–25 March 2023
Implant prosthetics I and minimally invasive surgery

Joachim E. Zöller, Hans-Joachim Nickenig, Matthias Kreppel
- State-of-the-art in tooth extraction
- Implant prosthetics (instruments, impressions, abutments)
- Minimally invasive procedures (flapless surgery, 3D bone splitting, sinus floor elevation)
- Emergencies in the dental practice

+ *Workshop III:*
Surgical and prosthetic protocols
Instrument sets
Modified bone splitting using Piezosurgery (mectron)
Case presentations by participants II

Module 5
12–13 May 2023
Augmentation I: Regional bone augmentation

Joachim E. Zöller, Hans-Joachim Nickenig
- Unfavourable biomechanics vs augmentation
- immediate implant placement
- sinus floor elevation

+ *Workshop IV:*
Sinus floor elevation training on models and animal specimens
Exercise in customised bone regeneration
+ *External presenters:*
Stefan Reinhardt: Special augmentation techniques and complication management
Martin Bonsmann: Sinus floor elevation—indications and complications
P. Marke: Customised Bone Regeneration
Case presentations by participants III

Module 6
16–17 June 2023
Implant prosthetics II and soft-tissue management

Joachim E. Zöller, Hans-Joachim Nickenig
- Antibiotic therapy
- Implant re-entry and soft-tissue corrections
- Implant prosthetics II: Teeth and implants
- Implant prosthetics III: Removable restorations

+ *Workshop V:*
Hard- and soft-tissue management—Exercises on porcine jaws
+ *External presenter:*
Arndt Happe: Soft-tissue techniques, part I and II, for augmentation, implantation and exposure
Case presentations by participants IV
Written examination

Module 7
30 June–1 July 2023
Augmentation II: Bone grafting and distraction

Joachim E. Zöller, Hans-Joachim Nickenig
- Iliac-crest transplants
- Fundamentals and results of distraction osteogenesis
- Implant prosthetics in the anterior region

+ *Practical exercises on human specimens; practical training of the acquired surgical techniques*
+ *External presenter:*
Jörg Neugebauer: Angulated implants—fundamentals and results of iliac crest augmentation and nerve lateralisation
Case presentations by participants V

Module 8
14–15 July 2023
Recall—Coping with complications—Future perspectives

Joachim E. Zöller, Hans-Joachim Nickenig, Matthias Kreppel
- Recall
- Peri-implantitis therapy
- Oral implantologists in court
- Ceramic coating of implants

+ *External presenter:*
Helmut Steveling: Short implants—scientific principles and clinical long-term results—5 years of clinical experience with profile implants

Final exam

Curriculum info on the web
The BDIZ EDI website has more information about the curriculum:
www.bdizedi.org/en/curriculum-implantology/

Planned budget constraints for dental services jeopardises patient treatment

Appeal to patients: Start your perio treatment this year

BDIZ EDI strongly encourages patients in Germany to start their periodontal treatment this year—because next year, the approved funds for the systematic treatment of periodontitis and other periodontal diseases could already be withdrawn.

The culprit is Federal Health Minister Karl Lauterbach's Financial Stabilization Act for Statutory Health Insurance, intended to reintroduce budgeting for contractual dental services starting on 1 January 2023. Technically, this involves limiting the increase in point values for 2023 to at most 0.75 percentage points, and for 2024, to at most 1.5 percentage points of contributory income for the respective year. In more understandable terms, this means a reduction of €120 million and €340 million, respectively, in funds available for the treatment of patients.

The prevention concept for periodontitis treatment—introduced as recently as 2021 by explicit agreement with the Federal Ministry of Health to treat the common disease periodontitis systematically and with great prospects of success—is seriously endangered. The need for treatment in Germany is demonstrably. Every other adult suffers from periodontitis requiring treatment. The Ministry of Health had provided the necessary funds, but these are to be cancelled as of 2023, when budgeting will take effect.

No implant treatment in the periodontally compromised dentition

BDIZ EDI President Christian Berger commented: "There are many reasons for dentists and their patients to oppose the planned budget constraints. For example, there have been significant cost increases for in-office hygiene. Fewer young dentists are establishing their own practice in view of rampant bureaucracy, high operating costs. And wages for the dental team are rising. For us oral implantologists, an important point is that we cannot perform implant treatment in the periodontally compromised dentition—periodontitis must be healed first."

The promising 2021 prevention concept for periodontitis treatment represents a milestone and is based on systematic and long-term treatment. If left untreated, however, periodontitis will cause tooth loss. Periodontitis is also associated with severe general cardiovascular diseases and diabetes mellitus. "The budget constraints of Financial Stabilization Act will reduce this revolutionary new therapeutic approach to absurdity", said Christian Berger.

The BDIZ EDI stands with the German Dental Association and the National Association of Statutory Health Insurance Dentists in their criticism of the planned law. Signature campaigns, protest activities and a petition against the budget cuts, which massively affect dentists and their patients in Germany, are currently underway. BDIZ EDI calls on the affected patients covered by statutory health insurance to initiate their planned periodontal treatment this year to ensure the cost is covered.

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FDI World Dental Parliament

Coming home to Geneva

The 2022 FDI World Dental Parliament returned to Geneva (Switzerland) from 19 to 24 September 2022, welcoming more than 400 delegates from 74 countries under one roof. An integral aspect of FDI, the event allowed for major decisions to be taken by voting members of the General Assembly (GA) as well as the Council. This year's FDI World Dental Federation Parliament was held face-to-face—for the first time since 2019 but still without the "Big One" multi-day event complete with GA and Committee meetings.

The composition of the FDI Executive Committee has remained unchanged. Just last year, Professor Ihsane Ben Yahya (Casablanca, Morocco) had taken over the helm of the World Dental Federation from Dr Gerhard Seeberger. She presided over a harmonious 2022 General Assembly that adopted three new FDI policy statements and revised another two:

New policy statements

FDI policy statements, which detail FDI's position on issues of interest within the oral health community, are put together through consultation, discussion, and consensus among leading dental experts from around the world. This year, the GA adopted five policy statements:

- Bioactive restorative materials
  Regarding the concept of bioactive restorative materials, FDI specifies five criteria to be met for their use, including mechanism of action, scientifically documented effect, duration of effect, side effects and primary purpose (e.g., for use in restoring the form and function of lost tooth structure).
- Noma—eradicating a preventable disease to save lives
  FDI calls for global action to combat noma (cancrum oris). This noncommunicable necrotising disease typically occurs in young children living in extreme poverty. Early treatment can prevent suffering, disability and death. In its Memorandum of Understanding, FDI supports research into a better understanding of the factors leading to the development of noma and recommends that all health and social care professionals in regions with high noma prevalence should emphasize the immense importance of optimal oral hygiene and nutrition and conduct educational campaigns on noma for local populations.
- The role of vaccinations in protecting the dental team
  FDI emphasizes the importance of vaccination in protecting the members of the dental team, who are at risk of contracting an infectious disease from patients in their practice. National dental associations could play a role here, working with public health officials to raise awareness.

The policy statements on prevention in sports dentistry and on mouthguards in sports issued in Poznań in 2016 and in Stockholm in 2008 were also updated.

Election results: newly appointed officers and approved policy statements

The GA is the supreme legislative and governing body of FDI. The GA gathers once a year and sets FDI policies, the strategic plan, missions and aims, and monitors progress on their achievement. Despite the unfortunate cancellation of the 2022 World Dental Congress, FDI held its parliament meetings and conducted a successful GA, where some key decisions were taken.

This included the appointment of council and committee members during the GA and council elections, as well as approval of the 2022 policy statements. The results are as follows:

- Council members: Dr Carol C. Summerhays (USA), Dr Nahawand Thabet (Egypt)
- Dental Practice Committee: Dr Mick Armstrong (UK, Chair), Stefanie Tiede (Germany), Professor Kinga Grzech-Lesniak (Poland), Dr Juna Lee Linton (Republic of Korea)
- Education Committee: Professor Katalin Nagy (Hungary), Dr Meshari Faraj Alotaibi (Saudi Arabia)
- Membership Liaison and Support Committee: Professor Paula Perlea (Romania, Chair), Dr Makiko Wasaki (Japan), Professor Yi M Liu (China), Dr Manuel Sergio Martínez (Mexico), Dr Oluwanrotimi Akanbi Clement (Nigeria)
- Public Health Committee: Dr James Taylor (Canada)
- Science Committee: Dr Jeffrey Platt (USA), Dr Samira Osailan (Saudi Arabia)

Additionally, the Council approved:

- Dr Wendpoulomdé Aimé Désiré Kabore (Burkina Faso) as the new CE Programme Director for Africa.
- Dr James Taylor (Canada) as the newly elected Chair of the Chief Dental Officer/Dental Public Health Section.

The next FDI World Dental Congress will be held in Sydney (Australia) in 2023, where a scientific congress will finally be part of the event again.

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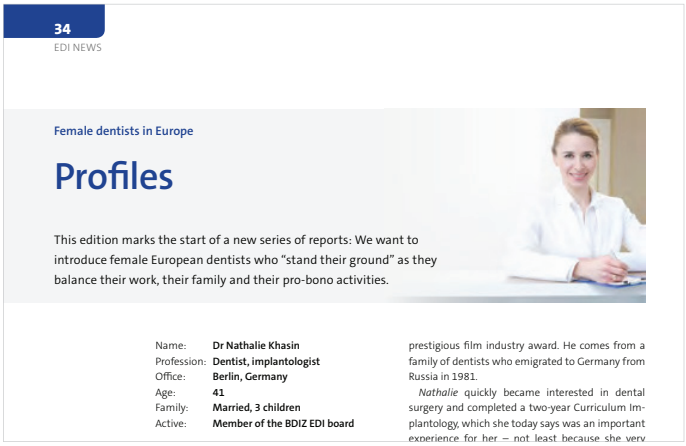
Source: FDI

Did you ever know…

…that all guidelines
of the European Consensus Conference (EuCC) held under the auspices of the BDIZ EDI are available for download in both English and German? Topics are e.g. update ceramics in implantology and implant prosthetics. In addition to abutments and superstructures, one-piece and two-piece ceramic implants were also scrutinized. New guidelines cover peri-implantitis, the Cologne ABC-risk score.
For more information see:



Female dentists in Europe

Profiles

This edition marks the start of a new series of reports: We want to introduce female European dentists who "stand their ground" as they balance their work, their family and their pro-bono activities.

Name: **Dr Nathalie Khasin**
Profession: **Dentist, implantologist**
Office: **Berlin, Germany**
Age: **41**
Family: **Married, 3 children**
Active: **Member of the BDIZ EDI board**

prestigious film industry award. He comes from a family of dentists who emigrated to Germany from Russia in 1981.

Nathalie quickly became interested in dental surgery and completed a two-year Curriculum Implantology, which she today says was an important experience for her – not least because she very

…that the BDIZ EDI
is introducing female dentists throughout Europe in a loose succession of interviews in its *EDI Journal*? The new format documents their lives and careers and shows how they assert themselves at work and in their private lives. The interviews can also be read online.

For more information see:

…that the *EDI Journal*
is sent out to all members of the partner associations of the BDIZ EDI? The only requirement is membership of the respective association in the BDIZ EDI. The partner associations and their work are regularly presented in our journal. Back issues (PDF files) of the *EDI Journal* are also available online.

For more information see:

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www.cleanimplant.com/dentists

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FDI World Dental Federation introduces

Sustainable Dentistry toolkit

Dental practices can use the tools of this toolkit as a guide to make their work more sustainable. They can also use it to track their progress and receive "awards" for their efforts.

The FDI World Dental Federation today launched a Sustainable Dentistry toolkit to help dental practices take the right steps to make their work environmentally sustainable. In providing dental practices and dental teams with tools and strategies to implement "greener" processes and workflows and to track their progress, the FDI aims to help reduce the industry's environmental footprint significantly.

A joint statement on sustainable oral health was issued earlier this year, outlining challenges and solutions when it comes to improve sustainability in dentistry. The statement recognises that the dental industry has a responsibility to provide sustainable dental care without compromising patient welfare.

"Dentists and dental teams can take an active role in reducing the environmental impact of dentistry without sacrificing the highest standards of patient care. The Sustainable Dentistry toolkit, available online, is a step in the right direction. It helps dental practices take appropriate action to reduce their carbon footprint", explains FDI President Professor Ihsane Ben Yahya.

Professor Ihsane Ben Yahya, President of FDI.

"I hope that the work we do today will have a positive effect on future generations, so that they, too, can live healthy and happy lives on our planet."

The toolkit was developed as part of FDI's "Sustainability in Dentistry" project. It is an interactive platform that offers guidance and suggests practical solutions to users striving to work more sustainably. Dentists and their teams can tackle various challenges and earn bronze, silver and gold awards for their practice. These interactive challenges provide tools needed to raise awareness, implement changes and become more sustainable. Dental companies and practices worldwide can register to make greener choices and demonstrate their commitment to planet welfare.

Source: FDI

Sustainability in Dentistry: A FDI project

The FDI's "Sustainability in Dentistry" project was inaugurated to promote a commitment to reducing the collective carbon footprint of dentistry. It is aimed at dentists, patients and the entire dental supply chain. The project will develop a set of tools and resources to help dental practices and patients become more sustainable. The joint statement was developed in collaboration with various stakeholders. Its work to date has culminated in the development of the online Sustainable Dentistry toolkit to help dental practices reduce their environmental impact. A statement of commitment to sustainable dentistry has also been developed. It includes guidelines and targets for a sustainable procurement and supply process. Stakeholders throughout the supply chain are encouraged to sign this commitment.

The project is supported by founding partners of the FDI: www.fdiworlddental.org/sustainability-dentistry

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FDI Education Committee

Introducing Professor Katalin Nagy

Professor Katalin Nagy, Szeged/Hungary, has been elected for the Education Committee of FDI. She's active member of the European Consensus Conference under the auspices of BDIZ EDI. What does she expect from her new assignment?

What is of interest for you working in the FDI Education Committee?

I was working in higher education in the last 40 years. The experiences gained could be a great added value for the Committee's further vision and activities. Additionally, I was always heavily involved in the activities in ADEE (which is the European Dental Education Association) so I'm sure I can help the Committee to include the European view of dental education.

Who will be your co-worker in the Committee?

The Education Committee consists of six members plus one liaison councillor. Chair is Professor William Cheung (Hong Kong SAR China). The function of Vice Chair shall be exercised by Professor Marzena Dominiak (Poland). The Committee also includes Dr Antonio Estrada Valenzuela (Mexico) and Dr Enrico Lai (Italy). New is next to me Dr Meshari Faraj Alotaibi (Saudi Arabia).

What is your focus within the next three years?

Undoubtedly digitalisation makes a huge change in dental education which is not even the "future" but the "present" of dentistry these days. But this requires a huge amount of investment from the institution and practice side. We need to face this challenge and find acceptable solutions.

Good luck for your tenure in the FDI and thank you for answering our questions.

Interview by: Editor-in-Chief Anita Wuttke

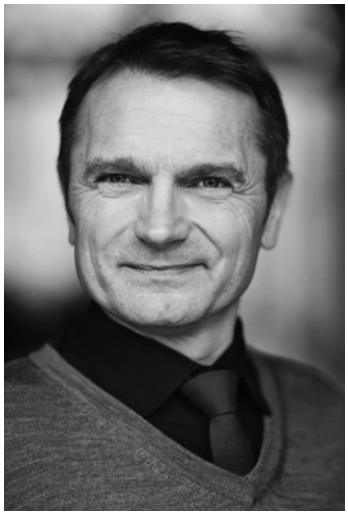
About Professor Nagy

Professor Dr Katalin Nagy DDS, Ph.D, DSc
Head of Department of Oral Surgery, Faculty of Dentistry University of Szeged, President of the Hungarian Dental Association, Co-President of the Hungarian Implantology Association, Past-President of the Hungarian Fulbright Association

Freddie Sloth-Lisbjerg takes the stand

President's perspective

For the 2021 annual report of the Council of European Dentists (CED), Dr Freddie Sloth-Lisbjerg, Denmark, took his stand about the coming three years of his presidency.



"I am happy, proud, but also humble about the trust the CED members have given me by appointing me President for the coming three years. This gives me the opportunity to continue promoting dentistry and oral health as integrated parts of general health and address the challenges, both old and new, that our profession will face.

The issues the CED will be working on in the next months are closely interlinked with the movement of the European Union towards assigning more power to central political and administrative institutions in and around Brussels, including in health. For now, we have an open window in our communication with the European Commission, particularly when it comes to dental education.

In the future revision of the Professional Qualification Directive, we must ensure proper clinical training of the young dentists as key to patient safety. Dental materials and devices have to be safe, easy to handle and in the future also environmentally sustainable. We have to find a way to an amalgam-free future that is payable for the patient without being a challenge to dentistry.

In terms of CED engagement in the European arena, we are excited about working even more closely with the EMA and the ECDC. The relationship with the two EU bodies was strengthened during the last few years and during the COVID-19 pandemic, which allowed us to share our knowledge about infection control in dentistry and demonstrate that dental offices are safe. We will also continue to have a strong relationship with other stakeholders active in EU policy, among other topics on antimicrobial resistance, the "silent pandemic". As part of the Coalition for vaccination we will promote, in cooperation with medical professions, patients and stakeholders, a science-based approach to vaccination, both against COVID-19 and other communicable diseases.

Despite our past successes, we are of course always looking to the future. Apart from continuing to work on the already mentioned issues, we need to follow the development of partial access to the profession of dentist, the impact of corporate dentistry, and the implementation of e-health initiatives and related treatment of sensitive patient data.

Working on the attractiveness of dentistry to young generation

Moreover, we will be dealing with societal trends that affect health and oral health, such as the European ageing population and vulnerable categories of patients. Additionally, the emergence of new technologies requires the development of new skills, digital skills especially, and new ways of treatment delivery. We are also experiencing a decrease in the attractiveness of dentistry as a liberal profession to the younger generation, where we see expectations for a different work-life balance and a preference to work in bigger practices over individual ones.

All this will force us to find new ways to organise dentistry, to use the dental workforce and to collaborate with other health care workers. These challenges present themselves as opportunities to improve our profession and keep safeguarding our patients' health and wellbeing."

Dr Freddie Sloth-Lisbjerg
CED President

FDI European Regional Organization (ERO)

Focus on dental chains

Led by Dr Simona Dianiskova (Slovakia), the ERO meeting of the European delegates of the World Dental Federation (FDI) took place in Geneva. The meeting had been called to define the positions of the European dental associations and organisations within the World Parliament of the FDI.

ERO's collaboration with the European Dental Students Association (EDSA), which is active in 33 countries, is beginning to bear fruit. Initiated by Past President Dr Michael Frank, its science award was offered for the first time. Twenty papers were submitted on topics such as antimicrobial resistance, the digital transformation and equality of status of dental students at universities, with awards presented to three entrants.

Reports were also received from the various working groups that form the backbone of ERO. The "Aging Population" working group briefly presented its toothbrushing app, aimed at caregivers pre-trained in dental care. The app can be downloaded from the website and is ready for translation into other languages. ERO will shortly send the pertinent link to all members so that country-specific versions can be produced locally. The new ERO Chair Dr Jean-Philipp Haesler (Switzerland) was confirmed in office.

Dr Gerhard Seeberger (Italy), FDI Past President, reported on the achievements of the "Liberal Dental Practice" working group. The ERO meeting in Geneva confirmed his appointment as Chairman of the working group, succeeding Dr Ernst-Jürgen Otterbach. Seeberger reminded the attendants of the Liberal Dental Practice survey, urging them to participate; in this he was strongly supported by the ERO President. Seeberger paid tribute to Otterbach's work as exemplified by an article published by Quintessence, which reflects the position of the German Dental Association on the delegation of tasks within the dental practice: yes to delegation, no to substitution.

The ERO's position on dental care centres was discussed at length. The meeting unanimously held that investor-driven dental chains were not a desirable option and further supported this stance by referring to the ERO's critical evaluation ahead of the Geneva meeting: "Enterprises not owned by dentists are increasing their stakes in the dental sector day by day, and unfortunately it has been observed that they act based on profit rather than promoting health. This situation threatens independent therapeutic choice and endangers the high quality of dental treatments that forms the basis of free dentistry." The ERO sees the practice of dentistry as such as the sole responsibility of dentist(s) and works to facilitate independent, non-commercialised treatment supervised by dental professional organisations.

Other working groups also delivered their reports, including "Relation between Dental Practitioners and Universities", "Continuing Medical Education in Dentistry" and "Digitalisation in Dentistry". The "Integration" working group is currently creating an overview showing the cooperation of national dental associations with dentists, ministries of health, continuing education and the different billing systems. Initially designed to work at the

EU level, it is envisaged to include non-European FDI countries as well. The Chair of this working group is Professor Vladimer Margvelashvili (Georgia). The "Continuing Medical Education in Dentistry" working group is working on a survey that will put dental students in focus. The expected findings will help to find ways to compensate for theoretical and practical gaps in dental education. The "Dental Team" working group called on member countries to update the professional and training standards of dentists and their teams in order to meet the challenges posed by the ongoing digital transformation in dental practices.

The European Regional Organization (ERO) within the World Dental Federation (FDI) in Geneva.

Conclusion

The way the ERO sees it, maintaining the liberal-profession status and self-administration and safeguarding of the high standard in Germany is the most important objective. This task is supported by the Council of European Dentists (CED), working in close collaboration with the World Health Organization (WHO) Regional Office. Past President Dr Michael Frank (Germany) had described the cooperation between ERO its superordinate organisation FDI in an interview as follows: "Among the various regional associations under the umbrella of the FDI, ERO is among the best in terms of structure and organisation. This makes our actions effective and gives us an opportunity to bring European concerns and proposals to bodies such as the General Assembly in a way that ensures that we are heard, understood and, in many areas, listened to, with a view to achieving agreement." This will require further work, as ERO President Dr Simona Dianiskova emphasised in her closing remarks, calling for ever better cooperation with the FDI.

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The ERO Board (left to right): Monika Lang, ERU head office; Oliver Zeyer, board member; Taner Yücel, Secretary General; Dr Simona Dianiskova, President; Dr Edoardo Cavalle, President-elect; Paula Perlea, Board member.

Interview with Dr Helfried Bieber, Flottenarzt a.D. (Chief Dental Officer [ret.])

Dentistry is dentistry—inside or outside the Armed Forces

Dr Helfried Bieber, chief dentist of the German Armed Forces, has retired from the armed forces after an extensive career in the military. He had maintained intensive contacts with German dental organizations, a career crowned in 2019 by his leadership of the Section of Defence Forces Dental Services (SDFDS). The FDI General Assembly in Geneva in September was among his last official acts. In this interview, Germany's top military dentist speaks about his tasks, achievements and goals.

What were your official positions in the professional sphere during the time of your active service?

As Chief Dental Officer of the German Armed Forces with the rank of Captain, I was the first German Chair of the SDFDS, the military dental section of the FDI World Dental Federation. The FDI is made up of more than 195 member associations from 130 countries. Given the high level of international confidence and recognition of the performance of dentistry in the German Armed Forces, which we also enjoy in the field everywhere in the world, you can imagine what an honour this has been for the Medical Service for one of their own to be delegated to serve in this interesting and important role.

For me, cooperation at eye level and "learning from equals" have always been in focus. That is why we have continued to expand and intensify our cooperation with the civilian healthcare system in recent years. In the meantime, this has resulted in excellent collaboration between the Department of Dentistry within the German Armed Forces and the various professional bodies, organisations and scientific societies—including the German Dental Association (BZÄK) and the various State Chambers of Dentists, the German Federal Association of Contract Dentists (KZBV) and its state-level equivalents, the German Society of Dentistry and Oral Medicine (DGZMK) and its scientific arms, but also other professional organisations, universities and the dental industry.

Medical officers have served on numerous BZÄK committees relevant to the armed forces for many years, including international affairs, radiology, practice management, digital technology, education and infection control.

Personally, I was able to contribute the views and interests of the Armed Forces Medical Service through regular invitations extended by the Board of the BZÄK—which has proved especially useful in a time of pandemic. I am very grateful for this practical cooperation.

The Department of Dentistry within the German Armed Forces has created a well-developed network with its partners in the international arena—including but not limited to NATO. In addition, regular exchanges take place that include mutual invitations to participate in events and symposia.

What were your most important goals? Have you achieved them?

Caring for the oral health of soldiers in action is important to me. This is a challenge for us as dentists in the military. We not only represent the dental profession there, but we also have the obligation to ensure dental health and to offer and carry out any necessary treatment under sometimes difficult conditions.

I had sought to improve by pooling and evaluating the experiences of other nations for the benefit of the soldiers whose lives and well-being are entrusted to us.

The special conditions in the field, such as stress, climate challenges, accommodation needs also encourage new ways of thinking. For example, we carry out military medical research projects on the prevention of missionrelated deterioration in soldiers' oral health. Or just think of the special living conditions in shared accommodations. Anti-snoring therapy, for example, is also important not least for sociohygienic reasons.

There have also been significant changes in the area of intramission care with regard to mobility.

I worked to see dentistry perceived as an integrated part of general medicine in the armed forces as in civilian life. Part of this was that we gave dentistry more of a preventive orientation within the armed forces, well ahead of the introduction of the new services for the treatment of periodontitis in the civilian sector, for example. And of course, dentistry is dentistry—inside or outside the German Armed Forces

What are your wishes for dentists in the German Armed Forces in the future?

Oral health all over the world is not really our purview; we have neither the strength nor the means to accomplish that. As elsewhere throughout large parts of NATO, a dental risk qualification system, the so-called Dental Fitness Class, has been practised very successfully in the armed forces for many years. It has been important to me to discuss this targeted approach with other military colleagues around the world. Every soldier should be aware of the general observation that "health starts in the mouth"!

I would like to see dentistry in the German Armed Forces to master the challenges ahead and for professional satisfaction to increase further through comradely and collegial interaction using up-to-date infrastructure and materials and infrastructure—particularly IT infrastructure. The satisfaction of the army personnel to be cared for is also eminently important. I confidently hope that we as military dentists will remain integrated into the civilian dental community. The same rule applies as in the civilian community: Together we will be strong!

Thank you for this interesting interview—and all the best wishes for your future endeavours.

Interview by: Editor-in-Chief Anita Wuttke

Europe Ticker +++

Dentistry in the National Health Service (NHS)

NHS contract unattractive for dentists

Ever since the National Health Service was founded in the UK in 1948, access to NHS dentistry has been problematic. Free treatment was discontinued in 1951 because it was found to be unaffordable. Since then, a system of subsidies has been in place, with certain patients contributing to the cost of treatment. Alongside this, a strong private dentistry market has developed; an estimated one in seven adults relies on it. This leaves dentists with a real choice about how much NHS work they want to do. Most NHS dentists in the UK are self-employed rather than being directly employed by the health service. Unless they fully meet the terms of their NHS contracts, the money they received will have to be returned. The current NHS contract in England and Wales, dating back to 2006, is unattractive to dentists in that it does not fairly compensate them for their work. Austerity also squeezed budgets, and then the pandemic hit, creating a backlog of patients with worsening oral health. This combination of factors appears to have prompted more dentists to walk away—the numbers doing NHS work dropped by 10 per cent last year. For the British Dental Association (BDA), NHS dentistry is "at a turning point after a decade of underinvestment". After a decade of "brutal austerity measures", an additional £880 million per year is needed just to restore funding to 2010 levels. "There doesn't appear to be a commitment, really, from the Treasury to actually invest in [dentistry]", said BDA Chair Eddie Crouch. "Patients are having teeth removed because it is a cheaper option than actually saving the teeth. The entire system is set up for health inequalities, and that significantly needs to change."

Source: BBC research

Measures demanded against externally financing of MCCs

Germany's dentistry is top-level

The German Federal Association of Contract Dentists (KZBV), the German Dental Association (BZÄK), and the Conference of Health Ministers of the German Federal States urgently appealed to politicians to take measures against externally funded medical care centres (MCCs), because professional supervisory authorities such as the dental chambers do not have the right of enforcement there. "Dentistry is not a trade", BZÄK President Professor Christoph Benz said. "Dentistry in our country is top-level internationally—and that without outside capital, which will only lead to profit-related pressure, overuse and misuse of care, and lower treatment quality. Dentistry is a personal service to and for people, not assembly line work." A unanimous resolution of the Conference of Health Ministers in late June and several surveys on the subject reinforce the calls of BZÄK and KZVB for urgent legislative action. In addition, there have been calls for a mandatory register of MCCs, as well as the disclosure of ownership structures under company law to be displayed directly on the practice sign and website, to promote transparency and patient protection.

Source: IWW Institut für Wissen in der Wirtschaft

Administration, health care and crime prevention

Spain—a pioneer of digitisation

Whether in administration, the health care system or the fight against crime: the digital transformation is well ahead in Spain. Next to benefit are the country's countless micro-enterprises. But where there is light, there is shadow: some people feel left behind and complain about a growing digital divide. Tax assessment notices and registration certificates that can be downloaded immediately from the authority's website—without having to stand in line and without protracted processing times. Independent entrepreneurs adjust their pension contributions via the social security fund's website. Citizens monitor government contracting on an official state data portal. The European Commission gives Spain high marks; while the country is still behind the Baltic and Scandinavian states in terms of digitisation, it is well ahead of the larger EU states Germany, France and Italy. As for the state-run health care system, the patient data of all Spaniards are also recorded digitally—the result of a gradual process that began 15 years ago. Meanwhile, there is the electronic health card, there is an app, and prescriptions are stored on a server that the app accesses. Patients visit the pharmacy with their smartphones, open the app and get their medicine. Digitisation proved to be particularly beneficial for the state health care system when it came to the recent vaccination campaigns. A full 82 per cent of Spaniards have received two COVID-19 shots; 87 per cent over age 50 and 92 per cent over age 60 have also received a booster vaccination. Recording the vaccinations statistically was not a problem thanks to the electronic acquisition of patient data. There is also a state vaccination register. Spain is far ahead when it comes to high-speed internet connections, although there are still considerable gaps between coverage in the cities and in the countryside.

Source: Deutschlandfunk

Save the date: FDI World Dental Congress

2023 in Sydney—live

"We are thrilled to announce that after four long years the FDI World Dental Congress is returning face-to-face, in Sydney, Australia from 24 to 27 September 2023. We are delighted to co-host this meeting jointly with our member the Australian Dental Association and look forward to welcoming you to the coastal metropolis, Sydney—the largest city of Australia", reads the announcement on the Federation Dentaire Internationale (FDI) website. The Congress is designed to advance the state-of-the-art in dentistry by presenting an extensive scientific program, interactive forums and a dental exhibition. The world's largest international dental association will thus be "going live" again at its World Congress in 2023.

Source: FDI

Dental student convicted in Saudi Arabia

34 years in prison for a handful of likes?

Saudi PhD student Salma al-Shebab has been sentenced to 34 years in prison and an additional 34-year travel ban—for sharing critical posts on Twitter. Hers is not an isolated case. While the kingdom is opening up socially, it is increasingly turning authoritarian politically. The 34-year-old, a mother of two who is studying dentistry in Leeds (UK), had been arrested while she was visiting her home country. If she really has to serve her sentence to the end, she will be 102 years old by the time she will once again be able to move freely. Al-Shebab's offence, according to the court judgement seen by ESOHR, a Saudi human-rights organisation, was that she had shared on Twitter messages critical of the arrest of women's rights activists in her home country.

Sources: NZZ/BBC

100 years of IDS: Many key players have registered

High number of exhibitors

IDS, the International Dental Show in Cologne is demonstrating all of its strengths: At the coming event from 14 to 18 March 2023, almost all of the relevant key players have already confirmed their participation. In total, IDS is currently recording well over 1,000 exhibitors as well as 11 country participations with over 400 companies represented.

"The global appeal of IDS as the most important industry platform is the driving force for both a successful present and future of the international dental family. 100 years of IDS stands for innovation and constant performance at the highest level and is thus also a synonym for the strength of the dental industry. And together we will position IDS as the leading international dental trade fair over the next decades," Mark Stephen Pace, Chairman of the Association of German Dental Manufacturers (VDDI), and Oliver Frese, Chief Operating Officer of Koelnmesse, emphasised in a joint statement. Once again, IDS will cover the comprehensive spectrum of the dental world—from the dental and dental technology section, infection protection and maintenance, through to services, information, communication and organisation systems as well as organisation tools.

An overview of all of the top players registered to-date as well as the overall preliminary list of exhibitors of IDS 2023 is available at: http://Preliminary exhibitor list of IDS Cologne 2023 | IDS (ids-cologne.de)

"We are delighted to take part in IDS 2023 and come together with dentists, laboratories and specialised trade partners from all over the globe again to engage in a knowledge exchange and network for a whole week," said Walter Petersohn, Chief Commercial Officer at Dentsply Sirona. "The diversified programme at our booth aims to support our customers in offering their patients the best possible dental treatment. You will be excited to see which product innovations we are going to introduce next year."

"In its capacity as an industry association, VDDI is indispensable because it assists its members in dealing with the manifold, current and future challenges: MDR and regulatory framework conditions, export support and last, but not least as organisers of the leading global dental trade fair, IDS. If VDDI didn't exist, it would have to be urgently invented!"

Christoph Weiss, Chief Operating Officer, BEGO

"100 years of IDS, i.e. 100 years of world-class dental developments! There is no better place to present new products for the first time! We are looking forward to an international audience of experts!"

Werner Slapnig, Sales Director, Erkodent

"We are looking forward to participating at IDS next year. Not merely because IDS is considered to be the leading trade fair of the worldwide dental industry and because we look back on a long-term successful partnership, but also because it offers the perfect platform for an international exchange. This enables us to present products and solutions and engage in a targeted exchange with dentists, dental technicians and dental hygienists at one location."

Norbert Wild, Managing Director, Ivoclar Germany

"It really is a special honour to take part in IDS again in the anniversary year 2023. Over the past years we have always been able to present our innovative technologies from the professional world and engage in an intensive exchange with the users at this international trade fair. We are looking forward to sharing our company's latest product developments and their applications with our customers and partners at the next IDS."

Carsten Barnowski, Head of Sales & Marketing D-A-CH, Kuraray Europe

Numerous group stands have also applied to take part at the jubilee event of IDS 2023: So far, groups from Argentina, Brazil, Bulgaria, China, Israel, Italy, Japan, Hong Kong, Korea, Singapore and the USA have registered. IDS 2023 will be staged in Halls 1, 2, 3, 4, 5, 10 and 11 of the Cologne fair grounds on exhibition space spanning around 180,000 square metres.

IDS is celebrating a double anniversary next year: Not only the fortieth edition is being staged from 14 to 18 March 2023, the leading global trade fair of the dental industry is also looking forward to its 100th birthday. The success story of the dental world is inseparably linked with IDS, because the leading trade fair is based on a system of values that makes it unique. 100 years of IDS stand for the depiction of the industry in its entirety, for innovations and market trends, for a consistent and open comparison of performance in the sense of the Olympic principle and last but not least for a leadership claim as the largest international industry platform that has been repeatedly confirmed for decades.

BDIZ EDI will be there as well—together with a European partner association in Hall 11.2, Stand O61.

Source: VDDI, IDS

About IDS

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

IDS 2021 in Cologne.

IDS is coming up in March 2023

Minimally invasive trends in endodontology

There is a trend towards minimally invasive methods in the field of endodontics and even towards regenerative measures. The International Dental Show (IDS) that is being staged in Cologne from 14 to 18 March 2023 shows what is possible today and in the near future.

Impression IDS 2021.

Endodontic files are becoming more flexible and more resistant to breakage. In the meantime, this is the case to such an extent that it is changing the concepts and methods. The tooth structure can be spared more and more frequently. The art lies in achieving the right balance: Less is taken away in the coronal area and yet sufficient space is created in the apical region to allow effective rinsing. This method does however restrict the view of the orifices in comparison to a more invasive preparation. The person carrying out the treatment can however obtain the best result possible by utilising a bright dental microscope. This conservative approach gives him the security that even if further treatment is necessary there is sufficient substance left over to enable a safe post-endodontic treatment. IDS shows which files, microscopes and—for an initial insight—magnifying glasses are most suitable for the current methods.

Today, the chosen therapy for inflamed pulp can be a less invasive method: Less often pulpectomy, instead more frequently pulpotomy. One is familiar with it from the treatment of milk teeth, where it is used to support the space retainer function of the latter. But pulpotomy can also be successful even after the root growth has finished. In this case, the wound that arises after the vital amputation is treated using a suitable material. Whereby hydraulic calcium silicate cement or MTA (Mineral trioxide aggregate) is increasingly replacing the classically implemented calcium hydroxide. MTA-based bioceramic

IDS 2021 in Cologne. 2023 will be the 100th anniversary of IDS.

sealers are also becoming more popular. Because newer products appear to be completely eliminating any existing reservations particularly regarding their suitability for possible follow-up treatment.

At present, endodontics is going way beyond the boundaries of conservative treatment methods for the hard tissue and tooth preservation and is even progressing forward in the direction of revitalisation and even regeneration. This is possible with the aid of tissue engineering: The tissue is recreated. To this end, pulp tissue from local stem cells is placed on an individualised substrate. An autologous graft then forms through the activation of endogenous growth factors.

In the case of multi-root teeth, a combination between a conventional root canal treatment (strong inflammation of the pulp through to far into the root canals) and tooth-preserving pulp treatment (well-containable inflammation of parts of the pulp) can even be the chosen therapy. Depending on the clinical situation, it is also possible for the dentist to even carry out individual types of treatment for the different canals of one single tooth. Endodontics already offers finely differentiated options today.

There are also more and more options for dividing up the tasks between the general dentist and the specialist. The following is already true today: A large spectrum of digital tools are available for endodontic backward-planning—from 3D X-rays through to drilling templates. This helps the person carrying out the treatment to maintain the ideal angle for the introduction of files. The specialist can carry out this stringent planning and either subsequently complete the execution himself/herself—or not. Because the point is here: The specialist can alternatively refer the patient back to the family dentist and the latter carries out the treatment using the digital documents supplied. IDS 2023 presents a unique abundance of suitable software for the endodontic planning and smooth communications between the different practices involved.

In some cases, the exhibiting companies have over 100 years of experience in the field of endodontology often with roots in fine mechanical precision work. For instance, the ISO standardisation of endodontic instruments in the 1960s and the introduction of rotating nickel/titanium instruments (NiTi) in the 1990s were among the most important milestones.

The experts particularly consider the transition from a sequence of stainless-steel manual files and several rotating Gates-Glidden drills over to NiTi files as a decisive clinical step forward. Executions with variable conicity then made it possible to achieve the desired safe and deep preparation with a shorter sequence of instruments. Sporting a rectangular, eccentric cross-section in the cutting area, other files proved particularly effective as a blocking protection and for debris removal. Instruments with reciprocal motion characteristics brought about the opportunity to instrument the odd root canal from A to Z using one single preparation file.

"Enhancements and alternatives to recognised endodontic treatment routines have repeatedly been presented at IDS," said Mark Stephen Pace, VDDI Chairman (Association of German Dental Manufacturers). "That was already the case at the very first trade fair of its kind in the year 1923; for example in its era among others the development of the Walkhoff paste was considered to be a novel bacteria-eliminating root filling material. And the same will also be true in 2023 when we celebrate the 100th anniversary of IDS. Digital methods arrived especially on the endodontics scene a little later than in the area of prosthetics, but now I am observing that they are also creating new scope for family dentists and specialists. The thing that impresses me most is how much the opportunity for maintaining natural teeth can be increased thanks to new methods of tooth preservation and regeneration of the pulp. Last, but not least this is directly noticeable via a positive sensitivity test! As the leading global trade fair of the dental industry, IDS 2023 provides a unique orientation as to how a dental practice can strive to attain these achievements."

Source: VDDI, Germany

Judgement of the European Court of Justice (ECJ)

Combating corruption vs protecting personal data

Data protection is known to be in constant latent conflict with other public interests. In a recent ruling, the ECJ addressed the extent to which the two areas of anti-corruption and data protection can be reconciled and which pertinent considerations must be balanced. In addition, the Court laid out the conditions under which Article 9 of the General Data Protection Regulation (GDPR) applies to the indirect disclosure of sensitive data.

Disclosure of sensitive data

The ECJ ruling of 1 Aug 2022 (Case C-184/20) concerned a reference for a preliminary ruling from the Vilnius Regional Administrative Court, Lithuania (Vilniaus apygardos administracinis teismas).

The question submitted to the ECJ was whether the unrestricted disclosure of personal data pertaining to the director of an environmental protection organisation can be justified at all pursuant to Articles 6 and 9 of the GDPR, and if so, what extent of data processing may be permissible. According to Lithuanian law, the head of a publicly financed organisation or authority must provide personal information to the Chief Ethics Commission (Vyriausioji tarnybinės etikos komisija), to be published on the Commission's website.

The case at hand involved, inter alia, the indirect disclosure of sensitive data. The data disclosed included the name of the affected person's (the data subject's) life partner, allowing conclusions to be drawn as to the person's sexual orientation.

Balancing transparency and data protection

The heart of the issue was the extent to which the disclosure of personal data is necessary to pursue anti-corruption and transparency objectives.

For an overview of the applicable tests, see our blog post on data processing based on a balancing of interests. The disclosed data included the names of the head of the authority and of his spouse, their occupations and those of his relatives, as well as a list of transactions of more than EUR3,000 in value. Hence, the circle of affected persons included not only the head of the authority himself but also persons close to him.

In its assessment of the case, the ECJ set out in detail the conflicting interests: combating corruption on one hand and protecting personal data on the other. With regard to the severity of the interference by the disclosure of personal data, the ECJ concluded that this had to be regarded as a serious interference with the fundamental rights of data subjects to respect for private life and to the protection of personal data.

On the other hand, the ECJ also made it clear that combating corruption is of great importance in the EU. The Court emphasised that "corruption threatens the rule of law, democracy and human rights, undermines good governance, fairness and social justice, distorts competition, hinders economic development and endangers the stability of democratic institutions and the moral foundations of society"

In this context, the following are of particular importance for the "balancing exercise" in individual cases:

- The prevalence of corruption in the respective country
- The position of the person concerned and the person's responsibility for the sound management of public funds

The decision

The ECJ concluded that the comprehensive publication on the website of the Chief Ethics Commission in particular is not justified by Articles 6(1)(c) and (3) of the GDPR in light of Articles 7, 8 and 52(1) of the European Charter of Fundamental Rights. Any publication of personal data may only encompass data relevant to the objective of combating corruption, such as any self-employed activities and the manes of legal entities in which the data subjects and persons close to them are involved as partners or shareholders. This assessment was essentially based on the considerable scope of a publication on the Internet and on the principle of "data minimisation" enshrined in Article 6(1)(c) of the GDPR.

In its decision, the ECJ also had to decide whether the acts of data processing are subject to the stricter requirements of Article 9 of the GDPR in the case of indirect publication of sensitive data pursuant to that provision. This question arose in the present case because the person affected lives in a registered civil partnership; if the name of his civil partner were made public, anyone could infer his sexual orientation. Here, the ECJ has clearly ruled in favour of comprehensive protection of personal data, clarifying that "data that are capable of revealing the sexual orientation of a natural person by means of an intellectual operation involving comparison or deduction fall within the special categories of personal data, for the purpose of Article 8(1) of Directive 95/46 and Article 9(1) of the GDPR".

ECJ sets out limits for balancing interests

In its ruling, the ECJ pointed out that data protection actually constitutes a major factor in the fight against corruption, setting out the limits within which the diverging interests are to be balanced. It also becomes clear that the ECJ is set to construe the concept of sensitive data broadly, meaning that such data may well be protected even where they may not be immediately recognisable as such.

Source: Dr. Datenschutz Intersoft Consulting Services

More information

The judgement is accessible in English here:

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.

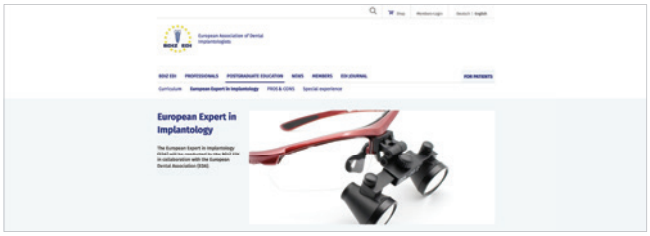
That quality is of paramount importance to BDIZ EDI is no secret. BDIZ EDI has demonstrated this in many different areas—legal and accounting, materials testing, postgraduate education, the annual Guidelines of the European Consensus Conference (EuCC) on current implantological issues and finally the 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-organised 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-recognised 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 recognised 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 recognised, 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.

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.

Digital support for simulating bite alterations in the periodontally compromised dentition

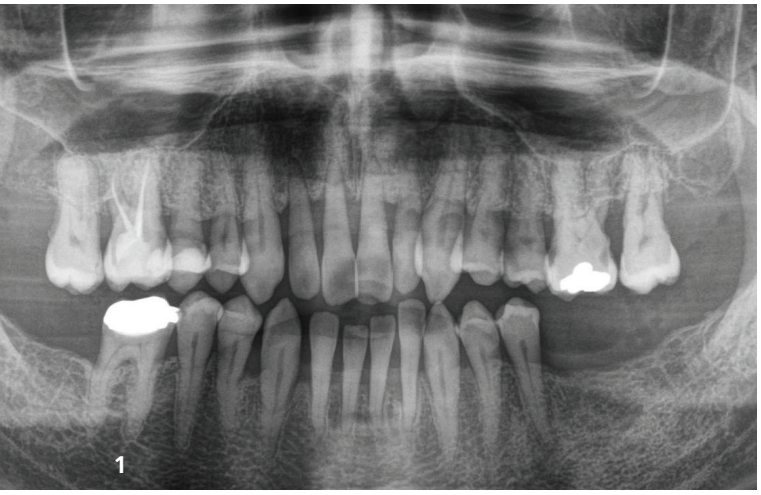
Prof. Dr Jörg Neugebauer, Dr Steffen Kistler. Dr Ingo Frank, Dr Jacqueline Meier, MTD Siegfried Weiß, Dr Frank Kistler and Prof. Dr Günter Dhom, Germany

Achieving stable long-term results with implant-supported restorations in patients with periodontally compromised teeth can be challenging in many respects. Patient acceptance is of vital importance for keeping the patient compliant and motivated. Issues to resolve include the best way to preserve existing tooth structures, the right timing for implant placement, the most suitable healing mode and the choice of restoration type. Meeting the patient's desire for optimum function and aesthetics after tooth removal is never an easy task for the dental and laboratory teams—especially in patients with periodontal disease or misaligned teeth. The anticipated prosthetic result is usually simulated with the help of a mock-up. An initial step can be a visual simulation using digital technology. If this visualisation is not enough to arrive at a treatment decision, CAD/CAM technology can translate a digital design into a mock-up that additionally facilitates functional testing.

Patients with generalised periodontal disease will require a prosthetic restoration if progressive bone loss persists, even if stringent periodontal maintenance is performed.[1] Implant-prosthetic solutions avoid fixed partial dentures supported by compromised natural abutment teeth.[3] The so-called complete oral rehabilitation, involving a reduced number of implants restored with a full-arch fixed denture, has been widely propagated in recent years.[17]

However, this procedure requires the patient's entire residual dentition in the affected jaw to be removed. Patients may find this difficult to accept if some or all of the remaining abutments are otherwise sound. Also, extracting all the teeth may be medically contraindicated where the periodontal situation is stable. Complete oral rehabilitation usually calls for involved treatment procedures and implies considerable cost.

By replacing only a few teeth with a short-span implant-supported fixed partial denture or dentures, other teeth can be preserved and even receive extra protection afforded by a stable vertical bite.[4]



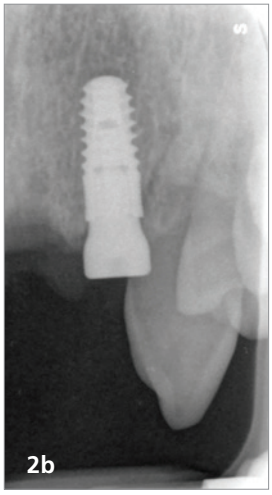


Fig. 1: Panoramic radiograph. Chronic periodontitis with hopeless maxillary incisors. **Figs. 2a & b:** Control radiograph after immediate implantation with healing abutments in place (narrowSky, diameter 3.5 mm, length 10 mm; bredent medical).

Depending on the further prognosis of the residual dentition, additional implants may be required later.

This successive approach requires more implants to be placed than would have been necessary for a complete oral rehabilitation. Alternatively, after successful periodontal treatment, the lost teeth can be restored with adhesive bridges or stabilised with an archwire splint,[8] depending on the available treatment options and on patient cooperation.

Implant placement in the periodontally compromised jaw

In a typical periodontally compromised jaw, the remaining teeth are only minimally anchored in the alveolar process. The available bone can therefore be used to best advantage by opting for immediate implants in the context of an implant-prosthetic treatment—now a common approach. Immediate placement also avoids extensive flaps, keeping postoperative morbidity low.[18]

This procedure, however, requires detailed diagnostics. Depending on the anatomical findings ahead of implant placement, this may involve the use of a navigation or orientation template, or a freehand approach can be chosen. Especially in patients with advanced atrophy of the jaw, a good prosthetic result can be achieved with freehand implant insertion, since the pilot hole will be located near the root apex of the extracted tooth anyway; this saves the cost for the navigation template.[16]

If the alveolar process is relatively well preserved, the pilot hole should be positioned on the lingual or palatal wall of the socket, taking into account the inclination of the socket relative to the apical base.[17] The use of a navigation template is recommended, since a freehand preparation can easily cause a vestibular deviation of the implant axis.[11] If some teeth are already missing, the prospective restoration should be simulated by means of a mock-up to obtain the most preferable implant position from a prosthetic point of view.[12]

Fig. 3: Checking the implants before taking the impression. The soft tissue is stable.

Depending on the preparation technique used and the implant design available, immediate implant placement can achieve sufficient primary stability for transgingival healing or even immediate restoration, even in bone of reduced quality. For immediate restoration to be possible in the partially edentulous jaw, it must be ensured that laterotrusive contacts cannot occur. Particularly after periodontally caused tooth movements or in patients with congenital anomalies of the teeth or jaw, occlusion-related risks cannot always be avoided, and implant loss is imminent.[9] However, to limit the cost of the treatment, early loading might be performed after six weeks, so that immediate restoration is not initially a necessity.

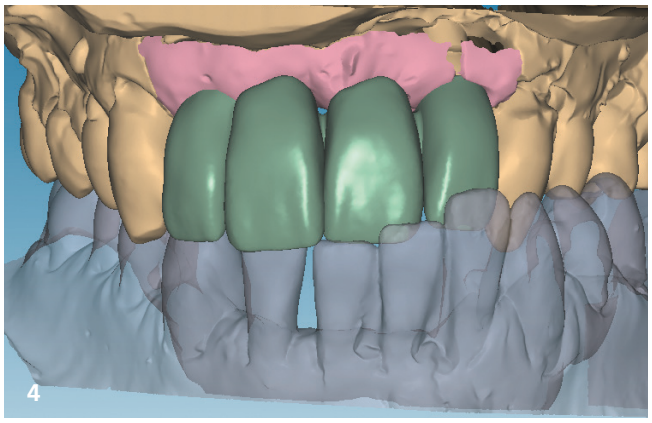
Prosthetic treatment with bite alterations

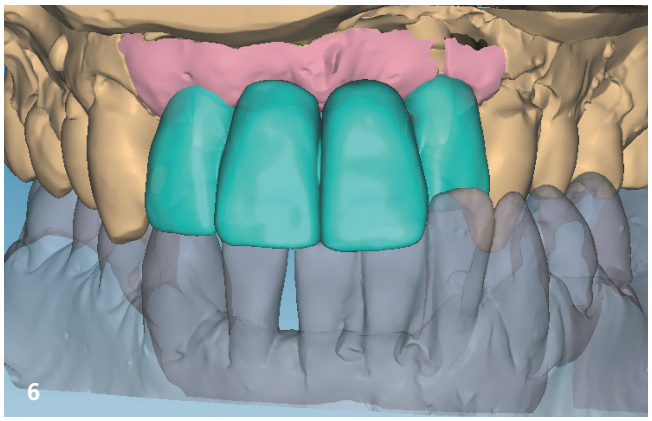
A provisional or initial prosthetic restoration will usually be based on the existing occlusal and positional findings in terms of restoring the original situation.

But in the case of a complete rehabilitation, patients often express their desire for an "ideal" restoration—normally easily achieved by standard methods. However, if there are abnormal findings in the partially edentulous jaw, such as a unilateral anterior crossbite or palatal positioning of individual teeth, the patient's request to compensate for this and to provide a more ideal physiological situation is understandable. This may well imply a protracted period of adaptation, since older patients in particular will have adapted to their malocclusion for decades. A mock-up would appear necessary here to simulate the desired result, so that the patient's aesthetic and functional acceptance can be ensured.[5] Also, the mock-up allows the dental technician to investigate the feasibility of the desired outcome and the required abutment design.[15]

Digital technology and its advantages

Compared to conventional wax-ups, CAD/CAM technology offers significant advantages in that the positions of the crowns can be easily modified onscreen.[13] This makes it possible to design multiple variants, which are first shown to the patient in the form of images. In this first step,





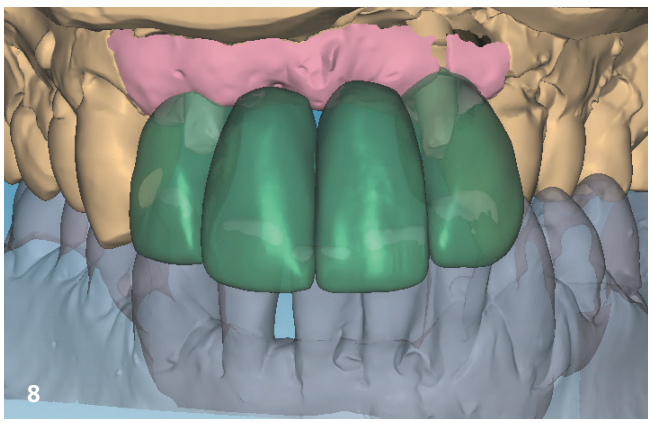
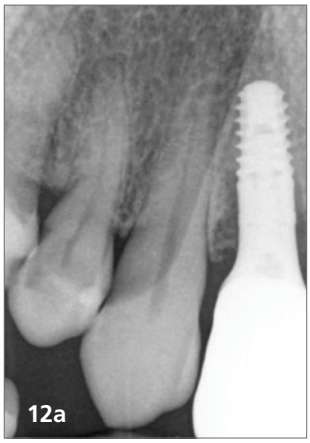


Fig. 4: Designing the mock-up of the anterior incisors that had been extracted. **Fig. 5:** Mock-up with overlay of tooth 22 only (exocad, exocad). **Fig. 6:** Mock-up with overlay of all anterior crowns. **Fig. 7:** Try-in of the mock-up (breCAM.multiCOM, bredent) of the anterior incisors. **Fig. 8:** Try-in of the mock-up with tooth 22 in crossbite. **Fig. 9:** Try-in of the mock-up with overjet of 21 and 22.

the desired result can be simulated with little effort. If this form of visualisation is not enough for the patient to form an opinion, the design can be implemented next as a resin temporary or mock-up, still at low cost. These can then be used for a try-in. In this manner, the patient can envision the potential prosthetic outcome, which is particularly important in the aesthetic zone. Mock-ups can also be used to assess speech function and the influence of changes in tooth position on extraoral physiognomy and, especially, on lip closure.

Particularly when restoring anterior edentulous spaces, the mock-up can be anchored to neighbouring teeth with so-called "onlay shells" to check the speech function; depending on the positions of the adjacent teeth, they can also be designed as veneers or tabletops in the definitive restoration. Since these CAD/CAM mock-ups do not cover the palate the way a wax-up typically does, phonetic limitations can be recognised early and corrected accordingly.[15] This makes it easy to functionally verify the intended prosthetic outcome.

Once the optimal design has been agreed on, its data can be used for sub-



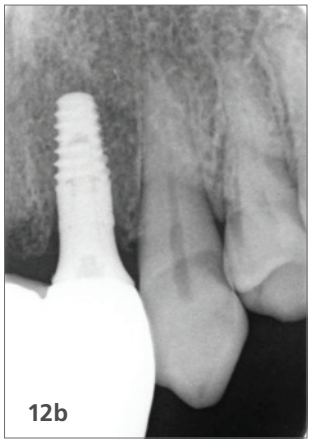


Fig. 10: Try-in of the custom CAD/CAM abutments. **Fig. 11:** Inserted fixed partial denture with customised gingival profile. **Figs. 12a & b:** Control radiograph after insertion of the fixed partial denture made of ZrO_2 ceramics. **Fig. 13:** Harmonious profile of the upper lip following the rehabilitation of the dental arch with an implant-supported fixed partial denture.

sequent design steps. Not until this point will the cost-intensive individual abutments be fabricated. For the final reconstruction, a CAD/CAM temporary made of acrylic resin is again recommended, since it is easy to adjust, and the patient can start adapting to the new bite position. Any occlusal adjustments are easily performed, and any palatal obstacles to proper phonetic articulation can be resolved by adding or removing acrylic resin.

If the patient is satisfied with the restoration after a break-in phase of several weeks, the clinically optimised temporary restoration is again scanned intraorally to obtain the data set that is superimposed on the design data by the dental technician for the final superstructure. There is a wide choice of materials for the framework or monolithic superstructure.

Since clinical crowns sometimes end up being quite long in patients with vertical attachment loss, the crown length can be visually adjusted by applying gingiva-coloured veneering material. The various shades require individual adjustment in close coordination with the dental technician and the patient.

Discussion

Patient-specific treatment planning in the surgical and prosthetic phases makes it possible to meet patients' expectations as closely as possible. In addition to considering the ideal timing of tooth extraction and implant placement, it must be decided whether to opt, in the osseointegration phase, for a complex (immediate) prosthetic restoration or whether the desired result can be achieved with a simple temporary thermoforming sheet in which the missing teeth are filled with acrylic.[6]

Three-dimensional diagnostics now allow an accurate assessment of the available bone supply, so that the extent of any bone augmentation can be determined in advance, escaping the need for major soft-tissue mobilisation.[19]

The prosthetic treatment in particular has been significantly simplified by CAD/CAM. Mock-ups are fabricated as monolithic items and can be used for a near natural simulation of the final result *in situ*.[12] Unlike a wax-up with its irritating palatal plate, the mock-up also permits a reliable

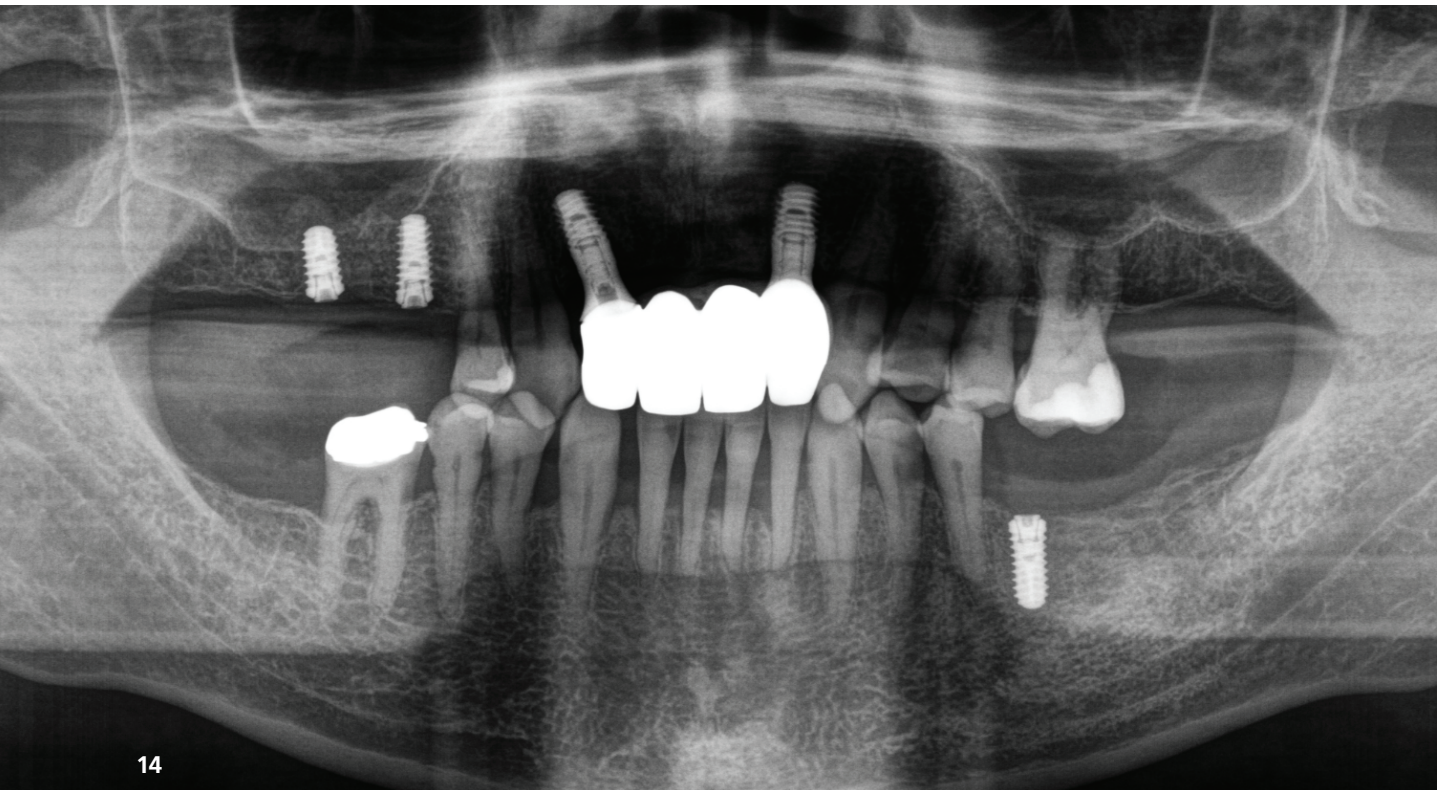


Fig. 14: Panoramic radiograph. Control 3 years after prosthetic restoration, Stable periodontal findings. Further implants have been placed in the posterior region.

assessment of the expected effect on speech function. Once the final design has been defined, it can be used on the basis of the data used for mock-up fabrication.

CAD/ CAM technology also allows the cost-effective fabrication of additional temporary restorations, permitting additional patient adaptation phases, which is particularly valuable after extensive occlusal changes. The more intensely the patient participates in selecting options as part of the treatment process, the greater will be his or her subjective acceptance of the overall outcome.[2] Especially when it comes to more elaborate prosthetic restorations, CAD/CAM simplifies the workflow, for more effective treatment routines and maximum patient satisfaction.[10]

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Literature

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Treatment of a case of atrophic-erosive lichen planus refractory to topical corticosteroid with endoret-PRGF and rehabilitation with dental implants

Eduardo Anitua DDS, MD, PhD, Spain

Introduction

Oral lichen planus is a chronic inflammatory mucocutaneous disease that generally affects the skin and oral mucosa.[1,2] It was first described by Erasmus Wilson in 1869 and is the most frequent non-infectious pathology of the oral cavity with a reported prevalence of 2% of the adult population.[3,4] It is more frequent in adults and its etiology remains unknown, although its pathogenesis involves autoimmune phenomena mediated by CD8+ lymphocytes, mainly epithelial, which trigger a series of events that lead to necrosis of the basal keratinocytes, mainly through tumor necrosis factor (TNF-alpha).[8,9] Finally, this condition of the basal keratinocytes generates hyperkeratosis (with orthokeratosis or parakeratosis) and/or epithelial atrophy.[3-12] Several factors have been described that could contribute to the onset, perpetuation or worsening of lichen planus lesions, which classically occurs in outbreaks with periods of remission or latency. These factors can be grouped into local factors (mechanical, prosthetic, metals in contact with the oral mucosa), chemical factors (tobacco and alcohol), drugs (antimalarials, antihypertensives, nonsteroidal anti-inflammatory drugs, diuretics...), and systemic diseases (anxiety, diabetes, hypertension), as well as some connection with certain viruses such as hepatitis C and human papilloma virus.[10-16]

In the oral cavity, six clinical forms of LP have been classically described: white forms (reticular, papular and plaque) and red forms (erosive, atrophic-erythematous and bullous).[17] The skin

Figs. 1–6: Clinical images of the patient upon arrival at the clinic, showing different areas with high involvement of the OLP with deep ulcerations that prevent the patient from maintaining conventional hygiene.

lesions usually appear as pruritic purple papules or purple plaques. They are usually located in the flexural areas of the arms and legs, as well as on the nails and scalp.[19,20] About 30-50% of patients with oral lesions have associated skin disorders, with oral involvement being more frequent (90% of cases of lichen planus).[20,21] The treatment of choice for OLP is topical corticosteroids due to their ability to modulate the inflammatory response and curb the immune response, in addition to their easy handling by the professionals who usually treat this pathology.[8,22] Within this pharmacological group, there are different options in terms of the type of corticosteroid (mainly triamcinolone acetonide, fluamcinolone acetonide, clobetasol propionate and betamethasone), the formulation (orabase, aqueous solution and oily ointment), the daily regimen to be used and the period of maintenance of the corticosteroid.[23-27] Studies comparing the efficacy of some corticosteroids with others have obtained very different results, and there is no clear recommendation as to which type of corticosteroid is more effective than another, nor are there any clinical practice guidelines that advise on treatment doses and drug maintenance time.[26-28]

Apart from corticosteroids, other immunomodulatory agents have been used for the topical treatment of OLP. The most used are cyclosporine, tacrolimus, pimecrolimus and retinoid.[10] Cyclosporine is mainly used in oral solution (50–1,500 mg/day) or in orabase (26–48 mg/day), although it has not been shown to have a greater effect than corticoids, being its side effects greater than those of corticosteroids.[10,29-31]

Finally, for cases refractory to conventional treatments, different options have been described, such as thalidomide, 308 nm UVB excimer laser, biological agents such as efalizumab or azathioprine, extracorporeal photochemotherapy, Dapsone, mycophenolate mofetil and hydrochloroquinone.[32-48]

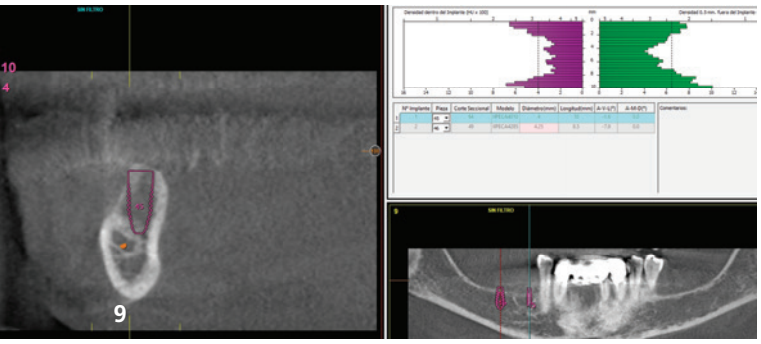
All treatments for the most refractory cases achieve some degree of remission, although the drugs used sometimes generate many side effects and there are no large case series demonstrating that one of the treatments achieves high efficacy. In this regard, our study group has published series of cases presenting erosive oral lichen planus, with a multitude of lesions, refractory to conventional treatment and to subsequent alternatives with greater side effects that have been treated with PRGF-Endoret infiltrations with good results.[49–51] This technology has also been tested in other autoimmune pathologies, in which ulcer-like lesions are produced in the oral cavity that are resistant to treatment, as in the case of pemphigoid, also with good results.[52] Similarly, our study group has also described a surgical and prosthetic protocol to achieve successful long-term implant-supported rehabilitations in this type of patients, with minimally invasive techniques and prostheses that do not generate any type of tissue reaction upon contact with soft tissue.

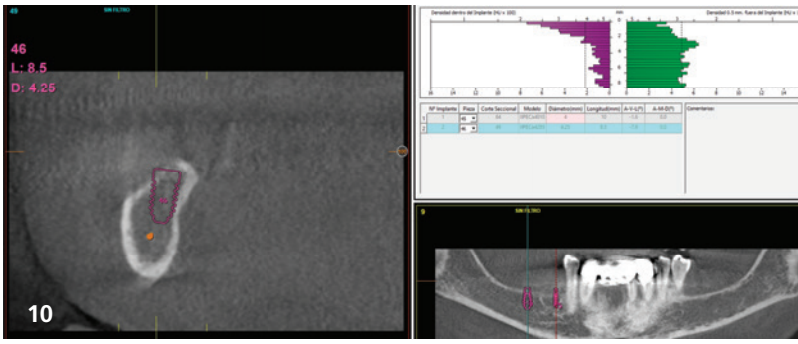
This case report shows a case treated with PRGF-Endoret to resolve recurrent oral lichen planus lesions refractory to conventional treatment, as well as the step-by-step rehabilitation process with dental implants.

Fig. 7: Images of the patient after the first course of topical corticosteroid, extraction of teeth with high mobility and periodontal maintenance. **Fig. 8:** Three months after the first OLP treatment and preparation of the anterior bridge. A remnant of gingival inflammation can be observed, which makes the patient unable to maintain proper plaque control.

Clinical case

A 65-year-old female patient came to our clinic requesting treatment for an atrophic-erosive oral lichen planus (OLP), diagnosed several months ago in another clinic, which causes intense oral lesions that do not allow proper hygiene and generate pain related problems. The patient also reported that several teeth are loose with abundant bleeding and a solution is being sought for these areas. In the initial examination, an erosive lichen planus with extensive gingival involvement was observed, which prevented the patient from performing proper hygiene with a high inflammatory component and several erosive lesions in the jugal mucosa and tongue (Figs. 1–6). The patient was first treated for oral lichen planus with the usual treatment of topical corticosteroids, using a rinse of triamcinolone acetonide 0.5% in aqueous oral solution together with nystatin 100,000 IU per milliliter. This rinse was performed for 10 minutes, with a dose of 10 milliliters, once a day (at night, before going to sleep) for one month at full dose and then lowered to half dose the following 15 days and another 15 days with half dose every other day. Subsequently, the product was discontinued, and a basic periodontal treatment was carried out with extraction of the teeth with high attachment loss, taking advantage of a decrease in



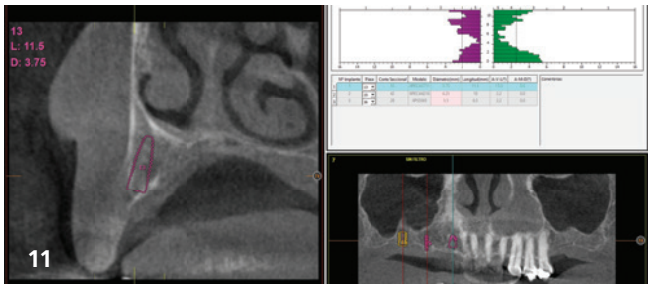


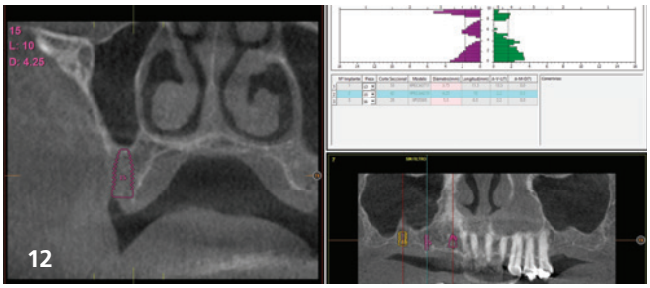
Figs. 9 & 10: Images of the planning of the fourth quadrant where the planned implants can be observed.

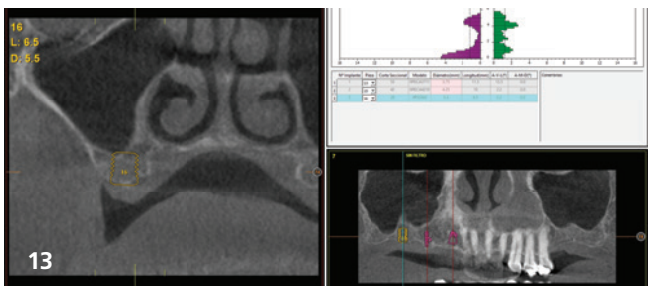
OLP symptoms (Fig. 7). At this stage the patient was able to maintain a low degree of inflammation and the restoration of the missing teeth was considered. The first phase involved making a conventional bridge on a natural tooth in the anterior-inferior area and continuing with the check-ups. Inflammation and erosive wounds were reduced in the first two months, but the patient continued to have gingival injuries that made it difficult for her to maintain proper oral hygiene (Fig. 8).

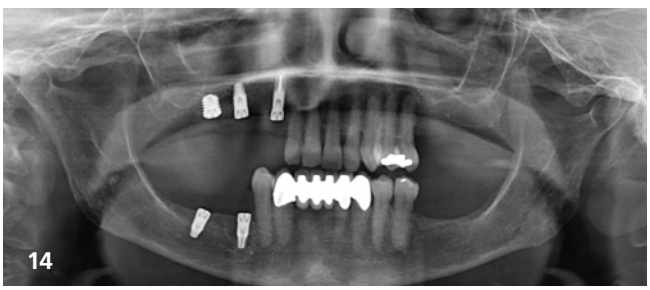
With the clinical picture of OLP under control, although not completely asymptomatic, the radiological diagnosis for the replacement of posterior teeth was performed. At the patient's request, the first and fourth quadrants were reconstructed, leaving the second and third quadrants as they were after periodontal treatment. The upper and lower sections were analysed, planning narrow platform implants in four of the five implants to be inserted, with the most distal implant in the first quadrant being a short implant of larger diameter (Figs. 9–13). In most patients in general, the lesser the surgical trauma, the lesser the consequences of our act, both at that moment and in the long term, since, if in the future the reversibility of the treatment should be necessary, with a lesser occupation of the bone bed, this retreatment would be more predictable. In these cases, moreover, where the subject suffers a pathology that affects the oral mucosa, the less surgical trauma the patient receives, the better and faster the recovery will be, as has been described in studies we have published with dental implants in patients with OLP.[53]

Four months after placement, the implants were loaded. For the preparation of the prosthesis a technique described by our study group was carried out, based on the use of inert materials that do not produce tissue reaction and could generate a worsening of the symptoms in patients with mucosal pathology such as OLP.[53,54] The entire prosthesis was prepared using transepithelials (Multi-im), as this distances the critical point of the prosthesis–implant connection and maintains the gingival ridge area with less inflammation (Figs. 15 & 16). The metal framework of both bridges is drilled in grade IV titanium (Ti-6Al-4V), to avoid any type of reaction in the mucosa of these patients. The ce-

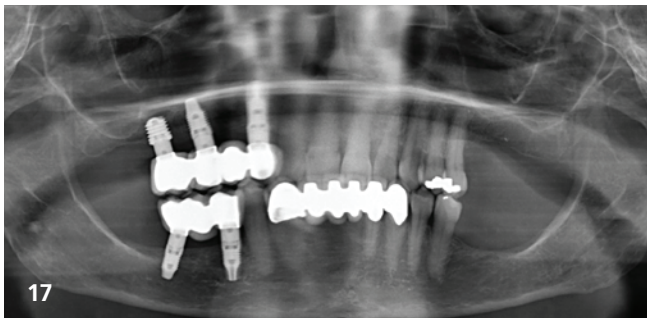






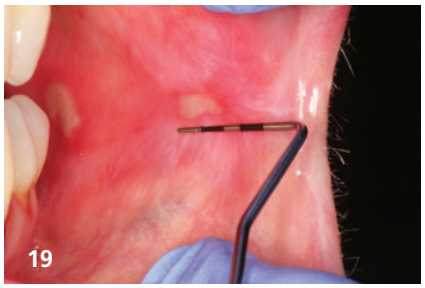


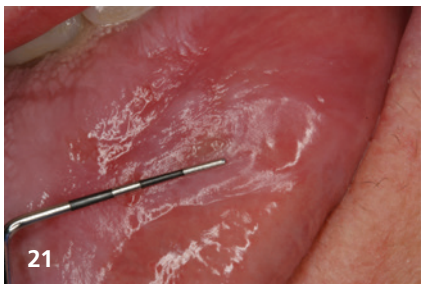
Figs. 11–13: Planning sections of the second quadrant where the narrow implants to be placed in the most mesial area and a distal implant of larger diameter and shorter length can be observed. **Fig. 14:** Panoramic X-ray after placement of dental implants.



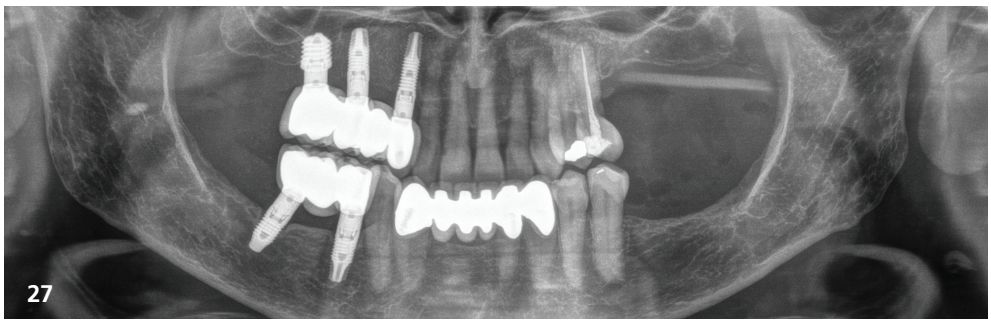
Figs. 15 & 16: Clinical images of transepithelials. The excellent behavior of the soft tissues around them can be observed. **Fig. 17:** Panoramic X-ray once the restoration has been completed and fitted. **Fig. 18:** Restoration once placed in the patient.

ramic was designed and injected at high pressure (lithium disilicate) and was cold cemented on the metal framework. Finally, the area in contact with the gingival ridge, which will be the most critical area in terms of tissue reaction, was finished in composite, without applying pressure on the soft tissue. This composite area also allowed us to be flexible in terms of changing its morphology and gingival settling as many times as necessary. The polishing of the area must be exquisite to avoid the accumulation of bacterial plaque (Figs. 17 & 18).[53,54] After one year of follow-up, the patient presented severe erosive lesions of her OLP and conventional treatment with topical corticosteroids was established. In this case, topical corticosteroids were used (triamcinolone acetonide 0.5% in aqueous solution for 30 days and the concentration was doubled for another month) and systemic corticosteroids (prednisolone 1 mg/kg/day for another month) and after failing to achieve healing of the ulce-





Figs. 19–21: Images after conventional treatment was completed unsuccessfully, with painful lesions in several areas. **Figs. 22–24:** Images after infiltration. The erosive lesions have resolved, and the patient's pain has decreased to the point of being able to perform activities of daily living without pain.



Figs. 25 & 26: Images after three years of follow-up. **Fig. 27:** Final X-ray at three years of follow-up.

rative lesions, infiltration with PRGF-Endoret was performed in the areas that remained erosive, according to the protocol published by our study group.[49,50] With the infiltration, the painful condition was resolved, and the patient was able to resume her activities without pain.

Discussion

The treatment of choice for OLP is based on topical corticosteroids.[1–3] In some cases, these conventional treatments do not have the desired effect or there are patients in whom painful lesions continue to develop after treatment, preventing the patient from leading a normal pain-free life. Other treatments have been described for these more refractory cases. All treatments achieved some degree of remission, although the drugs used sometimes generate many side effects and there are no large case series that demonstrate that one of the treatments achieves a proven efficacy.[33–51]

The use of plasma rich in growth factors has favoured in other types of ulcer pathology such as pemphigus the regeneration of affected tissue through growth factors such as platelet growth factor (PGF), transforming growth factor beta (TGF-beta), epithelial growth factor (ECGF), fibronectin and vascular endothelial growth factor (VEGF).[55]

One of the main advantages of the use of PRGF-Endoret in the treatment of this type of lesions is the absence of side effects since in none of the cases of the study adverse effects have been found because of its application. The infiltration of PRGF-Endoret also manages to control pain as soon as the first infiltration is performed, considerably reducing it.[53–55] Another important point is the design of the prosthesis. Our study group has described the protocol for designing prostheses on implants based on the use of titanium, injected ceramic and completing the gingival area with composite resin, a fact that had not been documented until the publication of our first work.[54]

Conclusions

Prosthesis preparation in patients with oral lichen planus following a careful protocol both during implant placement and prosthesis preparation is predictable and an alternative to consider, especially for those patients with a higher number of erosive outbreaks, where the placement of a conventional removable prosthesis would be more harmful. Thus, PRGF-Endoret infiltrations are used to reduce those flare-ups refractory to conventional treatment as shown in this clinical case.

Literature

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Horizontal bone augmentation by means of preshaped titanium mesh—a five-year follow-up

Drs Leonardo Muzzi, Roberto Montauti & Elisa Romanelli, Italy

Regenerative therapy in implantology (guided bone regeneration) represents a procedure of daily use for the reconstruction of peri-implant hard tissues both contextually and pre-implantation. The reconstruction of the bone volumes represented a clinical and biological challenge to re-establish both the correct intermaxillary relationships altered by severe bone atrophies, and the restoration of tissue volumes capable of guaranteeing a better aesthetic result of the prosthetic implant rehabilitation. The use of autologous bone grafts for the reconstruction of large lost bone volumes has been considered the gold standard since the 1990s.[1] The introduction in the last two decades of filling biomaterials and barriers of different nature has prompted research towards less invasive techniques capable of reducing the morbidity of regenerative surgery but equally guaranteeing the reconstruction of volumes necessary to achieve the desired clinical and aesthetic result.[2]

These techniques can be applied both before and during the implant placement. The use of biomaterials (alone or mixed in different percentages with autologous bone), together with membranes (resorbable and non-resorbable) can simultaneously provide both a curtain effect capable of maintaining a stable clot and prevent the migration of epithelial cells to the clot itself in favour of osteoblastic cells instead. The stability of the clot is related both to the consistency of the filling material used and to the rigidity and fixation of the barrier used.[3] The use of absorbable barriers without intrinsic rigidity requires the use of biomaterials with a good physical consistency that makes up for the lack of support offered by the barrier; these barriers do not require a second intervention for their removal.

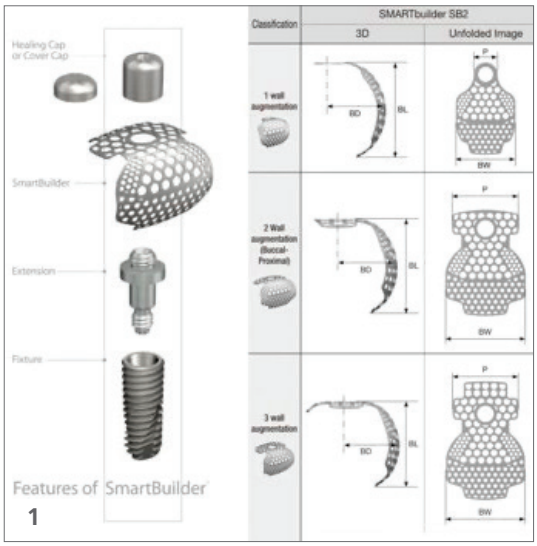


Fig. 1: For this case study the Osstem product SmartBuilder was used, which is now available under OssBuilder.

Numerous authors have evaluated the effect and stability of the results obtained using different techniques and different biomaterials. Jung et al. evaluated the GBR result at five years by comparing the use of DEPROTEINISED bovine bone and resorbable membrane in PEG (test) versus DEPROTEINISED bovine bone and resorbable membrane in bovine collagen (control).[4] The results show a five-year gain of 4.3 ± 1.5 (SD) mm and 4.8 ± 2.6 (SD) mm for the test and control group respectively (P = 0.493).

Conversely, non-absorbable barriers (PTFs, PTPE reinforced barriers) often equipped with support scaffolds, offer greater rigidity capable of guaranteeing undisturbed underlying healing but require a second surgical access for their removal. Canullo et al. using

N2	Pat	Gender	Age	Site to be	implant
	MG	M	53	1.4	4 x 11.5

Table 1: Patient's features.

Fig. 2: Pre-op clinical situation. **Fig. 3:** Radiographic image of the area.

hydroxyapatite and non-resorbable PTFE membranes reinforced with titanium, found a bone gain of 5.61 mm and a marginal bone resorption of 0.98 mm at two years of follow-up.[5]

Numerous authors have also proposed the use of titanium mesh for the reconstruction of large bone volumes over the years.[6,7] Pieri et al. using titanium mesh and autologous bone and DE-PROTEINISED bovine bone mix showed a survival rate of 100 per cent and a mean bone resorption of 1.37 ± 0.32 mm at two years.[6]

As already mentioned, the stability of the clot is linked to various factors including the correct and stable fixation of the barrier used. This need has prompted research towards the development of different systems to block the barrier used in the desired position (such as screws, pins of different materials, biological fixatives, or fibrin glue).

A preformed titanium mesh locking system has recently been developed using the same fixture during the contextual implant placement (SmartBuilder, Osstem).

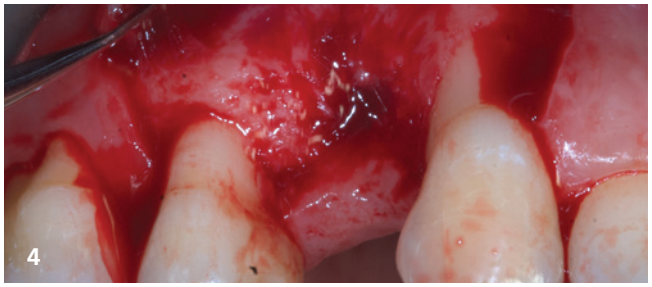
These meshes, supplied in different shapes and sizes, use a system of screws in order to directly block the mesh on the head of the fixture, thus ensuring both the rigidity and the immobility of the system. This method allows both submerged healing and transgingival healing depending on the type of fixation screw used (Fig. 1).

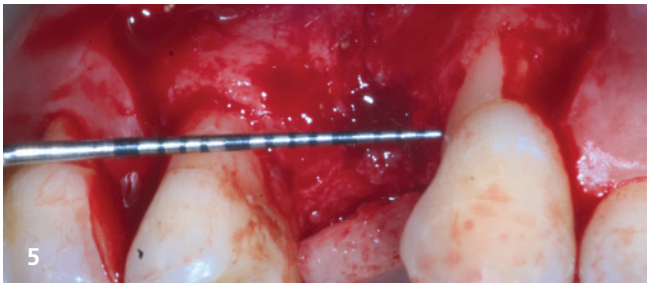
A 50-year-old, male patient, non-smoker who needed bone reconstruction contextual to implant placement in area 14 was selected in a private dental practice (Table 1).

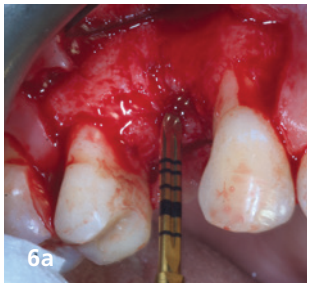
The medical history resulted completely negative (ASA 1).[7] The clinical examination highlights the lack of tooth 14, extracted a few months earlier and a marked horizontal resorption of the corresponding edentulous area. The radiographic examination shows a simultaneous vertical bone resorption with reduction of the bone levels in the centre of the bone crest and on the distal aspect of the tooth 13 (Figs. 2 & 3).

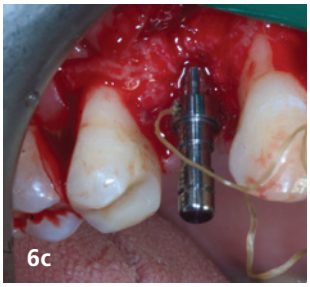
Surgical technique

After anaesthesia (Articaine with vasoconstrictor 1:100.000) a full thickness mucoperiosteal flap is raised in the corresponding









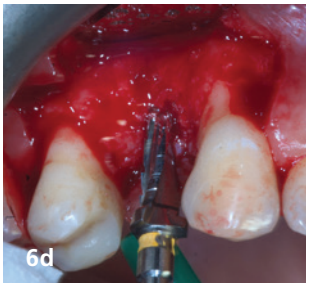
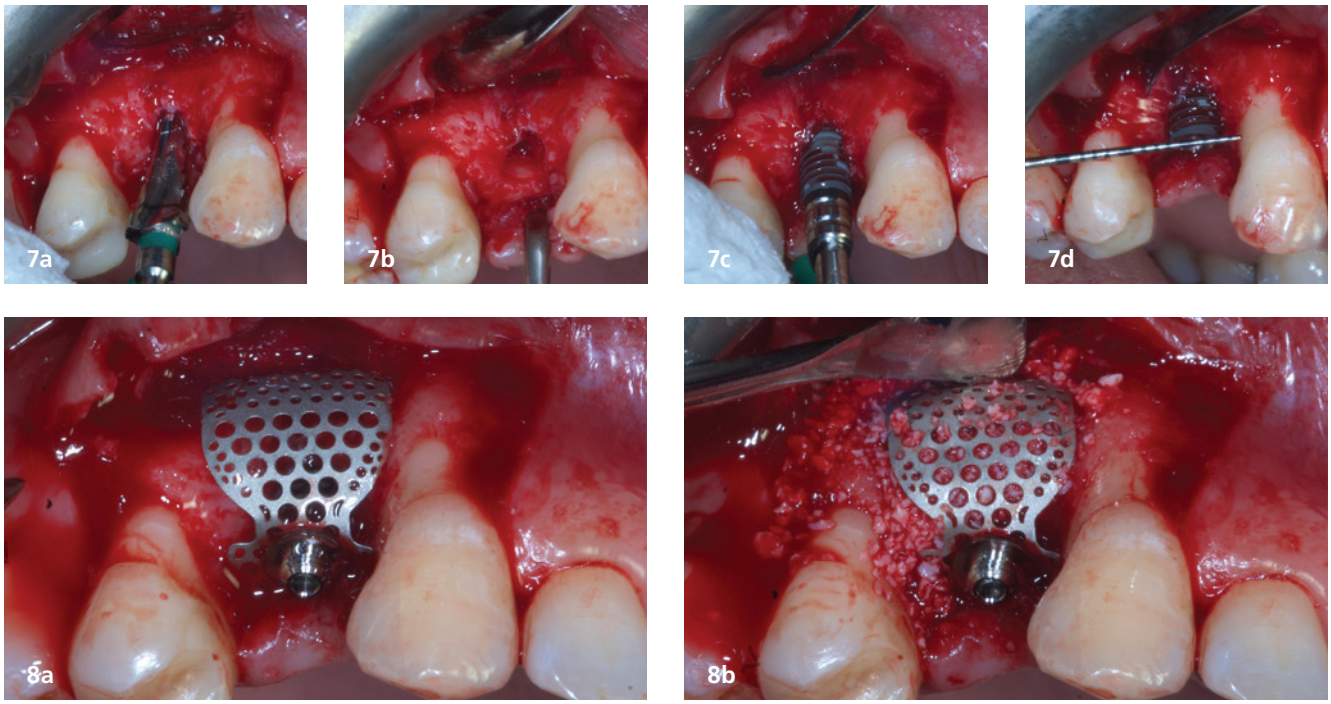


Fig. 4: Raised flap with vertical incisions. **Fig. 5:** Measurement of the defect. **Figs. 6a–d:** Site preparation.



Figs.7a–d: Implant positioning. **Figs.8a & b:** Bone grafting and SmartBuilder positioning using the dedicated fixation screw.

area in order to visualise the site and the defect. The flap is completed by two release incisions in order to subsequently be able to passivate it (Fig. 4). The defect is completely skeletonised and intraoperatively, a careful assessment of the residual bone levels is carried out with a periodontal probe in order to correctly position the fixture (Fig. 5).

The preparation of the implant site and the positioning of the fixture (TSIII, Osstem) are performed in a three-dimensionally correct position with a 4 mm residual dehiscence (Figs. 6 & 7).

GBR is performed using DEPROTEINISED bovine bone and preformed mesh titanium (SmartBuilder, Osstem®). The mesh is fixed with a fixing screw of the diameter corresponding to the implant, which locks the grid to the head of the fixture; then a protective cap of the same screw is applied on top (Fig. 8). A collagen membrane was applied on the top of titanium grid (Fig. 9). A primary closure was obtained by releasing the flap (Fig. 10).

After six months a second surgery phase was performed (Fig. 11) and a provisional crown, in order to allow tissue maturation, was applied (Fig. 12). After one month from provisional, a definitive screw-retained zirconia crown was applied (Fig. 13) and then the patient was enrolled in a maintenance programme.

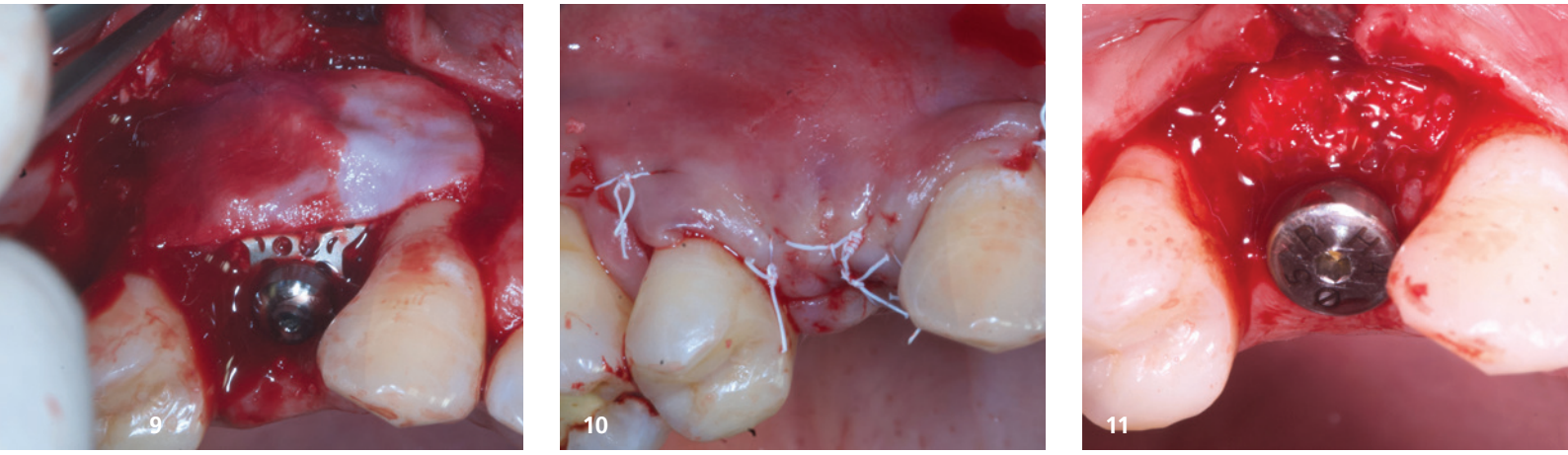


Fig. 9: Collagen membrane applied over the mesh. **Fig. 10:** Sutured flap. **Fig. 11:** Regenerated tissue after SmartBuilder removal and seating of healing abutment.

Measurement	1 mm	2 mm from	3 mm from	4 mm from	Mean
mm	0.8	1.6	2	2.1	1.625

Table 2: Five years CBCT measurement of regenerated bone.

The control visit after six years, showed a good integration between tissues and prosthesis (Fig. 14). The occlusal vision show the good maintenance of the volume obtained (Fig. 15). At this time a CBCT was performed.

Measurements

The Patient was submitted to a CBCT scan after five years after the completion of therapy.

On the five year control CBCT the following measurements were collected. The distance between the outlining vestibular regenerated bone and the outer surface of the implant.

The distances were obtained from the outlining regenerated bone perpendicular to the main axis of the implant respectively at 1, 2, 3 and 4 mm from the neck of the implant (Fig. 16).

Results

The patient involved did not show any complication during the healing phase and in the last five years.

The patients had a vestibular dehiscence of 4 mm that was managed by means of DEPROTEINISED bovine bone and osseo-builder (one wall defect type).

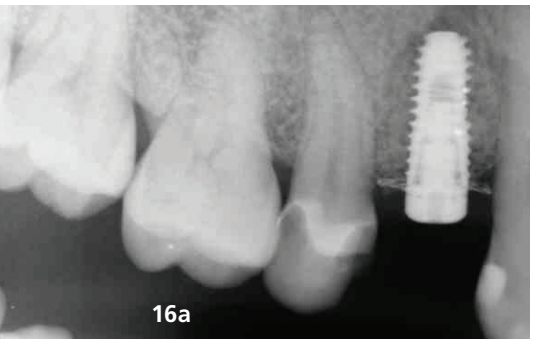
After five years the appearance of the tissues appeared stable with complete absence of inflammation and good integration with the prosthetic crown. An excellent increase in the volume of tissues in the treated area is observed. Measurements carried out on CBCT six years postsurgery showed an increase in hard tissue in the treated area with a mean horizontal volume increase of 1.6 mm. A greater volumetric increase was observed at the most apical part of the defect.

Discussion

Discussing the clinical case presented, it seems reasonable to state that the use of pre-formed titanium meshes, like other re-generative methods, is recommended above all in all those cases of aesthetic value in which there is a need for horizontal regeneration for a substantial increase in bone volumes capable of improving the emergence profiles of subsequent prosthetic crowns.

With reference to the technique presented in the article, it appears that the method of locking the grid to the head of the fixture is very simple if compared with the common fixing techniques of other types of non-absorbable barriers. In addition, the excellent rigidity of the mesh combined with the different designs provided by the manufacturer allows you to manage both horizontal defects and small vertical defects. As regards

Fig. 12: Provisional restoration seated. **Fig. 13:** Definitive crown seated. **Fig. 14:** Follow-up after six years, vestibular aspect. **Fig. 15:** Follow-up after six years, occlusal aspect.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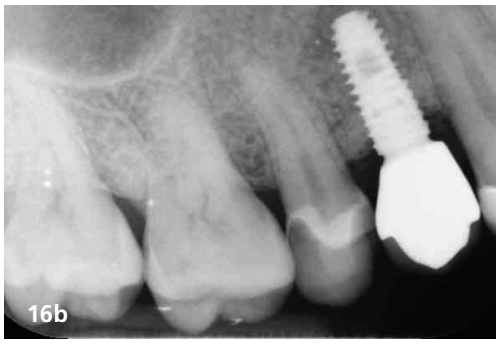
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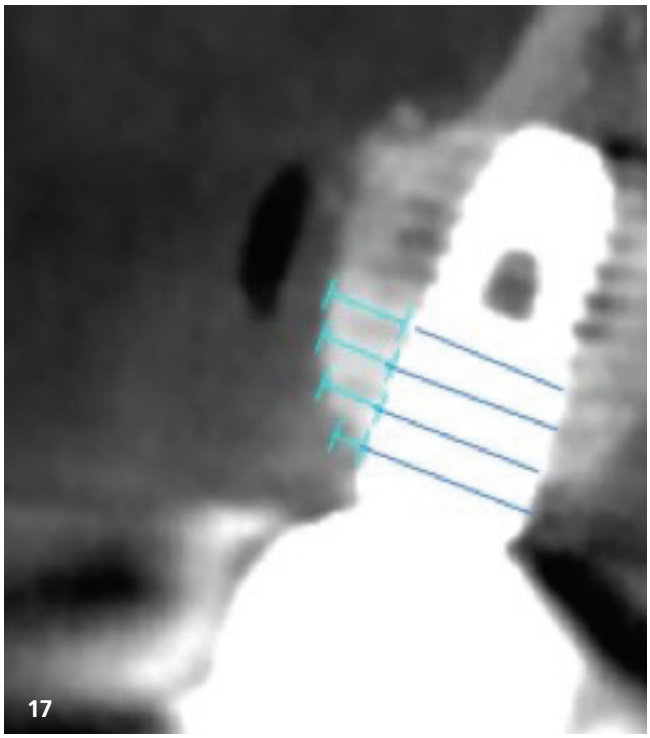
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Figs. 16a–c: Rx at surgery, at crown delivery and after five years in function.
Fig. 17: CBCT scan after six years. Reference lines used for measurements.

the long-term results of the case presented, it can be observed that a greater regenerative volume is obtained in the most apical portions of the dehiscence.

This result can be interpreted due to the shape of the grids which allows a greater volume of xenograft in the most apical portions compared to the coronal ones.

This requires extreme care in the careful compaction of the graft in order to properly replenish the space below the grid.

As regard the type of xenograft, deproteinised bovine bone seems to represent the good material for grafting under the mesh. Future follow-up can confirm the long-term results obtained in this case.

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Literature

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About…

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graduated with honours in dentistry and dental prosthodontics from the University of Siena in Italy and is an internal dentist in the periodontics department. He taught periodontics at the University of Florence in Italy from 1995 to 2002. Since 2019, he taught the master's programmes in implantology at the universities of Siena and Florence. Since 2020, he has been the course director of the Osstem Master Course in Rome. He is an active member of the Italian Academy of Osseointegration.

Immediate implant restoration with partial extraction therapy using an implant with a new internal conical-parallel connection

Dr Giovanni Ghirlanda, Italy

The maintenance of adequate and stable level of bone all around the implant is one of the key factors influencing the long-term success of implant therapy. In the past, a moderate degree of marginal bone loss (MBL) has been evaluated as acceptable among the criteria stated to define the long-term implant success rate. At the beginning of the era of Osseointegration, Albrektsson et al. considered the bone loss of 0.1 mm per year around the implant negligible and classified such cases as successful.[1] The development of new geometry of the implant shoulder and platform, together with new treatment modalities of the implant surface, has progressively changed the protocols of implant placement timing, implant positioning and, accordingly, the paradigms of implant therapy outcome. Several factors can influence the rate of crestal bone resorption and, therefore, be responsible for the development of complication. Some of these could be biological factors such as the non re-establishment of the biological width or bacterial colonisation of the implant–abutment interface or, even, peri-implantitis.[2-4] Others could be related to mechanical aspects and prosthetic components, e.g., misfits of the prosthetics could lead to sup-optimal dissipation of the masticatory force with the consequence of overloading the crestal bone.[5]

In recent years, the influence of the implant connection on marginal bone loss has been one of the factors most investigated.[6] This has led to a plethora of implant–abutment interface geometry and morphology. Implants are basically distinguished based on external connections, which principally have a hexagonal geometry at the top of the implant, and internal connections which have different interface shapes. In addition to these two connections, the morse conical taper connection which has its own unique characteristics must be considered. Some authors have hypothesised that the flat-to-flat interface between implant and abutment, as in the morse conical connection, could offer a better seal against bacterial infiltration and contamination, thereby reducing the risks of implant failure associated with the implant being located in a bacteria-

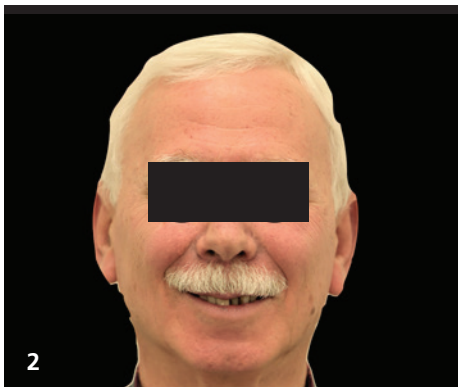
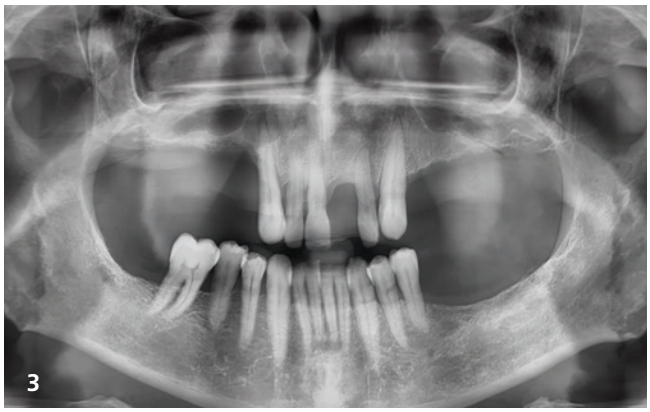


Fig. 1: Intra-oral situation of the patient at the beginning of the therapy. The buccal migration of the upper teeth due to the periodontal disease and the presence of the gingival recessions of Class III and IV, Miller Classification are evident. **Fig. 2:** The smile line of the patient.



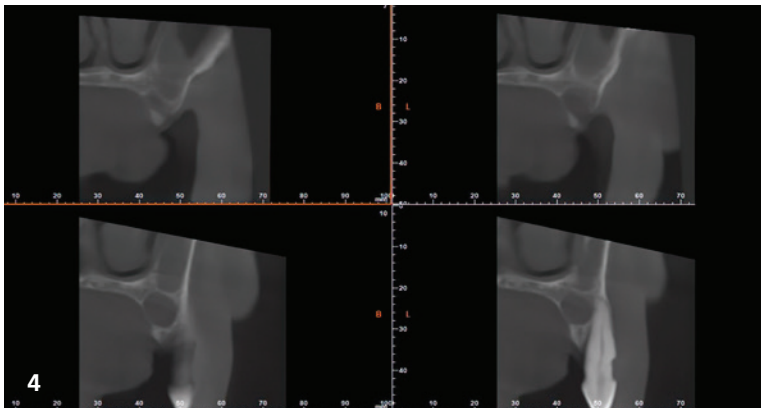


Fig. 3: Pre-op dental panoramic tomogram showing bone atrophy of the posterior sextants in the maxillary arch. **Fig. 4:** Detail of the CBCT scan showing the bone lacuna localised in the maxillary right posterior sextant and a moderate degree of hyperplasia of the sinus mucosa.

rich oral environment.[7] However, this hypothesis has not been confirmed in further studies specifically focused on this subject matter.[8,9]

Zipprich et al. compared the behavior of the implant abutment connection under non-axial loading and concluded that the morse-taper showed better stability than both external and internal hexagons or similar geometries.[9] Moreover, it could be speculated that the presence of a micro-gap in the hexagon connections, with the potential of infiltration from the oral fluid could lead to an increase of the MBL around the implant.

Furthermore, the introduction of the platform switch concept has demonstrated positive effects on the long-term reduction of MBL. The hypothesis, initially postulated by Lazzara et al., that leaving more space to the supracrestal tissues thereby modifying the emergence profile of the abutment, could have an influence on the rate of MBL has now been supported by many publications in peer-reviewed journals.[10-13]

Recently, a brand-new type of implant has been introduced into the market in which the morphology of the implant–abutment interface has been mainly developed to amplify the application of the concept of the platform switch together with the benefits derived from an indexed morse taper connection. A unique back-tapered shape at the top of the implant gives, in fact, the opportunity to leave enough space to the supracrestal connective tissues without any negative effect on the mechanical properties and stability of the implant–abutment interface.

The case presented hereunder describes the application of the above-mentioned concepts through the use of a new implant macrogeometry in a challenging clinical situation.

Case presentation

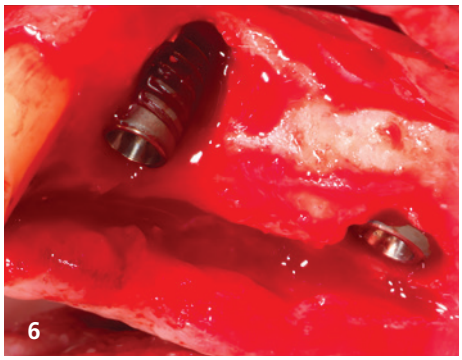
The 65-year-old male patient, ASA 2, presented at our clinic complaining about the functional and aesthetic situation of his dentition (Fig. 1). The clinical examination revealed multiple missing teeth on the upper arch and of the teeth 38,37,36,47 and 48. There was significant gingival recession, Class III and IVb according to Miller Classification, with loss of clinical attachment (CAL) and a mobility degree between two and three associated with the remaining maxillary teeth.[14] The interproximal spaces appeared opened due to the buccal migration of the upper teeth because of the development of a deep bite related to the complete loss of interarch dental relationship and vertical dimension (Fig. 2). The teeth 14, 12, and 21 were considered hopeless while the other teeth had a questionable prognosis. To all the mandibular teeth were attributed a favourable prognosis except tooth 46, which was considered questionable due to the furcation involvement.

The OPG confirmed the loss of bone support around the maxillary teeth associated with a vertical bone atrophy mostly evident in the posterior regions of the maxilla (Fig. 3). A moderate degree of bone resorption was also present around the mandibular teeth. The CBCT revealed a moderate degree of mucosal hyperplasia of both the maxillary sinuses which contraindicates an extensive sinus lift. Moreover, a bone lacuna or a residual cyst, was also seen following the CBCT evaluation (Fig. 4). The clinical and radiological situation of the patient were compatible with periodontitis stage IV degree C, according to the classification of Periodontal Disease published in 2018.[15]

The wish of the patient was to be fully rehabilitated by means of an implant supported prosthetic restoration avoiding in every step of the therapy any kind of temporary removable prosthesis. The patient also expressed the desire to avoid the use of gingival camouflage in the final prosthesis as usually seen in FP3 restoration.[16]

Accordingly, a staged treatment plan was proposed to the patient in relationship to his dental condition and the goals of the therapy.

The patient was first enrolled in a programme of periodontal therapy including reinforcement of the daily oral hygiene procedures and professional visits for scaling and root planing of the lower teeth. The hopeless teeth in the maxillary arch were extracted and a temporary rehabilitation was fitted using the remaining teeth as support (Fig. 5). Once an optimal level of the



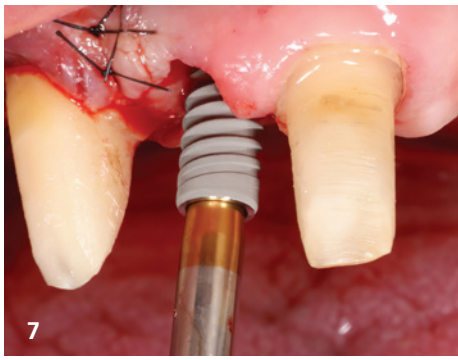
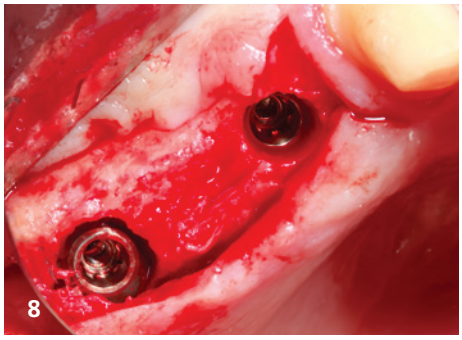
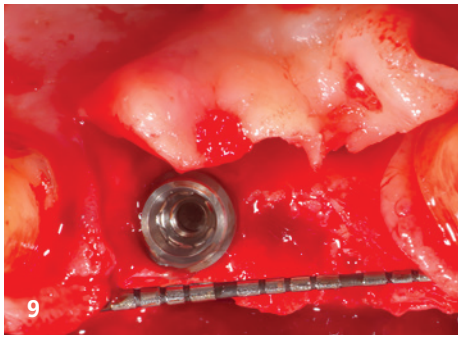


Fig. 5: First set of temporary crowns borne on the remnant teeth. **Fig. 6:** Implants positioned in the maxillary right posterior sextant, a standard implant placed inside the bone lacuna and an ultrashort implant in position #16. **Fig. 7:** Standard implant positioned immediately after the extraction of tooth #12, according to the partial extraction technique. Note the unique morphology of the top of the implant. **Fig. 8:** Implants positioned in the maxillary left posterior sextant. **Fig. 9:** Implant placed in position #21 and bone atrophy, especially on the buccal side.





oral hygiene was achieved and inflammation was controlled (PBI and PLI < 20%), the patient was scheduled for the implant therapy.

Two implants were planned in the right maxillary sextant together with a guided bone regeneration to manage the bone defect present in the position of the first premolar. A full thickness flap was elevated and then, all the area of defect was debrided before preparing the implant sites. Due to the mucosal hyperplasia of the sinus, it was decided to insert an ultrashort implant (copaSKY, bredent medical) below the sinus floor, in the position of the first molar. Care was taken in order to reach the best level of primary stability by engaging the cortical bone of the floor of the sinus with the threads of the apical portion of the implant. At the same time, a mix of autogenous bone chips, scraped all around the area of the defect (SafeScraper, META), and a xenograft (TIXXU bone graft, bredent medical) was used to fill up the bone defect simultaneously with the insertion of a standard long implant in the region of the 14 (Fig. 6). The graft and the implant were then covered with a collagen barrier. It was decided to extract the maxillary right lateral incisor and to insert an immediate postextraction implant according to the protocol of the Partial Extraction Technique (PET), proposed by Hurzeler et al. in 2010.[17] A straight sectioning in the long axis of the tooth was carried out with a carbide burr, splitting the buccal portion from the rest of the root. Once complete separation of the two parts of the root was verified, the palatal portion of the tooth was carefully extracted paying attention to remove the apex and to eliminate all remnants of the pulp tissue. Afterwards, the implant was positioned in a flapless mode attaining an optimal primary stability (Fig. 7).

The post-op healing was uneventful, and the sutures were removed after 15 days.

The following month, the patient returned for implant placement in the left posterior sextant of the maxilla. In this sextant two implants were planned and, similarly to right posterior sextant of the maxilla, an ultrashort implant, 5.2 x 6 mm, was inserted below the floor of the maxillary sinus (copaSKY, bredent medical; Fig. 8).

The next step of the treatment plan was to carry out the bone regeneration and the implant insertion in the left maxillary central incisor site, at the same time (Fig. 9). Therefore, a full thickness flap was elevated which exposed the bone defect. Debridement was carefully done and then, autogenous bone chips were

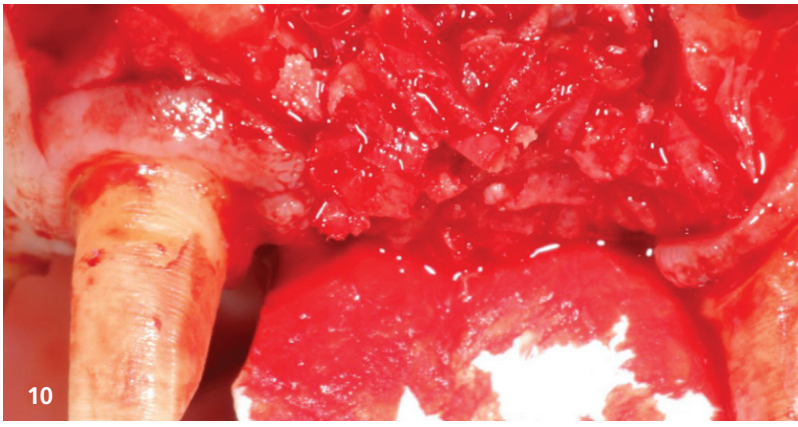


Fig. 10: Mix of autogenous bone chips and a xenograft fully covering implant #21. The collagen membrane on the palatal side would be used to cover the graft.

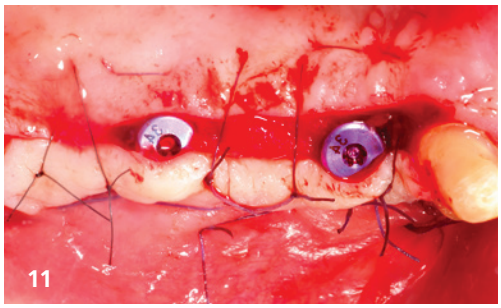
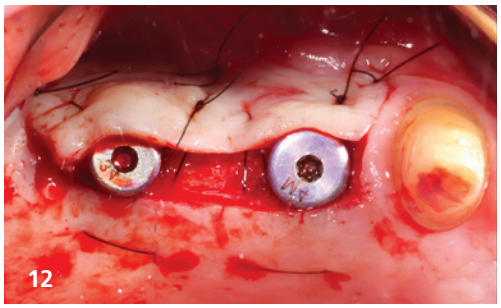
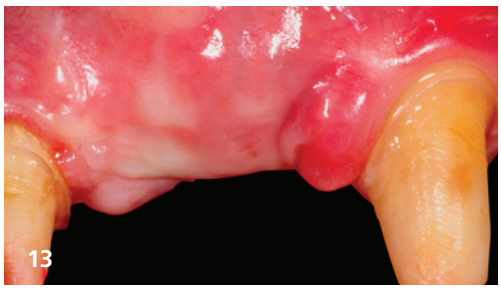
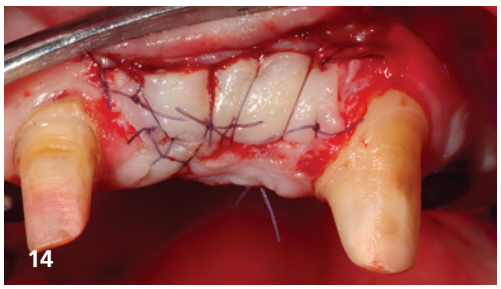





Fig. 11: Apically positioned flap to augment the width and thickness of the keratinised tissue around the implants after re-entry surgery in the maxillary right posterior sextant. **Fig. 12:** Apically positioned flap after re-entry surgery in the maxillary left posterior sextant. **Fig. 13:** Clinical aspect of the anterior zone two months after guided bone regeneration, showing the coronal displacement of the mucogingival junction. **Fig. 14:** Free gingival graft sutured on the buccal side in order to reestablish the correct profile of the mucogingival junction.

collected using a bone scraper. A standard implant, 4.0 x 12 mm, was inserted according to the surgical template and the graft was placed in an attempt to restore the bone quantity to the correct bone volume (Fig.10). Thereafter, the graft was covered with a collagen barrier and the flap was sutured back with interrupted sutures which were removed after 15 days.

Two months later, the re-entry surgery on the maxillary right sextant was scheduled to expose the osseointegrated implants. The surgical approach was based on an apically repositioned flap in order to reestablish a normal profile of the mucogingival junction, which was coronally displaced in the aftermath of the previous surgery. A straight incision line on the palatal third of the alveolar crest was drawn beginning from the maxillary tuberosity until the palatal gingival margin of the canine. A split thickness flap was then moved from the palate to the vestibule which was, simultaneously, deepened to create space and anchorage for the keratinised tissue. After the flap elevation, the area of the GBR was checked to evaluate how well the defect had been filled and the condition of the implant (Fig. 11). The re-entry surgery on the left side was then performed in a couple of weeks from the aforementioned procedure, following the same protocol already used on the right side of the maxilla (Fig. 12).

In the meantime, the healing of the anterior bone regeneration site was running uneventfully but showed an excessive displacement of the mucogingival junction with lack of keratinised tissue on the vestibular aspect of the crest (Fig. 13). According to the protocol proposed by Urban et al., it was decided to increase the band of keratinised tissue before the re-entry of the implant in order to ease the second surgical stage and to recover the mucogingival junction profile.[18] Subsequently, a free gingival graft (FGG) was then sutured above the vestibular crest after the preparation of an adequate vascular bed (Fig. 14).

After the maturation of the soft tissues around the maxillary posterior implants, a new impression was taken for the fabrication of a second set of temporary crowns supported by the implants, instead of the teeth. The final surgical step, consisting of re-entry surgery of the implant in the position of left central incisor and the extraction of the remnant teeth, was carried out.

In order to minimise the post extraction alveolar shrinkage and maintain the buccal contour, PET approach was performed

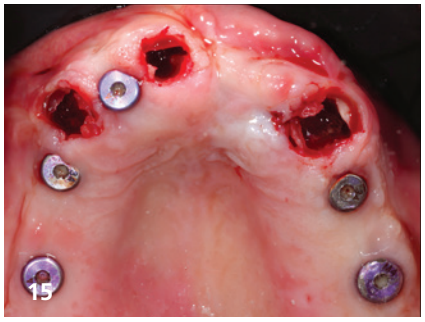
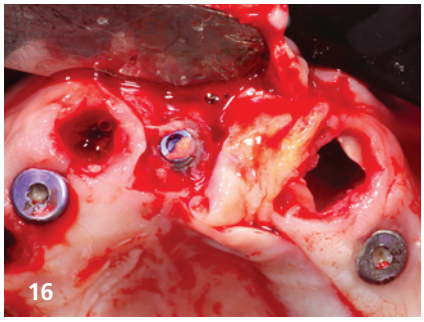
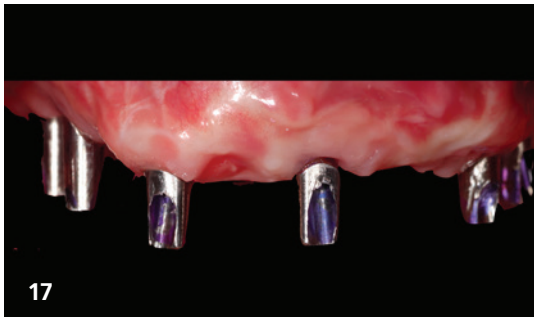




Fig. 15: After extraction of the remnant teeth following the partial extraction technique to preserve the volume of the alveoli. **Fig. 16:** Re-entry surgery for implant #21, after elevating a palatal pedicle flap. **Fig. 17:** Profile of the tissue after prosthetic conditioning.

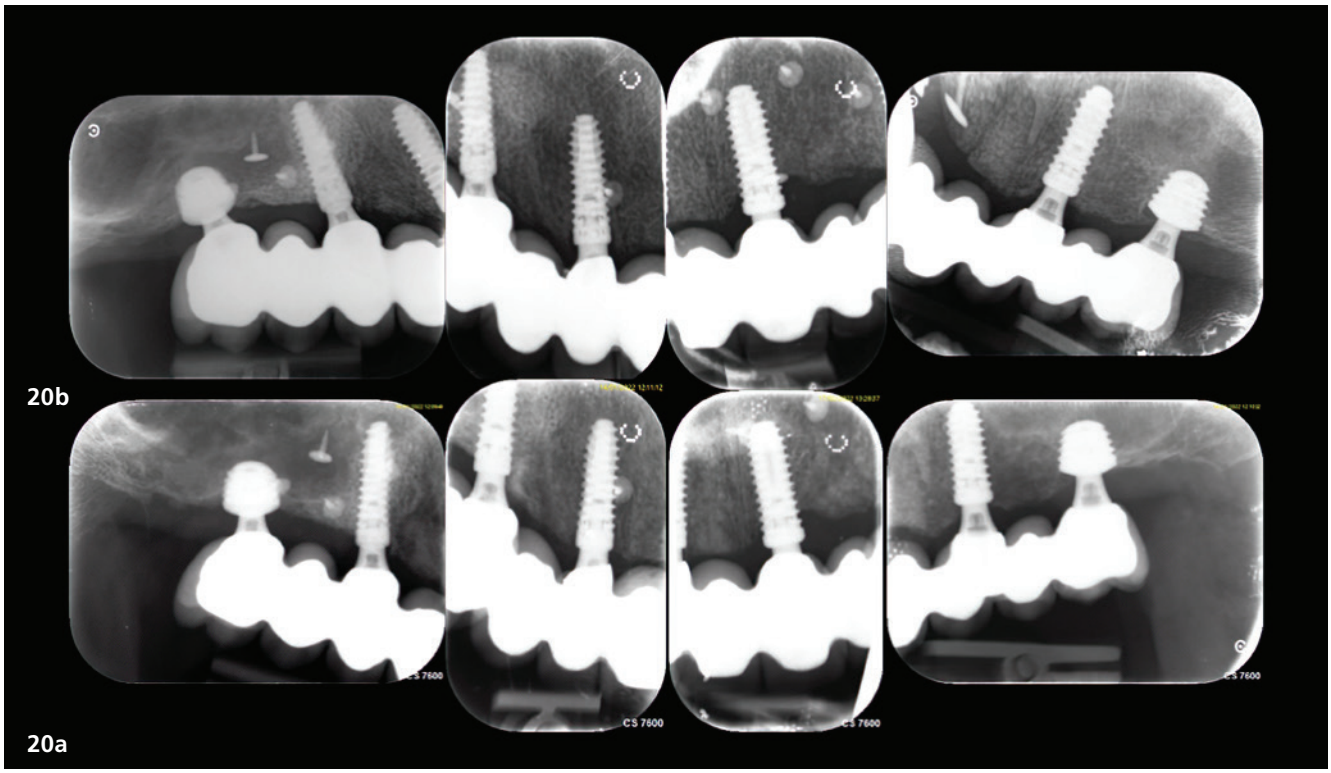


Fig. 18: Definitive restoration. **Fig. 19:** Patient's smile. **Figs. 20a & b:** Intra-oral radiographic status (a) at the end of treatment and (b) one year later. The marginal bone levels had been maintained, and there was good maturation of the bone all around the implants, especially the ultrashort implants, notwithstanding the reduced height of the native bone at the beginning of treatment.

on the right central incisor and both canines (Fig. 15).[19] At the same time, a soft-tissue augmentation with a pedicle flap rotated from the palate was performed to increase the profile of the alveolar crest in the anterior aspect according to the protocol described by Sclar et al. (Fig. 16).[20]

The implant placed in the lower left first molar was, simultaneously, reopened for the final prosthesis.

The soft-tissue conditioning was managed with progressive increment of the temporary crowns, until the maturation of the tissues was completed (Fig. 17).

The definitive full-arch implant supported restoration was then delivered to the patient and a three months recall programme was installed (Fig. 18).

The clinical and radiological one-year follow-up investigations revealed an optimal stability of the marginal bone levels as well as progressive further maturation and an increase in the soft tissues volume (Figs. 19 & 20).

Discussion

The clinical case described in this case report could be considered an example of the application of several improvements of the implant therapy concepts of the most recent years. The development and maturation of a stable collar of connective tissue fibers all-around the neck of the implant seems to play a crucial role in the maintenance of the crestal bone levels.[21] Different approaches have been proposed to preserve at best the integrity of the supracrestal peri-implant tissues in order to avoid or to control the marginal bone loss. On one hand, the height and the thickness of the soft tissues have been advocated as factors

implicated in the stability of the bone around the implant.[22] In accordance with this statement, the features of the implants positioned in this case report could bring some advantages to the clinicians. The back-tapered profile of the implant shoulder, the surface treatment of the shoulder area and the subcrestal position of the implant could positively influence the soft-tissue histomorphology and, therefore, the relationship between the implant and the crestal bone. On the other hand, alongside with the considerations related to the biology of the soft tissues, it is also necessary to pay attention on the role of the prosthetic management of implant rehabilitation. In fact, several authors have published multiple papers demonstrating how the emergence profile of the abutment could also influence the relationship between the implant and the bone.[6] The platform switch concept has evidenced how much clinicians can influence the marginal bone behavior by just leaving space to the supracrestal tissues through the use of an abutment with a slimmer emergence profile. Another factor that could be considered is the stability of the abutment–implant interface. The morse taper connection has demonstrated better performances compared to the other types.[23]

Another interesting aspect of this case report has been the use of ultrashort implants to rehabilitate the maxillary posterior sites instead of sinus floor elevation by means of augmentation where the height of the bone crest is not sufficient for the insertion of standard long implant. The patient presented a moderate level of hyperplasia in both sinuses which could have been a contraindication for a sinus lift procedure. Moreover, the healing time required for a complete osseointegration of the implant positioned simultaneously with a sinus lift is surely longer compared to the implants inserted into native bone. Nowadays, the clinical reliability achieved by the ultrashort implants makes them a valid alternative to external sinus floor elevation and augmentation. Further alternatives like, for instance, the zygomatic implant need, for sure, a more specialised skillset and are more indicated in those cases with higher level of bone atrophy.[24]

The points of view expressed in this case report are based on recent protocols backed by clinical and scientific evidence in modern implantology including the compelling result of twelve months follow-up from this single albeit complex case. Although the use of PET and soft-tissue graft are established procedures, the use of ultrashort implants is a relatively new trend. Also, the novel internal conical–parallel connection is also a fairly recent development. Further long-term research is needed to validate the success achieved in this case report.

About…

Dr Giovanni Ghirlanda

graduated with honours in dentistry in 1988 from the Sapienza University of Rome in Italy and later completed a master's degree in implantology from the University of Murcia in Spain. After his periodontics residency, he was a visiting lecturer at Harvard School of Dental Medicine in Boston in the US in 1992 and an adjunct professor of histology at Sapienza University from 1996 to 1999. Currently, he is a visiting professor at the Universidad Católica San Antonio in Murcia. He has extensive knowledge in oral surgery, implantology and periodontics and has a growing focus on aesthetics, immediate implant loading, including soft- and hard-tissue management in implantology. He is an active member of the Italian Academy of Osseointegration, the SIRIO ROMA dental association and the European Association for Osseointegration. Since 2006, he has been a key opinion leader for bredent medical.

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A case series with one-year follow-up

Immediate placement of titanium implants with a zirconia neck in the aesthetic zone

Drs Simone Marconcini , Enrica Giammarinaro, Giovanni-Battista Menchini Fabris & Ugo Covani, Italy

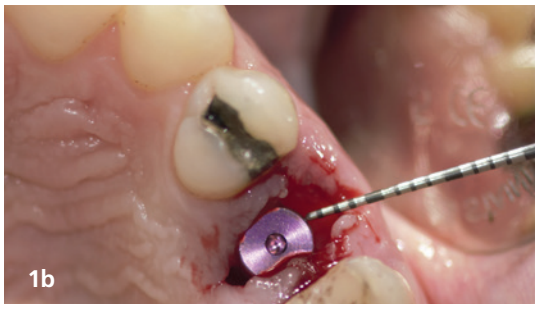
Introduction

In the case of single edentulism, the use of dental implants is a wise treatment choice, as under the same anatomical conditions, it safeguards the adjacent teeth.[1–3] A single implant is also a costeffective option in comparison with a traditional three-unit fixed dental prosthesis.[4] Furthermore, implant dentistry has progressed towards simplifying clinical protocols and reducing surgical entries, having immediate implant placement and immediate implant provisionalisation as treatment options.[5, 6]

However, despite the continuous improvement of implant materials and surgical techniques, achieving a good aesthetic outcome is often challenging.[7] Sometimes, especially when using a transgingival implant design, it is difficult to manage titanium translucency through the cervical mucosa, and this inconvenience is more frequent in patients with a thin gingival biotype.[8] Once the prosthesis has been delivered, augmenting the thickness of the soft tissue by means of coronally advanced flaps or free connective tissue grafts is an option, but the additional surgery is not always accepted by patients.[9]

Zirconia implants have been recommended for highly demanding aesthetic situations primarily involving the anterior maxillary zone.[10] Zirconia has shown great success at maintaining marginal soft-tissue stability around fixed dental prostheses,[11] and it has been associated with connective tissue stability and increased fibroblast collagen production in histological studies.[12] Still, zirconia implants' physical characteristics, including lower fracture resistance, compared with those of titanium have limited their use to patients with good occlusal stability.[13]

One-piece titanium implants with a zirconia collar have been developed, and they have been associated with strong fibroblast and osteoblast adhesion and inhibition of bacterial prolife-



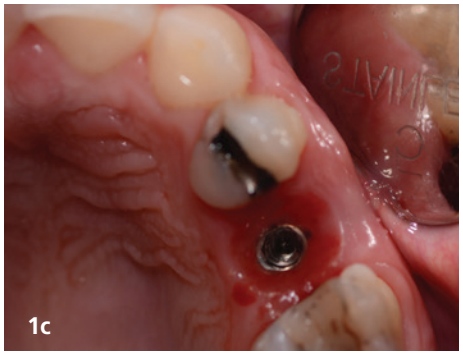


Fig. 1a: This 45-year-old female patient presented with a fractured maxillary second premolar. **Fig. 1b:** A Z1 Infinity implant (TBR Dental) was placed immediately following the palatal slope of the extraction socket. **Fig. 1c:** Four months after implant placement, the tissue around the provisional prosthesis appeared healthy. **Fig. 1d:** The buccal appearance of the peri-implant tissue disguised the presence of an implant. No implant radiolucency was detectable.

Fig. 1e: The definitive prosthesis was delivered four months after surgery. **Fig. 1f:** The peri-implant mucosa was healthy and stable at the five-year follow-up.

ration.[14] The intimate connection at the interface between the two materials allows the implant to behave like a single body, preventing deformation, compression or torsion.[15, 16] The aim of the present case series study was to evaluate the survival and success rate of a titanium implant featuring a 1.5 mm zirconia neck, giving special attention to the aesthetic results in the anterior zone. The Z1 Infinity implant (TBR Dental) combines two materials adapted to the tissue with which they are in contact—titanium to the bone and zirconia to the mucosa—with the aim of enhancing periodontal stability around the implant.

Materials and methods

Patient selection

The present case series study complies with the principles stated in the World Medical Association (WMA) Declaration of Helsinki, as adopted by the 18th WMA general assembly in Helsinki in Finland in June 1964 and as amended most recently by the 64th WMA general assembly in Fortaleza in Brazil in October 2013.

The study population included ten patients requiring single-tooth extraction and immediate implant placement, six women and four men, ranging from 28 to 65 years old. All participants provided written informed consent. During treatment planning, each case was accurately evaluated by examining diagnostic casts for the inter-arch relationship and examining periapical and panoramic radiographs and CT scans, if needed.

The inclusion criteria for patient selection were as follows:
1. good general health and no history of systemic disease;
2. fair occlusal stability (> 20 teeth);
3. need for implant surgery in the aesthetic zone.

The exclusion criteria were as follows:
1. smoking more than ten cigarettes per day;
2. having received radiotherapy to the head or neck area;
3. severe systemic conditions impairing bone healing;
4. dehiscence or fenestration in the residual bony walls;
5. acute infection at the surgical site;
6. alcohol or drug abuse; and
7. oral parafunctional habits.

Preoperative procedure

All patients, prior to the experimental procedure, underwent a complete periodontal evaluation. With the aid of a #15 UNC periodontal probe, probing pocket depth, clinical attachment level, full-mouth plaque score and full-mouth bleeding score were assessed. Thereafter, patients were instructed on improving selfperformed oral hygiene and enrolled in a professional maintenance programme. Experimental intervention was postponed until patients showed proper periodontal tissue stability.

On the day of the experimental procedure, a prophylactic systemic antibiotic regimen (2 g amoxicillin and clavulanic acid) was started 2 hours before surgery. Immediately before the surgery, patients were rinsed with ozonised water for 1-minute intervals.

Surgical procedure

All patients were treated by a single surgeon. The implants were immediately inserted after tooth extraction. Local anaesthesia (Optocain 20 mg/ml, Molteni Dental; adrenaline 12.5 µg/ml)

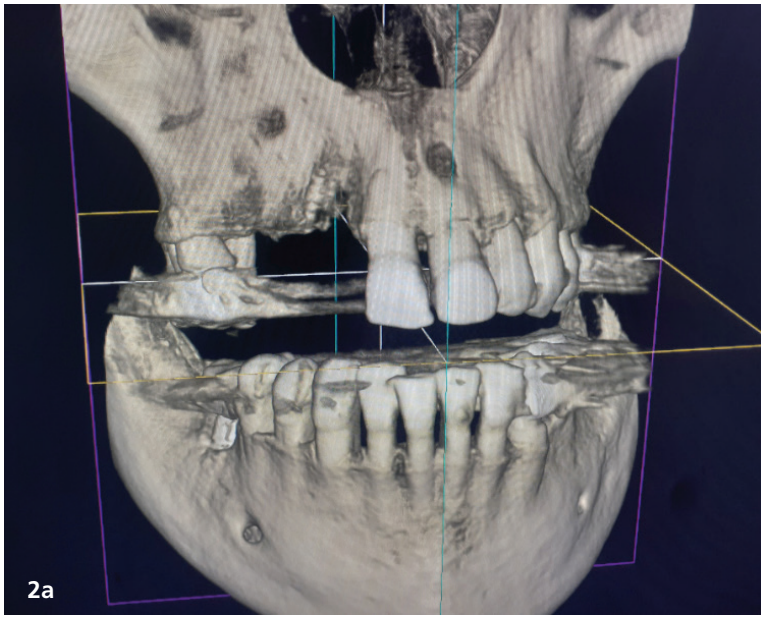


Fig. 2a: Volumetric reconstruction of the female patient denoting partial edentulism of the right posterior maxilla and the need for treatment of the upper left central incisor.

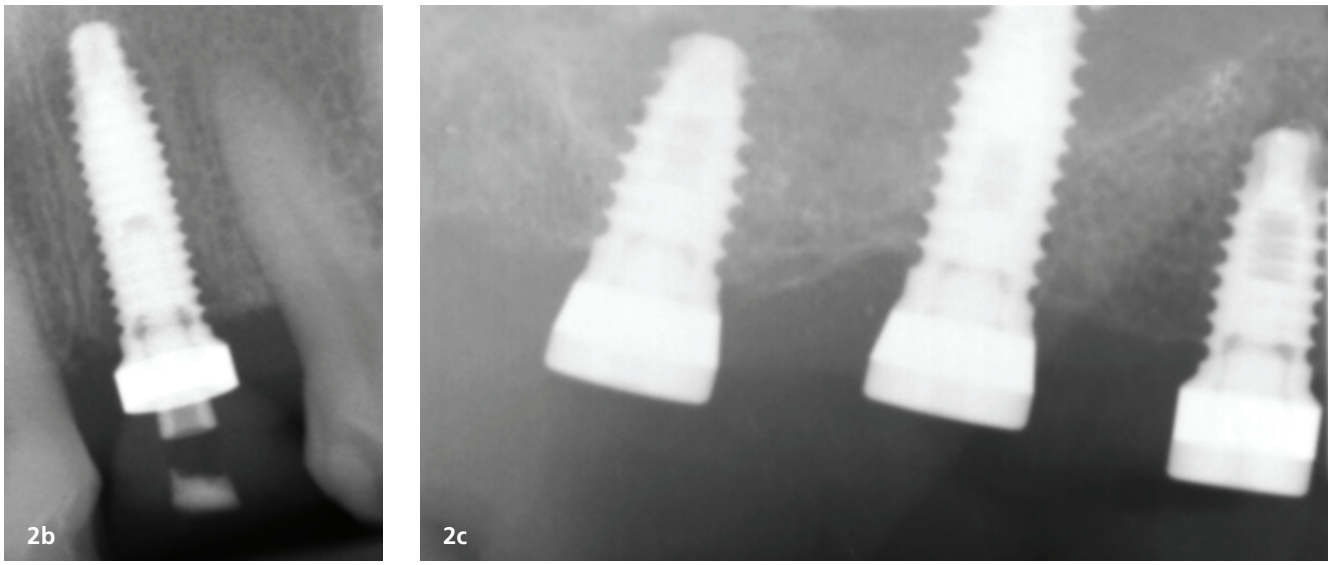


Fig. 2b: Among other rehabilitative options, in accordance with the patient, an immediate implant was placed at the extractive socket of the upper left central incisor. **Fig. 2c:** Among other rehabilitative options, in accordance with the patient, three implants were placed in the edentulous ridge distal to the right upper central incisor.

was used for all surgeries. Teeth were extracted carefully in order to preserve the integrity of the socket walls and to avoid having to raise a flap. In particular, the surgeon took advantage of the existing cleavage spaces, making use of a magnetostrictive handpiece. After tooth extraction, the surgeon mapped the extraction socket with a #15 UNC periodontal probe and recorded the buccolingual and the mesiodistal diameters. Neither post-extraction fenestrations nor dehiscence were found. Thus, there was no need for further grafting of the socket with biomaterials. Implant site preparation was performed slightly palatally with respect to the socket.

Z1 Infinity implants with a 1.5 mm zirconia collar and of varying lengths (10.5–13.0 mm) were used. The surgeon placed the implants leaving the zirconia collar outside the bone margin. The implants were loaded immediately using screw-retained resin provisional prostheses, taking particular care regarding marginal convexity, apico-coronal position and final polishing of the crown (Figs. 1a–f). If the primary stability was not sufficient and the insertion torque was lower than 25 Ncm, a customised healing abutment was fabricated, and Maryland bridges were used for provisional restoration.

Postoperative care

Antibiotic therapy was continued for five days after the surgery. An analgesic and anti-inflammatory regimen was established for the very first three days (600 mg ibuprofen twice a day) and then when required.

Clinical and patient outcome measures

The following clinical parameters were evaluated at the time of implant placement and six months later: distance from the coronal border of the buccal bone to the coronal border of the lingual bone, measured using a standardised periodontal probe placed horizontally through the centre of the implant; and clinical and radiographic parameters, including plaque index, bleeding on probing, probing depth and clinical attachment level. At the time of the definitive prosthesis placement, a further aesthetic evaluation was performed using the pink esthetic score (PES). All the implants were radiographically examined by one of the authors (EG), who was unaware of the treatment procedure, using an OsiriX DICOM viewer (Pixmeo).

The clinical success of the implants was recorded as the primary outcome of this study. Based on both clinical and radiographic criteria described by Buser et al., the implants were classified as successful or unsuccessful.[17] The criteria for implant failure were as follows:

1. persistent patient complaints;
2. peri-implant suppurative infection;
3. fixture mobility; and
4. worsening radiolucency at the marginal bone level.

The secondary outcome was the PES, described by Fürhauser et al. in 2005 for the evaluation of implant aesthetics.[18] On the basis of clinical images, seven variables were evaluated and scored by three evaluators in relation to those of a natural reference tooth: mesial papilla, distal papilla, soft-tissue level, soft-tissue contour, alveolar process deficiency, and soft-tissue colour and texture. Using a 0-1-2 scoring system, 0 being the lowest and 2 being the highest value, the maximum achievable PES was 14. Each observer was requested to make two assessments at an interval of four weeks. At the second assessment, the photographs were scored in the reverse order. Digital single-lens reflex camera systems were utilised to capture intra-oral clinical images of patients at each recall visit. To facilitate PES scoring, both the implant study site and the adjacent (premolar sites) or contralateral natural teeth (anterior sites) and their respective mucosa were captured in the digital images. Clinicians recorded photo-

graphic settings for each patient at the initial visit and repeated the identical photographic settings at later visits to standardise image rendering.

Data analysis

The data was entered and proofed for errors. Descriptive and inferential analysis were performed using R (Version 4.0.4; developer). Assessment of evaluator reliability was completed using the intra-class correlation coefficient to analyse both intra-observer agreement (e.g. PES scores assigned for identical images by the same evaluator at different time points) and inter-observer agreement (e.g. PES scores assigned for identical images by two evaluators). The F1-LD-F1 design from the nparLD package was used to time effects on both primary and secondary outcomes. Significance was set at < 0.05 ($p < 0.05$) for all analyses.

Results

All dental implants were placed at the same time as the extraction of failing maxillary teeth. Overall, 20 implants were placed in the inter-premolar area. Extraction sockets eventually presented slight bone loss.

Implant follow-up

At the conclusion of the one-year follow-up, no implants had failed, providing a cumulative survival rate of 100%. There were no signs or symptoms of peri-implant inflammation, and no signs of significant radiographic marginal bone loss could be detected until the last visit.

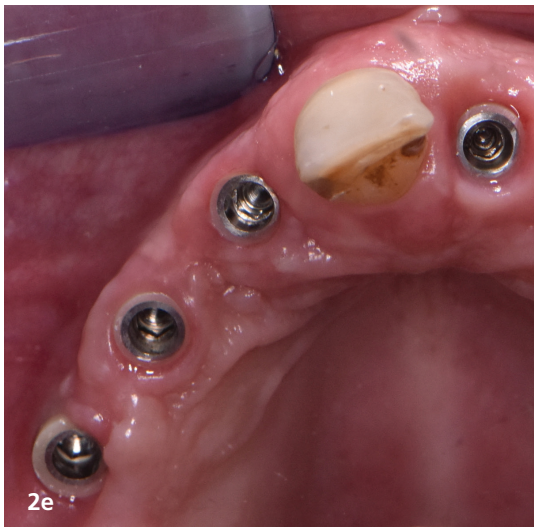


Fig. 2d: Clinical detail of soft tissues. **Fig: 2e:** Clinical detail of soft tissues. **Fig. 2f:** Overall appearance one year after surgery.

PES measures

For the ten patients, the highest and lowest PES values were 14 and 10, respectively. The median PES was 13.5, and 97% of the scores were within the range of 13–14 (Fig. 3). No patients scored a maximum PES of lower than 10 in PES evaluation. The highest PES values were observed for the soft-tissue level (2.00 ± 0.05) and soft-tissue colour (2.00 ± 0.05). The distal papilla (1.75 ± 0.46) and the alveolar process (1.75 ± 0.46) had the lowest scores. The mesial papilla, soft-tissue colour and soft-tissue contour scores were 1.87 ± 0.35, 1.87 ± 0.35 and 1.87 ± 0.45, respectively.

Discussion

The present case series suggests that titanium implants with a zirconia collar might be a safe alternative for the rehabilitation of partial edentulism in the case of immediate implant placement in the aesthetic zone. The one-year evaluation showed a PES range of 10–14, 13.5 being the median value. No failure or complication could be recorded. No signs or symptoms of peri-implant mucositis were detected. The recent systematic review by Francisco et al., including 18 trials, concluded that both immediate and early implant placement protocols presented stable treatment results in terms of aesthetic outcomes at the one-, two- and ten-year follow-ups.[19] Of course, the placement of implants in extraction sockets comes with several immediate challenges; thus, choosing the right implant, among others, is a determining factor for success.[20, 21]

In the present study, the implant zirconia neck may have behaved like a bioactive scaffold for the connective tissue to grow on to. This is an advantage because a thick, well-represented, firmly seated connective tissue seal guarantees long-term vertical stability.[22, 23] Zirconia has been associated with greater fibroblast adhesion, proliferation and viability.[24, 25] Fibroblasts play a crucial role in the early healing of peri-implant soft tissue, especially in the case of immediate placement of implants, for which several factors come into play, and the healing potential of the surgical injury is influenced by both

Fig. 2f: Overall appearance one year after surgery.

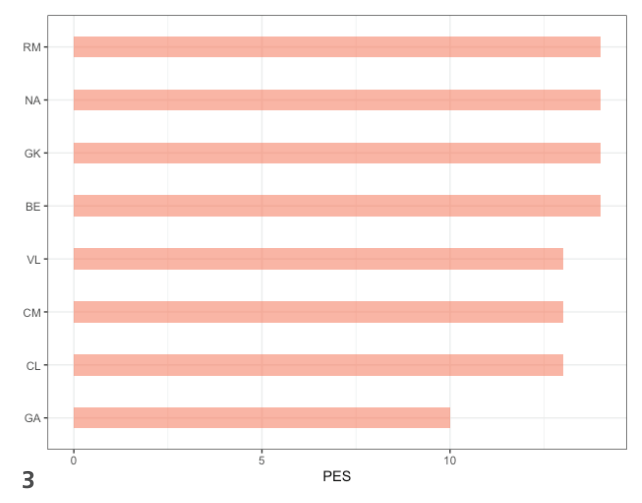


Fig. 3: Average (central incisors, lateral incisors, canines and premolars) pink esthetic score (PES) for each patient of the cohort.

wound size and local tissue resources.[26] Wound healing around implants placed immediately starts during the surgery by protein adsorption on the implant or abutment surface, followed by the formation of a blood clot; thus, choosing an implant with a fibroblast-friendly surface at the neck area might aid early soft-tissue stabilisation.[27]

The results of the present study are in line with those of clinical studies regarding zirconia in implant dentistry: zirconia implants and abutments have been associated with low gingival and plaque index scores.[28, 29] This apparent lower affinity to plaque accumulation may favour soft-tissue health and decrease the long-term risk of inflammation or infection.

The recent network meta-analysis by Hu et al. reported that zirconia abutments had a comparable survival rate to that of titanium abutments.[30] In addition, zirconia abutments have a better effect in maintaining the marginal bone level. The authors concluded that zirconia might be a recommended abutment material considering the clinical efficacy of implant-supported single crowns for which zirconia abutments were employed.

The overall mean PES for the present study was 13.5, a value which is consistent with the current literature on zirconia implants and abutments. A recent systematic review of the mechanical and aesthetic outcomes of implant zirconia abutments used in the anterior region reported "good to excellent" aesthetic integration in terms of prostheses and soft-tissue colour and the presence and height of papillae.[31]

Among the limitations of the present study are the absence of a control group and the short follow-up period. Larger studies with control groups and longer follow-ups are needed to assess the long-term stability of Z1 Infinity implants.

About…

Dr Simone Marconcini

has a PhD in nanotechnology from the University of Genoa in Italy, an MSc in bone reconstruction and a national scientific qualification as associate professor in stomatology with experience in teaching at the University of Pisa in Italy in graduate and postgraduate courses. An award-winning specialist in oral surgery and implantology (University of Pisa) with over ten years' experience of research in oral health, he oversees scientific research at the Istituto Stomatologico Toscano, a foundation for clinical research and advanced training in dentistry in Camaiore in Italy. He is a recipient of the IADR/Philips Oral Healthcare Young Investigator Research Grant. He is the author of more than 50 scientific publications in high-impact scientific journals, the co-author of three books and an active member of the International Association for Dental Research and Italian Academy of Osseointegration.

Literature

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Thommen Medical Education

Driven by science, not trends

Janine Conzato, Germany

The innovative company Thommen Medical has been dedicated to a single goal since the beginning: To produce the best possible dental implant system. They consistently rely on Swiss precision in manufacturing, rigorous quality controls and close collaboration with the best experts in dental medicine worldwide. This results in a unique dental implant system that combines Swiss quality, simplicity and an innovative design, based on over 35 years of clinical experience.

The company focuses on dental implantology and clearly positions itself as an expert in dental implants. The production takes place at the company's facility in Grenchen, Switzerland. However, part of the recipe for success is that the company invests in ecology, research and the social responsibility of the dental manufacturer in addition to innovative product development.

Under the name "Thommen Medical Education", Thommen Medical offers training at the highest level, carried out by clinicians who are leaders in their fields on the one hand, and on the other hand, through their practical and pragmatic approach, are able to pass on directly applicable knowledge. Participants receive scientifically based and practice-oriented knowledge that they can use in their daily work. Knowledge that can be used to further optimise not only the clinical results, but also the intraoperative, dental-technical, and organisational processes related to dental implants.

As an internationally active company, Thommen Medical is also present at numerous congresses and events. This year's EuroPerio in Copenhagen was no exception. The company's symposium took place on the second day of the congress and was very well attended. In it, Prof. Leonardo Trombelli, Prof. Stefan Renvert and Prof. Markus Hürzeler addressed the question of whether implant rehabilitation in stage IV periodontitis patients is a permanent solution or the genesis of future problems. The experts looked at the question from periodontal, implantological and interdisciplinary perspectives. The symposium was chaired by none other than periodontist Dr Otto Zuhr, who has been a board member of the Deutsche Gesellschaft für Parodontologie.

It is important to the Swiss company that research, development and the further development of the company are always congruent and financially viable. If you grow too fast, you can also jeopardise a solid foundation. That is not Thommen Medical's philosophy. When a new product comes onto the market, it is absolutely reliable and mature. And this serious development takes time.

Thommen Symposium

Thommen Medical

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Fig. 1: Dr Otto Zuhr welcomes the participants at the Thommen Symposium at this year's EuroPerio in Copenhagen. **Fig. 2:** Dr Otto Zuhr, Prof. Markus Hürzeler and Prof. Stefan Renvert (from left) at the Thommen Symposium at the EuroPerio in Copenhagen on "Implant-supported rehabilitation in stage IV periodontitis patients: permanent solution or source of future problems?".

Nations united by innovation

2022 EAO congress celebrates comeback in new hybrid format

A review report by Janine Conzato, Germany

For the last two years, the annual scientific meeting of the European Association for Osseointegration (EAO) could only take place virtually owing to the SARS-CoV-2 pandemic. From 29 September to 1 October, the 29th EAO congress took place this year as a hybrid format for the first time in its history, consisting of a face-to-face event held at Palexpo exhibition and congress centre in Geneva and a virtual evening programme—much like the EAO Digital Days in the last two years. A rich programme with numerous educational and networking opportunities awaited over 2,200 participants.

"This digital part is mostly for those who do not want to or cannot travel to Geneva. It features congress teasers and summaries of the respective day, such as short summaries of the plenary sessions or live recorded parts of the discussions. Although it isn't a replacement of the congress, the evening programme is informative and entertaining," explained Prof. Irena Sailer, chair of the 2022 EAO congress, ahead of the event. The digital congress programme will be available on the EAO online platform until the end of October, including for those who attended the event in person. In addition, Prof. Sailer explained that access is free of charge to dentists from Ukraine this year, giving them the opportunity to learn about the latest innovations in the dental world even from the war zone.

This year's programme featured an international faculty of 90 renowned speakers who shared their knowledge on the use of digital technologies in all areas of implantology and dentistry. In the sessions, current digital techniques were compared with conventional techniques, and clinically relevant recommendations for practice were given. In addition to interesting lectures, there was broad participation by the industry in the exhibition and the supporting programme, offering practical education via forums and hands-on sessions.

Focus on digital technologies

Under the theme "Uniting nations through innovations", the 2022 EAO congress focused on the role and potential of digital technologies for communication, work, and learning and training opportunities. A goal of this year's congress was to critically examine investments in new technologies and their actual benefits for clinicians and patients. Prof. Sailer commented: "It is, indeed, our aim to critically evaluate all the new developments that are offered to clinicians today. All these

new tools that promise to improve quality of care while reducing treatment costs for patients do sound tempting, but we will ask whether all of this can be achieved just by investing in technology and changing the practice structure from a conventional one to a digital one. Many dental professionals are asking what evidence there is behind these rapidly appearing developments and whether the evidence is sufficient to abandon well-established paths."

After the ceremonial opening and the presentation of the silver medals for dedicated services to the EAO by President Dr Luca Cordaro to the scientific committee, consisting of Prof. Sailer, Dr Sven Mühlemann (co-chair of the 2022 EAO congress and president of the Swiss Society for Implantology), Dr Christoph Ramseier, Prof. Sebastian Kühl and Dr Fidel Ruggia, the dense programme, which was grouped around three plenary sessions, began. The first session focused on the virtual patient, including the growth of this field as well as the potential role of digital human technology. Might it eventually be possible to create a 3D patient without ever seeing the patient in the office?

No less than senior staff research scientist at Google Thabo Beeler and chief scientist at DisneyResearch|Studios Prof. Markus Gross took the audience on a journey into digital human technology and explained how dentistry can learn from Hollywood. Also, Prof. Florian Beuer, Prof. Dennis Rottke, Dr Andrea Ricci and Prof. Rubens Spin-Neto discussed the virtual patient and went into greater detail on innovations such as computer-designed smiles and 3D radiography.

One highlight followed the next

The congress was held in collaboration with the Swiss societies of implantology, of oral surgery and stomatology, of periodontics and of reconstructive dentistry, and one highlight of the congress was the Swiss Day, an interactive congress programme presented by these associations on the first day. The EAO Junior Committee also presented a hands-on workshop titled My first implant that day.

The daily online sessions were a wonderful feature. These repeated a selection of sessions each evening for participants at home on their screens and offered innovative formats such as the Prime Time Debate, Battle and #isittrue?

Does the digital approach improve treatment efficiency?

The sessions on Friday were dedicated to this question. The icing on the cake for the already knowledge-packed programme presented by award-winning dentists was an ambitious surgical double session on Friday afternoon: the procedures of Dr Istvan Urban from Hungary and Dr Mario Roccuzzo from Italy were livestreamed at the congress. The strengths and challenges of digital and conventional approaches to 3D bone regeneration were explored. Ten participants competed in the clinical video competition, presenting their 7-minute videos on different topics in digital dentistry. The winner, Dr Carmen Pomares Puig from Spain, received the European Prize for Clinical Video on Implant Dentistry and €1,000 at the ceremony on Saturday. During the meeting the association awarded further prestigious scientific prizes:

- European Prize for Basic Research in Implant Dentistry Awarded to: Jan Kwan (Canada)
- European Prize for Clinical Research—Surgery Awarded to: Algirdas Puisys (Lithuania)
- European Prize for Clinical Research—Prosthetics Awarded to: Chahak Seth (Denmark)
- European Prize for Clinical Research—Peri-implant Biology Awarded to: Miha Pirc (Switzerland)
- European Prize for Clinical Innovations in Implant Dentistry Awarded to: Grazia Tommasato (Italy)

At the closing ceremony, eight dentists received the EAO Certificate in Implant-based Therapy, while 28 others were awarded the EAO Master Diploma in Implant Dentistry, having completed the six-module programme.

Prof. Irena Sailer, Chair of the 29th EAO Congress in Geneva, with delegates.

Saturday also addressed perhaps the most important question of all for the digital future of dentistry: does investing in new technologies improve the lives of patients and clinicians? This session focused on how to improve communication between clinicians and patients and how to better manage expectations to avoid disappointment.

Panel discussion on 3D radiology as a mandatory part of treatment planning with Prof. Markus Hürzeler, Prof. Rubens Spin-Neto, Prof. Dennis Rottke, Dr Florian Probst and Dr Andrew Dawood (from right).

Successful family reunion!

According to Prof. Sailer, the EAO congresses have always felt like a family reunion. She therefore expressed in advance: "We hope to rekindle this feeling again this year, as we have missed it in the past years." An entertaining social programme, such as the get-together and the subsequent congress dinner, as well as the party on Thursday evening and happy hour at rooftop°42 on Friday evening offered participants the opportunity to meet like-minded people and exchange experiences of their clinical work—so it seems that this wish was fulfilled.

At the EAO and Swiss associations members and faculty dinner on Thursday evening, Prof. Georg Watzek was awarded honorary EAO membership in recognition of his outstanding achievements in the field of osseointegration and his commitment to the EAO since joining the association in 1990. Prof. Watzek was EAO president in 2003–2004 and was involved in the development of several educational projects, including the EAO certification examination for implant-based therapy. So far, only seven people have received this award, among them Profs Niklaus P. Lang and Christoph Hämmerle. The congress also saw Prof. Ronald Jung take over as EAO President, replacing Dr Luca Cordaro. A long-standing EAO member and an accomplished clinician, Prof. Jung co-chaired this year's live surgery session and is the Chairman and Clinic Director of the Clinic of Reconstructive Dentistry, at the Center of Dental Medicine, University of Zurich, Switzerland.

International exchange is a must!

Geneva is a truly international city and is the headquarters of numerous international organisations, including the United Nations, the World Health Organization, the World Trade Organisation and the International Committee of the Red Cross. The EAO, founded in 1992, reflected this international character at the congress, where more than 80 countries were represented and clinicians from all over the world attended. Every participant left the congress with valuable knowledge and insights and had the opportunity to meet old friends and make new ones.

Save the date for next year's EAO congress in the German capital of Berlin from 28 to 30 September. You will not be disappointed!

On the second day, the plenary session featured live surgery broadcast simultaneously from Budapest and Turin. Dr Isabella Rocchietta, Prof. Daniel Buser and Prof. Ronald Jung co-chaired this year's live surgery session.

BioHorizons Camlog product report

Customised PEEK healing caps and impression posts: revolutionising the workflow in implant treatment

Today, the question is not whether dental implants are osseointegrated, but the "where" and the "how" we can optimise the ecosystem to incrementally improve patient outcomes. Preserving the structure of the peri-implant tissue, increasing patient comfort, reducing morbidity, and shortening treatment times are all examples of hot topics within state-of-the-art research and development. Camlog has established a new workflow in implant therapy with its DEDICAM services using customised anti-rotation PEEK healing caps and PEEK impression posts based on patient-specific emergence profiles, all produced from a single data set obtained during the CAD/CAM process.

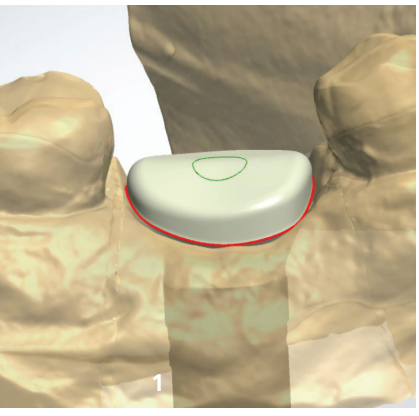
The customised PEEK healing caps and PEEK impression posts—identical in subgingival design—support pre-, intra- and postoperative procedures for shaping the peri-implant soft tissue and transferring the anatomy. The tissue-friendly PEEK material and the optimised anatomical emergence profiles offer two distinct clinical advantages—no additional soft-tissue manipulation is required, and the obtained profile can be transferred to the master cast in a precise manner.

The integration of digital processes in the dental practice and laboratory, with their choice of individual parameters, makes for efficient and patient-friendly concepts. Digital workflows can be adapted to the local infrastructure as well as the requirements of the treatment team. Individually designed and manufactured implant components ensure ideal conditions for custom prosthetic restorations in conjunction with 3D X-ray diagnostics, virtual 3D implant planning, intra-oral scanning, and template-guided implant placement.

Customisation as a concept covers not only individual treatment planning but also any prosthetic component that can be customised and precisely manufactured using CAD/CAM technology.

Customised PEEK healing caps and impression posts for Camlog and BioHorizons implants

Customised PEEK healing caps and PEEK impression posts are available for the CAMLOG, CONELOG, iSy, CERALOG and BioHorizons implant systems. Each are CAD/CAM milled with a maximum diameter of 10 mm, a process that requires a sound knowledge of polymer processing and quality assurance. PEEK has been used routinely in implant therapy for many years, mainly for temporary restorations. The PEEK healing caps, which are approved for an intra-oral presence of up to 180 days, can be ordered individually or as a set with an impression post for use in open- or closed-tray



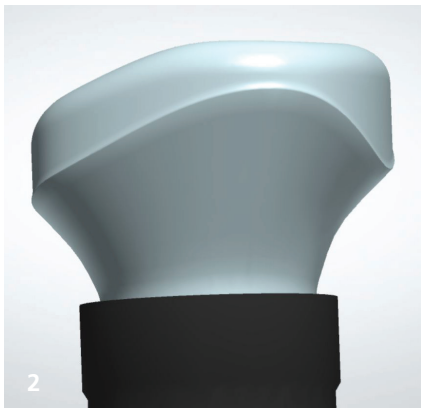


Fig. 1: Anatomical design of the healing cap defining the emergence profile of the crown (note concavity in the submucosal region). **Fig. 2:** Design of the customised healing cap based on backward planning at the time of implant exposure.

impression technique. With libraries provided for 3Shape, exocad and Dental Wings CAD software, registered DEDICAM customers can design their own customised healing caps and have them manufactured to order from Camlog. The same data set can then be used to produce a customised impression post in the same procedure. To simplify the intra-oral alignment of the customised components it is recommended to apply a visual marker in the form of a small depression on the healing cap, a marker that is later transferred to the impression post.

A flexible workflow using backward planning

Digital workflow: Using the DEDICAM Implant Planning Service; the anatomical emergence profile, the design of the subgingival aspect for optimum tissue support, and the proper height of the healing cap are defined. The surgical guide and the healing cap—and, if desired, the impression post—can be ordered from Camlog. Alternatively, an export of the planning data can be sent to the dental laboratory. Once the guided surgery has been completed, the healing cap can be connected directly as part of a single-stage procedure for immediate restoration, thanks to the precise position and alignment of the internal implant configuration. The healing cap is left uncovered, shaping the soft tissue anatomically based on the emergence profile.

If submerged healing is preferred, the healing cap is placed after re-entry. When required, the soft-tissue volume can be increased by raising a tubed flap. Once the soft tissue has healed as supported by the healing cap, the identical design can be used for the final abutment to ensure continued soft-tissue support (if the healing cap was designed at the dental laboratory). For any changes that might be required, the current soft-tissue status can be recorded by an intra-oral scan, starting from the implant shoulder.

Moreover, for complex rehabilitations with fixed implant-supported multi-unit restorations, analogue impressions using PEEK impression posts have proven beneficial for our customers.

Partially digital workflow: This workflow emerges as the result of a collaboration between the oral surgeon, the prosthodontist and the dental technician. The oral surgeon places the implants as previously agreed with the prosthodontist, scanning their positions before submerged healing begins. At re-entry, the customised healing caps are connected to create the desired anatomical shape of the peri-implant soft tissue. This is also the procedure chosen for the case study by Dr Peter Randelzhofer that is presented here.

Once the tissue has healed, the restorative procedure can be initiated at the referring dentist's office, who will encounter a perfectly formed mucosa. Its shape can be transferred to the laboratory in an analogue impression procedure with the help of the custom impression posts that required no additional effort to obtain. The restoration can then be fabricated in an analogue or digital process, depending on the dental technician's preference.

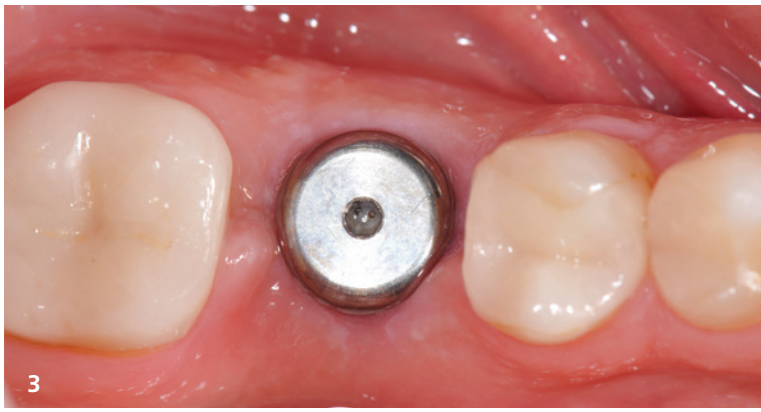


Fig. 3: Connection of the customised PEEK healing cap after re-entry. It remained *in situ* for four weeks to shape the soft tissue. **Fig. 4:** Anatomically shaped and firmly attached mucosa at the time of impression-taking. **Fig. 5:** The impression post—congruent in shape in the submucosal area—is used to transfer the implant position and emergence profile to the master cast without causing the soft tissue to collapse or otherwise manipulating the gingiva in any way.

Outsourcing: Part of the process can be outsourced to a production centre in a mixed analogue/digital process, where the implant dentist takes an implant impression or performs an intra-operative intra-oral scan of the implant position. Either the casts or the scan data are transmitted to Camlog together with a situation model and a scan of the opposing jaw. The experienced

Fig. 6: The emergence profile of the hybrid abutment corresponds to the design of the healing cap. **Fig. 7:** The definitive restoration is delivered three months after re-entry, avoiding any pressure on displacement of the soft tissue. **Fig. 8:** The final restoration. The peri-implant mucosa is stable and anatomically shaped.

dental technicians at the DEDICAM service centre design the patient-specific healing caps in consultation with the dentist and transmit the manufacturing order for healing caps and impression posts to the production centre. Both are manufactured to high precision and returned to the practice in order to create optimum clinical conditions for the development of an anatomically shaped mucosa.

Conclusion

Customised PEEK healing caps and impression posts render the workflow flexible and convenient for all stakeholders. The virtually designed patient-specific emergence profile is safely under control, from the time of implant placement until the delivery of the definitive restoration. There is no need to manipulate the soft tissue, as would be the case after removing a standard healing abutment. Having an impression post with an identical emergence profile replicated from the same data set—prevents the mucosa from collapsing and allows the soft-tissue profile to be transferred for the fabrication of an identically shaped abutment. This patient-friendly treatment concept is characterised by ease of handling, predictable results, reduced pain and fewer treatment steps and appointments.

PEEK is a tissue-friendly material that has become established in implant therapy for temporary restorations.[1-3] An anatomically designed emergence profile creates the basis for the natural red-white aesthetics of the implant reconstruction, in addition to optimising the mucosa and protecting the alveolar bone. Customised healing caps and impression posts are time- and cost-efficient and a valuable aspect of a patient-friendly treatment concept.

DEDICAM services are available in selected countries. Please contact your local BioHorizons Camlog representative for more information.

All clinical photographs courtesy of Dr Peter Randelzhofer, Munich, Germany.

Literature

Camlog

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Osstem

Healing abutment and scan body in one: Scan Healing Abutment

Osstem Implant introduces its first TS Scan Healing Abutment for the European market.

The Scan healing abutment is a product that combines the scan body to the healing abutment and satisfactorily completes the implant impression by scanning the top surface of the healing abutment in the oral cavity without a separate scan body connection.

Prosthetic accuracy has been improved by including different gaps for each specification. Various lengths such as 4, 5 and 7 mm can be selected and used according to the implant placement situation. Moreover, the gaps are favorable to aligning in the digital workspace. Also, by using a dedicated carrier, Scan Healing Abutment can be fastened in the correct hex direction.

After scanning, a library allows you to select a custom abutment or a ready-made abutment on CAD software such as 3Shape and exocad, making it more convenient and versatile to create digital implant prostheses.

On CAD, the length specification can be easily checked with the gaps of the upper part, and a custom abutment can be made with the original library. A surface coating that reduces light reflection enables quick scanning without spray application. If there is no oral scanner or scanning is difficult, it can also be used for rubber impression taking.

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Combined SEM image of the surface of two implants, each removed shortly before from sterile packaging. Full-size resolution SEM image mapping, Backscattered electron imaging 500x.

Your implant choice matters

In 2017, the CleanImplant Foundation, in conjunction with a cohort of world-renowned scientists, published the first consensus paper to establish a limit on the amount of particulate organic and metal residue from manufacturing and packaging to define a quality assurance standard of cleanliness for dental implants. Based in Berlin, Germany, this non-profit organisation is dedicated to ensuring implant surfaces are contaminant free, as medical devices in contact with sterile body tissues are considered critical items.

The CleanImplant Foundation now has more than 120,000 subscribers on its social media platforms. One thousand clinicians from around the world visit www.cleanimplant.org monthly to review the quality assurance monitoring reported by the foundation's studies. On 1 September 2022, the CleanImplant Foundation opened an office in New York City. Its mandate: to bring best practices in implant manufacture to the profession and the industry in North America.

Alarming study results and clinical consequences

In a recent quality assessment study performed in an accredited testing laboratory in collaboration with the Charité–University in Berlin, more than 100 different sterile-packaged ceramic and titanium implants from 80 implant manufacturers were analysed for surface contaminants caused by flaws in the manufacturing and packaging processes. Over one-third of the implant samples, removed from their package and examined by scanning electron microscopy in cleanroom conditions, showed unacceptable quantities of carbonaceous particles. These impurities, if detached from the implant's surface during surgical placement, lead to the release of pro-inflammatory cytokines after phagocytosis, followed by the expression of matrix metalloproteinase and the differentiation of osteoclast precursors into mature osteoclasts. The result is an expanding zone of soft tissue damage, inflammation, and peri-implant bone resorption leaving rough areas of the implant surface exposed to bacterial colonisation.

CleanImplant's quality seal provides clinical and legal safety

The CleanImplant Foundation has introduced a globally recognized "Trusted Quality" seal to differentiate those manufacturers who have deficits in the quality control of their products from those who don't. Receiving this seal verifies that the recipient manufacturer has instituted production technologies to eliminate processing pollution of their implant systems. Five randomly selected implant samples of the same type from different batches are used to formulate the quality analysis data. Two members of CleanImplant's Scientific Advisory Board independently review the data from the analysis to ensure the results meet the consensus-based quality criteria for the "Trusted Quality" seal of approval. In addition, the implant system's clinical documentation must show a multi-annual survival rate of no less than 95 per cent. The Scientific Advisory Board responsible for the peer-reviewed process includes Prof. Dr Tomas Albrektsson, Prof. Dr Ann Wennerberg, Prof. Dr Florian Beuer, Prof. Jaafar Mouhyi, Prof. Hugo de Bruyn, Dr Luigi Cannulo, and Dr Michael Norton, past President of the Academy of Osseointegration. Their signatures on the CleanImplant "Trusted Quality" seal guarantee an unbiased quality assessment.

For the patient, surface contaminants causing an uncontrolled foreign body reaction resulting in peri-implantitis, bone loss, and potentially implant failure is a violation of trust. A compromised clinical outcome from a readily resolvable situation breaches the standard of care and duty of care for our patients. Clinicians who unknowingly use surface-contaminated implants run the risk of litigation. A readily identifiable x-factor that nullifies 100 per cent success is inconsistent with the mandate of excellence demanded of the profession and the industry.

More information

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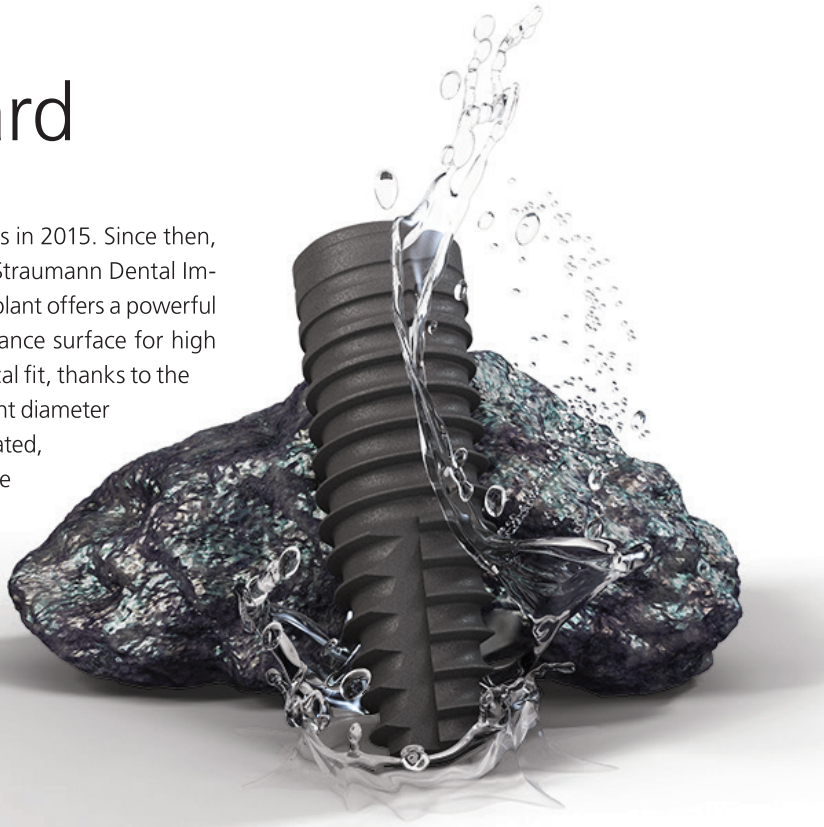
Straumann

The tapered standard



The Straumann® BLT implant has been introduced to the markets in 2015. Since then, it has become the most popular and most used implant line of Straumann Dental Implant System. Building on the clinically proven features, the BLT implant offers a powerful combination of Roxolid®, SLActive®, Straumann's high performance surface for high predictability and accelerated osseointegration, and an anatomical fit, thanks to the slim and tapered implant body. With a portfolio range from implant diameter 2.9 mm, to 3.3, 4.1 and up to 4.8 mm all tooth positions can be treated, be it single tooth, small bridges, or full arch rehabilitations. For the latter, with Straumann® Pro Arch, a scientifically proven immediate fixed, full arch solution for an immediate, aesthetic, and reliable outcome is offered. The Straumann® BLT implant system was designed for a natural look and feel, providing great flexibility and a balanced prosthetic portfolio for the everyday use.

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ClaroNav

Introducing Navident 4: Why do I need one?

Are you constantly looking for ways to elevate and differentiate your practice from mainstream dental providers? We know the challenges you face when you are aiming for the highest levels of performance and results—both functionally and aesthetically.

Navident provides breakthrough surgical navigation with advanced function and form. From more efficient single implant replacements to a fully edentulous rehabilitation workflow, Navident is poised to revolutionise and differentiate your practice: Conduct high-precision implant treatments quickly and confidently. Reliably detect important anatomical structures. Locate root canals and other fine anatomical structures with precision and efficiency. High-precision navigation of your piezotome enables accurate assessment and predictable outcomes.

The new Navident system is equipped not only with next-generation, 3X resolution camera technology, but also provides everything from ergonomic design to reimagined touchscreen interface, and is created to provide smooth workflow integration for clinicians at every stage of their career. Precision dentistry for the precision dentist.

Navident 4 comes in cart-based or new wall or ceiling mount configurations for ultimate versatility. Navident 4 is now available at a special pre-order price.

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NSK

Finding the right time for implant loading

Today, the trend in implant dentistry is to have a short or no healing period at all before loading the implant. If conditions are not optimal, poor primary stability may increase the risk of implant failure. The Osseo 100 measures implant stability and osseointegration to provide sufficient information to decide when to load an implant. This is particularly important when working with shorter treatment time or managing risk patients.

The peg is excited by magnetic pulses and vibrates due to the stiffness in the contact area between the bone and the implant surface. Once attached to an implant, magnetic pulses cause the MulTipeg™ to vibrate. The instrument measures the frequency of the vibration and translates it to an ISQ scale value between 1 and 99. The higher the ISQ value, the better the stability. Measurements can be made without unnecessary impact since the equipment does not come into physical contact with the implant or abutment.

The device is also available as Osseo 100+: It can be connected via Bluetooth® to Surgic Pro2 to share and manage the data of those measured ISQ scores.

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	Event	Location	Date	Details/Registration
10/2022	Dental Expo Amsterdam	Amsterdam Netherlands	27–29 October 2022	www.dentalexpo.nl
	Osstem-Hiossen Meeting	Rome Italy	28–29 October 2022	www.osstem-europe-meeting.com/
11/2022	ICOI World Congress	Las Vegas (NV) USA	03–05 November 2022	www.icoi.org/events/
	ADF Paris	Paris France	22–26 November 2022	www.adfcongress.com (/en)
	Implant expo 2022	Hamburg Germany	25–26 November 2022	www.implantexpo.com
12/2022	38. Jahrestagung des BDO	Berlin Germany	09–10 December 2022	www.bdo-dgmkg-2022.de
01/2023	ITI Kongress Schweiz 2023	Engelberg Switzerland	20–21 January 2023	www.events.iti.otg/congressswitzerland

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

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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.

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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 organised 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 10 x 15 cm, the image or graphic files must have a resolution of 300 dpi. 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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