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INTERNATIONAL MAGAZINE FOR CUSTOMERS AND PARTNERS OF STRAUMANN 3 | 2013

STARGET

Roxolid® SLActive®

A REAL BREAKTHROUGH IN IMPLANTOLOGY.

COMMITTED TO
SIMPLY DOING MORE
FOR DENTAL PROFESSIONALS

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Moving into new dimensions

Andreas Utz
Head of Customer Marketing

When we launched Roxolid® in 2009, we introduced a groundbreaking innovation that set new standards. In combination with our hydrophilic SLActive® surface, this titanium-zirconium alloy, developed specially to meet the needs of dental implantology, decisively expands treatment options – without compromising material strength and osseointegration. This has been welcomed with enthusiasm by implantologists around the world. Based on this success, Roxolid® SLActive® is being made available for all diameters and in all implant lines. We are also introducing a 4 mm-long implant with Roxolid® SLActive®. The new Loxim™ transfer piece on these implants makes them even easier to handle – find out more in our focus section from p. 4.

The Straumann® Ceramic Implant Monotype (CIM) is also due to be launched shortly. This ivory-colored ceramic implant is our new esthetic solution for your patients with special needs and requirements. It will enable you to expand your treatment portfolio in an innovative manner, without having to sacrifice the proven, scientifically based Straumann quality. Dr. Gahlert, a pioneer in the use of ceramic implants and participant in a range of preclinical studies and the multicenter Straumann® CIM clinical study said: "The long-standing wish of many ambitious practitioners for a completely metal-free option in the Straumann® Dental Implant System has now become a reality" (p. 20).

We are delighted to present this innovation to you, which I firmly believe will make a very positive contribution to the treatment of your patients. I hope you find this a fascinating read.

Incidentally, Straumann can now also be found on the most important social media channels – Facebook, Twitter, LinkedIn and YouTube. We look forward to a lively exchange with you!

Sincerely

Andreas Utz

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New standards set – progress continues

Esthetics redefined

Strong foundation, maximum flexibility

Content

Setting new standards with a broadened implant portfolio

What is Roxolid® and why is it so successful?

In 2009, Straumann launched its innovative dental implant material Roxolid®. The metal alloy, composed of titanium and zirconium, is unique and was specifically designed for use in dental implantology. During the last four years Roxolid® has been successfully embraced worldwide and the vast majority of customers are fully convinced of the advantages to this ground-breaking material innovation.

The reasons behind the great success of Roxolid® are numerous: Roxolid® combines high mechanical strength with the excellent osseointegration properties of the hydrophilic SLActive® surface. This delivers peace of mind, particularly when placing small diameter implants. Furthermore, Roxolid® gives dental professionals a high level of flexibility by offering a broad range of treatment options, helping to increase patient acceptance of dental implant treatment.

What is new?

Roxolid® SLActive® was initially introduced on the Ø 3.3 mm implant portfolio. Numerous mechanical tests as well as preclinical and clinical studies have demonstrated the excellent performance of Roxolid® SLActive®. The growing clinical evidence further reinforces that Roxolid® SLActive® is Straumann's best material-surface combination. We asked ourselves: In today's clinical reality, how could patients and dental professionals benefit even more from these two ground-breaking technologies?

The demand for long-lasting products, that can help to reduce the treatment complexity and the need for invasive grafting procedures, is high.

The demographic trend clearly indicates an increasing share of elderly people in the population. This development presents a considerable challenge to dental professionals since they have to deal with an increasing number of compromised patients and thus higher risk factors when it comes to dental implant treatment. Beyond that, people's life expectancy is increasing. Therefore, the demand for long-lasting products, that can help to reduce the treatment complexity and the need for invasive grafting procedures, is high.

All diameters and implant lines

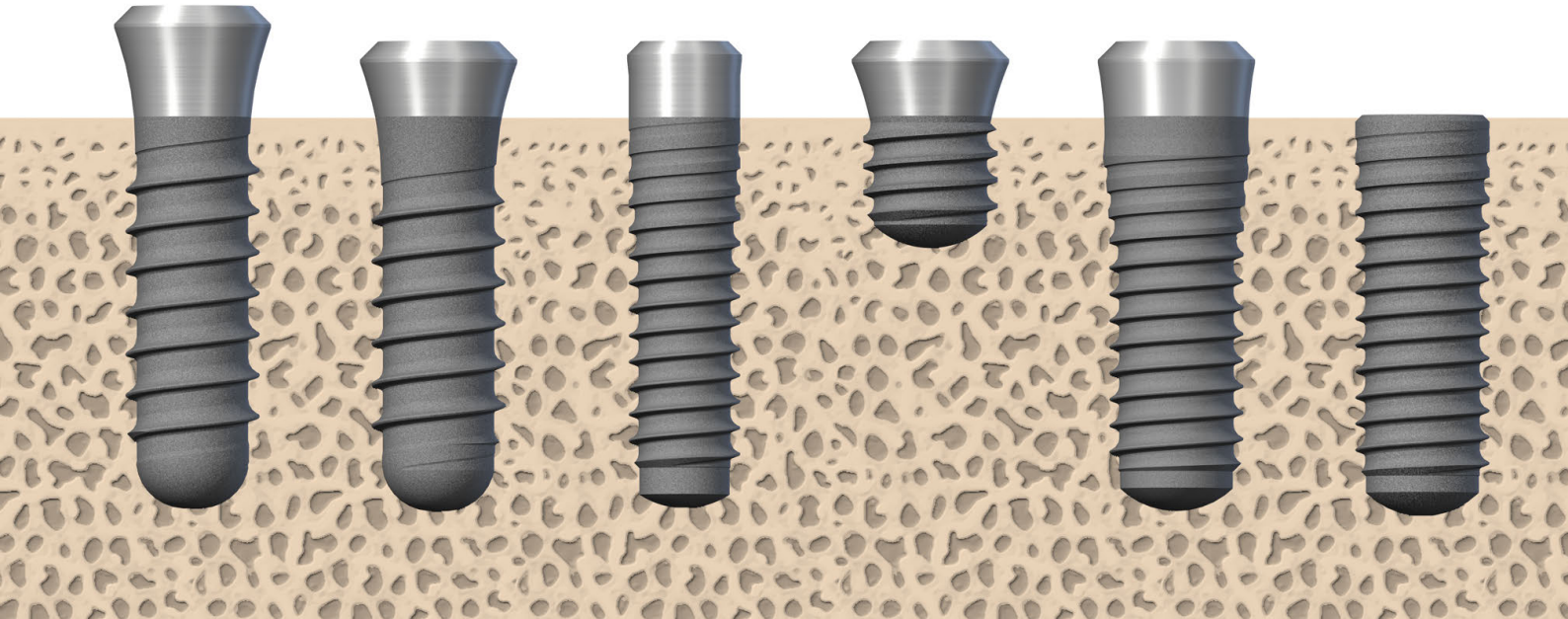
Straumann intends to meet this need by broadening its Roxolid® SLActive® implant portfolio. At the EAO congress in Dublin from 17–19 October 2013, the global market leader in dental implantology introduces its unique dental implant material Roxolid® on all implant diameters and all implant lines. Furthermore, Straumann launches a new 4 mm short Roxolid® implant line to overcome clinical cases with limited vertical space, as in a severely atrophic jaw bone. All Roxolid® implants will feature the highly osteoconductive SLActive® surface and the new Loxim™ Transfer piece which is designed to simplify the handling.

Why does Straumann expand its Roxolid® SLActive® implant portfolio to wider diameters and shorter lengths?
Mechanical tests have demonstrated a significantly higher tensile strength of Roxolid®[1] compared to annealed[2] or cold worked titanium1. Furthermore, dynamic fatigue strength tests[3] have shown that i.e. Ø 3.3 mm Tissue Level Roxolid® implants are stronger than Ø 4.1 mm Tissue Level titanium implants and that Ø 4.1 mm Bone Level Roxolid® implants are stronger than Ø 4.8 mm Bone Level titanium implants. The outstanding performance of the hydrophilic SLActive® surface was demonstrated in various pre-clinical[4,5] and clinical studies[6,7]. Roxolid® implants have not only shown superior osseointegration capabilities compared to Titanium SLActive® implants[8,9], these excellent osseointegration properties have also been demonstrated for the first time in a compromised model[5].

Roxolid® and SLActive® – an unbeatable combination
Straumann introduces Roxolid® SLActive® on all diameters because the company wants its customers to benefit from its best material-surface-combination. Thanks to the outstanding mechanical and surface properties, Roxolid® SLActive® implants allow clinicians to choose smaller sized implants if a GBR procedure can be avoided. As a consequence, dental implant treatment has the potential to become less invasive. Treating patients without invasive grafting procedures, gives dental professionals the opportunity to offer their patients a faster treatment at lower cost.

Roxolid® SLActive® implants allow clinicians to choose smaller sized implants if a GBR procedure can be avoided. As a consequence, dental implant treatment has the potential to become less invasive.

The shortest Roxolid® implant
The new Straumann® 4 mm short implant is Straumann's shortest Roxolid® implant and the shortest Tissue Level implant on the market. It is perfectly suitable for cases with limited vertical bone availability in the posterior region and thus offers clinicians additional treatment options and the possibility to treat patients without complex vertical bone augmentation. The 4 mm short implant combines the well-known Straumann® Standard Plus implant design with the internal synOcta® connection and the Bone Level thread design. This allows for an easy oral



hygiene in the posterior region and can help to increase the primary stability of the implant after placement. The implant is available as Ø 4.1 mm Regular Neck, Ø 4.8 mm Regular Neck, and Ø 4.8 mm Wide Neck and features the SLActive® surface as well as the new Loxim™ Transfer piece.

Reduced treatment time, improved patient acceptance

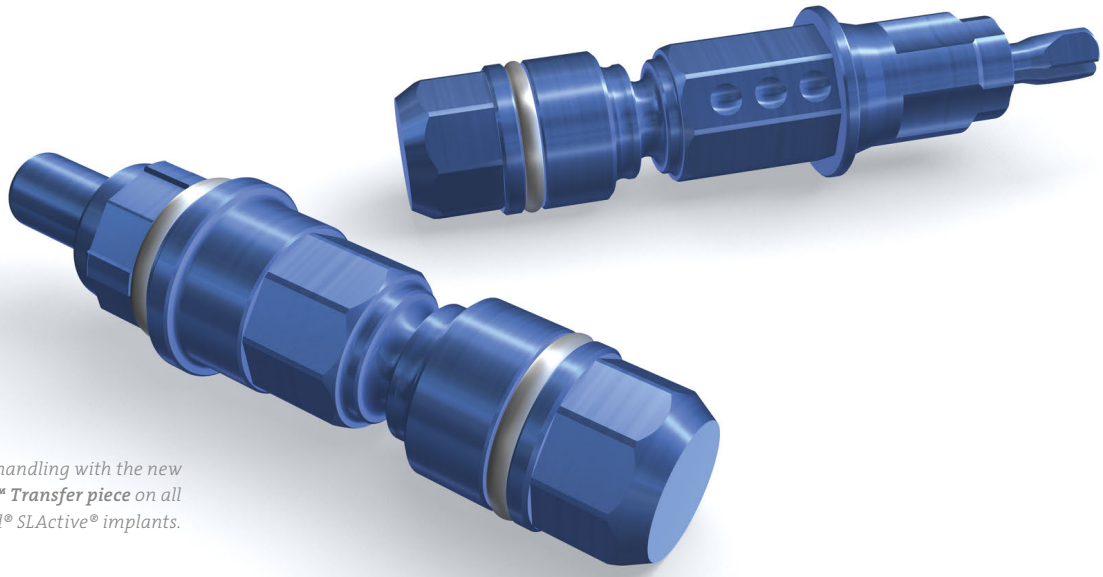
The benefits of Straumann's broadened Roxolid® SLActive® implant portfolio are numerous: By offering products that support the elimination of invasive grafting procedures, clinicians can reduce the treatment time, preserve vital peri-implant structures, and decrease post-surgical complications. Furthermore, the avoidance of GBR procedures can help to increase patient acceptance of dental implant treatments resulting in an increasing number of patients that are willing to undergo implant treatment. Patients who can be treated with Roxolid® SLActive® implants without grafting can benefit from a less traumatic, less expensive and shorter treatment with a lifelong implant solution. All Straumann implants are covered by a lifelong warranty.

Roxolid® SLActive® is a real breakthrough in dental implantology.

Roxolid® SLActive® is a real breakthrough in dental implantology. With this unique material-surface combination, Straumann is setting new standards, contributes to reducing the invasiveness of implant treatments and can offer clinicians the possibility to treat cases differently.

Read the fascinating interview on this subject with Dr. Paul Fugazzotto, Milton, Massachusetts, starting on the opposite page.

▸ *Scientific reference: see www.straumann.com/stargetref*



*Even easier handling with the new **Loxim™ Transfer piece** on all Roxolid® SLActive® implants.*

“Roxolid® is one of the most significant advances in the last 20 years”

An interview with Dr. Paul Fugazzotto.

Dr. Fugazzotto, innovative implant materials and surfaces have a significant influence on dental implantology. Where do you see the benefits?
The impact on clinical practice is indeed on a number of levels, including the expansion of therapeutic possibilities, the patient experience and practice management ramifications. The utilization of shorter implants affords the opportunity to employ implant therapy in previously untenable situations. In addition, the course of therapy is influenced both with regard to complexity of care and overall time of treatment. For the patient, the therapy becomes simpler, less invasive,[1] less costly, and less traumatic. The net result is a better patient experience.

The same is valid for the practice management ramifications: patient acceptance of therapy increases as treatment becomes simpler and less expensive. Such increased acceptance impacts the surgical specialist, the restorative dentist, and the “all-in-one” practitioner. The surgical specialists are further impacted as their referring partners become more likely to refer a given patient for implant therapy, due to the simplification of care through the use of innovative implant materials and surfaces.

“Implant materials influence much more than merely implant selection. Treatment planning is altered, new treatment end points are defined and execution of therapy is simplified.”

How is your implant selection influenced by material and surface properties?
Implant materials influence much more than merely implant selection. Treatment planning is altered, new treatment end points are defined and execution of therapy is simplified. Naturally, the utilization of the Straumann® Roxolid® material, with its superior strength, allows the clinicians to confidently place narrower implants, to treat given situations with fewer implants, and to place implants with more confidence in more challenging scenarios, such as in patients demonstrating significant para-functional habits. Innovative implant surfaces do more than speed up the course of therapy. The superior osseointegrative bond offers significant clinical advantages when dealing with poorer-quality bone.

“There is no patient of mine who deserves to be treated differently, when such an advanced surface technology like SLActive® is readily available.”

What kind of data do you need to have confidence in using a new implant or surface technology?
I have a simple criterion when deciding whether or not to employ a new implant or surface technology. Would I place said implant in my mouth? If the answer is no there is no reason to discuss the implant any longer. For the answer to be yes, I require specific types of data. This data must be the result of independent unbiased research, carried out by reputable people and or organizations.

In addition to basic science and histology, I expect to see clinical data with well-defined treatment end points, in sufficient numbers to underscore the efficacy of utilization. This is one of the many reasons the ITI (International Team for Implantology) is so valuable to us as clinicians. The ITI carries out unbiased basic science and clinical research. Results built upon this research by clinicians throughout the world further support the use of innovative implants and surface technologies.

What are your experiences with Straumann's hydrophilic surface SLActive®?
I have utilized exclusively SLActive® implants since they became available for clinical practice. Why? Because an implant surface which has demonstrated faster osseointegration and a superior osseointegrative bond is the first choice for me. Which patients deserve to be treated differently, when such an advanced surface technology like SLActive® is readily available?

"How can such a material not transform dental implantology as it becomes available in more implant diameters and lengths?"

Can you tell us something about the Straumann® Roxolid® Ø3.3 mm implants which you have been using regularly?
My experiences with the Roxolid® Ø 3.3 mm implants are the same as my experiences with other Straumann® implants. I have encountered no implant fracture, and am positive that these implants, with the SLActive® surface, utilized in appropriately treatment-planned and -executed situations, will demonstrate a success rate of up to 99 % over time. I specifically use the term "success" rather than "survival," as I assess implants both radiographically and through bone sounding to determine their long term stability. Roxolid® implants allow clinicians to place implants without fear of fracture, due to their superior strength.[2] So, I am confident that, utilized appropriately, Roxolid® implants offer at least as high an implant success rate as Straumann® implants with SLActive® surface in general.

Do you see benefits of Straumann® Roxolid® implants over comparative diameter-reduced competitor implants?
The superior strength properties of Roxolid® afford a greater "safety margin" with regard to implant deformation and or fracture, which is a clear advantage over other reduced-diameter implants. Simply put, Roxolid® in combination with SLActive® offers advantages to clinicians, and more importantly to the patients they serve.

Do you see a potential for Roxolid® to further transform dental implantology if it were available on more implant diameters and lengths?
In my opinion, the development of the Roxolid® material is one of the most significant advances in implant therapy in the last 20 years. Companies and clinicians constantly tout new implant morphologies, various restorative connections, and surface technologies. While these are important, the Roxolid® material represents a more basic evolutionary phase in implantology. The material the implant is composed of offers superior strength over titanium, regardless of the implant morphology, restorative connection or surface technology. How can such a material not transform dental implantology as it becomes available in more implant diameters and lengths?

"I have a simple criterion when deciding whether or not to employ a new implant or surface technology. Would I place said implant in my mouth? If the answer is no there is no reason to discuss the implant any longer."

Most implantologists follow the principle of choosing the largest and longest implant possible. If scientifically proven, well-established materials would allow you to use smaller diameters or shorter implants, how would this influence your daily work?
I do not accept the premise of this question. The more progressive, experienced clinicians and teachers I interface with, the majority of whom are ITI fellows or members, no longer follow the dogma of choosing the largest and longest implant possible in a given situation.

The introduction of wider implants in the 1990s, and their utilization in a variety of situations led to disastrous results with regard to buccal bone resorption and other post-operative sequellae, giving clinicians reason to pause. We have learned from this debacle, and understand that adequate bone must be present around an implant to withstand functional forces over time, and thus help ensure long-term implant success.

A number of "postulates" have also been disproven throughout the years in numerous finite element anilities and independent clinical field research. These so-called postulates include the utilization of longer implants for greater stability; employing longer implants when a narrow implant is placed to "make up" for lost surface area; and the need to exceed a 1:1 implant-crown ratio. None of these teachings have held up well under scrutiny. Forces placed upon implants are transmitted primarily to the peri-implant crestal bone. Such transmission has nothing to do with implant length and everything to do with implant diameter. Crown-to-implant ratio has been shown not to be a significant factor in implant failure, when implants are placed in adequate bone, where an appropriate occlusion has been established and parafunctional habits managed.

"The expanded portfolio will simplify many patient care situations. This means therapy will be more accessible to patients ill-suited to extensive regenerative therapies, to patients with greater financial limitations, and to patients with significant resorption which places vital structures at risk should implants be inserted."

"Shorter" implants (the precise length dependent upon the individual clinician's definition) demonstrate long-term cumulative success rates equal to their longer counterparts. In my practice, when an implant is not placed in an extraction socket where greater implant length is required to attain primary stability, the average implant length I employ is 8mm. I am very comfortable with an 8 mm long Straumann® Tissue Level implant with a Wide Neck platform to replace a missing molar. Simply put, the SLActive® surface technology gives me the confidence to place such implants. The introduction of Roxolid® material allows me to utilize innovative implant designs with narrower bodies and appropriate platforms in a variety of situations.

"A number of 'postulates' have also been disproven throughout the years in numerous finite element anilities and independent clinical field research."

Where is the paradigm of using the largest and longest implant still valid and where do you consider this differently in your daily practice?

In my opinion, the paradigm of using the largest and longest implant in a given situation is an outmoded way of thinking. I am more concerned with having an adequate diameter for establishment of a sufficient osseointegrated bond between the implant and the peri-implant crestal bone, which is housed in adequate bone to withstand functional forces over time (at least 2 mm of supporting bone at the line angles of the buccal and lingual/alveolar crests) and avoidance of trauma and maceration of thin buccal extraction socket walls at the time of implant placement. I see no advantage to the utilization of the largest and longest implant possible in any situation.

In a formerly published article you talked about reducing the implant diameter or using short implants. Which benefits do you see behind these considerations?

The advantage of shorter or narrower implants include fewer invasive procedures, avoidance of vital structures,

a lessening of the need for regenerative therapy, and a simplification of regenerative therapy when required. While I do not advocate you stepping down more than one level in implant diameter to utilize narrower implants, I do believe that narrower implants will become an ever increasing part of any progressive clinicians' practice. For example, in an area where I would usually place a wide diameter Wide Neck Straumann® Tissue Level implant, I would not substitute a narrow diameter implant. However, I would be comfortable stepping down from a Ø 4.8 mm to a Ø 4.1 mm or from a Ø 4.1 mm to a Ø 3.3 mm Roxolid® implant.

At the EAO 2013 in Dublin, Straumann will launch the Roxolid® material on all their implant lines and diameters and will introduce a 4 mm short Roxolid® implant line. How could the expanded portfolio change your treatment options and patient selection?
This means therapy will be more accessible to patients ill-suited to extensive regenerative therapies, to patients with greater financial limitations, and to patients with significant resorption which places vital structures at risk should implants be inserted. These are just a few of the examples of how an extended portfolio will in turn increase the possibilities for implant placement in the patient population I treat.

When would you use a Ø 3.3 mm Roxolid® implant instead of a Ø 4.1 mm implant and a Ø 4.1 mm Roxolid® implant instead of a Ø 4.8 mm implant, respectively?
Assuming the appropriate implant configurations and restorative options are available, I will utilize a Ø 3.3 mm

Roxolid® implant instead of a Ø 4.1 mm implant in situations where such application ensures adequate bone on buccal and lingual aspects of the implant, without subjecting the patient to extensive augmentation therapy. The same is true of utilizing a Ø 4.1 mm Roxolid® implant in place of a Ø 4.8 mm implant. However, it is important to realize that such utilization requires the availability of these implants in the desired configurations.

"The impact of Roxolid® and SLActive® technologies on the evolution of implantology includes an increased acceptance of implant therapy by clinicians who currently see implant treatment as a 'last resort'."

Which additional treatment options does a 4 mm short Roxolid® implant offer you?

As already mentioned, the impact of Roxolid® and SLActive® technologies on the evolution of implantology includes greater penetration of implant therapy into both clinical practices and the patient population in a given clinical practice, greater implant penetration into the vast ocean of untreated patients who are missing teeth, and increased acceptance of implant therapy by clinicians who currently see implant treatment as a 'last resort.'

Dr. Fugazzotto, thank you very much for this insightful interview.

[1] *The term "less invasive treatment" in this interview is to be understood as avoidance of GBR procedures.*

[2] *Compared to titanium.*

Join in the discussion!

What did you think of this interview? Tell us your opinion and join in the discussion with other interested people on the Straumann Facebook page!

www.straumann.com/fugazzotto

Paul Fugazzotto
D.D.S.

D.D.S. from New York University (1979). Certificate in Advanced Graduate Studies in Periodontology from Boston University (1981). Private practice in periodontics and implant therapy in Milton, Massachusetts. Author and co-author of over 80 articles in refereed scientific journals. Author of monograph "Guided Tissue Regeneration: Maximizing Clinical Results" and three textbooks: "Preparation of the Periodontium for Restorative Dentistry;" "Decision Making in Regenerative and Implant Therapies;" and "Periodontal Restorative Interrelationships: Maximizing Treatment Outcomes." Active member of many organizations and Fellow of the International Team for Implantology (ITI). Senior Editor of Implant Realities and Study Club Coordinator of the US section of the ITI. National and international lecturer on a multitude of topics.

Immediate implantation with the NNC implant

By Joachim S. Hermann, Switzerland

Introduction

In the past, the restoration of narrow tooth gaps with Straumann® Soft Tissue Level implants (posterior, maxillary incisors/mandibular incisors) was only possible with the Straumann® Narrow Neck Implant (NN). Due to the prevailing external, hexagonal connection geometry and correspondingly larger dimensioned abutment components it was somewhat difficult to achieve hygienic and esthetically demanding restorations, particularly the anterior region of the mandible. The new Straumann® Narrow Neck CrossFit® implant (NNC) now offers an established internal taper connection which allows more intricate prosthetic work in the emergence profile region. Due to the harder implant material – NNC made of TiZr (Straumann® Roxolid®) vs. NN made of pure titanium grade 4, cold-formed – one can expect multi-unit bridges, as described in this case, to also have a better long-term prognosis from a biomechanical point of view.

Initial situation

At the beginning of treatment the patient was 48 years old and in good general health. For decades the patient had suffered from a severe, aggressive, generalized periodontitis (type III B) **(Fig. 1)**, which could be healed completely prior to implant restoration (PerioHealing™ Concept; **Fig. 2**).

Procedure

Treatment planning. At first the diseased anterior mandible was to be healed in a regenerative and biological manner and without bone replacement materials, among others by employing enamel matrix proteins (Straumann® Emdogain) in the sense of "socket preservation" prior to immediate implantation at 32 and 42 **(Fig. 2)**. From the digital volume tomogram (DVT) it could already be presumed preoperatively that simultaneous augmentation

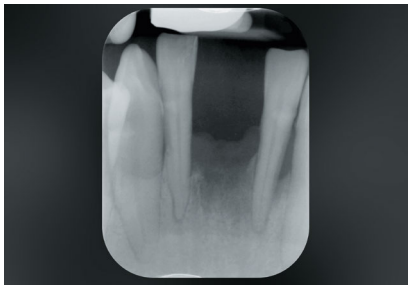


Fig. 1

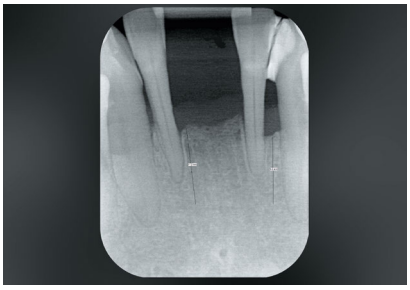


Fig. 2

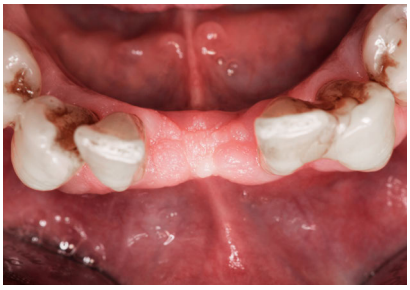


Fig. 3

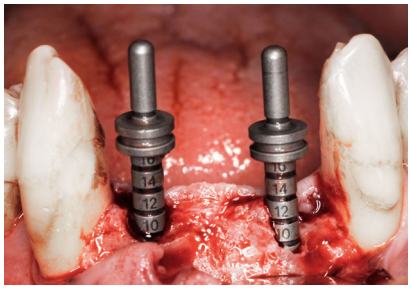


Fig. 4

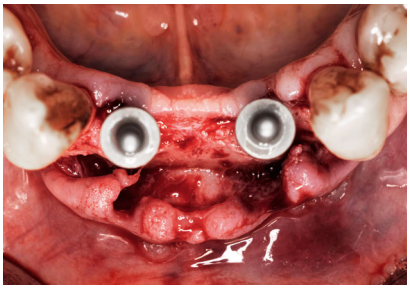


Fig. 5

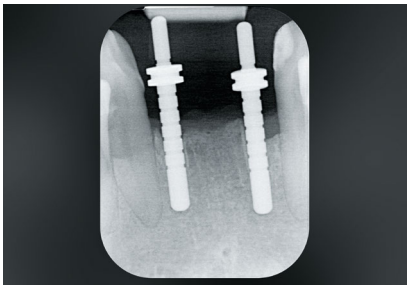


Fig. 6

in the sense of a less invasive procedure could be dispensed with by precise implantation at soft tissue level, and that a four-unit fully functional composite metal ceramic (CMC) bridge could be inserted without difficulties due to the more stable implant material (Roxolid®).

Surgical procedure. Following periodontal healing **(Fig. 3)**, teeth 32 and 42 could each be extracted in toto from the healthy tissue without fracturing, in particular of the buccal lamellae. The clinical and radiological examination employing combined depth gauges showed a four-unit anterior bridge to be possible under these conditions with appropriate implementation **(Figs. 4–6)**. There had also never been the necessity for simultaneous bone augmentation (Osteogenic Jumping Distance).

Using the NNC profile drill the crestal bone was expanded minimally in the present type 2 bone prior to implantation of the two 10 mm NNC implants in each case (Ø 3.3 mm to 3.5 mm; **Figs. 7, 8**). Attention was paid during the implantation of the two NNC implants, that the micro gap could be placed precisely 2 mm coronal of the buccal Limbus alveolaris, so as not to obtain crestal bone / soft tissue loss following appropriate tissue maturation (Tissue-directed Implant Placement[1,2]; **Figs. 9–11**).

The new NNC insertion aid enables perfect esthetic analysis of the insertion depth in relation to the variable thickness of the peri-implant gingiva (Biologic width: 2.25 mm – 3.75 mm[1,2]) and can be fixated again in the implant at any time for fine adjustment prior to suturing due to the tapered press fit **(Fig. 12)**, which allows obtaining an optimal, biocompatible intrasulcular position of the micro gap following complete healing/remodeling.

During the final alignment of the implants one then needs to again ensure that the semi-spherical recesses on the insertion aids are placed precisely in buccal direc-

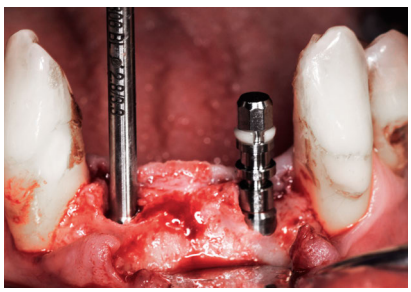


Fig. 7

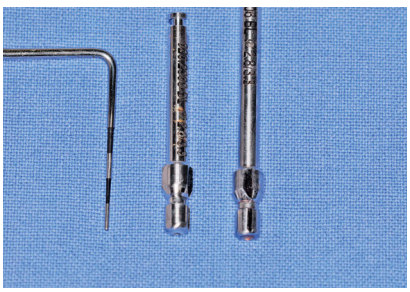


Fig. 8

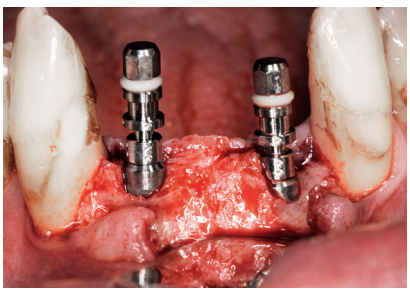


Fig. 9

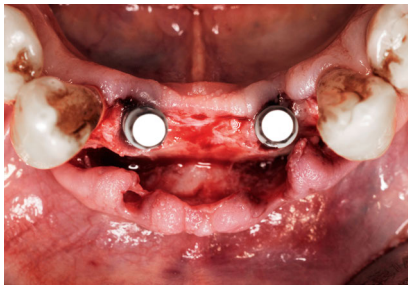


Fig. 10

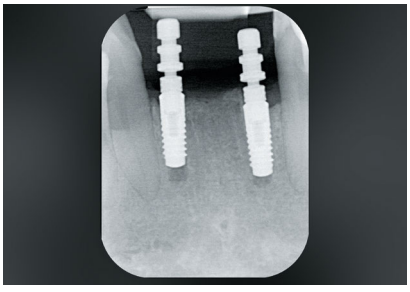


Fig. 11

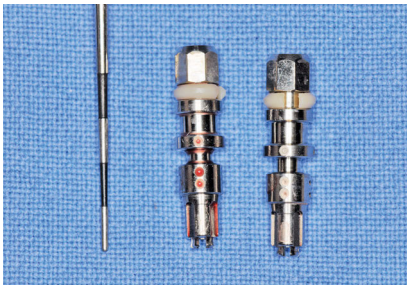


Fig. 12

tion, so that the prosthetic abutment components can be aligned precisely later on. Using 3 mm NNC healing caps provides ideal conditions for soft tissue maturation (approx. 6 months!) in combination with an appropriate temporary restoration **(Figs. 13–15)**. This also dispenses with the need for a second surgical intervention (uncovery).

Prosthetic procedure. The base of the temporary prosthetic restoration, which should be supported occlusally (Fig. 15), must not touch the healing caps statically and functionally during initial healing. This can be checked with a silicone paste (Fit Checker®).

Five months *post implantationem* the biological width[1,2] has become perfectly established in the healthy mouth (see comparison **Figs. 13/16**). Using a screw-retained, open implant impression **(Fig. 17)** it was possible to fabricate the 4-unit CMC ceramic bridge 32xx42 with great precision **(Fig. 18*)**, which allowed an adequate outcome in terms of hygiene, chewing comfort, esthetics and phonetics **(Fig. 19)**. Here it is recommended to communicate the exact dimensions of the individually determined approximal space brushes **(Fig. 19)**, which are to be tested *in vivo* on the patient and re-evaluated during try-in (gingiva resilience vs. plaster cast).

Final outcome

The 1-year long-term follow-up showed stable and healthy hard and soft tissue conditions analog to established biological principles for Soft Tissue Level implants **(Figs. 20–22)**[1,2]. The probing measurements were all at ≤ 3 mm with negative BOP bleeding values (bleeding-on-probing) as well as a broad band of attached peri-implant gingiva. Surprisingly, the implant mobility values (PTV Periotest Values) were significantly lower (i.e. reduced mobility),

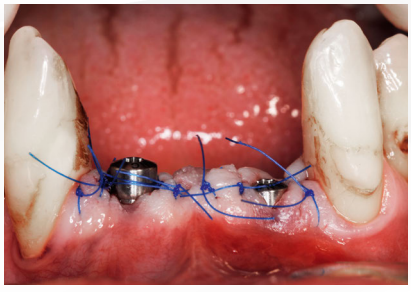


Fig. 13

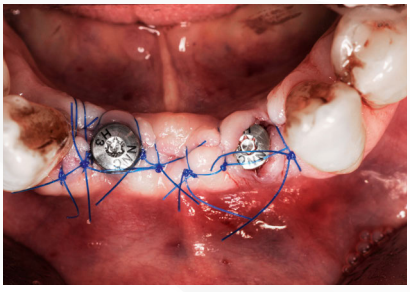


Fig. 14

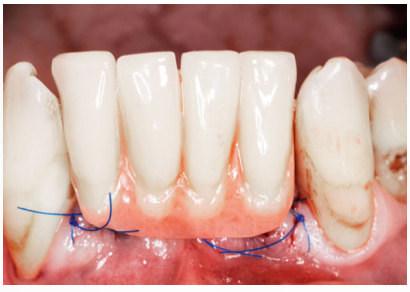


Fig. 15

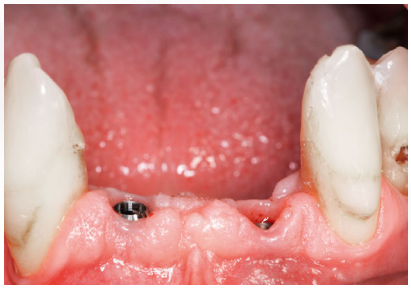


Fig. 16

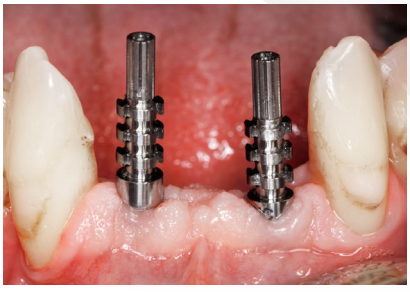


Fig. 17

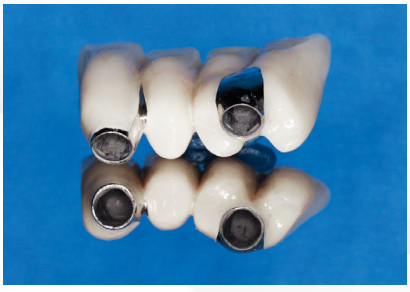


Fig. 18

than known from the Straumann® Narrow Neck implants (NN) to date, which may be due to the harder implant alloy and/or better hard tissue integration of the hydrophile SLActive® surface.

Conclusion

Straumann® Narrow Neck CrossFit® implants are a further asset to the comprehensive Straumann® product portfolio and extend the indication field , particularly in very narrow spatial conditions. As soft tissue level implants they provide perfect esthetics, while at the same time offering good preservation of the peri-implant hard and soft tissue architecture.

* Technical dental work by MDT Thomas H. Seitner, Stuttgart-Ostfildern/Germany.

▸ ***Scientific references:*** *see www.straumann.com/stargetref*

Fit Checker® is a registered trade mark of GC Dental Inc. Tokyo/Japan.
Manufacturer PTV Periotest Values: Medizintechnik Gulden e.K., Germany.

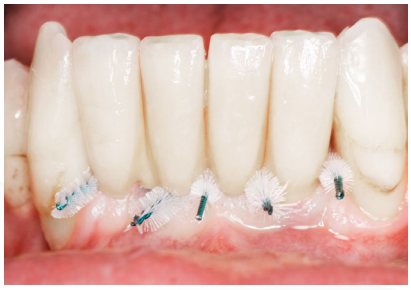


Fig. 19

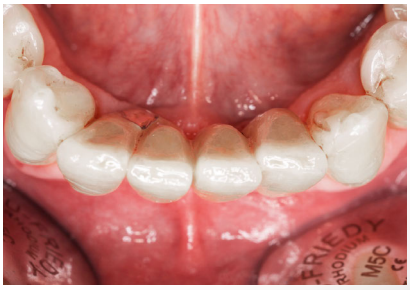


Fig. 20

Fig. 21

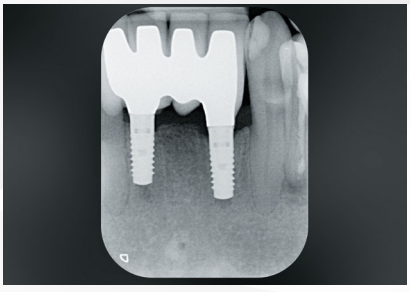


Fig. 22

Prof. Joachim S. Hermann
Dr. med. dent.

Specialist for periodontology in Switzerland (SSO/SSP) and Germany (DGP-aro). Two-year research period at the University of San Antonio (USA). Ph.D. from the University of Basle/Switzerland in the fields of periodontics, implant and restorative dentistry. Focus: own private practice with emphasis on implant dentistry, periodontology and esthetic dentistry in Zurich/Switzerland, where he also heads an academic advanced training center. Lectureship at the University in Greifswald/Germany: associate professor, external senior clinician and clinical instructor. Global speaker in the field of the above specialties.

www.dentascience.com
www.zurichperiodontics.com

Stay tuned! Straumann goes Social Media

Short on time? On the move? We have you covered. We're dedicated to providing you with our latest insights — how, when and where it's most convenient for you.

Social Media has changed the way people connect, discover, and share information. Therefore we at Straumann are thrilled to extend the connections with our customers and other stakeholders to digital places where social interactions happen. Straumann has officially launched its presence on key social media channels such as Facebook, YouTube, Twitter, and LinkedIn to address the need for value added content right at your fingertips.

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Our ambition is to enhance communication by constantly providing you with useful and interesting information. We are keeping you posted on the latest developments of our innovative solutions, highlighting presences at tradeshows and congresses, letting you know when and where you can join our continuous education programs, as well as providing you with clinical cases, scientific evidence, and video-based tutorials or product handling instructions. All of these updates are complemented by showing you tangible "behind the scenes" insights of what's happening in the Straumann world.

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Feel free to connect and don't be afraid to talk back. We'd love to hear what you have to say.

straumann

Confidence in limited space

Straumann® Narrow Neck CrossFit®

The Straumann Soft Tissue Level solution to address space limitations

- Confidence when placing small diameter implants
- Wide range of treatment options
- Simplicity in daily use

COMMITTED TO
SIMPLY DOING MORE
FOR DENTAL PROFESSIONALS

Straumann® Ceramic Implant Monotype (CIM)

Esthetics – redefined and evidence-based

Esthetics – the restoration of a beautiful, natural look – are a crucial factor when it comes to decision-making for an implant therapy. Some patients have a thin gingiva biotype or unfavorable bone or soft tissue conditions, which require a different treatment approach, while other patients express their explicit wish for a metal-free alternative. With the new Straumann® Ceramic Implant Monotype (CIM) we are proud to announce a new esthetic solution that allows you to treat patients with these specific needs and demands.

An innovative and evidence-based alternative

The Straumann® CIM extends your treatment portfolio and allows you to offer your patients a treatment alternative that is both innovative and backed by proven and evidence-based Straumann quality: high strength, excellent osseointegration[2] and desirable soft tissue results, as indicated by mechanical tests and pre-clinical studies.

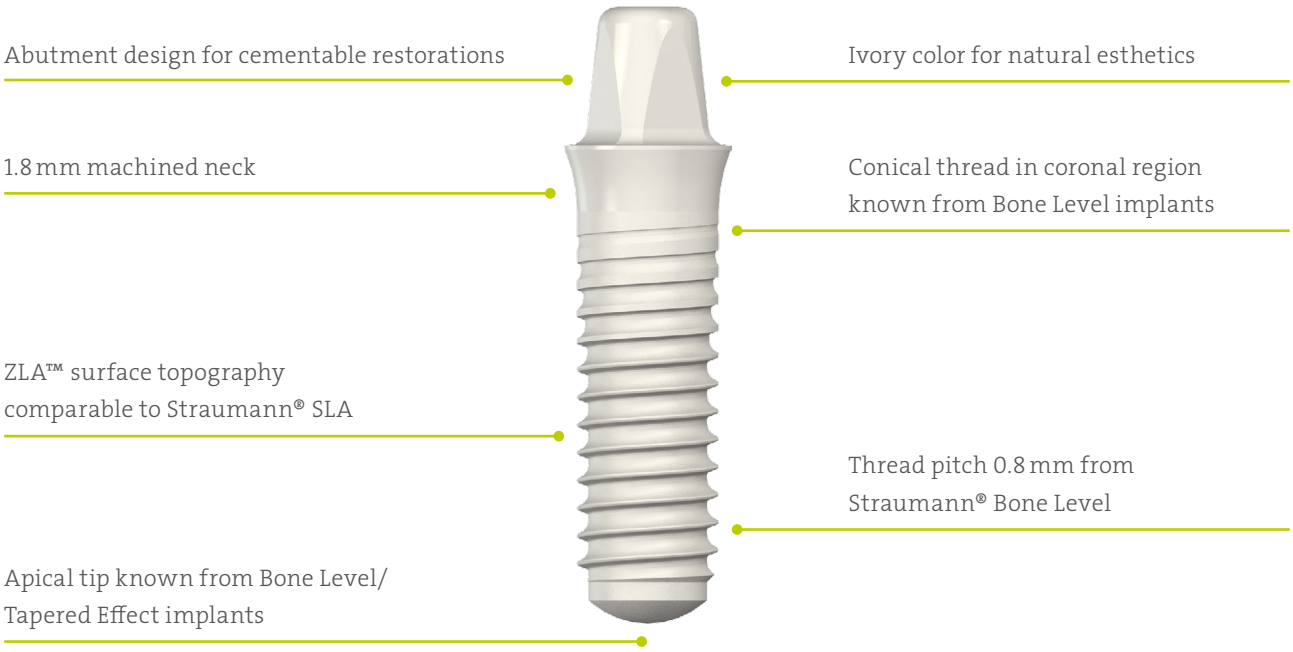
Product features

The Straumann® CIM consists of an implant and abutment made of zirconium-oxide ceramic. It has a monotype design based on features of the Straumann® Soft Tissue Level Standard Plus and Straumann® Bone Level implants. The CIM implant can be placed with the existing Straumann® Surgical cassette while using a very similar surgical procedure.

Testimonial: Straumann's new ceramic implant is a very simple and well-designed system. I like that Straumann, as an established manufacturer, now gives me the opportunity to treat patients who explicitly like to have a ceramic implant restoration. *Dr. med. Dr. med. dent. Roland Rippel, Praxis am Stadtpark, Nuremberg/Germany*

It is available in one endosteal diameter of 4.1 mm with two abutment heights of 4.0 and 5.5 mm. The CIM system uses the same unified color code for instruments and implants as with Straumann® titanium implants.

Design features



Technical performance

Internal material tests conducted by Straumann suggest that the relative dynamic and static strength of the Straumann® CIM significantly exceeds those of similar competitor products[1]. Furthermore, every single Straumann® CIM implant that leaves the Straumann production plant is tested in a standardized worst case setup.

Testimonial: The Straumann® CIM is the ideal solution for demanding patients who are interested in metal-free dental restoration alternatives. The optical properties of the implant enable optimal soft tissue integration. *Dr. Fidel Ruggia, Dentalclinic Lugano/ Switzerland*

ZLA™ surface properties

ZLA™, the surface of the Straumann® CIM, features a topography characterized by macro- and micro-roughness similar to the Straumann® SLA surface which is designed to offer a structure for cell attachment. Pre-clinical studies have shown an osseointegration equivalent to SLA® titanium implants in terms of peri-implant bone density and BIC ratio.[2,3]

Testimonial: When opting for a Straumann ceramic implant you are secure that even after the final preparation of the implant bed you are able to switch to a Straumann® Bone Level Implant, if necessary, since the drill protocol is identical for both implant lines. Now that Straumann, as a leading manufacturer in the field of implant dentistry, has developed its own ceramic implant, we will be provided with high-quality products in this market segment too. *Dr. Thomas Fischer, joint dental practice, Wülfrath/Germany*

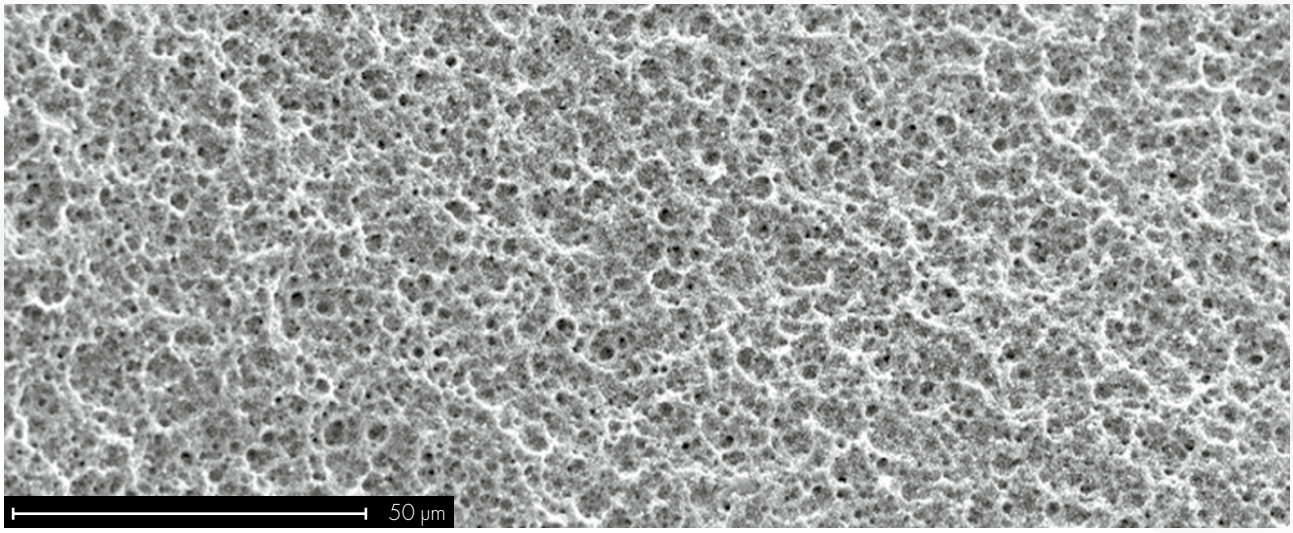
Current scientific status

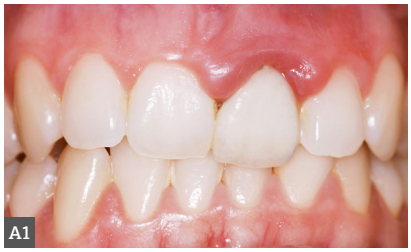
The first placement of a Straumann® CIM in a human jaw was performed in September 2011. Scientific evidence is backed by 9 pre-clinical studies (closed) and 5 clinical studies, including a multicenter study[4] in the USA, Switzerland, Germany and Italy.

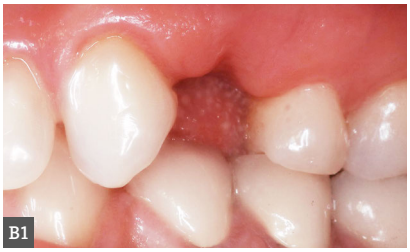
Availability

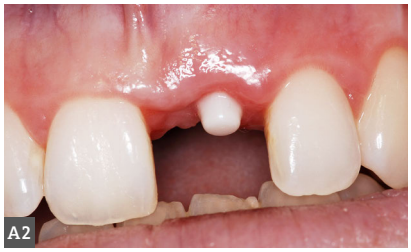
The Straumann® CIM will be launched in Spring 2014. For more information on availability in your region, please contact your local sales representative.

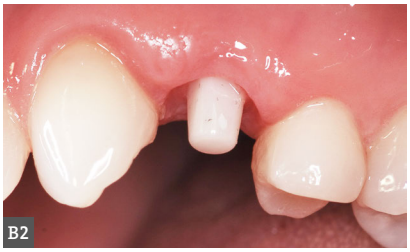
ZLA™-Oberfläche

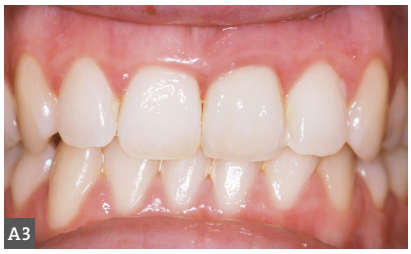


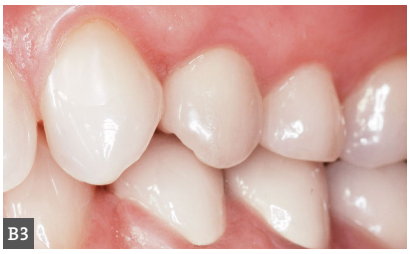












Clinical examples A and B

By Dr. med. dent Michael Gahlert and Prof. Dr. Dr. Heinz Kniha, Drs. Kniha Gahlert, Munich/Germany.

Fig. A1: The longitudinal fracture of tooth 21 led to a marginal infection.

Fig. A2: After a healing time of 3 months, the extrication of the implant could be carried out.

Fig. A3: Insertion of a ceramic anterior tooth bridge.

Fig. B1: Tooth 24 had to be extracted due to an endodontic failure.

Fig. B2: After an osseointegration period of 8–12 weeks, the peri-implant gingiva is completly unirritated and lays tightly on the implant.

Fig. B3: Insertion of a full ceramic crown.

Testimonial: With the launch of the Straumann® CIM, Straumann takes a step into the future. The longstanding wish of many ambitious practitioners for a completely metal-free alternative in the Straumann® Dental Implant System has now become reality. The microscopically rough surface results in reliable osseointegration of the implant body. Comparability with the osseointegration of titanium implants has been proven in several animal studies[2]; evidence-based data is also available on the mechanical aspects. The physical properties of this high-performance ceramic, in conjunction with dependable manufacturing processes, provides very high breaking strength. The very natural coloration promises advantages with thin mucosa or gingival recession – particularly in the esthetic zone. First clinical results show very good esthetics along with irritation-free peri-implant gingival conditions. *Dr. med. dent. Michael Gahlert, joint practice Drs. Kniha and Gahlert, Munich/Germany*

▸ ***Scientific references:*** *see www.straumann.com/stargetref*

Digital implant dentistry – a workflow in five steps

Tim Joda and Daniel Buser, Switzerland

Introduction

Restoration-driven implant placement is a key factor for successful implant therapy. In this context, Computer-assisted Implant Surgery (CAIS) offers an additional instrument for treatment planning, surgical placement and prosthetic rehabilitation in an interdisciplinary team approach.

The continuous technological progress in both the computer-based development and the dental manufacturing process ensures new opportunities in the clinical workflow. DWOS, in association with Straumann, offers a powerful combination of CAIS with the established GonyX System. In addition, a fully digital pathway in a model-free approach or a combination of these workflows is now possible.

This case presentation displays insights into the current processes of CAIS with an outlook on future improvements in the digital implant workflow.

Interdisciplinary Planning

CoDiagnostiX™ ensures the planning of the implant position using Cone Beam Computed Tomography (CBCT) with DICOM data (Digital Imaging and Communications in Medicine) and the subsequent transfer of the virtual situation into reality with an interdisciplinary team approach including the restorative dentist, the implant surgeon and the dental technologist.

The conventional workflow includes the fabrication of a dental set-up, a radiographic template and the secondary adaptation to a surgical template. Here, the fully digital process represents a further development: computer-assisted planning of the implant position by means of a virtually constructed prosthetic set-up and on-screen designing of an implant-guided template. The number of operational steps is shortened significantly compared to the conventional workflow. Moreover, costly and time-intensive preparations can be avoided for the patient in advance of the CBCT. In addition, existing 3D radiographic images should already be used, if possible.

The clinical case presentation demonstrates step-by-step the fully digital implant workflow with CAIS, including intraoral surface scanning and prosthetic rehabilitation in a five-step approach **(Fig. 1)**.

Fig. 1

Step 1: 3D radiographic diagnostics are performed without any template. An intraoral surface scan (iTero™) supplements the imaging sequence. The scan allows the generation of a high-resolution portable STL file (Surface Tesselation Language) of the intraoral patient situation **(Fig. 2)**.

Step 2: The DICOM data and the STL file are implemented and superimposed in the CoDiagnostiX™ planning software. A virtual set-up of the prosthetic reconstruction, as well as a surgical template with optimal 3D implant positioning can be realized using a restoration-driven backward planning concept, whilst considering the individual anatomical situation **(Fig. 3)**.

Once the planning phase is finished in CoDiagnostiX™, a 3D printer can plot the virtual construction of the surgical template with the rapid prototyping technique without the need of any physical model. Finally, CoDiagnostiX™ delivers an individual drilling protocol with sequenced CAIS instruments for a safe 3D implant placement **(Fig. 4)**.

Surgery

Step 3. Prior to implant surgery, the plotted template is checked for a gap-free fit in the patient's mouth. Built-in viewing windows adjacent to the implant site and in contralateral position improve the level of control that can be clinically achieved **(Fig. 5)**. After anesthesia and soft tissue punch, the cortical bone is perforated with a round bur in central position.

Afterwards, the preparation of the implant bed is made, successively using specialized guiding tools and corresponding spiral drills that could clinically be inserted into

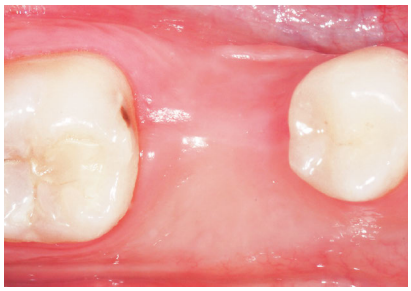


Fig. 2a

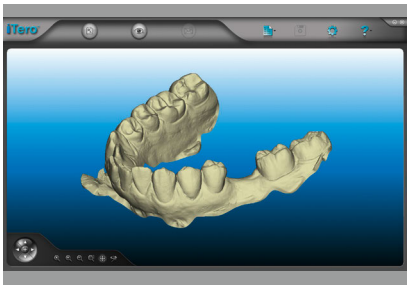


Fig. 2b

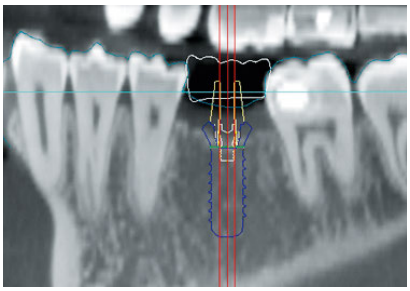


Fig. 2c

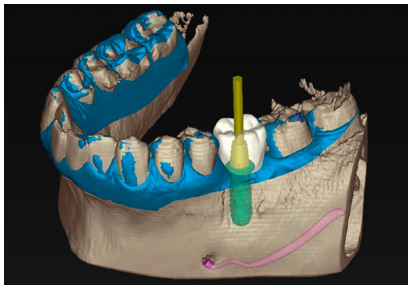


Fig. 3

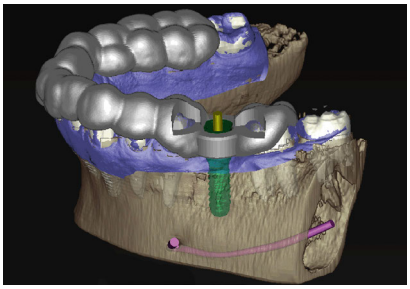


Fig. 4a

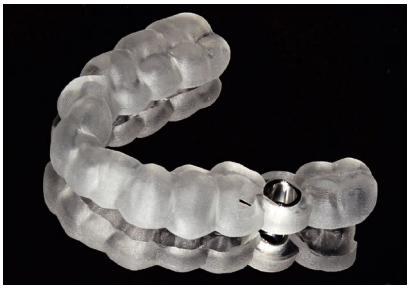


Fig. 4b

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Dr. med. dent.

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School of Dental Medicine,
University of Berne/Switzerland.

the slots of the sleeves. A flapless approach is only recommended if the local bone anatomy is adequate in volume, and if a wide band of keratinized mucosa is present at the implant site **(Fig. 6)**.

An implant depth gauge is placed after the first drilling to confirm accurate positioning of the osteotomy. Early error detection can be noticed at this initial stage and a possible deviation of the proposed implant position must be corrected manually **(Fig. 7)**.

Afterwards, the guided drill sequence can then be continued. The present bone density will determine, if thread cutting is necessary, or not **(Fig. 8)**. The placement of up to RN/RC-diameter-implants can be made directly, guided via the integrated 5 mm drill sleeve. Implants with larger diameters must be inserted manually by guidance of the finalized drill bed. The post-operative radiograph shows the correct prosthetic positioning of the implant with sufficient safety distance from the N. alveolaris inf. and the adjacent dentition **(Abb. 9)**.

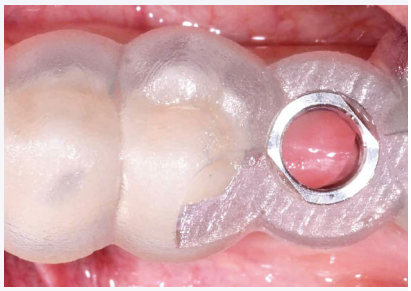

Fig. 5a

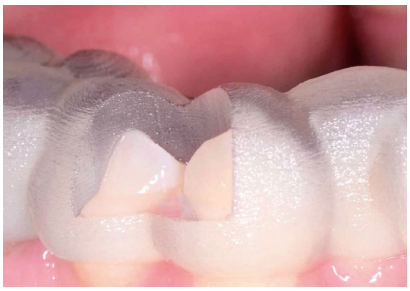

Fig. 5b

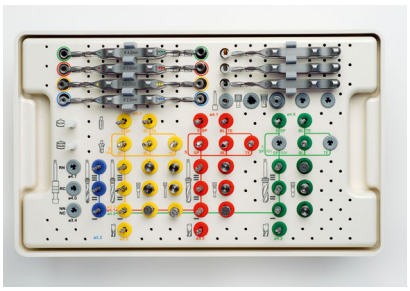

Fig. 6a

Fig. 6b

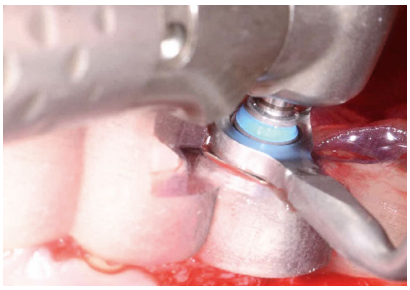

Fig. 7a

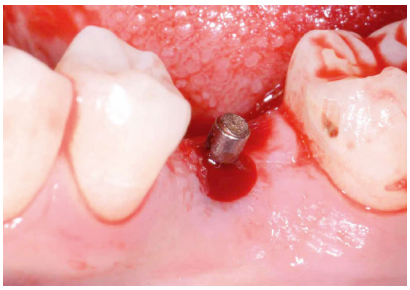

Fig. 7b

Prosthodontics

Step 4: Based on an additional intraoral optical impression using an implant scanbody, a second STL file can be created immediately after implant placement. This STL file is then also implemented into CoDiagnostiX™. Differences between the actual implant location and the virtually planned position can be correlated and compared **(Fig. 10)**.

Moreover, the implant-supported prosthetic suprastructure can be designed and fabricated during the healing period. All the necessary information of the actual implant position is still included in the second STL file at this time. The CADCAM-fabricated monolithic implant crown can be finalized based on the virtually generated patient situation in a model-free technical approach.

Step 5: The full-contour reconstruction is tried out and reveals a functional treatment outcome without the need for any interproximal or occlusal corrections and a pleasing clinical appearance **(Fig. 11)**.

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Prof. Dr. med. dent.

Department of Oral Surgery School of Dental Medicine, University of Berne/Switzerland.

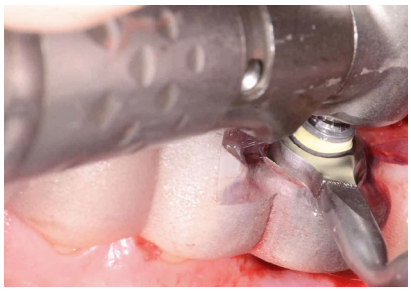

Fig. 8a

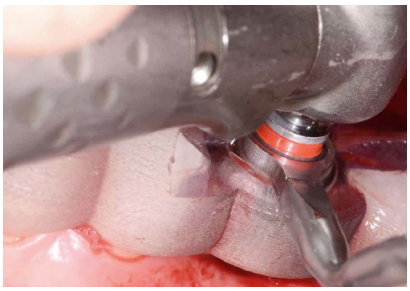

Fig. 8b

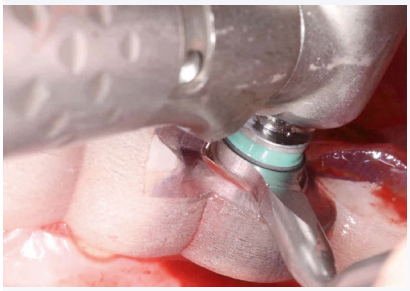

Fig. 8c

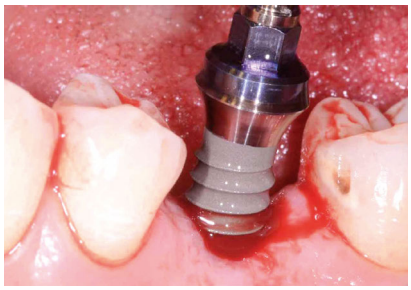

Fig. 9a

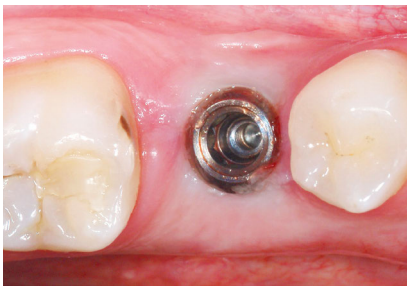

Fig. 9b

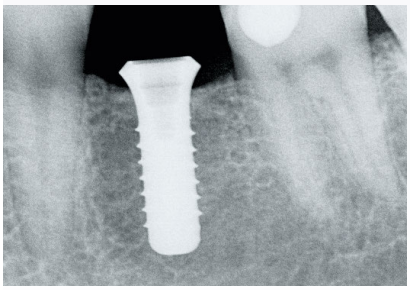

Fig. 9c

Summary

Further development in digital implant dentistry approximates the interfaces of surgical and prosthetic treatment steps: from the virtual planning, plotted on a guidance template manufacturing, to the CADCAM-based design, including production of the final prosthetic reconstruction.

As a part of the whole digital sequence, CAIS offers an additional tool in the interdisciplinary treatment planning. Precise and predictable treatment results can be implemented with this approach under consideration of the individual patient situation. In the full digital workflow, the overall treatment time is shortened and technical work steps can be saved in advance in a total of five stages with only three patient appointments. This novel process ensures the virtual construction and fabrication of surgical templates with a 3D printer as well as the fabrication of monolithic implant-supported reconstructions using CADCAM-technology without the need for any physical models. This approach has the potential to further simplify clinical procedures in implant patients. The technique needs to be examined in clinical studies. In addition, clinical experience will demonstrate what percentage of the patient pool will benefit from this exciting technology.

Acknowledgements

The authors would like to thank the dental technologist Isabell Wiestler for the manufacturing of the implant-supported reconstruction and Albrecht Schnappauf for his technical support.

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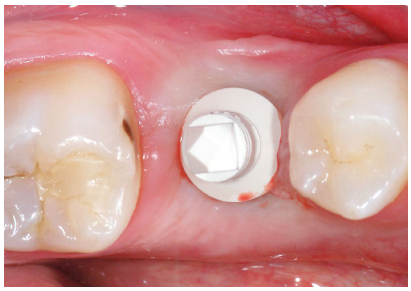

Fig. 10a

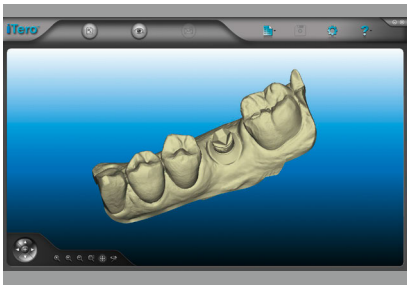

Fig. 10b

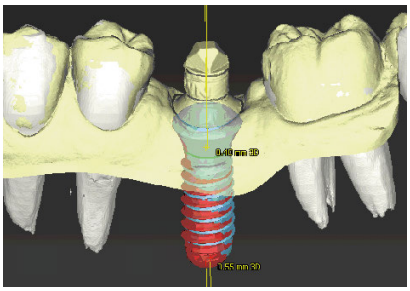

Fig. 10c

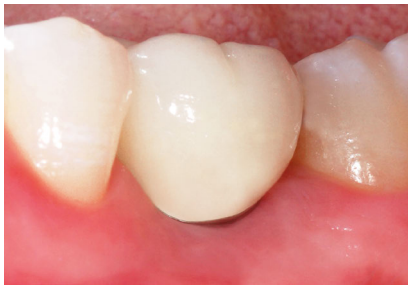

Fig. 11a

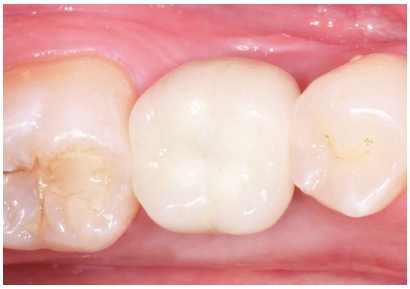

Fig. 11b

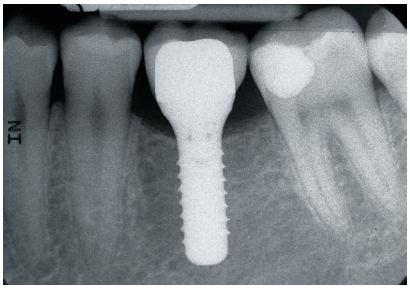

Fig. 11c

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Rehabilitation of an atrophic mandible with 3D-planning

Rainer Fangmann and Lars Steinke, Germany

Introduction

Patients with fixed restorations in the form of large-span bridges often wish to keep a fixed solution, even if the distal bridge abutments are lost. Prosthodontists advise a shift in treatment to a removable prosthetic. This is owing to lack of knowledge of current possibilities regarding bone augmentation and implantation.

The argument that implant-borne (fixed) restorations promise quality of life, appeal and youthfulness is ignored. As a consequence, removable restorations are only partially accepted and result in patient dissatisfaction in the long term. The desire for permanent rehabilitation remains. The opportunity for prompt placement of an implant and, if necessary, augmentation of the posterior section of the lower jaw to react preferably in a more a favorable resorption class, is missed.

Initial situation

A 71-year old female non-smoker in good general and nutritional state, presented with multiple prosthetic restorations in the maxilla, consisting of bridges and single crowns with different lengths of time. The mandible revealed an insufficient telescope / attachment retained by a crown block 43 to 32. Tooth 43 was destroyed by caries under the crown and had a treated root canal **(Fig. 1)**. The patient requested rehabilitation with a fixed prosthesis. As a result of years of wearing removable prosthetics, the mandible revealed an atrophy pattern absorption class 5 to 6 on the right and Cawood Class 4 on the left.[1]

Procedure

Treatment planning: Bone augmentation with autologous material from the retromolar/corpus region of the respec-

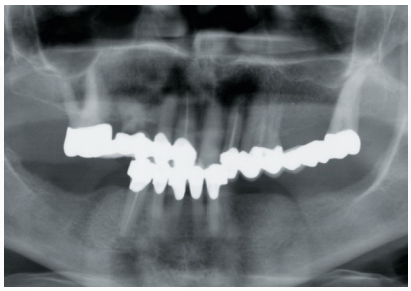

Fig. 1

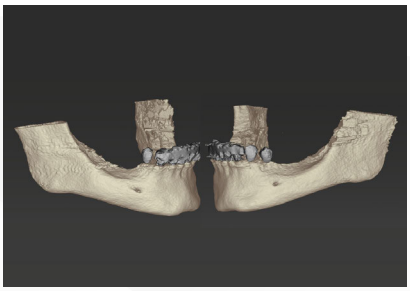

Fig. 2

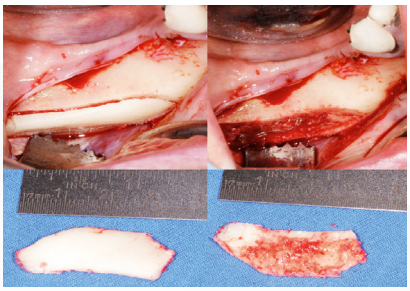

Fig. 3

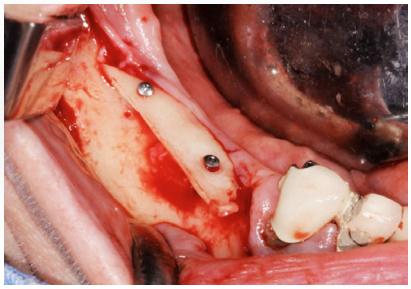

Fig. 4

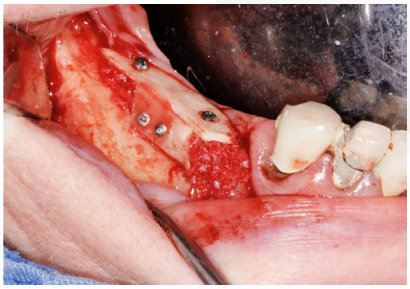

Fig. 5

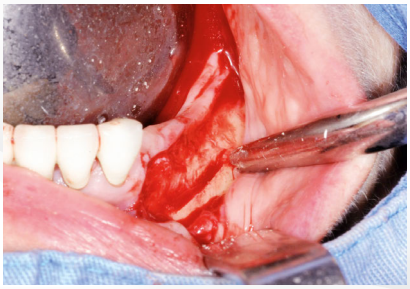

Fig. 6

tive sides and time-delayed implantation was discussed with the patient. She requested a pre-operative 3D image **(Fig. 2)** to clarify the necessity of augmentation. 3D planning with coDiagnostiX for implant placement and immediate restoration via multi-base abutments was recommended following augmentation.

Surgical procedure: The patient requested a full anesthetic during bone augmentation. This was followed by the typical incision of the gingival margin and appropriate mesial and distal relief. Once the dimension of the host site had been determined, the corresponding mandibular ramus and/or corpus site was selected.

After determining the dimensions and the morphology of the bone graft, the mono-cortical bone block was harvested from the donor region[2,3] by piezo-surgery[4] **(Fig. 3)**. Using a Safescraper®[5], this was thinned down extraorally to a final thickness of 1 mm. The thinned block served as biological membrane to stabilize the particulate bone material vestibularly and orally. First, a cortical lamella was fixed occlusally over the osteosynthesis retaining screws in gliding holes **(Fig. 4)**. This lamella was lined with cortical chips soaked in venous, autologous blood. To secure the graft, it was covered with a further lamella vestibularly, which was fixed with osteosynthesis retaining screws **(Fig. 5)**.

This was followed by fully tightening the screws inserted in the gliding holes of the occlusal lamella to compress the particulate graft. This was followed by wound closure with sutures. On the left side, augmentation was performed by applying the tongue-in-groove principle[6,7,8] **(Figs. 6–8)**. The antibiotic clindamycin 600 mg was administered as short infusion and continued orally over 6 days [1-0-1]. After coDiagnostiX planning **(Figs. 9, 10)**,

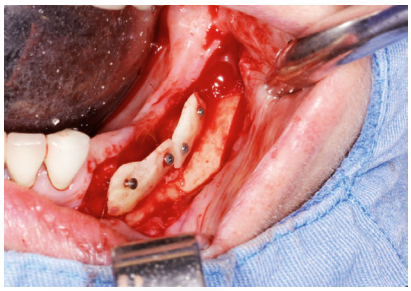

Fig. 7

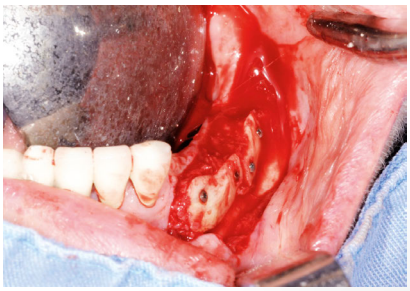

Fig. 8

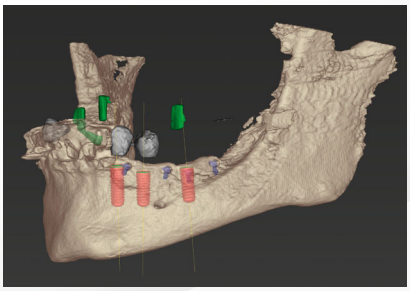

Fig. 9

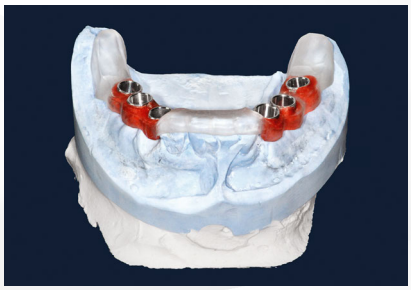

Fig. 10

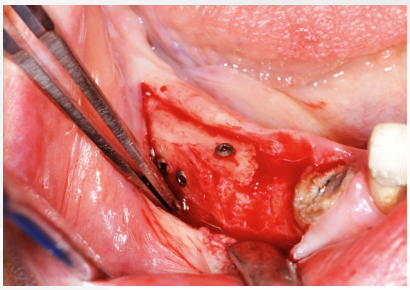

Fig. 11

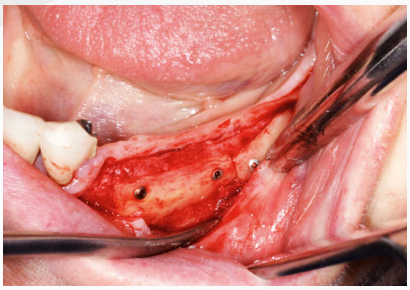

Fig. 12

the osteosynthesis retaining screws were removed after 4 months and the implants placed. Tooth 43, which had been destroyed by caries, was removed on the right. Immediate implantation was performed using a Straumann® Bone Level implant (Ø 4.8 mm, L 12 mm).

Straumann® Bone Level implants (Ø 4.1 mm, L 10 mm) were inserted in positions 044 and 046 **(Fig. 11)**. On the left, three Straumann® Bone Level implants were place as delayed implants (regio 33 a Straumann® Bone Level implant made of Roxolid® Ø 3.3 mm, L 14 mm, regio 34 and 35 each, a Straumann® Bone Level implant Ø 4.1 mm, L 10 mm) **(Figs. 12–15)**. All implants had the surface specification SLActive®.

Temporary immediate restoration: all implants were fitted with multi-base abutments 0° with a gingiva height of 4 mm **(Figs. 16, 17)**. An NC multi-base abutment Ø 4.5 was used for the NC-Roxolid® implant. The terminal implants were fitted with RC multi-base abutments Ø 6.5. Impression taking was performed with a foil technique tray[9] **(Fig. 18)** with color-coded impression components **(Fig. 19)**.

The laboratory-made temporary prosthesis **(Fig. 20)** was screw-retained occlusally via integrated temporary copings **(Fig. 21)**. The screw channel was seale d with a foam pellet soaked in 0.1% CHX gel and a light-curing composite[10]. The temporary restoration remained in place for 6 months **(Fig. 22)**.

Final restoration: The existing metal-ceramic veneer crowns in regio 32 to 42 were removed and the teeth prepared again. For impression taking, the impression posts were laboratory-customized to correspond with the gingiva emergence profile created by the multi-base compo-

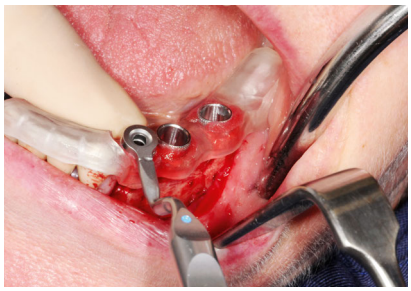

Fig. 13

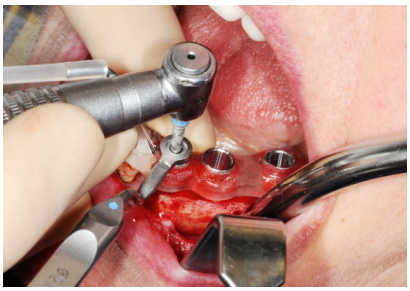

Fig. 14

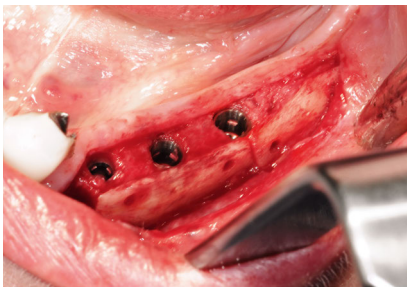

Fig. 15

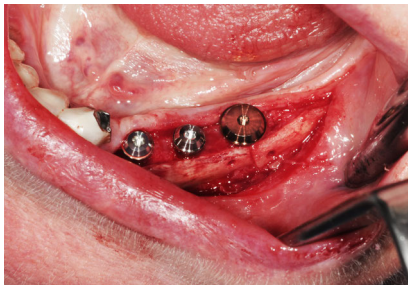

Fig. 16

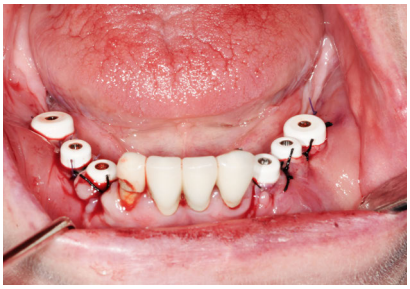

Fig. 17

Fig. 18

nents. This was followed by a single-session, two-phase impression using the double mixing technique with a polyether impression material[11,12] **(Fig. 23)** and corresponding color shade selection.

In order to continue supporting the ideally shaped soft tissue **(Figs. 24, 25)**, a decision was made in favor of CADCAM-fabricated, customized abutments made of zirconium dioxide. The basal component of the future meso-structures was designed such, that the gingiva is supported optimally and creates an ideal transition of the implant connection to the bridge contour. Following a pronounced temporary break, one no longer needs to expect changes to the gingival margin.

Thus the future crown margin was placed only 0.5 mm sub- and epi-gingivally.[13] The wax model **(Fig. 26)** on auxiliary parts, which correspond to the implant connection, is digitalized using the Straumann® CS2 Scanner. After data transmission, the fabrication of the individual abutments is performed in the Straumann milling center. To ensure the required fit and the stability needed for the molar region, one-piece zirconium dioxide abutments **(Figs. 27, 28)**[14,15] were fabricated.

After a few days, the dental technician received the patient-specific abutment for further processing. In the next step, a Zerion® veneering framework is designed using CADCAM and fabricated following data transmission. **(Figs. 29, 30)**. The zirconium dioxide abutments were inserted at a torque of 35 N/cm **(Figs. 31, 32)**.

The OPG shows the situation 18 months after implantation **(Fig. 33)**. The screw channels will filled with non-irritant PEMA[16] in a trough-shape final design. Then the final restorations were inserted **(Fig. 34)**.

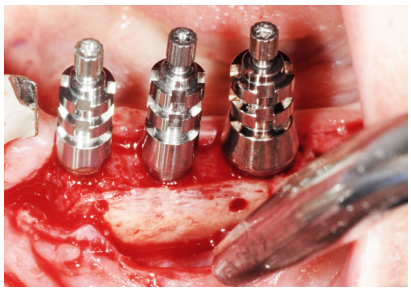

Fig. 19

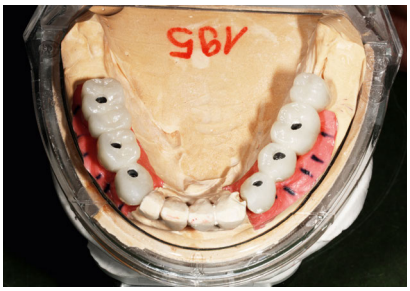

Fig. 20

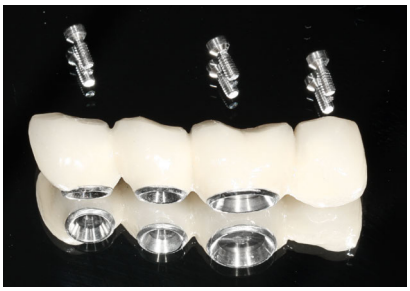

Fig. 21

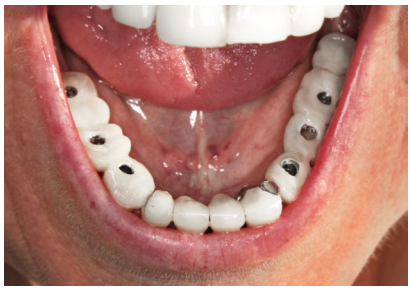

Fig. 22

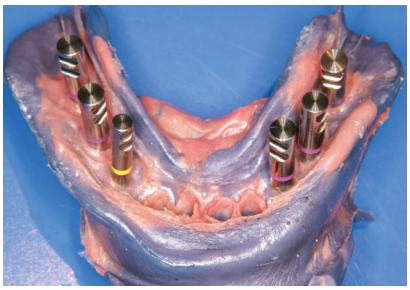

Fig. 23

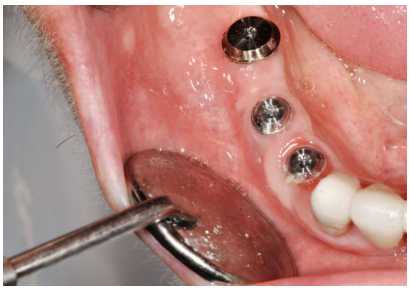

Fig. 24

Lars Steinke
Dr. med. dent.

2004 Establishment of own practice with focus on esthetic dentistry in Schortens/Germany.

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Conclusion

The safety of the surgical methods and the augmentation materials used was of the highest priority in the patient information and treatment. The choice was therefore in favor of the body's own materials. This ruled out the risk of infection for the patient as well as immunological rejection of the transplant. "In its cancellous form, autologous bone (...) is superior to all other bone substitutes with regard to its biological value, and is still considered (...) today to be the "gold standard" among augmentation materials."[17] In addition, autologous bone is partially osteogenic and osteoconductive.[18]

When choosing the implant system, the focus was on the greater safety and better predictability in the early treatment phase with immediate loading. As a result, only an implant system with the SLActive® surface was an option. Studies show that the SLActive® surface demonstrated 60 % more bone-implant contact[20] after two weeks compared with the SLA® surface[19]. Prompt, early loading with Straumann® SLActive® implants gives a survival rate in excess of 97 % after one year.[21]

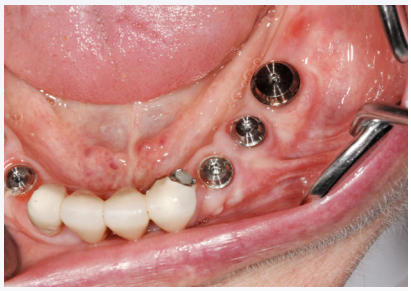


Fig. 25

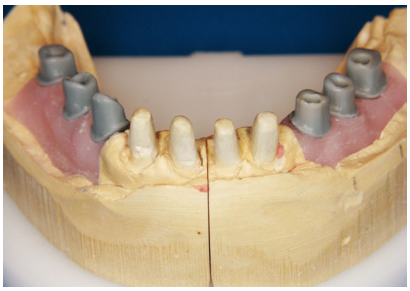


Fig. 26

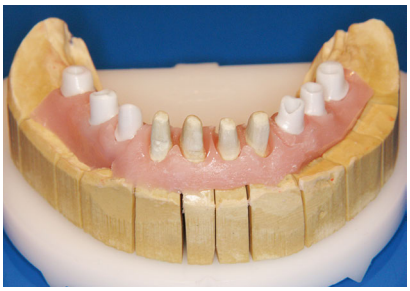


Fig. 27

Fig. 28

Fig. 29

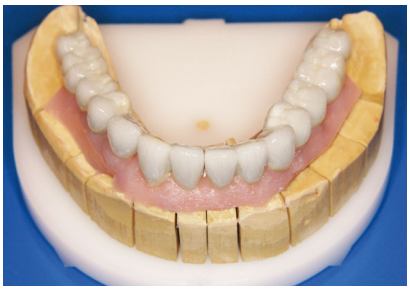


Fig. 30

Computer-aided, template-guided surgery via CoDiagnostiX™ was used to place the implant. The procedure shows average horizontal deviations between the final and the planned position to 1 mm.[22]

Patients nowadays demand minimally invasive surgery, the shortest healing time possible and optimal esthetic results. Clinicians, on the other hand, are not only looking to satisfy their patients' expectations, but also to obtain predictable long-term results. Both demands can only be achieved through precise planning and appropriate execution with excellent teamwork, as well as an implant product portfolio which offers perfectly matched components, from 3D planning to the final restoration.

Acknowledgement

With express thanks to Wassermann-Zahntechnik for the drill templates and interim fabrication, to the Dental Laboratory PKC for fabricated the prostheses, and to Mr. Martin Holz (dental technician/system expert Straumann GmbH) for coordination, communication an step-by-step support.

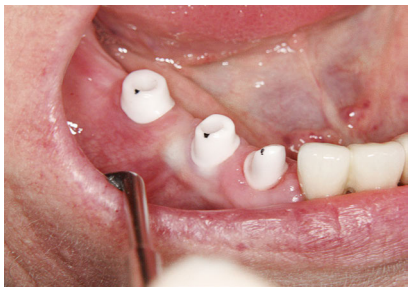


Fig. 31

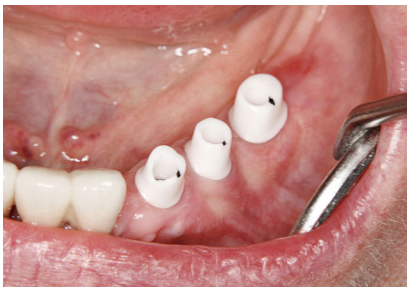


Fig. 32

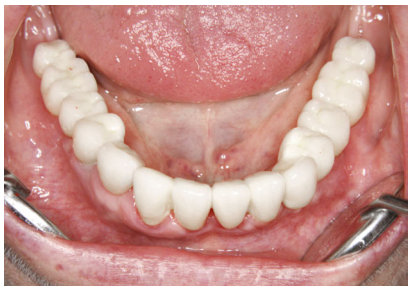


Fig. 33

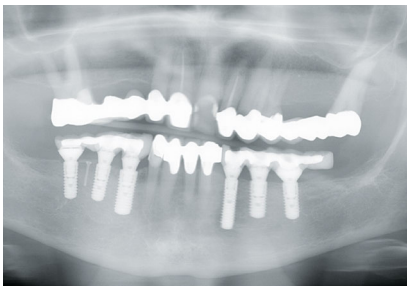


Fig. 34

Rainer Fangmann, MSc
Dr. med. Dr. med. dent.

1991 Doctorate 1995 Doctorate at the Medical University Hanover/Germany as Dr. med. dent. 1999 Recognition as specialist for maxillofacial surgery an specialist in oral surgery. Since 2003, in joint dental practice with dentist Helena Fangmann in the Health Centre St. Willehad, Wilhelmshaven. 2004 Master of Science Implant Dentistry (Danube University Krems). Speaker and author of scientific articles

www.implantologie-whv.de

▸ *Scientific references:*
see www.straumann.com/stargetref

Straumann® CARES® Scan & Shape Online

Simple, quick and efficient

Customer testimonials

Testimonial: CARES® Scan & Shape is an excellent option, especially for small and middle-sized labs. No further investments are necessary and the procedure, based on the online order functionality, is simple, quick and very efficient. I align specific needs and special wishes with the dental technicians at the Straumann Milling Center and, within 4 or 5 days, I receive excellent outcomes I can use for the final prosthetic restoration. *Jahn Eberwein, Master Dental Technician, Praxislabor Dr. Waldmüller, Horb am Neckar/Germany*

Testimonial: This service gives me everything I need and the turnaround time is quicker. I can view emailed designs on my cellphone, get online and check my orders. The online procedure via the website is a lot more efficient and convenient than the paper forms. As we move to be a more CADCAM and digital oriented lab, the website incorporates well into our lab's workflow. The site is very user friendly and easy to become familiar with. I like being notified that the case is ready to view for approval or disapproval. I can enter my comments and feedback and the lab will always communicate back with me. I can place 3–4 multiple orders one after another, this is a real time saver and very efficient. I don't have to print multiple forms but can do it digitally in one place from any computer. I definitely can recommend the Straumann® CARES® Scan & Shape Online service for its efficiency and the good communication with the technicians who always follow up with me via phone or email. Labs need to move towards using digital systems and there is no reason to wait before using this online service. *Mark Villa, Chief Dental Technician and Lab Manager at Oral Designs Dental Laboratory, San Antonio/Texas*

Straumann® CARES® Scan & Shape Online

This service gives you easy access to Straumann® CARES® Abutments to provide the original Straumann implant-abutment connection to your clients , without the need to invest in a scanner system nor acquire software design skills. This saves you time and money to concentrate on other important aspects of your business. All you need to do is send us either your abutment wax-up or model. You can review your abutment designs and manage your orders online.

With Straumann® CARES® Abutments, you can:

- obtain an excellent solution for each individual patient
- increase productivity and profitability
- achieve high-quality prosthetic outcomes

Note: Straumann® CARES® Scan & Shape Online is currently available in selected countries, please contact your local sales representative for further information.

Straumann® Variobase™ Abutment

A strong foundation supporting abundant flexibility

With the Straumann® Variobase™ Abutment, Straumann is offering a new product that provides all the flexibility and versatility you need for an excellent restoration. It can be used with a coping or crown and you can choose your preferred dental material and workflow – be it traditional pressing or casting or in-lab milling. The individualized coping or crown is then simply bonded to the base before delivery to the dentist.

Place your trust in it …

The Straumann® Variobase™ Abutment is the only hybrid abutment for implants of the Straumann® Dental Implant System that has the original Straumann connection – the difference is obvious. But it is also its patented[1] base design that makes a difference. The four cams significantly enlarge the bonding surface compared to a cylindrical design. Thus, Straumann was able to design the Straumann® Variobase™ Abutment with small dimensions without compromising the component's performance. The measurements are only 3.5 mm in height and 2.8 – 3.3 mm in diameter (depending on the implant platform), providing a high design flexibility.

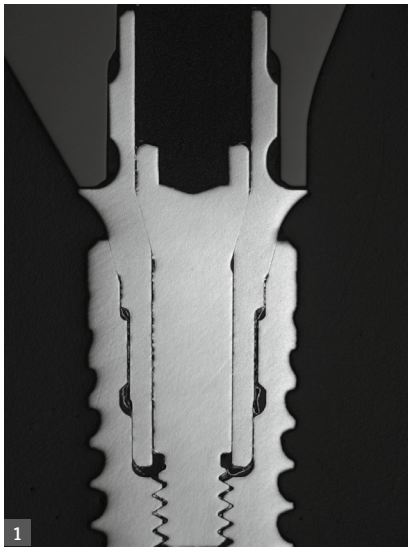
… and enjoy its simplicity and esthetics

Working with the Straumann® Variobase™ Abutment is simple and easy. When using open CAD software, an STL import file is available which contains the exact inner geometry of the coping. For pressing and casting, a burn-out coping greatly facilitates the wax-up process and allows a precise connection to the coping. Bonding the Straumann® Variobase™ Abutment is a new experience. Thanks to its patented1 engaging mechanism, sandblasting is not necessary for a strong hold. This saves time in the dental laboratory. Furthermore, the reflecting surface of the Straumann® Variobase™ Abutment is less visible through thin ceramic copings than a sandblasted surface, resulting in very esthetic outcomes. The engaging mechanism allows for a precise seating of the coping on the Straumann® Variobase™ Abutment's four cam edges, rotational misfit of the coping becoming less of a worry.

A simple way to add profit to your business

The Straumann® Variobase™ Abutment can be used in the in-lab workflow of choice, i.e. conventional wax-up & casting, in-lab milling and pressing. It can be used with a variety of materials and for a variety of indications. Thus, it allows you as a lab technician to choose the most cost-efficient way of making a high-quality customized abutment with the original Straumann® implant connection.

[1] *Patent pending*



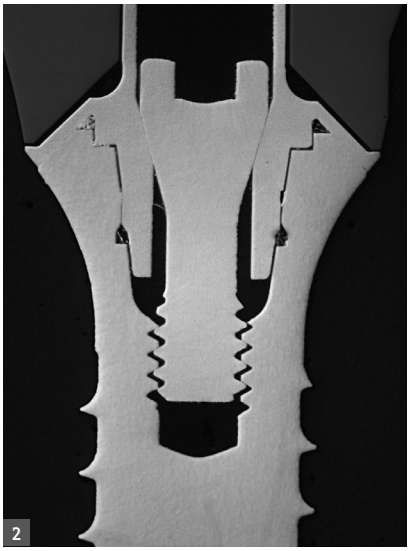


Fig. 1: Straumann® Variobase™ Abutment with coping on Straumann® RC 4.1 implant

Fig. 2: Straumann® Variobase™ Abutment with coping on Straumann® WN 4.8 implant

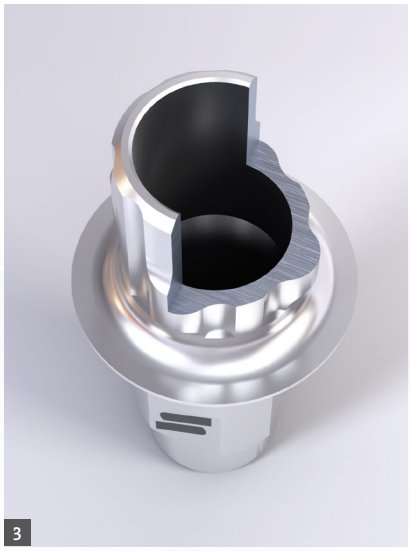


Fig. 3 + 4: Enlarged bonding surface compared to cylindrical design allows the design to have minimal dimensions providing maximum design flexibility

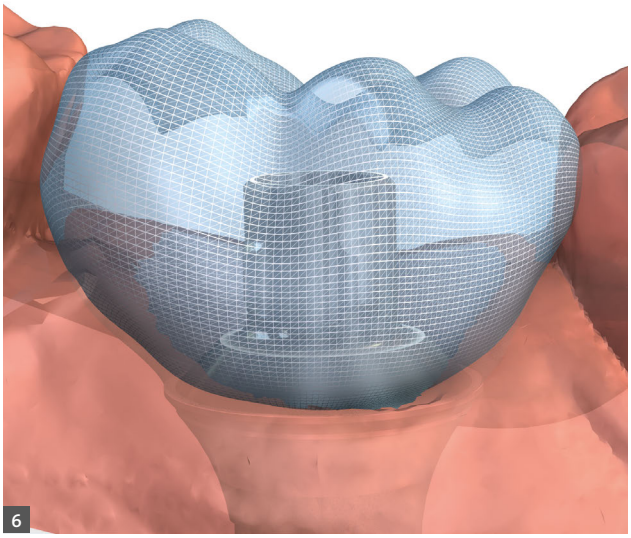


Fig. 5: Precise seating during bonding thanks to four cams

Fig. 6: Simple processing in an open CAD software due to Variobase™ STL data.

Testimonial: The Straumann® Variobase™ Abutment is an incredible option. Because of the four cams, there is a very tight fit between the restoration and the base which allows me to connect the two pieces off the model unlike other systems. These cams also create an even distribution of cement throughout, flowing into special areas that create a locking effect. This makes the whole cementing process very easy and controlled. I also love that I don't have to sandblast the area that connects to the restoration – it saves me time and protects the precision interface. I love that the design is so small. It gives me all the design flexibility that I need and because of the engineering that went into the four cams I do not have to worry about these two pieces coming apart after cementing. I have restored over twenty cases, most of them being full-contour screw-retained restorations. My clients enjoy the fact that they will always have access to the screw and not have to clean up any cement. I'm sure this is the future trend in implant dentistry." *Chris May, Owner of May Dental Arts, Missouri*

New business opportunities with full CARES® Access

DWOS – the open standard software platform from Dental Wings

DWOS is a collaboration initiative of 3M ESPE, Straumann, and Dental Wings. It increases flexibility and simplifies processes for dental labs and practices. Being an open system, it provides a solution to the growing problem of incompatible systems that lock users into the technology of individual companies. The scope, quality, and functionality of DWOS make it a solution of choice for communication, design, and collaboration within dentistry. DWOS is commercially available as an open system and offers dental labs the flexibility of designing prosthetics using data from multiple systems and sources. Restorations can be manufactured in-house or outsourced to milling centers offering high precision and additional material options. **www.dwos.com**

Access to the Straumann® CARES® prosthetic portfolio

As part of their strategic collaboration, Straumann and Dental Wings have launched the CARES® Prosthetic App in selected countries[1]. The CARES® Prosthetic App is a plug-in module in the Dental Wings software version 3.5 on Dental Wings CADCAM systems. It provides eligible[2] Dental Wings customers with full access to the CARES® prosthetic portfolio[3] including customized abutments, screw-retained bridges and bars, full-contour restorations, and crowns and bridges.

Reliability through Straumann precision and high-quality materials
Dental Wings customers ordering CARES® prosthetics benefit from the Straumann prosthetic guarantee[4] and precision thanks to the original connection to Straumann implants. They can choose from a variety of high-quality prosthetic materials – including cobalt chromium alloy (coron®), zirconium dioxide (zerion®), and various full-contour materials – designed for flexible, reliable, and predictable prosthetic restoration outcomes.

No additional investments
The CARES® Prosthetic App creates new business opportunities to connect with Straumann dentists. Since the App is part of the Dental Wings software version 3.5, no additional investments are required. CARES® X-Stream™, the complete implant-based single-tooth prosthetic restoration in one step (one scan, one design, and one delivery) and saves time and costs for dental labs.

Get started immediately
The CARES® Prosthetic App operates in the same software environment as Dental Wings customers are used to – no further training is required. Dental Wings customers with access to the CARES® Prosthetic App have full access to Straumann support for queries related to Straumann CARES® prosthetics.

Availability
The CARES® Prosthetic App is available for Dental Wings customers running the latest software – version 3.5 or higher – with up-to-date software licenses. Customers fulfilling these criteria should contact Straumann to register as a Straumann® CARES® customer, and then start designing in the CARES® Prosthetic App.

[1] France and Italy launched in June. Other markets are under evaluation. [2] Eligible customers are defined as those who have an up-to-date license for software version 3.5 or higher, a Dental Wings scanner excluding series I, and who are in a country in which CARES® prosthetic elements are available. [3] CARES® prosthetic product offerings may vary and be subject to national regulatory clearance and approval. For detailed product information, please visit www.straumann.com/cares8 [4] Five or ten-year guarantee, depending on the material. See Straumann guarantee (152.360) for details

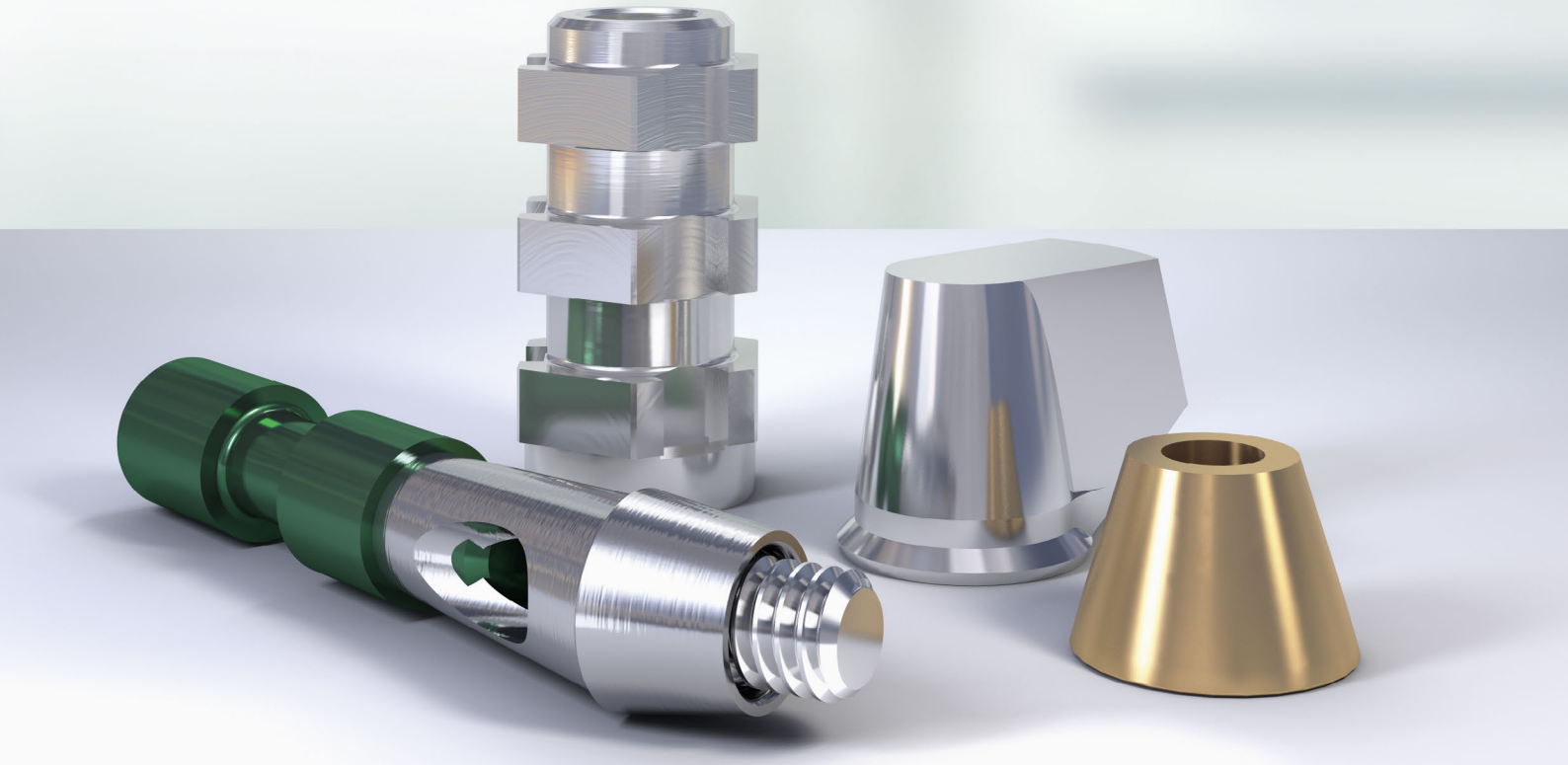
We understand your needs
The Straumann CARES® Prosthetic App underscores the collaboration between Dental Wings and Straumann in creating a leading software platform for digital dentistry.

Straumann constantly invests in innovating prosthetic solutions, and state-of-the art milling machines and quality control processes. Each production line at Straumann is dedicated to processing one material in one machine with a specific milling strategy, providing our best possible prosthetics. The Straumann CARES® Technical Support team is 100 % staffed by dental lab technicians. They speak the customers' language and understand their needs. Customers can always track the status of every single order to better manage their expected delivery time.

With the experience of more than 1.5 million prosthetic components sold, Straumann has extensive experience in satisfying more than 2 000 laboratories globally. With the CARES® Prosthetic App, Dental Wings labs can profit from these advantages and work more efficiently. Through the time saved, the lab can increase productivity and concentrate on offering competitive services and stronger differentiation of its products.

Our long-term commitment for the benefit of the patient

We would like to convey a feeling of confidence and security to patients, dentists and laboratories across the globe, with the assurance that Straumann implants can be supplied with new and matching prosthetic components at any time.



And what happens in 10 or 20 years?

The diversity of implant systems available on the market makes it difficult to decide on a specific system. Very often the focus is on material costs. But what happens if an implant needs to be restore prosthetically after a longer period of wear? Is there any guarantee that the manufacturer will still be able to supply the required components one or two decades later?

Back to the year 1974

At Straumann you can depend on customer service that starts precisely here: Straumann® Classic. A pioneer in Implant Dentistry, Straumann is committed to the millions of patients wearing our implants with original Straumann prosthetic components. The Straumann® Classic Program guarantees the availability of prosthetic components for all implants sold in the past going back to the year 1974.

Selected Straumann implants from past decades for which prosthetic components are still available.

Strauman® Classic

... supports our customers if new prosthetic restoration of our implants is needed.

... ensures that matching prosthetic components are available for Straumann implants dating back to 1974 – that they can be ordered normally and supplied quickly.

... saves undergoing renewed surgery – the implant can be restored in the dental practice.

Straumann® Classic

New restoration of a Straumann implant type F from 1974

Stefan Lienhard, E. Christian Schmid and Frank Dentaltechnik, Germany

History

The patient (m, born 1966) presented in 1984 (18-year old), at the University Clinic Regensburg for examination of the anterior teeth situation following trauma. This revealed a deep fracture of tooth 21. After careful extraction, an enosseous implant (Straumann type F) was placed in gap 21 in the spring of 1985. After a 4-month healing phase, the implant was finally restored with a veneered metal-ceramic crown.

Initial situation

After a wearing period of approximately 24 years, the occlusal screw of the implant restoration fractured. A fragment of the screw remained lodged in the inner thread of the implant. On the assumption, that prosthetic components were no longer available for this type of implant, the patient was provided with a clasp prosthesis **(Figs. 1, 2)**.

At least this ensured functional closure of the space in regio 21. However, long-term this was a most unsatisfactory solution for the patient. In the spring of 2013, the patient presented in the practice of Dr. Dr. Lienhard (Regensburg) for a routine examination.

Procedure

Contact was made with Straumann to see if a satisfactory solution could be found. The question was clarified as to whether removal of the screw fragment was even possible. With the support of the Straumann system expert, the screw fragment was removed completely with the aid

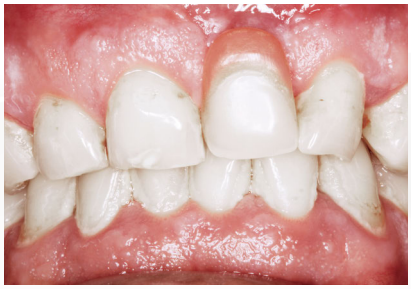


Fig. 1

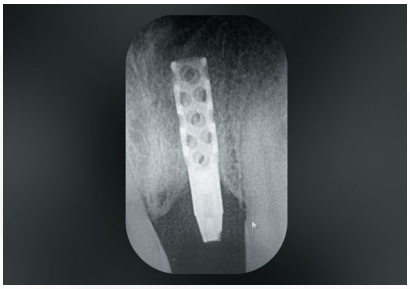


Fig. 2

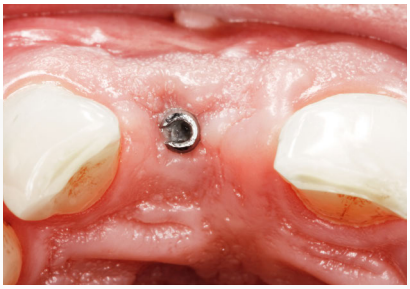


Fig. 3

Fig. 4

Fig. 5

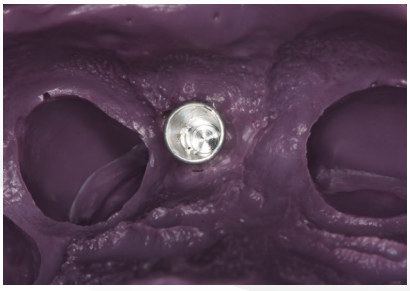


Fig. 6

of the Straumann repair kit. **(Fig. 3)**. Thus, there were no more impediments to a new restoration of the meanwhile 28-year old implant. The patient was referred to his family dentist (Dr. Schmid, Neutraubling) with the recommendation to restore implant situation 21 with a single tooth crown. The Straumann® Classic Program offers the prosthetic components necessary for the new restoration of an implant **(Fig. 4)**. The impression was taken accordingly **(Figs. 5, 6)**.

Due to the favorable soft tissue conditions, the laboratory (Dentaltechnik Frank, Regensburg) decided to first restore the implant with a temporary crown **(Figs. 7, 8)**. The emergence profile of the final crown was to be prepared by displacement of the soft tissue during wearing of the temporary prosthesis. A metal-based temporary crown was fabricated for this purpose. To ensure easy removal of the crown during this phase, it was decided to use an occlusally screw-retained restoration. Following a 2-month adaptation phase **(Fig. 9)**, fabrication of the final crown commenced. Based on the clinical situation, the laboratory decided to opt for a full-ceramic restoration. The abutment, in this case a gold coping, was boned to a zirconium abutment. The resulting hybrid abutment was placed on the implant with the aid of a transfer guide **(Figs. 10, 11)**.

Outcome

The final crown was cemented to the abutment using temporary cement. The achieved outcome was highly satisfactory for all persons involved **(Fig. 12)**. Not only was the availability of all the required prosthetic components impressive, but also the overall esthetic outcome of the 28-year old Straumann implant.

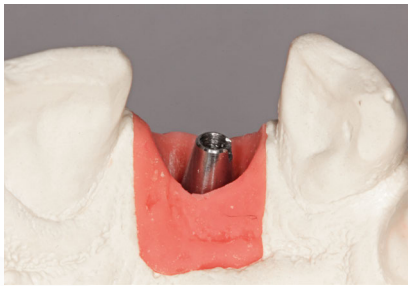


Fig. 7

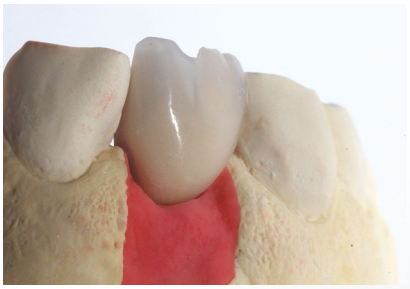


Fig. 8

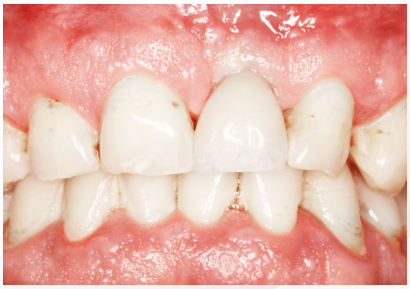


Fig. 9

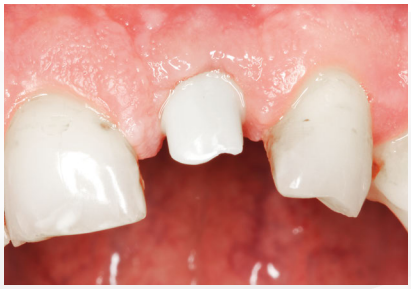


Fig. 10

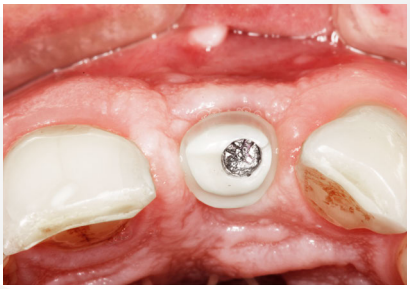


Fig. 11

Fig. 12

“Such an excellent service deserves to be mentioned”

Interview with Dr. E. Christian Schmid, Dr. Stefan Lienhard, Siegfried Eich, DT and Michael Vielreicher, MDT.

Dr. Schmid and Dr. Lienhard, how were you able to identify the type of implant in this case?

Schmid: All I knew about the patient was that he had received the implant in 1985 from the University Clinic Regensburg. I therefore left the task of identification to the specialist.

Lienhard: We took an X-ray image and sent it to Straumann per e-mail. Within a few days we received the exact data. The implant was identified as a Straumann® hollow cylinder type F implant. In this context we were informed of the Straumann® Classic Program and the fact that prosthetic components are still available.

How important is it for you to have companies offer such a program? Are you aware of such a program from other manufacturers?

Eich: No, I do not know of such a program from other manufacturers. Our current case demonstrates how important and beneficial such a program is for everyone involved.

Lienhard: My response was to write about this if the parts were really still available and create greater awareness among the target groups – such an excellent service deserves to be mentioned!

Schmid: I am very pleased that we were able to help my patient so quickly and easily. Being unaware of the possible repair, he made do with an interim solution, but now he is treated optimally.

Which advantages does the Straumann® Classic Program offer you?

Vielreicher: If one knows that matching prosthetic components for repairs or a new restoration will still be available for the work I perform now in 10 to 15 years, then that is a very positive aspect for all concerned. Immediate availability is really outstanding – the components were supplied quickly, easily an without any bureaucracy. In this case we were even able to fabricate a modern zirconium restoration on an implant available since 1974.

Eich: In fact, the archived data of the University Regensburg showed that we had been involved in precisely this case at the time!

Schmid: The Straumann® Classic Program, in other words, the guaranteed availability of the components, allowed the implant to be saved. It would have been a pity if an implant worth saving could not have been restored prosthetically for lack of suitable components. In terms of availability of spare parts, I have a current issue in my practice. Another renowned manufacturer of therapeutic devices has informed me that that spare parts for the devices purchased 20 years ago will now be discontinued. In case of future defects, this means a completely new purchase.

Lienhard: One really needs to take into account the patient’s savings in costs, pain and time for a new treatment through Straumann® Classic. For the patient this would imply: explantation, healing, possibly extensive augmentation, temporary restoration, implantation, healing, and new restoration procedure. These treatment sessions can all be avoided for everyone concerned.

For some years now, largely smaller manufacturers of implants have been increasingly active on the market with inexpensive products. What is your opinion on this development?

Eich: To me, this is a precarious development, as many of these components will probably not be available in the future. This makes documentation of the components used even more important. And then, just imagine one of the currently available implant systems requiring new prosthetic restoration in approximately 30 years. And the question does indeed arise, will I still be able to obtain matching prosthetic components?

Vielreicher: It is our aim to use only original parts, as the use of third party components voids the patients' warranty claims.

Lienhard: If matching prosthetic components are no longer available, then such implants may well turn out be very unpleasant and costly in hindsight. In our case, the patient would have required a new implant, although it was enosseously perfectly intact, worth retaining and diagnosed as being fully functional.

> ***Testimonial:*** I am glad that it was possible to restore my nearly 30-year old implant with a new crown. Originally, I was more than glad that my front tooth gap could be closed with an implant following my traumatic tooth loss, and that my healthy adjacent teeth did not have to be ground for a bridge restoration. And today, more than ever: "It was fortunate that the Regensburg Clinic had inserted a Straumann implant!" ***G.D. the patient in this case study.***

Schmid: This case highlights the importance of the "Pro Original" Initiative and the associated Straumann® Classic Program. It is guaranteed, that Straumann implants restored with original Straumann prosthetic components, can also be restored prosthetically in the future – regardless of individual reason. This includes an authenticity card and implant pass for the patient, as well as a life-long guarantee for the implant as long as original parts have been used. Therefore, when selecting an implant system, the clinical evidence of long-term studies and later restoration options are of equal importance to me.

Technical dental work:
Siegfried Eich, DT
and Michael Vielreicher, MDT
Frank Dentaltechnik GmbH
in Regensburg/Germany.

Prosthetic restoration:
Dr. E. Christian Schmid
Dental practice
in Neutraubling/Germany

Radiological evaluation and identification
Dr. med. Dr. med. dent.
Stefan Lienhard
Specialist for oral maxillofacial surgery with focus on Implant Dentistry, Specialist Center Regensburg/Germany.

Straumann® Emdogain

Long-term periodontal regeneration with 12 year follow-up

Manfred Zeisler, Austria

Manfred Zeisler
DDr.

Medical studies in Innsbruck/Austria with doctorate in 1989. Since 1992, specialist for dentistry, oral medicine and orthodontics. Private practice in Innsbruck. Member of the Swiss Association for Endodontics (SSE).

dr.manfred.zeisler@web.de

Initial situation

A 40-year old patient presented in our practice in the year 2000 with massive periodontal problems. The anterior crowns 11 and 21 were splinted, and tooth 21 had also received root treatment. The patient was in pain with spontaneous purulent exudate in regio 21. Measurement of the periodontal pocket revealed a probing depth of 12 mm mesially in regio 21. Tooth mobility of tooth 21 was inconspicuous due to splinting with the adjacent tooth **(Figs. 1, 5)**.

Treatment plan and therapy

Therapy was initiated with infection control and instructions on effective oral hygiene, followed by curettage of all four quadrants under local anesthetic. The sulcus was rinsed with 0.12 % chlorhexidine using ultrasonics. The patient was prescribed systemic metronidazole (3 × 250 mg) as well as amoxicillin (3 × 375 mg) for ten days. In addition, metronidazole ointment was applied at weekly intervals to regio 21 **(Fig. 2)**. The post crown on tooth 21 was already removed one week after curettage **(Fig. 3)** and revision of the root canal

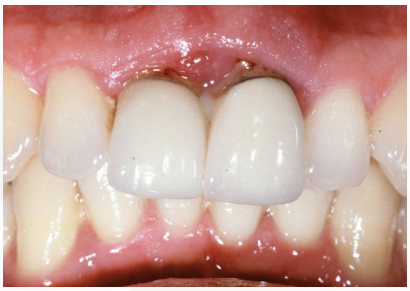


Fig. 1

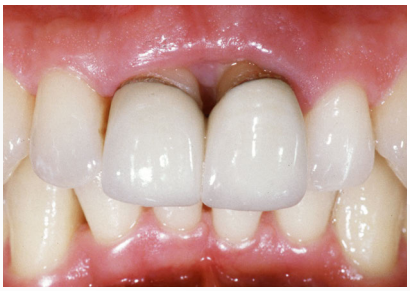


Fig. 2

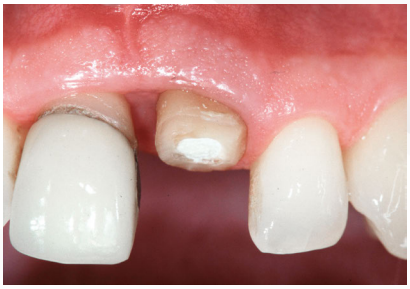


Fig. 3

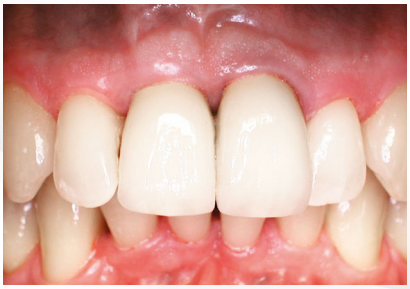


Fig. 4

treatment was started, on the one hand to obtain a better overview for the planned future surgical intervention, on the other, to exclude a source of infection within the root canal system **(Fig. 6)**. The gap in anterior teeth was restored temporarily with a removable prosthesis.

Surgical intervention took place one week later. A mucoperiosteal flap was prepared following sulcular incision, and the massive bone defect on tooth 21 exposed, which reached to the apex and covered approx. ¾ of the circumference. The granulation tissue was removed and the root surface again examined for remains of concrement.

Straumann® PrefGel (EDTA) was applied to the root surface for conditioning purposes an rinsed off after two minutes with sterile saline solution. Then Straumann® Emdogain was applied. The gum was repositioned and fixated with single button sutures. The patient was prescribed clindamycin (3 × 300 mg) for 3 days to give perioperative antibiotic cover. The patient was instructed to avoid mechanical oral hygiene in the surgical area for the first four weeks and to rinse with 0.12 % chlorhexidine instead. The sutures were removed 3 weeks later. The first postoperative periodontal status as well as the first X-ray check **(Fig. 7)** was ascertained six months later. The final prosthetic restoration of tooth 21 with a new splinted post crown was arranged approximately one year after surgery.

Treatment success and conclusions

After twelve years without periodontal problems, the follow-up demonstrated that long-term safe and stable bone regeneration can be achieved with Straumann® Emdogain **(Figs. 4, 8)**. A crucial factor for the good new bone formation with Straumann® Emdogain was the preoperative extra- and intra-radicular infection control.

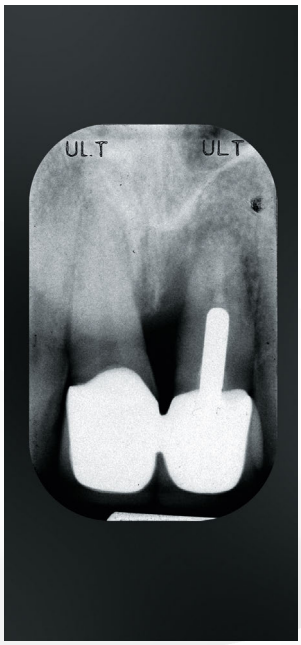


Fig. 5

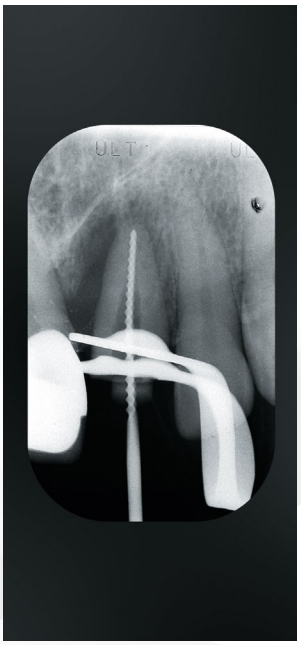


Fig. 6

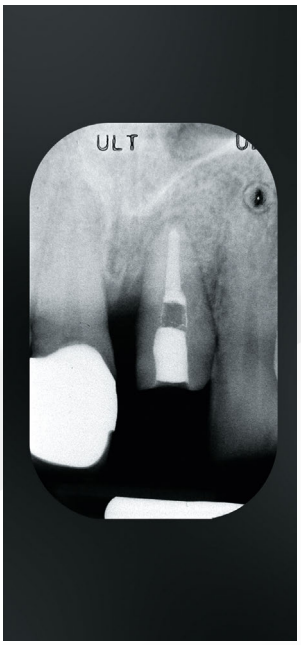


Fig. 7

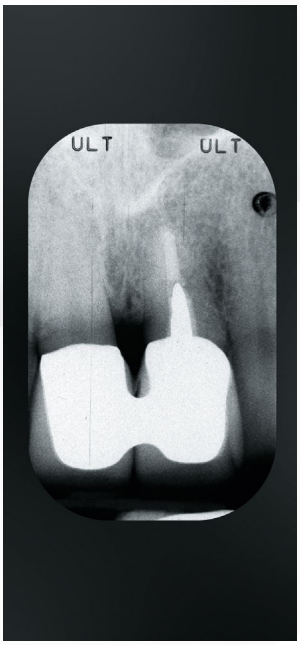


Fig. 8

Selected literature from recently published journals

Straumann® Dental Implant System

Akca K, Cavusoglu Y, Uysal S, Cehreli MC. A prospective, open-ended, single-cohort clinical trial on early loaded titanium-zirconia alloy implants in partially edentulous patients: up-to-24-month results. **Int J Oral Maxillofac Implants 2013;28(2):573-8.**

A total of 23 partially edentulous patients received 53 Straumann Roxolid® implants, which were early loaded with single crowns or fixed partial prostheses. Soft tissue parameters and marginal bone level were evaluated. No implants were lost up to 24 months, and there were no prosthetic complications. Mean marginal bone loss was 0.315 ± 0.24 mm, and good soft tissue integration was noted. Optimum outcomes in terms of bone levels, clinical parameters and prosthetic complications were found in this up-to-24-month assessment with Roxolid® implants.

Anchieta RB, Baldassarri M, Guastaldi F, Tovar N, Janal MN, Gottlow J, Dard M, Jimbo R, Coelho PG. Mechanical property assessment of bone healing around a titanium-zirconium alloy dental implant. **Clin Implant Dent Relat Res 2013;** *[Epub ahead of print]*

Straumann Roxolid® or titanium implants (18 of each, both with the SLActive® surface) were placed in premolar and molar positions in minipigs. Samples were retrieved after 4 weeks for histological analysis and nanoindentation under a maximum load of 300 µN. The mean elastic modulus for Roxolid® and titanium was 2.73 ± 0.50 GPa and 2.68 ± 0.51 GPa, respectively, while the mean hardness was 0.116 ± 0.017 GP and 0.110 ± 0.017 GPa, respectively. Nanomechanical properties were similar between Roxolid® and titanium implants with the SLActive® surface.

Chappuis V, Buser R, Brägger U, Bornstein MM, Salvi GE, Buser D. Long-term outcomes of dental implants with a titanium plasma-sprayed surface: a 20-year prospective case series study in partially edentulous patients. **Clin Implant Dent Relat Res** *[Epub ahead of print]*

This 20-year follow-up study examined 69 patients who received 95 Straumann implants with the TPS surface; clinical and radiographic parameters were evaluated. There were 10 implant losses, giving an implant survival rate of 89.5 %. Most implants (92 %) showed < 1 mm bone loss between 1 and 20 years, and the maximum bone loss was 1.8 mm. Biologic complications with suppuration were found in 19 implants (20 %) over the 20-year period; of these, 13 were treated and successfully maintained. Technical complications were noted in 32 %. This is the first study to report 20-year success and survival with implants with the TPS surface.

Ergun G, Egilmez F, Cekic-Nagas I, Karaca İR, Bozkaya S. Effect of platelet-rich plasma on the outcome of early loaded dental implants: a 3-year follow-up study. **J Oral Implantol 2013; 39(S1):256-263.**

Two Straumann SLActive® implants were placed either with or without platelet-rich plasma (PRP) in the posterior region, or bilaterally to the median line, in the maxillae of patients; a total of 64 implants were placed. The PRP was prepared from the patients' own blood using the Curasan PRP kit (Sarstedt, Germany). Implant stability was measured by resonance frequency analysis at placement and after 4 days and 1 week, after which the implants were loaded if they had an implant stability quotient (ISQ) > 60. Implant stability was repeated after 2, 3 and 4 weeks and after 6, 12, 24 and 36 months. There was one implant failure, but there were no prosthetic failures or complications. There were significant differences in implant sta-

bility between the PRP and non-PRP groups at implant placement, but there were no significant differences in the follow-up periods. The use of PRP in the maxilla appeared to have no clinical benefit.

Guler AU, Sumer M, Duran I, Sandikci EO, Telcioglu NT. Resonance frequency analysis of 203 Straumann dental implants during the healing period. J Oral Implantol 2013; *[Epub ahead of print]*

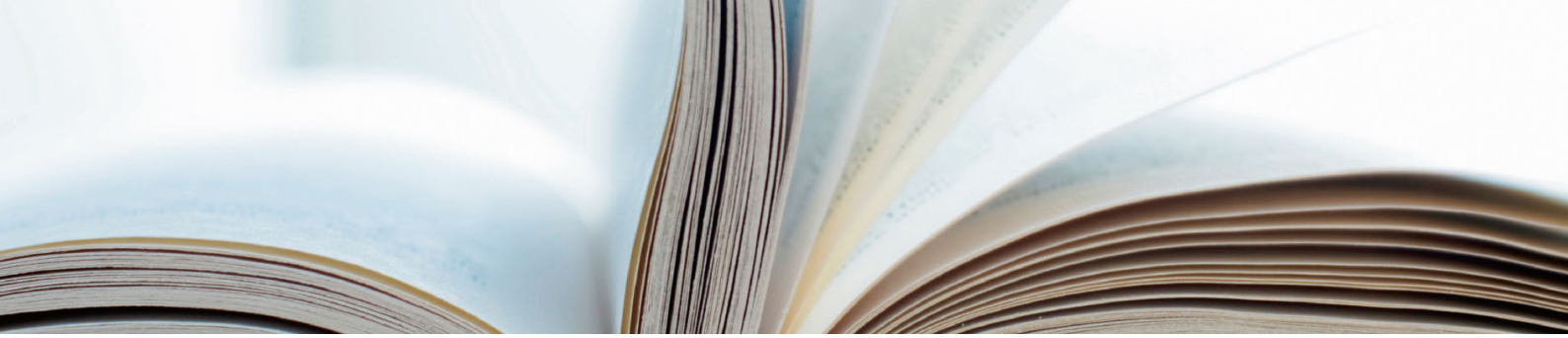
A total of 208 Straumann implants (164 SLA® and 44 SLActive®) were placed and implant stability (by resonance frequency analysis) was measured at placement, after 4 weeks and after 8 or 12 weeks. A significant increase in implant stability quotient (ISQ) was observed during the healing period, with lowest ISQ values seen in the posterior maxilla; no significant differences were found between the anterior mandible, posterior mandible and anterior maxilla. ISQ was significantly higher for males than females at the second measurement. ISQ values for SLActive® implants were also significantly higher at the second measurement, but there was no significant difference at the final measurement. Repeated ISQ measurements may show diagnostic benefit. The results also support the faster healing and osseointegration with the SLActive® surface.

Matarasso S, Iorio Siciliano V, Aglietta M, Andreuccetti G, Salvi GE. Clinical and radiographic outcomes of a combined resective and regenerative approach in the treatment of peri-implantitis: a prospective case series. Clin Oral Implants Res 2013; *[Epub ahead of print]*

Eleven Straumann implants diagnosed with peri-implantitis in 11 patients were treated using a combination of deproteinized bovine bone mineral and collagen membrane in the intrabony region and implantoplasty (mechanical smoothing of the rough implant surface) in the suprabony component. Non-submerged healing was then performed, and the implants evaluated after 12 months. All implants survived, and significant improvements in probing depth, clinical attachment level and mucosal recession were observed between baseline and 12 months. A significant decrease in sites with bleeding on probing was also observed, and the marginal bone level significantly increased, with 93.3 ± 13.0 % fill of the bony defect. Significant positive outcomes were observed following the combined respective and regenerative approach for the treatment of peri-implant defects.

Patel K, Mardas N, Donos N. Radiographic and clinical outcomes of implants placed in ridge preserved sites: a 12-month post-loading follow-up. Clin Oral Implants Res 2013 Jun;24(6):599-605.

In 27 patients, alveolar ridge preservation was performed using either Straumann BoneCeramic (test, 14 patients) or deproteinized bovine bone mineral (DBBM; control, 13 patients). Straumann SLActive® implants were placed after 8 months of healing; additional bone augmentation was required at 9/13 implants in the test group and 8/12 implants in the control group. The implants were loaded after 4 months and evaluated after 1 year. Implant survival was 100 % after 1 year in both groups, and there were no significant differences in clinical or radiographic parameters between the groups. The success rates were also similar between the groups. Equivalent implant success and survival was found for implants placed in either Straumann BoneCeramic or DBBM.



Roccuzzo M, Gaudioso L, Bunino M, Dalmasso P. Surgical treatment of buccal soft tissue recessions around single implants: 1-year results from a prospective pilot study. Clin Oral Implants Res 2013; *[Epub ahead of print]*

Connective tissue graft, de-epithelialized and trimmed to adapt to the implant collar, was used to treat soft tissue dehiscence around single Straumann implants in 16 patients. No complications were noted, and post-operative discomfort was minimal. After 1 year, mean coverage was 89.6 ± 13.1 %, with complete coverage in 9/16 cases. Esthetic analysis, assessed by visual analog scale, significantly improved. The results suggest that successful treatment of buccal soft tissue dehiscence around implants can be achieved, but further trials were suggested to assess the most effective variation of the technique.

Wittneben JG, Buser D, Salvi GE, Bürgin W, Hicklin S, Brägger U. Complication and failure rates with implant-supported fixed dental prostheses and single crowns: a 10-year retrospective study. Clin Implant Dent Relat Res 2013; *[Epub ahead of print]*

This retrospective study evaluated 303 patients who received 397 fixed implant-supported reconstructions (268 single crowns and 127 fixed dental prostheses; FDPs) on Straumann SLA® implants. The mean prosthesis survival rate after a mean of 1075 years (range 8.4 to 13.5 years) was 95.5 % (18 failures). Ceramic chipping was the most frequent complication, followed by occlusal screw loosening and loss of retention; the total mechanical technical complication rate was 24.7 %. High survival rates for prostheses supported by Straumann SLA® implants were noted. The most frequent complication was ceramic chipping, which was increased with attrition and with FDPs.

Zembic A, Wismeijer D. Patient-reported outcomes of maxillary implant-supported overdentures compared with conventional dentures. Clin Oral Implants Res 2013; *[Epub ahead of print]*

This study included 21 patients with edentulous maxillae and problems with their existing dentures; dentures were relined in nine patients, while 12 patients received new conventional dentures. Each patient subsequently received support of their denture by two Straumann Roxolid® implants, and satisfaction was rated on existing dentures, after 2 months with new conventional dentures and after 2 months with implant-supported overdentures. Satisfaction was significantly increased for implant-supported overdentures compared to existing conventional dentures for functional limitation, pain, psychological discomfort, physical, psychological and social disability or handicap, as well as for cleaning ability, ability to speak, comfort, esthetics and stability. Satisfaction was also significantly greater for functional limitation, psychological discomfort, physical and social disability, chewing ability, speech, stability and general satisfaction for implant-supported overdentures compared to new conventional dentures. Significant short-term improvements in patient satisfaction were observed with implant-supported overdentures compared to conventional dentures.

Straumann® Regenerative System

De Leonardis D, Paolantonio M. Enamel matrix derivative, alone or associated with a synthetic bone substitute, in the treatment of 1- to 2-wall periodontal defects. **J Periodontol 2013;84(4):444-55.**

Intraosseous defects in 34 patients were treated with open-flap debridement, Emdogain (EMD) or EMD + Straumann BoneCeramic (SBC) and examined after 12 and 24 months. Significant changes from baseline were observed for all clinical and radiographic parameters, but the EMD + SBC group showed significantly greater probing depth reduction, clinical attachment level gain, radiographic bone gain and lower increase in gingival recession than the other groups. The addition of SBC to EMD may further improve clinical and radiographic outcomes in the treatment of intrabony defects.

Lees JD, Robinson C, Shore RC, Paine ML, Brookes SJ. Cellular uptake and processing of enamel matrix derivative by human periodontal ligament fibroblasts. **Arch Oral Biol 2013 Apr;58(4):348-54.**

Interactions between enamel matrix derivative (EMD) and human periodontal ligament (PDL) fibroblasts were investigated by culturing fibroblasts in the presence of fluorescently labeled EMD and measuring the cellular uptake of EMD by immunohistochemistry and laser scanning microscopy. The human PDL fibroblasts internalized EMD, giving vesicle-like structures in the cytoplasm. The internalized material comprised mainly the 20 kDa amelogenin component, which was subsequently processed to a cumulative 5 kDa component. The cellular uptake of EMD and intracellular processing may play a part in the bioactivity of EMD and may help to explain its turnover following placement.

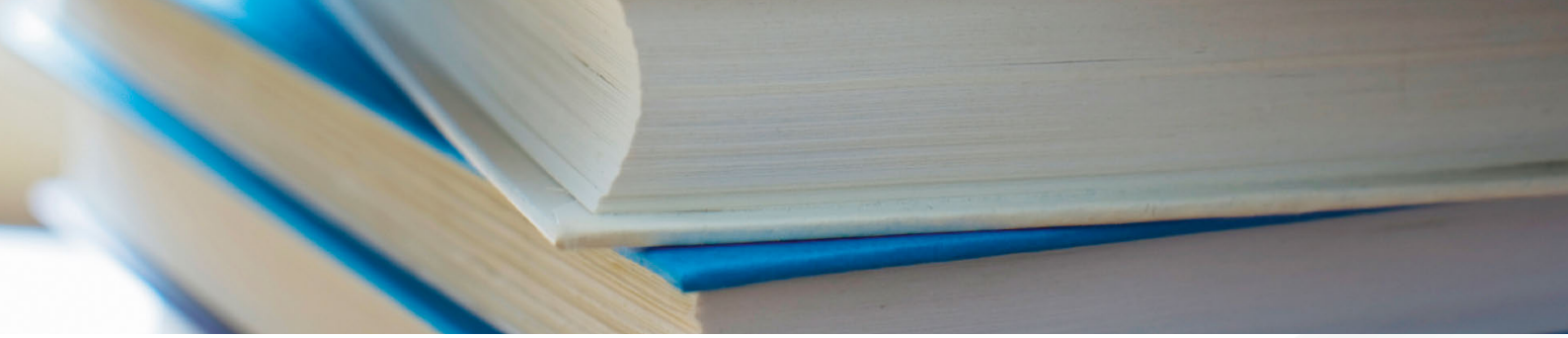
Pre-clinical studies

Alfarsi MA, Hamlet SM, Ivanovski S. Titanium surface hydrophilicity modulates the human macrophage inflammatory cytokine response. **J Biomed Mater Res A 2013;** *[Epub ahead of print]*

Human macrophage cells (THP-1 cell line) were cultured on titanium disks with polished, SLA® or modSLA® (SLActive®) surfaces and the inflammatory cytokine expression profile evaluated after 1 and 3 days. A pro-inflammatory response was observed for the SLA® surface by day 3 compared to the polished surface; this pro-inflammatory effect was modulated by the modSLA® surface. The changes in gene expression were confirmed by a reduction in protein secretion. Attenuation of the human macrophage pro-inflammatory cytokine gene expression, which may be an important mechanism for wound healing, can be achieved by the hydrophilic modSLA® surface.

Bang SM, Moon HJ, Kwon YD, Yoo JY, Pae A, Kwon IK. Osteoblastic and osteoclastic differentiation on SLA® and hydrophilic modified SLA® titanium surfaces. **Clin Oral Implants Res 2013;** *[Epub ahead of print]*

Osteoblastic and osteoclastic differentiation was evaluated on titanium disks with SLA® or modSLA® (SLActive®) surfaces. Osteoblast differentiation was significantly increased on the modSLA® surface, supported by results for the expression of Runx2, osteopontin and osteocalcin. Differentiated osteoclasts were rarely seen on SLA® or modSLA® surfaces, supported by the results of TRAP activity and real-time PCR. Osteogenic effects were promoted and osteoclastic differentiation was prevented on the modSLA® surface. The authors speculated that promotion of osteoblastic proliferation may stimulate bone regeneration and that the anti-osteoclastic effect may contribute to maintenance of marginal bone level.



Kämmerer PW, Palarie V, Schiegnitz E, Hagmann S, Alshihri A, Al-Nawas B. Vertical osteoconductivity and early bone formation of titanium-zirconium and titanium implants in a subperiosteal rabbit animal model. **Clin Oral Implants Res 2013;** *[Epub ahead of print]*

Straumann titanium or Roxolid® implants, both with the SLActive® surface, were placed in rabbit tibiae and assessed by histomorphometric analysis after 10, 20 and 30 days. Percent linear bone fill, new vertical bone height and vertical bone-to-implant contact were significantly higher for titanium after 10 days, but no significant differences were observed between the groups after 20 and 30 days. The results indicated a delay in vertical osteoconductivity at the earliest time point for Roxolid®, with comparable values for all parameters at later time points. The long-term osteogenic properties of Roxolid® and titanium were therefore similar, underlining the validity of the alternative use of Roxolid® implants.

Klein MO, Bijelic A, Ziebart T, Koch F, Kämmerer PW, Wieland M, Konerding MA, Al-Nawas B. Submicron scale-structured hydrophilic titanium surfaces promote early osteogenic gene response for cell adhesion and cell differentiation. **Clin Implant Dent Relat Res 2013;15(2):166-175.**

Human osteogenic cells were cultured on titanium disks with smooth (PT), SLA® or hydrophilic modSLA® (SLActive®) surfaces and cell morphology, adhesion, differentiation and proliferation were observed after 24, 48 and 72 hours and 7 days; tissue culture polystyrene (TCPS) was used as a control. Cell adhesion was promoted on the SLA® and modSLA® surfaces, and the highest levels of integrins runx-2, collagen type 1α, alkaline phosphatase and osteocalcin were found with modSLA® in the first 48 hours. A synergistic effect was noted between surface hydrophilicity and submicron-scale roughness on the adhesion and maturation of osteogenic cells.

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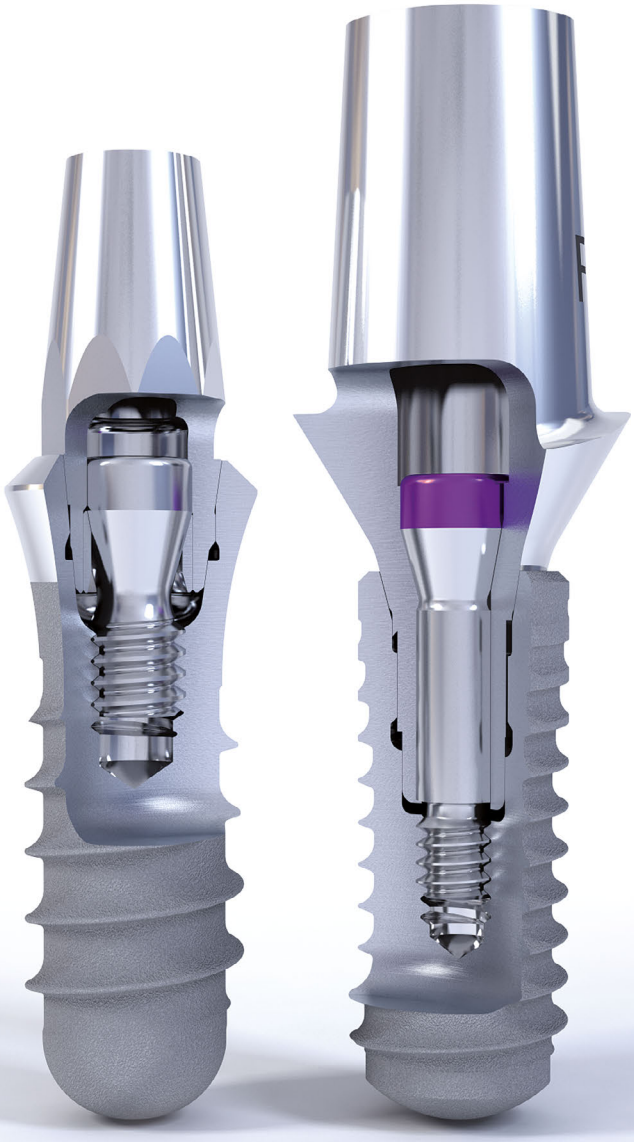

*From single teeth to edentulous solutions

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FOR DENTAL PROFESSIONALS

Health Media Award 2013 for the Straumann® Patient Education App

Best contribution in the "Patient Communication" category

We are delighted to announce that our Patient Education App has been awarded the Health Media Award 2013 in the "Patient Communication" category. The twelve-person jury comprised experts from areas including dentistry, healthcare, and the media and communications, among others. The award was presented on 28 June 2013 in Cologne, Germany. Other finalists included the Quintessenz Publishing Group, Sirona, and Carree Dental.

"Patient-friendly communication is a win-win situation for all concerned. Providing patients with details of their diagnosis not only makes it easier for them to speak to their treating physician on a more equal footing; it also strengthens their role as a partner in the treatment process." *Daniel Bahr, German Federal Minister of Health and patron of the Health Media Awards 2013*

Daniel Bahr, German Minister of Health, was this year's patron of the Health Media Awards, which are presented annually for the best performances in the field of healthcare communication. The organizer, Health Media Award UG, aims "to promote communication in the constantly growing and ever more important healthcare market. The HMA should introduce the best originators of communication, showcase the strongest work to a broad public, and underscore the importance of creativity in this market."

Digital communication is becoming increasingly important in dental medicine

According to the initiator of the HMAs, "the modern dental practice is characterized and is being changed by digitization – and even more so in patient communication and information than in treatment." The jury therefore presented a Health Media Award in the special category "Dental/Best Dental Website" for the first time, in collaboration with the German Centre for Oral Implantology (DZOI) and dental publishing house Zahnärztlicher Fach-Verlag GmbH (DZW).

Available on the App Store

The Straumann® Patient Education App is available to Straumann customers free-of-charge on the App Store in a range of languages.

Note: To access the full App content, click on the "Unlock" icon and enter your Straumann customer number (no additional charges).

For further information, please speak to your local Straumann contact.

Photo on the right: Manuela Gallus (Head of Marketing Communication, Straumann Germany) and Bernd Mahlmann (Head of Value Added Customer Services, Institut Straumann AG, Basel) with the HMA Award 2013. ▸

Patient information via tablet

The Straumann® Patient Education App for the iPad supports dentists in providing information to patients and gives patients a better understanding of the benefits of dental implants. Specially designed patient-friendly information, videos, and animated graphics explain the various treatment options.

Content

- Effects of missing teeth
- What is a dental implant and what benefits does it offer?
- Procedures and solutions
- Why a Straumann implant?
- FAQ

Functionality

- 3D videos of treatment options
- Interactive drawing tool
- E-mail and print options
- Customize option
- Archive function for custom presentations

An international social project for elderly patients

“Quality of Life to Our Parents”

A lot of obstacles for implant treatment

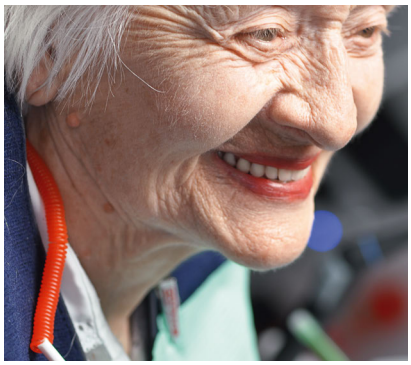
With people without a leg or hand, one can imagine the suffering and exclusion they go through. But with an edentulous person, the associated pain and suffering are often underestimated. Nowadays, many people still do not know about the existence of dental implantology. But the real problem is that fully edentulous people, and especially the elderly, have got used to not complaining about their situation, because they think that the absence of teeth at their age is normal. They either do not know or do not understand what dental implantology is, and if they know about this alternative to conventional treatment, they often become scared of the surgical aspect because they do not have the opportunity to get proper information on the topic. Another crucial obstacle is the fact that insurance companies do not pay for dental implant therapy, and many people are not able to bear the costs, leading to only those dental therapies and services being provided whose expenses are covered by health insurance.

“We dental professionals know that at this stage of medical development, dental implantology is a highly sustainable option for a fully edentulous person”, states Professor Yaroslav Zablotksyy, the initiator of “Quality of Life to Our Parents”. “Dental professionals and manufacturers of dental implants should strive to ensure this message continues to be heard by people who need our help. Unfortunately, because of the economic crisis, we are facing a continuous decrease in community welfare projects that help people who cannot afford dental treatments, and the decline will continue in the future.”

Professor Zablotksyy (middle) with patients and participants.

The "World Day of Free Dental Treatment"

In order to take remedial action on this unfavorable trend, Professor Zablotksyy initiated a social project called "Quality of Life to Our Parents" three years ago which aims to provide free dental implant treatment for fully edentulous elderly people."In May 2012, 60 years after the official scientific proclamation of the theory of osseointegration, we have started an initiative in the scientific community called 'World Day of Free Dental Treatment'. The idea behind it is: once a year, on the last Friday of May, the clinicians provide a free dental rehabilitation to selected fully edentulous patients, using the newest technologies and their own financial resources. The part of the manufacturer is to support the clinician by contributing the needed quantity of dental implants and prosthetic components for free. I am deeply indebted to all the clinicians who supported this project and agreed to continue their participation in future. I am also very grateful to the dental implant manufacturers, such as Straumann, which supported this initiative in the Ukraine."



International Implantologists Alliance

From 2012, the International Implantologists Alliance (IIA) became the official institution behind the "Quality of Life to Our Parents" project. The IIA is a community of clinicians, who want to discharge their social responsibility. In the past three years dentists from several countries have joined the project. As a result, the IIA has put in nearly 2,000 implants and helped up to 500 fully edentulous people to regain their quality of life.

Prof. Yaroslav Zablotksyy, MD, is the President of the Ukrainian Implantologists Association, founder and owner of the "Zablotskyy Clinic"™ Group and initiator and organizer of "Quality of Life to Our Parents", as well as the President of the "International Alliance of Implantologists" (IIA).

More about can be found on their website: **www.iia.com.ua**

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- Prevention and management of biologic and technical complications
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The official language is English with simultaneous translation into 10 languages.

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You are invited to submit an abstract for the ITI Research Competition by October 31, 2013. The eight best abstracts will take part in an oral presentation as part of the ITI Research Competition on Friday afternoon. Posters will be displayed during the Symposium. A research prize will be awarded to the best oral and poster presentations.
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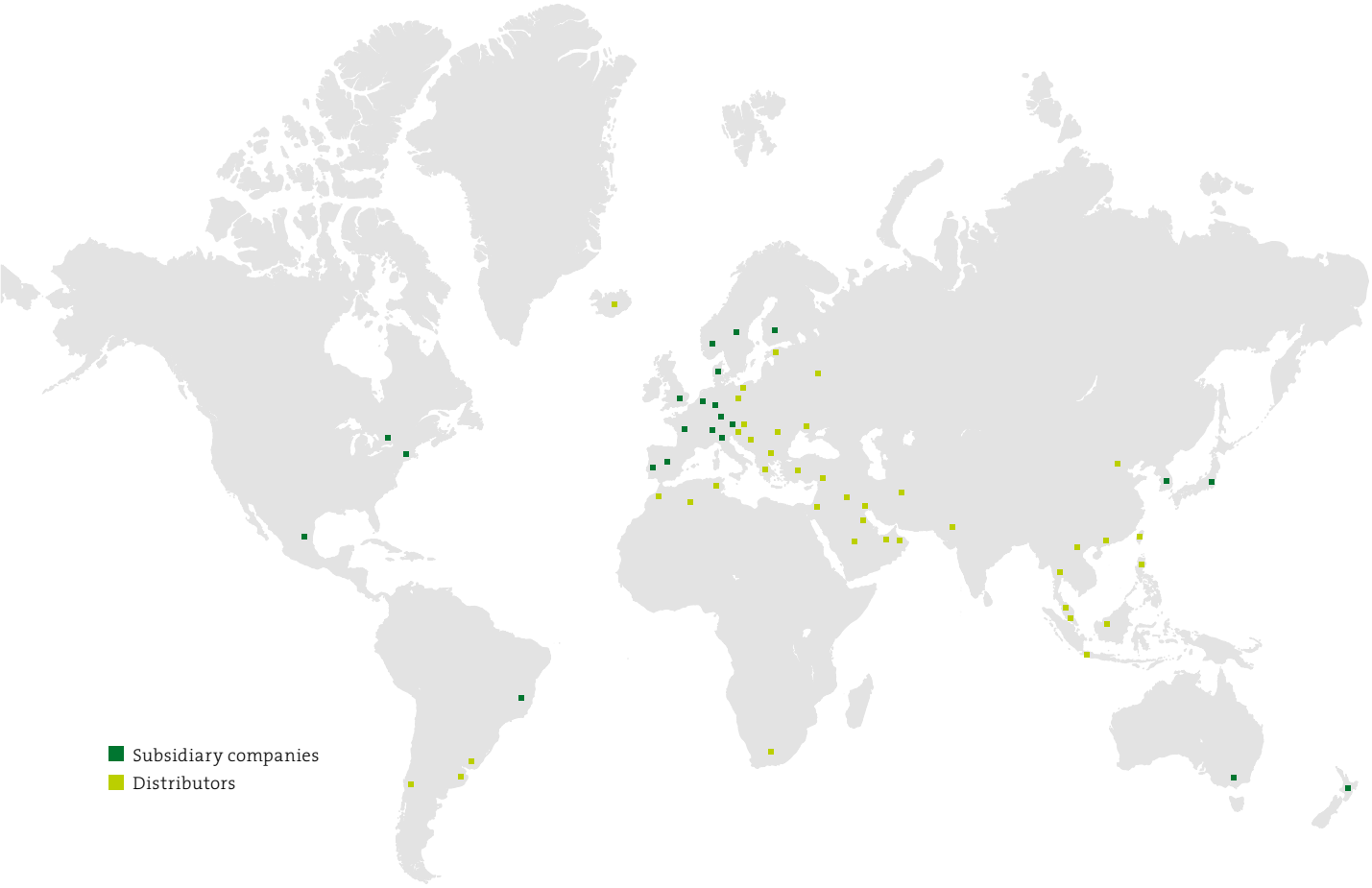
STRAUMANN PARTY

Join friends and colleagues on Friday, April 25 for an unforgettable evening at the Symposium Party presented by Straumann.



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