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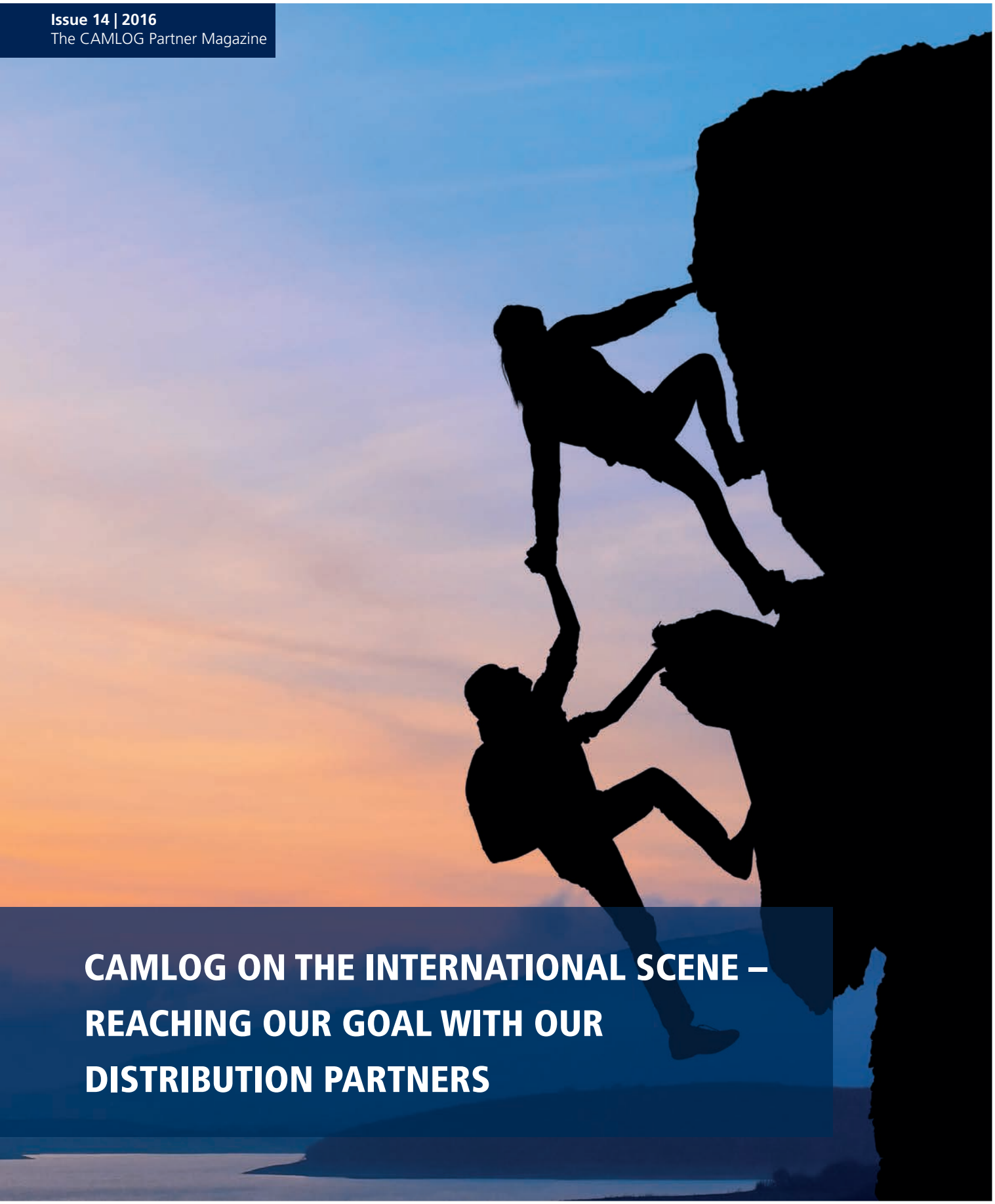
The CAMLOG Partner Magazine



CAMLOG ON THE INTERNATIONAL SCENE – REACHING OUR GOAL WITH OUR DISTRIBUTION PARTNERS

»The future comes by itself – success does not«

DEAR READERS,

Seeing what everyone sees, yet thinking what nobody has ever thought before – this is how you and we create something new and assure success in the future.

Presently we are living through major changes in our society, to which we all bear witness. Whether it was the invention of the steam engine, the wide use of the telephone or the triumph of the computer: technical progress has always resulted in a fundamental change to the corporate world. This applies even more to the present than the past, as progress has accelerated in leaps and bounds.

The dynamic change in the world of dentistry has made the ability of thinking and acting future-oriented one of our major challenges. Demands on the scope of services, counseling and external image of dental practices and laboratories are increasing continuously.

The digital revolution, the merging of the classical corporate world and the Internet, all are moving at a breathtaking pace – and yet this is only the beginning.

But one thing is for certain: all of us – dentists, dental technicians and us in the industry – are faced with the challenge of changing, diversifying and adapting. We all need to deal with new technologies, materials and concepts and think out of the box.

In the jungle of countless suppliers of implants you have chosen the right partner. A partner who is not only a provider of implants and supplies you with implants and prosthetic components, but a partner who tailors concepts to meet your needs, who develops these further, and who creates a promising and successful future together with you.

Conditions in implantology are changing, as are the treatment needs of patients. We are in a good position with CAMLOG, CONELOG, iSy and DEDICAM. We are working continuously on new products, for your benefit and that of your patients. Read more about our product developments in this issue of logo.

The demographic shift requires greater attention to aging patients. Demographics and prevalences will dominate the medical routine of the future. Geriatric dentistry, communication between dentists and patients and implantology are three topics which will gain in relevance for the future. Here, we can support you with new tools for communication with patients.

Those who adopt to change will benefit from the future.

Enjoy the read

Michael Ludwig
Managing Director CAMLOG Vertriebs GmbH

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Number of centers involved	3
Number of patients	87
Center 1	51
Center 2	22
Center 3	14
Implants in maxilla and mandible	166
Immediate implantation	9 (5%)
Immediate loading	38 (23%)
Delayed loading	128 (77%)
Last follow-up	up to 2 years
Survival rate	98%

Tab. 1: Brief overview of patients, implant distribution, indications and survival rate in the study.

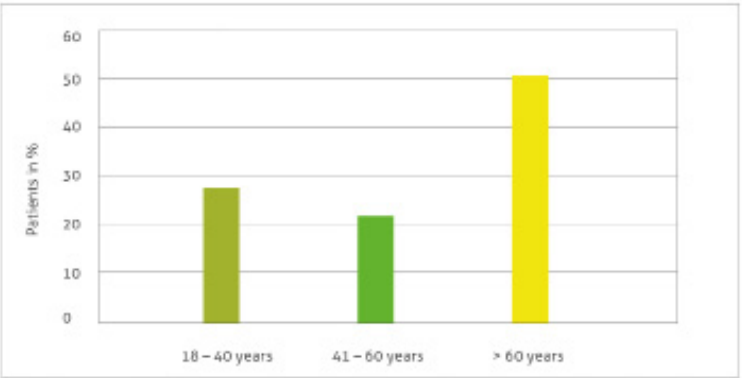

Fig. 1: Age structure of the patients in the study: a balanced distribution of the patient population across the age groups. Nearly half the population was younger than 60 years (49.4%).

SUMMARY: RETROSPECTIVE ANALYSIS OF PATIENT CASES WITH ISY IMPLANTS IN THREE DENTAL PRACTICES: ONE-YEAR DATA

From the original publication by Ulrici S, Barth T, Klenke J, Wolf M.

The one-year data of this study show that the iSy System enables a reliable, time and cost-efficient implant restoration for all age groups.

Introduction

The iSy Implant system stands for a standardized and cost-efficient treatment concept. Selected indications can be treated with iSy Implants at an excellent price-benefit ratio. By reducing the number of components in favor of greater standardization – also in treatment workflows – the costs of therapy can be reduced while maintaining the same level of quality. The standardization characteristics include a reduction in surgical instruments, standardization of the inner connecting diameters over all implant sizes, through to complete implant sales kits including single patient form drills, implant, gingiva former and multifunctional cap. The treatment workflows can be designed time and cost-efficient through a reduced drilling protocol, direct pick-up of the implant at the implant base, through transgingival healing, the snap mechanism of the gingiva former and multifunctional cap and by dispensing with the preparation of the form drills.

Objective of the study

In this retrospective study, the application and success of the iSy Implant system with transgingival healing in daily routine was investigated.

Materials and method

Immediately after market launch, the three dental practices involved started treating patients with iSy implants. After two years, the authors started a joint retrospective analysis of all patients who had been treated between January 2013 and September 2014 with iSy Implants as well as receiving prosthetic restoration. All cases with adequate bone and tissue availability and with transgingival healing were included. The implants had been inserted according to the manufacturer's protocol and follow-ups proceeded according to standard procedures in the centers involved. The recorded patient and implant data on surgery, restoration and survival rate was analyzed descriptively.

Results

Between January 2013 and September 2014, a total of 87 patients with 166 implants were restored with prosthetics in the three centers. The average age was 57.4 ± 19.2 years (18–87 years). The distribution of the age structure is given in **Fig. 1**. Approximately half the patients (54%) received a single implant. The other patients received 2, 3, 4 or 6 implants. The implants were inserted into bone types 1, 2 and 3, both in the maxilla and the mandible. Delayed implantation was performed in the majority of cases, but also immediate implantations (5%). Impressions of all implants were made using the multifunctional caps. A total of 61% of the implants were treated with a temporary restoration prior to final restoration, 23% were treated with an immediate temporary restoration following insertion. All implants were finally restored in the 4 standard indications, single crown, bridge, partial and full prosthetics. Single tooth restorations (63% of patients, 39%

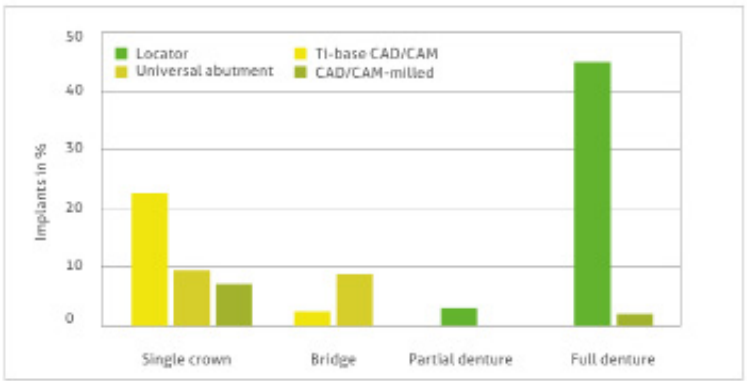

Fig. 2: Type of abutment used for the various restorations:
Most implants for full prostheses were restored with LOCATOR® Abutments; the majority of single crowns were restored with titanium bases.

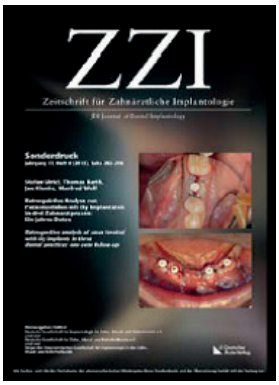

Fig. 3: Special reprint ZZI: www.camlog.de/sd-ulrici-zzi-2015

of implants) were mainly realized in patients from the age group 18–60 years, predominantly in the posterior region. In the case of full prosthetics (25% of patients, 47% of implants), either 2 (19%), 4 (57%) or 6 (10%) implants were inserted in the anterior region and region of the primary molars. The remaining 14% of implants were integrated into existing full prosthetics. The patient group over 60 years was most frequently provided with full prosthetics (86%). Bridges were indicated in 10% of patients (11% of implants) and partial prosthetics in 2% of all patients (3% of implants). Whereas LOCATOR® Abutments were used more or less exclusively for full and partial prosthetics, titanium bases or universal abutments were largely used for single crowns and bridges. In part, CAD/CAM-fabricated abutments (DEDICAM) were also used for single crowns and full prostheses **(Fig. 2)**. The patients were examined over an observation period of up to 23 months following implantation. Three quarters of the implants were functionally loaded for at least 6 months at the time of analysis. The mean time between load and the last follow-up was 9.2 ± 4.8 months. 4 early failures were registered during the first 13 weeks after implantation. This resulted in a cumulative survival rate of 98% over the observation period. Complications occurred in a further 9 implants, six of which related to the prosthesis.

Discussion/conclusion

This retrospective analysis documents the use of the iSy Implant system and demonstrates that the concept works very successfully in the four standard indications with sufficient bone and tissue availability as well as adequate bone quality with transgingival healing. Both immediate implantations as well as immediate loading could be performed under favorable conditions. Effective preparation of the implant bed with the reduced drill sequence in all three bone types gives an indication of the good quality and good cutting performance of the single patient drills. The high survival rate of 98% is comparable to similar studies with transgingival healing [1], with implants with tapered connections [3] or implants with Promote® surfaces [2]. In summary, the iSy concept enables reliable and time-saving, and thus cost-saving, implant restorations in selected cases.

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Z Zahnärztl Implantol 2015;31:282-294
DOI 10.3238/ZZI.2015.0282-0294

ALLEGEDLY THE SAME, BUT DO NOT WORK THE SAME: INDIVIDUAL TWO-PART ABUTMENTS

PART 1: PRECISION DURING FABRICATION AND BONDING

Dr. Peter Gehrke, Carsten Fischer

The authors are among the pioneers of individual implant abutments. For over ten years they have been involved with CAD/CAM-fabricated implant abutments and will discuss two-piece abutments (hybrid abutments) in this series of articles. The first part discusses fabrication precision and a tested protocol for bonding.

Customized abutments significantly increase the lasting success of implant-prosthetic work. The shape of the abutment should follow natural anatomy. Particularly in the case of deeply placed implants, the peri-implant tissue is to be adapted to the natural pattern of the sulcus, which is generally associated with a "curved" implant shoulder (corresponding to the enamel-cement border). State-of-the-art scanning and design options allow perfect reproduction of the complex peri-implant geometry with customized abutments. Standardized abutments are not suitable in this case. However, the quality and merit of pre-fabricated abutments is exemplary due to industrial production. Pre-fabricated abutments could therefore be regarded as the products of choice. On the other hand, there is the pressing demand for individuality. A geometry congruent with the natural course is an expectation experienced daily in dental practice and the laboratory. The treating team is therefore faced with a balancing act which allows only a single choice: customized abutments which correspond to the benchmark of industrially pre-fabricated abutments in terms of quality and merit.

A plea for clear specifications

Numerous aspects relating to the customized abutment affect the long-term stable outcome. To be on the safe side, we need reproducible rules, for example for the titanium bases, for fabrication and bonding, for the surface and the hygiene protocol. Guidelines need to be established, an important issue, to which we have been committed for years. There are clear specifications for the enossal region of implants based on scientific research and clinical studies. Such solid and validated parameters also need to be created for implant abutments. The objective must be to achieve predictable good results with concrete rules. There are three points which can give a rough classification. This article is therefore split into 3 parts.

1. The fabrication of hybrid abutments (in-house vs. outsourcing)
2. The precision and topography of the surface in the sub-mucosal region (roughness)
3. Finishing of the abutment (hygiene protocol)

Why hybrid abutments?

"Hybrid" means a combination of two things of different origin. The objective is to combine the best of both worlds and to open up new application areas as an example.

To identify the advantages of two-piece abutments (hybrid abutments), it first pays to examine one-piece zirconium oxide

Example for hybrid solutions in daily dental routine:

Hybrid ceramic material:
plastic and ceramic

Hybrid crown
implant abutment and monolithic crown

Hybrid abutment:
High load-bearing capacity of a metal base and the esthetic options of a ceramic abutment

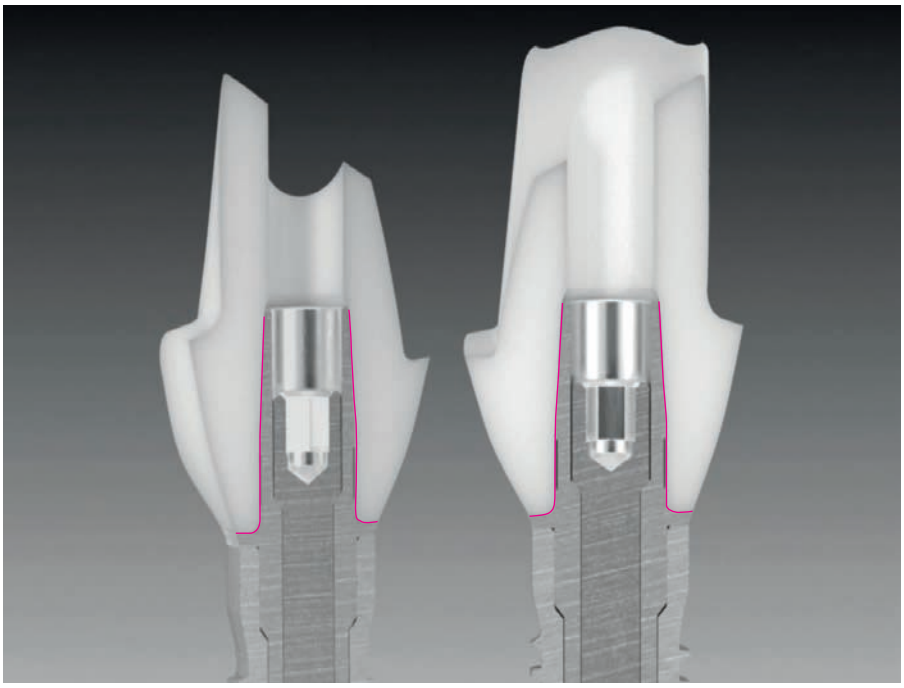

Fig. 1: Cross-section of a hybrid abutment. The titanium base with the bonded zirconium oxide sleeve is screw-retained to the implant. The fabrication precision (zirconium sleeve) and thus the bonding gap to the titanium base play an elementary role for the quality of the outcome.

abutments. These days, they are only attributed with limited options. Why? The requirements for an abutment include stability, resistance to wear at the interface (titanium, zirconium oxide), resistance to aging and precision. Zirconium oxide needs to be partially downgraded in this context. In particular this is open to doubts regarding resistance to aging in the aqueous environment in the oral cavity (temperature degradation) and the precision when compared with titanium abutments. Here, metallic structures are superior, whereby single piece titanium abutments can prove limiting in terms of esthetics (color shift).

The intelligent alternative is two-piece abutments (hybrid abutments) and thus the combination between the positive material properties of metal and the optical as well as biocompatible benefits of ceramic. Two-piece abutments consist of an assembled bonding base (titanium) to which the customized CAD/CAM-guided fabricated zirconium sleeve is bonded. This combines the "best" of metal and zirconium oxide in a single assembly. A major advantage of two-piece abutments is the validated maximum safety [1]. In-vitro studies have shown high breaking load values, even under high chewing forces, for example in the posterior region. In addition, the high-gloss polished sub-mucosal zirconium oxide abutment supports optimal tissue formation.

The fabrication procedure

CAD construction of the zirconium oxide sleeve is performed according to the emergence profile. The titanium bonding base is complemented from the virtual library analog to the connecting geometry and connected flush to the zirconium oxide abutment via bonding **(Fig. 1)**. In principle the laboratory does not require an own CAD/CAM system for fabricating the hybrid abutment. The DEDICAM (CAMLOG) fabrication services provider offers two different options.

1. Lab-side: fabrication is performed in the usual CAD/CAM manner with components from the original CAD library (CAMLOG).

2. Outsourcing: the DEDICAM scanning and design service is employed. After approval of the construction data, the abutment construction is implemented 1:1.

Outsourcing! What does perfection mean?

No matter whether fabricated in the laboratory or by a fabrication service provider, the perfect fit of the zirconium oxide sleeve to the titanium base guarantees maximum safety. Here, it should be ensured that the titanium base offers sufficient retention. It is recommended not to fall below a height of 5 mm. The milled zirconium oxide sleeve should fit the titanium base such that marginal resistance can be felt during placement. A loose fit is contraindicated the same as stiffness or friction. In terms of fit one should consider the fabrication strategies.

Of course it is possible to fabricate the abutment, designed with the CAD software, in the laboratory milling machine from zirconium oxide. However, a number of aspects interact here. In part, they exceed the core competence of the dental technician and can only be complied with under perfect conditions in the laboratory. This includes calibration of the milling machine, a milling machine with perfect and consistent cutting properties or a sintering process (heating and cooling rates, temperature, sintering stabilizer ...). Can we really and consistently comply with these many influencing parameters in the laboratory? In our opinion no dental technician will be able to achieve these perfect milling properties daily at a high level of predictability. In this aspect, centralized fabrication with its certified quality processes is superior. To fully meet the requirements for an abutment, the route via an external partner (DEDICAM) meets the required perfection. DEDICAM is dedicated exclusively to the fabrication of implant superstructures. We, as a treatment team, achieve consistent perfect quality results and a material quality from this type of highly competent "extended workbench" which can only be

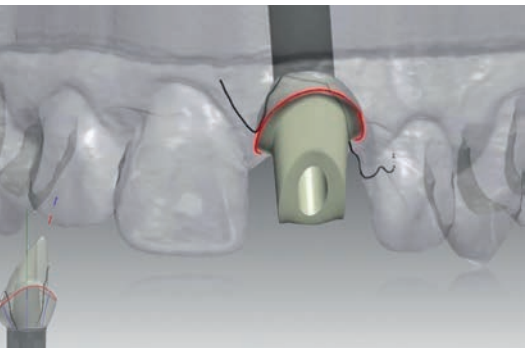

Fig. 2: CAD construction of the abutment.

Fig. 3: Placement of the titanium base on the model analog.

Fig. 4: Referencing of the zirconium oxide sleeve fabricated by DEDICAM on the model analog.

Fig. 8: The bonding surface of the titanium base and the zirconium oxide sleeve are wetted uniformly with Monobond Plus.

Fig. 9: Both structures are joined after filling with Multilink® Hybrid.

Fig. 10: Glycerin gel is applied prior to light-curing to prevent oxygen inhibition.

expected from industrially manufactured abutments. In addition to high precision and reproducibility, users benefit from a broad diversity of materials and a large selection of original implant abutment connections when cooperating with the fabrication service provider. One can expect competent support throughout the entire process chain.

Standardized please: the bonding of two-piece abutments!

The bonding procedure is of leading significance here. Emphatic as we are in demanding "customized" components, we are also explicit in referring to a "standardized" procedure for bonding the titanium base and the zirconium oxide sleeve. A consequent protocol is to be complied with. A precondition for a secure connection is given by the precise preparation of the bonding surfaces. The bonding base consists of a bonding surface, the bonding shoulder and the implant connection geometry. The bonding surface and the upper side of the bonding shoulder are blasted with aluminum oxide, cleaning is performed with a steam jet and in an ultrasonic device. Attention: the underside of the bonding shoulder remains untouched from the transition to the implant onwards. The bonding protocol is illustrated in **Figures 2 to 13**.

Conclusion

A successful implant-prosthetic restoration is the result of different parameters interacting – a symphony of the treatment team's specialist know-how, the materials and fabrication competence. The two-piece abutments can be fabricated in the laboratory, however only under perfect laboratory conditions which are virtually impossible to maintain in normal practice. Alternatively there is the option of combining patient-customized design with the benefits of industrial fabrication by DEDICAM.

Outlook

After writing about the fabrication precision and bonding of two-piece abutments in the first part, parts 2 and 3 of the series of articles will focus on precision and surface topography as well as the hygiene protocol. We will answer the questions: why can industrial fabrication be given preference in terms of precision? Does the industrially fabricated abutment need to be reworked and/or finished? Are there concrete specifications on the roughness of the abutment in the sub-mucosal region and how can these be complied with? If you have questions, please send an e-mail to info@sirius-ceramics.com.

LITERATURE

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Fig. 5: Prepared for bonding with Multilink Hybrid (Ivoclar Vivadent).

Fig. 6: Conditioning of the titanium base: blasting with aluminum oxide at 1–1.5 bar // 50–110 µm.

Fig. 7: Conditioning of the inner surface of the zirconium oxide sleeve: blasting with aluminum oxide at 0.5–1 bar // 50 µm.

Fig. 11: Careful reworking of the bonding gap with an abrasive rubber polisher after curing.

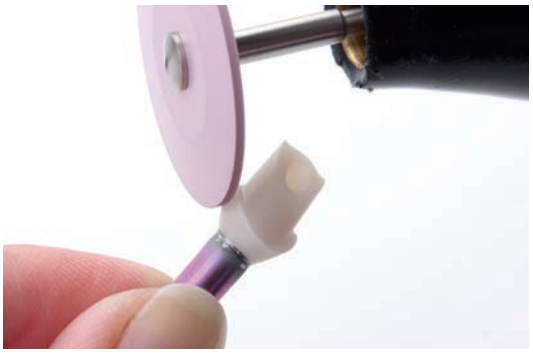

Fig. 12: A multi-step processing protocol is used for the sub-mucosal region (sirius ceramics).

Fig. 13: The hybrid abutment as joint product of DEDICAM and the treatment team.

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Is self-employed since 1996 as dental technician in his own specialist company in Frankfurt/ Main. Since 1994 he is active as international speaker and underlines this activity with publications in numerous countries (Brazil, Argentina, Japan, Australia, Europe). Carsten Fischer is a member of various advisory boards and has acted as advisor to renowned companies in the dental industry for many years. He focuses on CAD/ CAM technologies, the ceramic double crown, customized abutments and full ceramic materials. Carsten Fischer also worked as part-time assistant at the Goethe University Frankfurt during the years 2012 to 2014 and continues his close cooperation. In 2013, his contribution was honored as best lecture by the Working Group Dental Technologies, ADT. Carsten Fischer is lecturer at the Steinbeis University, Berlin, and speaker for various organizations (DGI) and Vice President of the EADT.

This is iSy BY CAMLOG

Fig. 1: The iSy Implant system with transgingival application. Both the gingiva former and the multifunctional cap (for impression taking and temporary restoration) are attached to the implant base.

CHAIRSIDE OR LABORATORY – OPTIONS OF TEMPORARY RESTORATIONS WITH THE ISY IMPLANT

Dr. Jan Klenke, Hamburg

Conceived as a transgingival healing, reduced implant system, iSy was launched on the market three years ago to enable patients with limited financial means to have restorations with implants. In standard indications, transgingival healing reduces the surgical effort required and prosthetic follow-up is easy to implement. The option of submerged healing also exists if required. The following article describes the different temporary restoration options of the iSy Implant system with the components included in the set.

In our dental practice we employ iSy by CAMLOG as a transgingival healing implant system in line with the original idea. This concept has been established for many years and is well documented [1]. We regard a bone bed which requires no or only little augmentation as a precondition for transgingival healing [2]. Stable, sufficiently thick soft tissue in the region of the planned insertion site is at least equally important.

The surface of the iSy Implants is identical to the blasted and etched Promote® Surface of the CAMLOG® and CONELOG® Implants. In retrospective studies this has demonstrated a success rate [3]. A first iSy study from October 2015 showed excellent 1-year results following prosthetic restoration [4].

The iSy Implant is inserted in the jaw bone with the aid of the pre-mounted implant base on the implant. Following the concept, a PEEK gingiva former is generally mounted on the implant base for the period of healing **(Fig. 1)**.

Transgingival healing not only saves the patient a second surgical procedure with associated costs, but allows immediate temporary restoration with the iSy implant. The multifunctional caps, which are also mounted on the implant base, act as framework for the temporary restoration **(Fig. 2)**. These temporary restorations can be fabricated cost-effectively "chairside" with little time expenditure. In many cases, elaborate permanent or removable laboratory-fabricated temporary restorations are no longer necessary. Various fabrication options are possible for fabricating the temporary restorations.

Common to all options, is first shortening the multifunctional cap by grinding, so that there is sufficient space for the shape of the temporary restoration **(Fig. 3)**. The chemical bond between the plastic of the temporary restoration and the PEEK multifunctional cap proved to be a problem for a longer period. A study by Starwarczyk et al [5] shows that only the following three adhesives are able to create a bond between PEEK and plastic: visio.link by Bredent, Signum PEEK by Heraeus Kulzer (test phase) and Monobond plus by Ivoclar Vivadent. After trimming the multifunctional cap, this needs to be conditioned with one of the above mentioned adhesives. Three of the many possible options

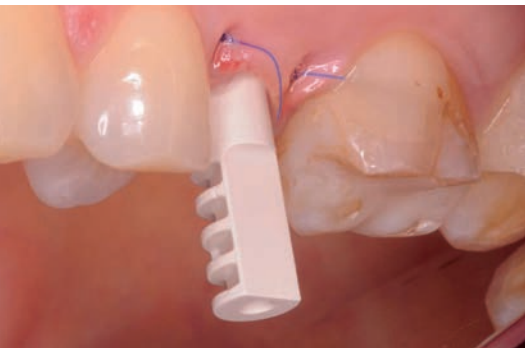

Fig. 2: The multifunctional cap is placed on the implant base to prepare a chairside temporary restoration.

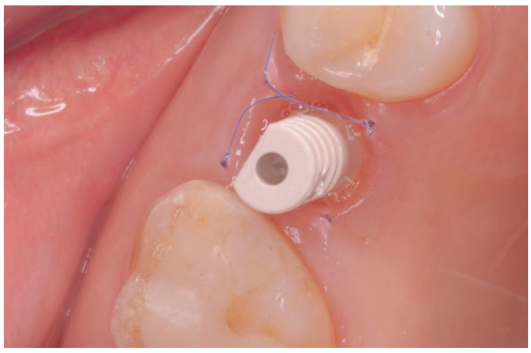

Fig. 3: The occlusal view shows the exact positioning of the implant in the row of teeth.

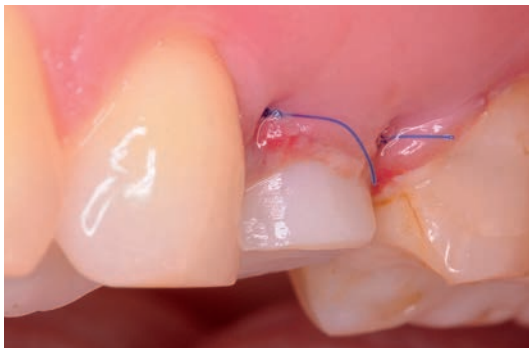

Fig. 4: The immediate restoration is snapped onto the implant base immediately after insertion of the iSy Implant in regio 25.

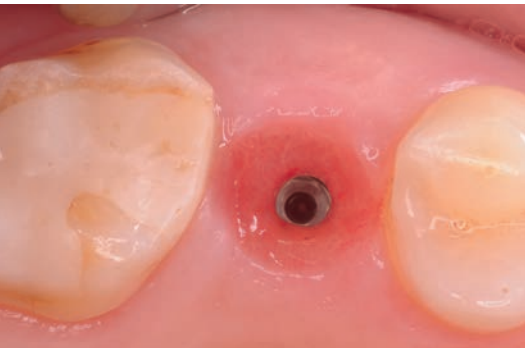

Fig. 5: Emergence profile shaped by the immediate temporary restoration.

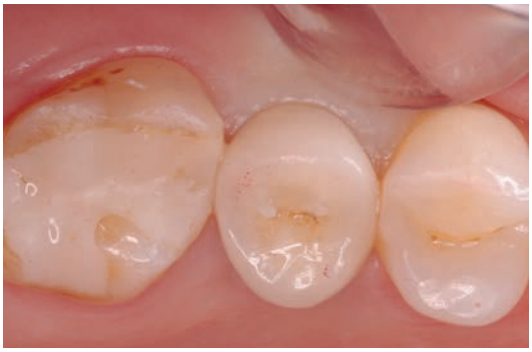

Fig. 6: The final crown is placed on a customized abutment.

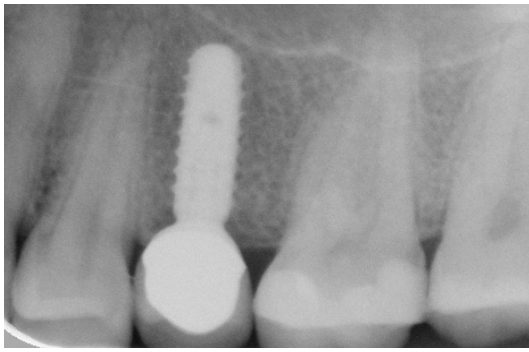

Fig. 7: The x-ray checkup after placement of the final restoration shows a stable bone bed.

for immediate temporary restorations with iSy Implants are presented in this article.

First option for fabricating a temporary restoration

The first variant for fabricating a chairside temporary restoration is similar to the procedure for temporary restorations for a crown restoration following preparation of the tooth. To this purpose, a pre-impression of the tooth to be prepared and the adjacent teeth is taken prior to preparation of the tooth. As this impression may need to be used several times and needs to be stable under storage, we use a silicone material for this impression. Such a pre-impression is taken for the temporary restoration with an iSy Implant prior to extraction of the tooth to be replaced or via a possibly removable temporary restoration, in as far as the tooth has already been extracted. After implantation and suturing, a multifunctional cap is prepared, conditioned and mounted on the implant base in the mouth.

The next step in creating a temporary restoration again corresponds to the procedure of creating a temporary crown on a natural tooth. A self-hardening plastic for creating temporary restorations is applied into the pre-impression and repositioned in the mouth. After the prescribed curing time of the temporary plastic, the impression is taken from the mouth. The temporary plastic has now bonded mechanically with the PEEK of the multifunctional cap through the undercuts and chemically through conditioning. The original shape of the tooth has now been restored via the PEEK multifunctional cap. The temporary restoration is now removed from the implant base and finished extraorally. Attention should be paid to remove all occlusal and functional contacts here. After completion, the temporary restoration is snapped onto the implant base **(Fig. 4)**. In our dental practice we refrain from cementing the temporary restoration. The first reason being that overlooked cement residue always represents a risk for osseointegration of the implants, the second reason being that the multifunctional cap is held sufficiently on the implant base to provide safe retention of the temporary restoration. With the aid of the temporary restoration, an anatomical emergence profile can be shaped at the same time **(Fig. 5)**. After the healing period, both the temporary restoration and the implant base are removed and a customized abutment and the final crown are placed **(Figs. 6 and 7)**.

Second option for fabricating a temporary restoration

A further option for preparing an immediate restoration on iSy implants is the use of pre-fabricated temporary shell restorations. In this case the multifunctional cap is trimmed after implantation such that a temporary shell restoration can be placed in the correct position over the multifunctional cap. Then the multifunctional cap is conditioned with one of the above mentioned adhesives. Now the temporary shell restoration is filled with just enough flow composite to connect the multifunctional cap with the temporary shell restoration. After light-curing of the composite, the bonded multifunctional cap and temporary shell restoration are removed from the implant base and the desired emergence

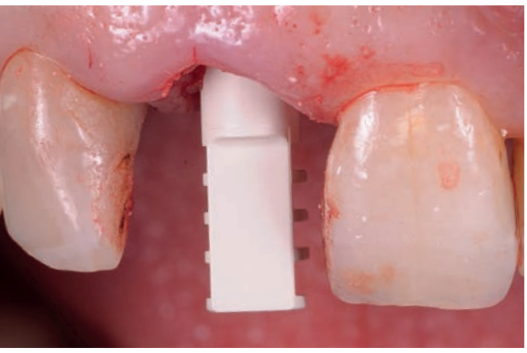

Fig. 8: Multifunctional cap mounted on the implant base.

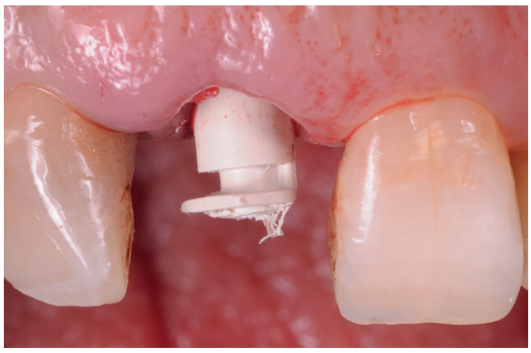

Fig. 9: To fabricate a chairside temporary restoration, the same multifunctional cap is trimmed so that it fits underneath the temporary shell restoration.

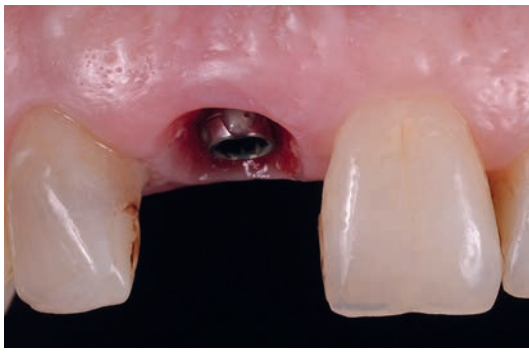

Fig. 10: A stable soft tissue collar surrounds the iSy Implant and the pre-mounted implant base.

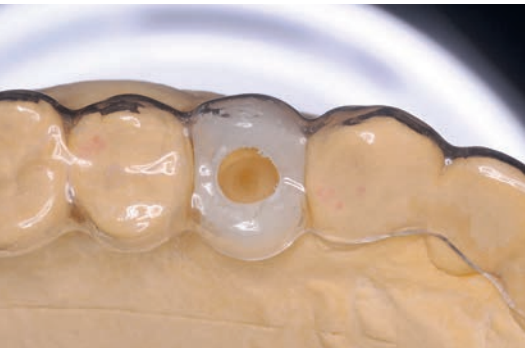

Fig. 14: Both the splint and the plastic tooth were trepanned to prepare the orientation template for insertion.

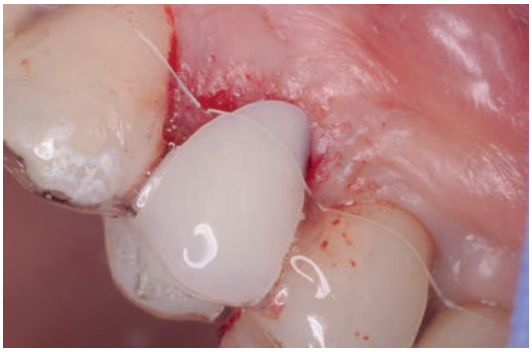

Fig. 15: Deep-drawn splint inserted in the mouth with basally ground plastic tooth.

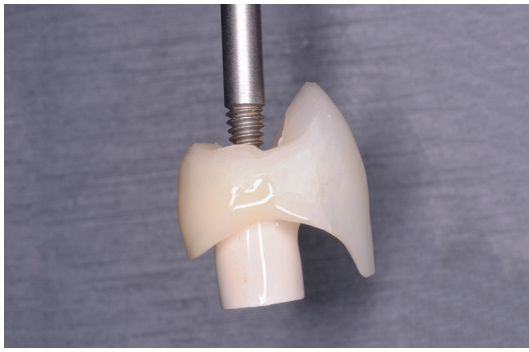

Fig. 16: The temporary shell restoration is connected to the multifunctional cap in the mouth using composite.

profile is designed extraorally with composite **(Figs. 8 to 12)**. To facilitate removing and inserting the temporary restoration, trepanation can be provided occlusally through the temporary shell restoration to the opening in the multifunctional cap. The intended instrument can now be screwed into this opening and allows insertion and removal of the temporary restoration **(see Figs. 14 and 15)**.

Third option for fabricating a temporary restoration

The third variant for temporary restorations combines the use of a simple orientation template with the preparation of an immediate temporary restoration. In this case a deep-drawn splint is fabricated on a model for the template. Prior to deep-drawing the foil, a plastic tooth is placed in the position of the missing and to be implanted tooth **(Fig. 13)**. Initially this tooth simulates the later prosthetic restoration. Based on this set-up, the implant position is planned (backward planning) and marked on the model. After deep-drawing of the foil, the tooth is held by the deep-drawn splint. This is followed by drilling through the splint and the set up plastic tooth **(Fig. 14)**. Then the splint with the tooth is removed from the model and tooth and splint are separated. The plastic tooth is ground basally and the shell is then replaced in the splint. The orientation template is inserted intra-operatively and pilot drilling with a diameter of 2.8 mm is performed through the opening in the template. The splint is removed for form drilling and the implant is then inserted. The further procedure corresponds to the above mentioned procedure for connecting a temporary shell restoration to the multifunctional cap. The difference being that the plastic tooth is inserted with the splint and thus brought precisely to the position previously planned on the model **(Fig. 15)**. After curing the first portion of flow composite, the splint is removed from the mouth and then the multifunctional cap with the attached plastic tooth. After shaping the desired emergence profile with composite, the temporary restoration is mounted on the implant base **(Figs. 16 to 18)**.

An occlusal check is to be observed in general for all temporary restorations. Here, all occlusal and articulation contacts which could lead to loading must be removed **(Fig. 19)**. The patients are given dietary recommendations and strict instructions not to load the temporary restored implant during the first 6 weeks.

Conclusion

Transgingival healing with a temporary immediate restoration offers enormous advantages in certain indications, as a number of studies have meanwhile confirmed. The pre-mounted iSy Implant base remains on the implant after insertion and acts as support framework for the gingiva former and the temporary restoration. The idea behind the iSy concept not only shortens the clinician's "chairside" time, but also reduces surgical effort and thus the costs for the restoration with implant-supported tooth replacement. Many patients with a limited budget can therefore gain simple and cost-reduced access to implant-supported prosthetics.

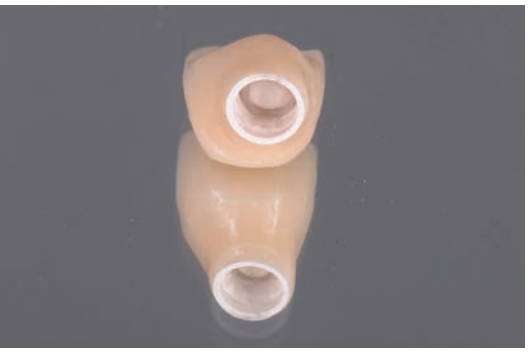

Fig. 11: Viewed from basal, the anatomical shaping and the connection of the multifunctional cap and the temporary shell restoration with composite.

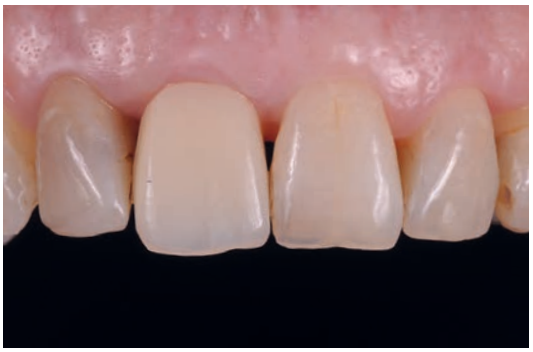

Fig. 12: The finished and polished long-term temporary restoration was mounted on the iSy Implant base.

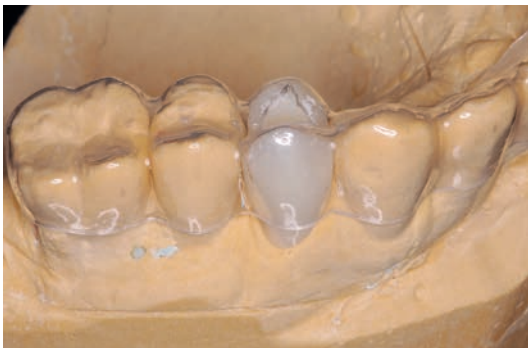

Fig. 13: Plastic tooth set up on a model covered by deep-drawn plastic splint.

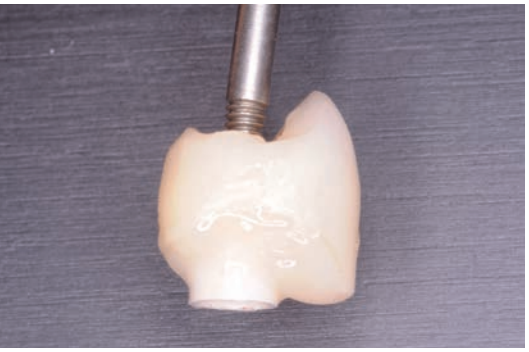

Fig. 17: The long-term temporary restoration was completed extraorally and the emergence profile created.

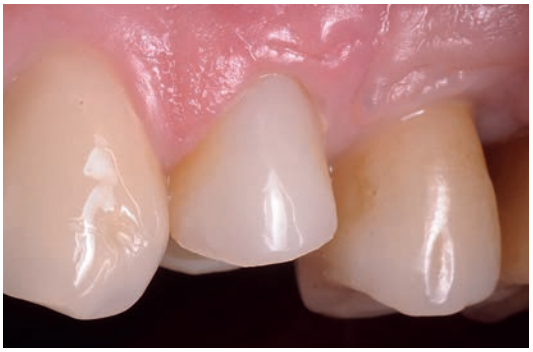

Fig. 18: Healed region 24 with mounted temporary restoration after 6 weeks.

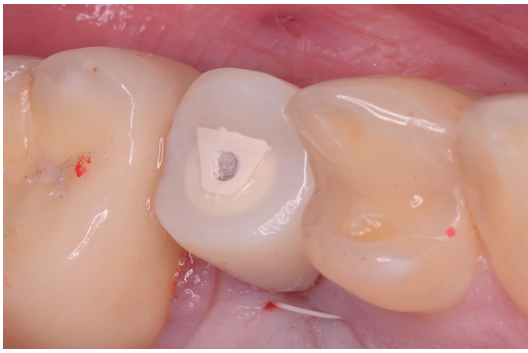

Fig. 19: Occlusal view of a temporary restoration on an iSy Implant regio 25, contact points only exist on the adjacent teeth.

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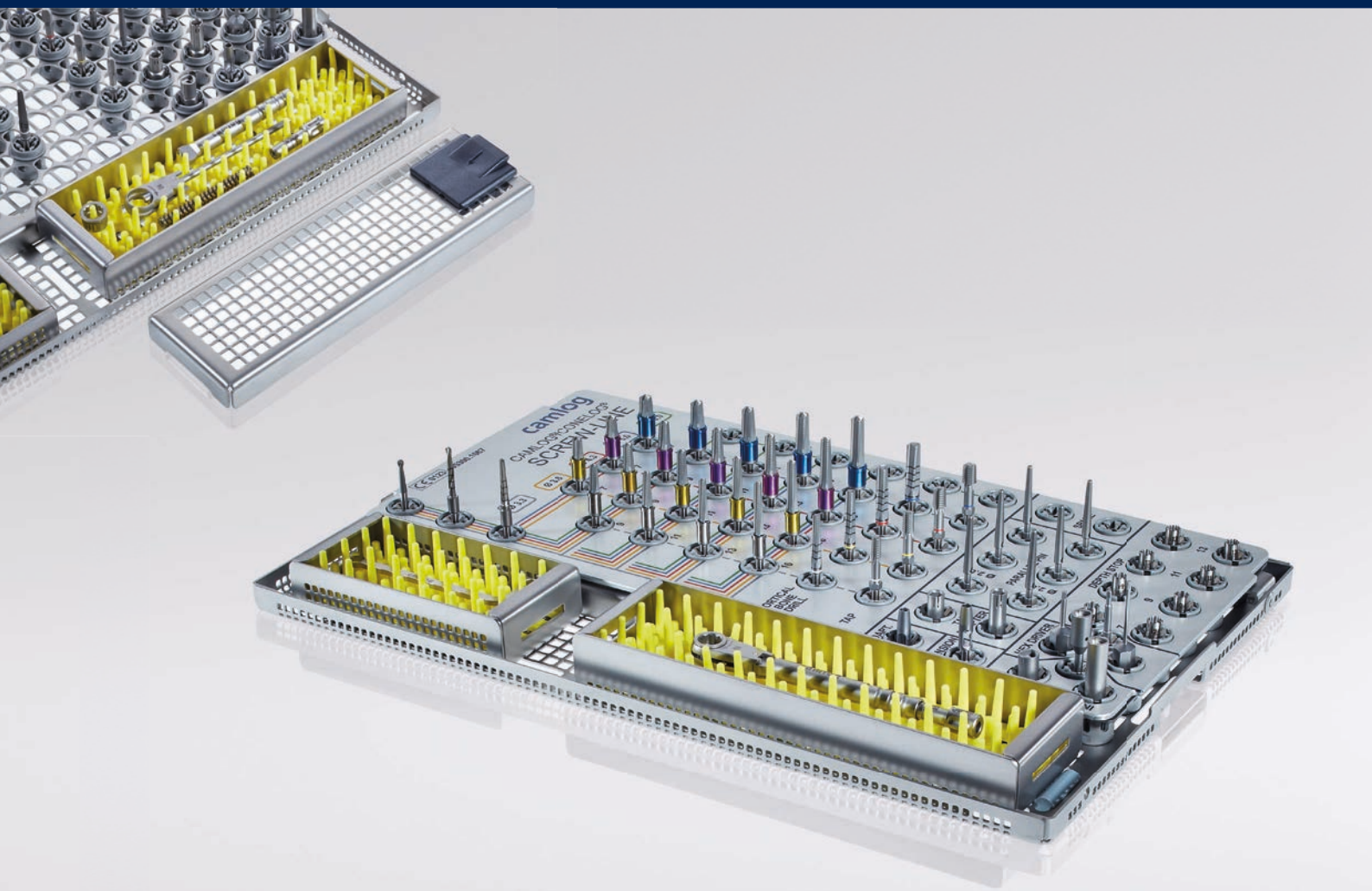
Dr Jan Klenke

Dr Jan Klenke completed his studies of dentistry in 1993 at the Free University Berlin and received his state examination. From 1993 to 1996 he worked as research assistant in the Department for Tooth Preservation and Periodontology. After two years in free practice he took over a dental practice in Hamburg in 1997 which he is managing jointly with Christian Regel since 2001. In 2005 he obtained his focus on implant dentistry from the BDIZ and completed a 2-year postgraduate study course on "Conscious sedation and pain management" at the Eastman Dental College in London. Since 2013 he is a certified expert for implantology of the DGOI and is a member of the associations DGZMK, DGP, DGZI, BDIZ, DGOI.



WASH TRAY
FOR MECHANICAL CLEANING

CAMLOG has expanded its product portfolio to include a wash tray for the instruments of the CAMLOG®/CONELOG® SCREW-LINE and CAMLOG® ROOT-LINE 2. The tray is designed for mechanical cleaning, disinfection and sterilization of surgical instruments. The instruments remain in the wash tray throughout the entire process chain for reprocessing.

The wash tray is particularly suited for large dental practices and clinics with a centralized processing center and meets the validation requirements. It is supplied empty. For easy sorting of instruments and optimal orientation during surgical interventions, a color-coded template is available for the CAMLOG®/CONELOG® SCREW-LINE or CAMLOG® ROOT-LINE 2 Implant systems. The arrangement on the template strongly resembles the arrangement of the instruments in the CAMLOG®/CONELOG® Surgical trays. This preserves the familiar procedure during surgery. The tray can be passed fully loaded to mechanical reprocessing. The surgical instruments are safely fixated in the tray with special metal springs, whereas small parts and disassembled components are placed in the intended mesh trays. The template is removed for mechanical cleaning and placed separately from the closed tray into the thermal disinfector. The mesh structure of the wash tray allows perfect rinsing of all products and complete draining of the rinsing liquid in the thermal disinfector.

Added value for the dental practice

- ☑ Saves money and time
- ☑ Reproducible mechanical reprocessing process
- ☑ Perfect rinsing of the components
- ☑ Easy and safe handling

The wash tray is compatible with conventional dental sterilization containers. An example is the container from Aesculap with the order number: JN294.

CAMLOG® AND CONELOG® ABUTMENTS FOR BRIDGES

The CAMLOG and CONELOG Implant Systems are being expanded by abutments for bridge and bar restorations. Both the titanium bases CAD/CAM as well as the temporary abutments will remain available in the "crown" versions, and now new, also as "bridge" versions.

The connecting geometry for the abutments for bridges to the implant has been reduced to a short centering shoulder without anti-rotation protection. This geometry allows bridges and bars to be screwed together directly – even in the case of divergent implants (max. 30° divergence between two implant axes); for example for bridge restorations in the esthetic zone with low gingiva heights. In addition, the bonding areas of the titanium bases CAD/CAM for bridges have been optimized for bonding multi-pontic restorations.

CAD libraries are available for downloading free of charge on our website for the digital fabrication of reconstructions on titanium bases CAD/CAM. CAD/CAM-fabricated restorations on titanium bases CAD/CAM are offered in a variety of materials via the DEDICAM fabrication service.

Abutments for bridges are available for all implant diameters. In addition, the CONELOG® Titanium bases CAD/CAM bridge are available in two gingival heights. Allabutments are supplied inclusive of an abutment screw. A bonding aid is added to the titanium bases CAD/CAM.

CONELOG® Abutments for bridges.

CAMLOG® Abutments for bridges.

THE COMFOUR™ ABUTMENT SYSTEM
IS NOW ALSO POSSIBLE WITH THE CONELOG® IMPLANT SYSTEM

The COMFOUR™ concept now also offers CONELOG users an extension to their treatment concepts. Occlusally screw-retained bridges and bars for immediate or delayed restoration can now also be realized with the CONELOG® Implant System on straight and angled bar abutments.

The straight CONELOG® Bar abutments are available in three gingival heights (1.0, 2.5 and 4.0 mm). The angled CONELOG® Bar abutments are available at angulations of 17° and 30°, each in an A and B version, each with two gingival heights (2.5 and 4.0 mm). The slim design and low construction height of the bar abutments are of functional benefit for many types of restorations. Examples of useful additional components are the titanium caps for bar abutments for both temporary or definitive restorations as well as the aligning tools for making fine adjustments to the cam alignment during implantation. The aligning tools are compatible with the Guide system from CAMLOG and are inserted via the Guide insertion posts for orientation of the inner configuration. The CONELOG® Bar abutments are compatible with all introduced components of the COMFOUR™ concept, for example, the prosthetic screws (light blue), healing and impression caps (light blue partially anodized) as well as scanning and titanium caps.

COMFOUR™ is convincing with its technical advantages such as the antirotational mechanism, pre-mounted flexible handle, Guide-compatible aligning tool and an extremely slim design, and extends the treatment spectrum of the CONELOG® Implant System.

Information on the new COMFOUR™ LOCATOR® Attachment is given on page 20.

LOCATOR® ATTACHMENT FOR COMFOUR™ SYSTEM

ACKNOWLEDGED RESTORATION CONCEPT FOR OVERDENTURES

The COMFOUR™ System by CAMLOG is distinguished by its application spectrum with a multitude of variants. Since April 2016, the angled bar abutments can also be restored with LOCATOR® Attachments.

The LOCATOR® Attachment system **(Fig. 1)** with its patented technology, is a practical and acknowledged treatment concept for overdenture restorations with implants for elderly edentulous patients, whose financial means or hygienic abilities are limited through physical disability. However, anchoring a prosthetic on two interforaminally placed implants is often an unsatisfactory solution as the prosthesis rotates around an axis during masticatory loading, which causes pain and sores and can thus initiate bone degradation. Good support to stabilize the prosthesis under masticatory loads, tilting movements and horizontally acting shearing forces, is particularly important in this type of situation. The anatomical options in the atrophied jaw are severely limited for the placement of implants to achieve an adequately large load polygon.

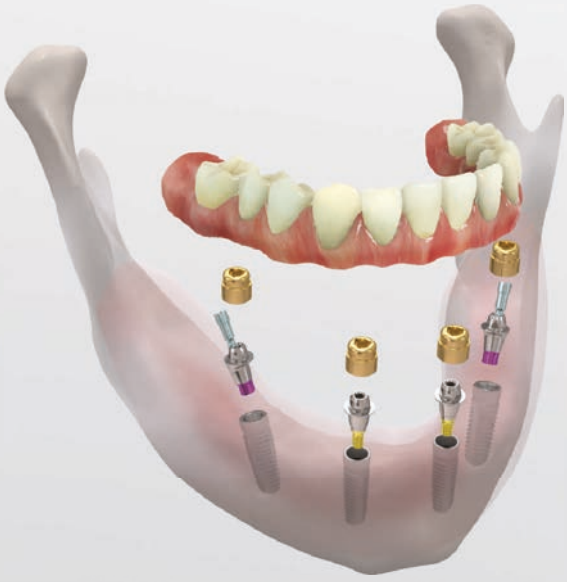
A good treatment option in this instance are the LOCATOR® Attachments for straight and angled bar abutments. Taking the anatomical structures into consideration, a sufficiently large load polygon can be achieved with implants inserted at an angle without making elaborate bone augmentation necessary. As the overdentures are supported in a resilient manner, the implants need to heal without being loaded in these cases. The bar abutments are inserted after approximately a three month healing period. Different procedures are possible for the fabrication of the prosthesis:

1. The LOCATOR® Attachments are screw-retained and the LOCATOR® Retention housings with corresponding replacement males worked directly into the existing prosthesis.

2. The LOCATOR® Attachments are screw-retained and an impression taken with the aid of the impression caps. After fabricating the model, the prosthesis is fabricated on the model with the LOCATOR® Retention housings and replacement males.

3. Impression taking is performed at the abutment level with the COMFOUR™ Titanium caps. After fabricating the model, the LOCATOR® Attachments are screw-retained and the prosthesis is fabricated on the model with the LOCATOR® Retention housings and replacement males. The surgical intervention improves the condition of the prosthesis and the prosthetic support. The resilience of the LOCATOR® System applies force specifically to the hard and soft tissue and avoids tilting movement of the prosthesis during the chewing function – for the benefit and comfort of the patient.

The COMFOUR™ System also allows the conversion of an existing bar restoration to a LOCATOR®-retained restoration without the need for changing the bar abutments. Complex, permanent implant-supported restorations inserted in younger patients, can lead to hygienic problems with advancing age. Easy handling and cleanability of the denture is subject to prevailing individual conditions, the manual and mental limits of elderly patients. Acceptable hygienic capabilities as well as aftercare of the orally screw-retained construction and also of the dentures, possibly through nursing personnel, through conversion of the bar restoration to a LOCATOR®-retained denture is possible.



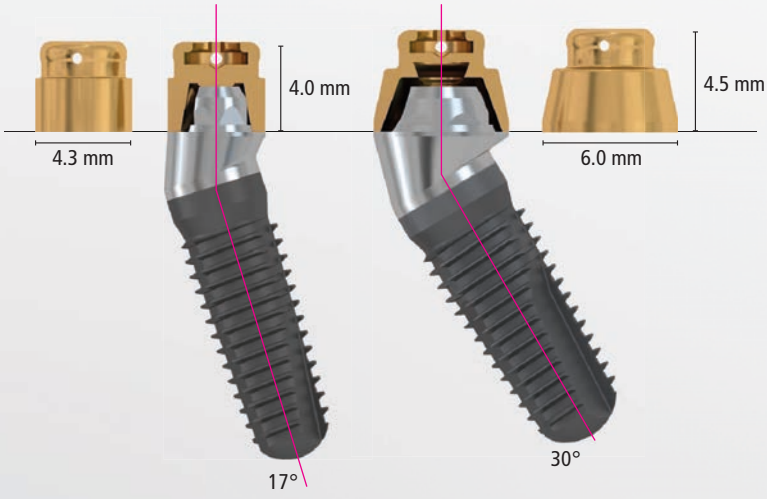


Fig. 1: The LOCATOR® Attachments can be supplied in two sizes depending on the implant diameter (3.3–4.3 mm or 5.0 mm). They are screwed onto the straight or angled COMFOUR™ Abutments (17° or 30°).

*LOCATOR® is a registered trademark of Zest Anchors

ISY ALL-IN-SETS WITH EVEN MORE CONTENT

ILLUSTRATED ON THE ISY PACKAGING

The iSy Implant packaging has been given a facelift. Why? Because the iSy pack now offers you even more content. Since January 2016, the iSy Cover Cap is included in the All-in-pack which is illustrated by the product graphs on the exterior packaging.

We have also responded to numerous customer requests by changing the packaging. Instead of two packs as before, customers now only receive one packaging unit. This saves stocking space in your implant store. The cover caps are in a blister together with the multifunctional caps. The multifunctional implant packaging gives you the initial option of using the preferred procedure for implant healing. The transparent blister pack ensures optimal visibility of the individual iSy components.

The All-in-Implant Sets not only contain one or four implants, but also the pre-mounted iSy Implant bases, a single patient form drill, cover caps, gingiva formers and two multifunctional caps (per implant) for scanning, impression taking and temporary restorations. The gingiva formers and multifunctional caps are made of PEEK and are simply mounted on the implant base. The cover caps (PEEK) are inserted into the implant for submerged healing after removing the implant base.

iSy is the inexpensive quality system from CAMLOG. It is slim and flexible, as well as being convincing in practice through easy handling, an efficient workflow and very economical prices.

iSy – a plus in performance

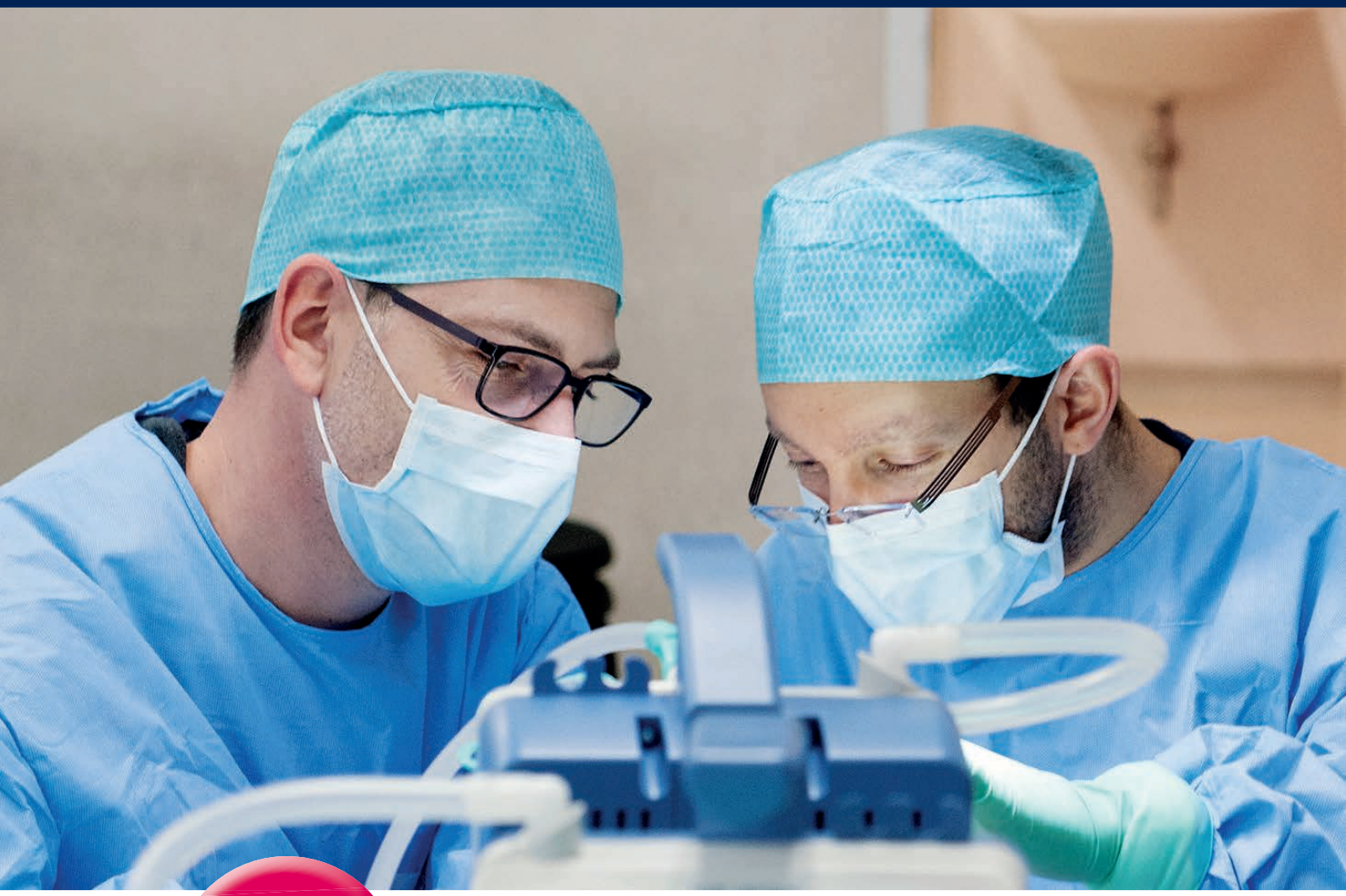
Implant set of 1

- 1 Implant with premounted implant-base
- 1 Cover cap
- 1 Gingiva former
- 2 Multifunctional caps
- 1 Single patient form drill

Implant set of 4

- 4 Implants with premounted implant-base
- 4 Cover Caps
- 4 Gingiva formers
- 8 Multifunctional caps
- 1 Single patient form drill

Further information on the iSy® Implant System is available at:
Telephone **07044 9445-100** or on the website **www.isy-implant.de.**



Register now

EXCLUSIVE CUSTOMIZED COURSES 2016

CAMLOG courses offer tailor-made programs covering a wide spectrum of topics. All our speakers are highly experienced and well-known specialists in the field of implant dentistry. They have vast experience in implant surgery and implant restorations; they offer state-of-the-art treatment concepts and techniques to achieve optimal results. Course participants benefit from a well-balanced mixture of theory, hands-on exercises and live procedures. Courses take place on the following dates and places:

Sep. 23–25	MUNICH | CACACI & RANDELZHOFER
Oct. 7–8	BADEN-BADEN | BESCHNIDT
Nov. 4–5	BADEN-BADEN | BESCHNIDT
Nov. 11–12	MUNICH | CACACI & RANDELZHOFER
Nov. 25–26	BERLIN | HILDEBRAND & BEUER

camlog

Information and registration:
http://education.camlog.com

CAMLOG ON THE INTERNATIONAL SCENE

MANY NEW DISTRIBUTION PARTNERS GAINED

Internationalization

The international expansion of CAMLOG is progressing rapidly. Thanks to more intensive cooperation with the Henry Schein Group, we were able to gain and activate new distribution partners in several countries. As a result, the tried and trusted CAMLOG products are now available on the Arabian Peninsula. A start was made in the United Arab Emirates, followed by Kuwait, Lebanon, Pakistan and Saudi Arabia. The other countries will follow during the course of 2016. Also starting at the beginning of the year, an agreement was reached with our longstanding and successful partner in Finland, Implantona, for additional countries in Scandinavia. In future, Implantona will also supply the two countries Sweden and Norway. Implantona has more than deserved this expansion through excellent results in the past few years and will no doubt promote CAMLOG successfully in these countries.

New distribution partners in Italy and the UK

After over fifteen years of cooperation with AltaTech in Italy, distribution has now been assigned to a new partner. On 1. April 2016, Henry Schein Krugg fully took over the distribution of CAMLOG products in Italy. Henry Schein Krugg has been based near Milan for over 30 years, and has 14 local offices and a field force of 160 sales representatives. CAMLOG thus expects a more focused approach in the important Italian market than in the past. A special focus will be devoted to the digital workflow, where the partnership with Henry Schein Krugg provides an optimal basis.

Changes also affect the UK. To relieve the workload on our existing distributor, Pro-Cam Implants B.V., who primarily works in the Netherlands, the UK distribution rights were assigned to BioHorizons UK. This means that CAMLOG can now rely on an experienced partner here, too.

from left to right: Dr. Alex Schär, Françoise Peters, Peter Thommen, Dr. Markus Kraft

THE RESEARCH TEAM INTRODUCES ITSELF

THE TEAM IS INVOLVED IN RESEARCH FOR THE BENEFIT OF OUR CUSTOMERS AND THEIR PATIENTS

The CAMLOG research department is located at the headquarters in Basel and is led by Dr. Alex Schär, Chief Technology Officer. The small team of highly qualified interdisciplinary specialists looks after the aspects of pre-clinical and clinical research, the assessment of new technologies in the field of materials and surfaces, as well as brands, patents and the names of domains. As a department, we are always dedicated on focusing our activities on the best possible quality and best possible clinical results for the benefit of our customers and the patients treated with CAMLOG products.

The CAMLOG research team

The research team combines a broad spectrum of knowledge and over 60 years of experience in the research and development of medical devices. Dr. Alex Schär studied electrical engineering and bioengineering in Switzerland, the USA and Scotland and graduated in the field of biomechanics. He has been involved in the field of research and development of oral implants for over 20 years.

Françoise Peters, Head of Clinical Research, acquired her extensive knowledge on clinical research in the pharmaceutical industry and has spent over 20 years working for companies involved in oral implantology. She graduated in business management and has a Master in Public Health. Peter Thommen, scientist with a focus on biomechanics, has been involved in topics relating to clinical research for more than ten years. Dr. Markus Kraft, responsible for pre-clinical research, studied materials sciences at the ETH Zurich and took his PhD in the field of polymer physics. He has over 20 years of professional experience, of which ten were in the field of medical engineering.

Clinical research

Clinical research at CAMLOG is intent on testing own products scientifically for safety and efficacy in compliance with high standards. Other objectives include providing evidence-based proof for all important properties and advantages of the implant systems and to ensure the clinical long-term success of the implants. Depending on the objective of the studies, case documentations, large field studies or randomized, controlled multi-center studies are employed. The studies are conducted worldwide in cooperation with universi-

ties, but also with private dental practices. This allows us to cover the entire patient spectrum.

The patient is always at the focus of a clinical study. To protect study participants, high ethical, methodical and scientific requirements are always complied with in the planning, execution and evaluation. All studies are conducted in compliance with current laws, standards and directives (Declaration of Helsinki, Good Clinical Practice (ICH-GCP), ISO Standard 14155, European Directives on Medical Devices, local regulations on medical devices (e.g. MPG in Germany)) and submitted to the competent ethics commissions.

The results of the clinical studies on topics such as the clinical long-term success or the effectiveness of treatment options contribute to the improvement and further development of our products and are presented regularly at congresses and then published. The long-term support is reflected by the yearly growing number of publications in highly ranked international scientific journals **(Fig. 1)**. Meanwhile the CAMLOG Implant systems are among the best documented systems worldwide.

This allows our customers to continuously convince themselves of the the reliability and safety of the products.

Pre-clinical research

PANTA REI – EVERYTHING FLOWS, and so does the continued progress in the field of dental implants and implant-supported restorations. To keep abreast, we at CAMLOG follow these new developments closely. We identify and assess innovative technologies in terms of suitability for improving existing or new products and regularly conduct feasibility studies.

To do this, we cooperate closely with internal and external partners and experts and are supported in our activities by a well equipped testing laboratory. The laboratory is equipped with sensitive measuring equipment for surface analysis (scanning electron microscope, contact angle measuring device **(Fig. 2)**, white light interferometer **(for measuring example see Fig. 3)**, various light microscopes), devices for fabricating metallographic cross-sections and testing machines to determine the fatigue behavior of our products.

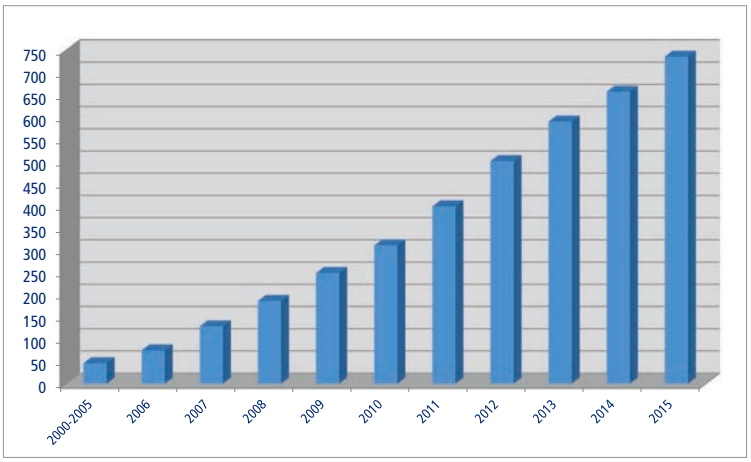


Fig. 1: Cumulated number of independent specialist publications on CAMLOG implant systems, 2000 – 2015.

Fig. 2: New contact angle measuring device for investigating implant surfaces in terms of their wetting behavior. This measuring method allows determination of the sensitive properties of new surfaces (Copyright ©KRÜSS GmbH).

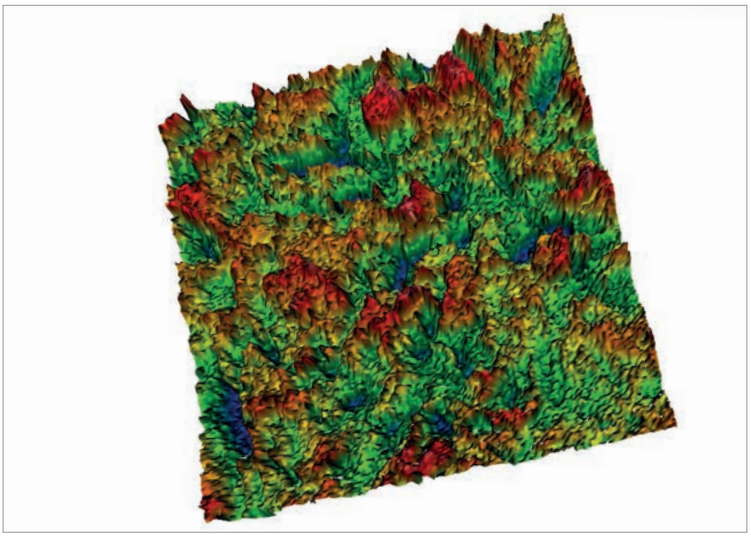


Fig. 3: Typical topography of the Promote surface, captured with the aid of a white light interferometer.

FUN IS A MUST – WHY NOT ALSO IN SPACE?

The meanwhile significantly over 100-year history of radio and films as mass media is rich in Sci-Fi adventures: just think of Orson Welles' legendary radio drama from 1938, "The war of the worlds", which led to doomsday reactions from the unprepared US audience. And when images started moving and were sequenced to entire films, trips to space were not far behind as mankind has been fascinated by the universe since primeval times.
Some of these more and more sophisticated Sci-Fi films have long become legends in their own right. Heading the list would no doubt be Stanley Kubrick's mystic epic "2001: A space odyssey", which set standards. Not only because of its underlying philosophical approach which followed the path of the Homo sapiens from the Stone Ages into the future, but also because of its spaceship choreography to the sounds of Viennese waltzes, something unseen of before. And then there was the merciless machine, represented by the HAL 9000 board computer, which interfered with evolution in its quest for absolute power and not only ended "Operation Jupiter" but also human evolution at the same time: reminiscent of Goethe's sorcerer's apprentice.

The Force Awakens

Another milestone in the history of Sci-Fi films which have already written history and achieved cult status, is the "Star Wars" series. The fans could hardly await the 7. part of this "never-ending story", which was recently screened in the cinemas. The fact that "The Force Awakens" was a blockbuster breaking all records was more than foreseeable, even without any Sci-Fi skills.

In fact, everything had been solved after episode VI:

- The second Death Star had been destroyed,
- Han Solo had been informed why there was no reason for being jealous of Luke Skywalker
- and Leia was happily united with both men and a large horde of Ewoks on Endor.

However, the Empire has regrouped to become the "First Order" as symbolized by the sheer endless double-quick stride at the beginning of "The Force Awakens". They are now led by the apparatchik General Hux (Domhnall Gleeson) and the hot-blooded fighter Kylo Ren (Adam Driver). Since Luke Skywalker, the last of the Jedi Knights, has disappeared, the Republic and the rebels appear to have little resistance to offer.

Secret paths through the galaxy

The information as to the whereabouts of Luke is, of course, equally sought after by the "First Order" and the rebels. By chance, a small Droid named BB-8 becomes the bearer of the biggest secret of the galaxy and, again by chance, the looter Rey becomes his resourceful protector and makes it her mission to bring the Droid to the rebels.

As with Luke and Anakin Skywalker, the main characters in the previous "Star Wars" trilogy orchestrated by George Lucas, Rey lives on a desert planet, and, as with her predecessors, the fate of her parents is her greatest weakness but also her greatest driving force. But, who are her parents and what has happened to them? This is nearly an even greater secret in episode VII than the whereabouts of Luke Skywalker – and as we don't want to be spoilsports, we do not intend to unveil it.

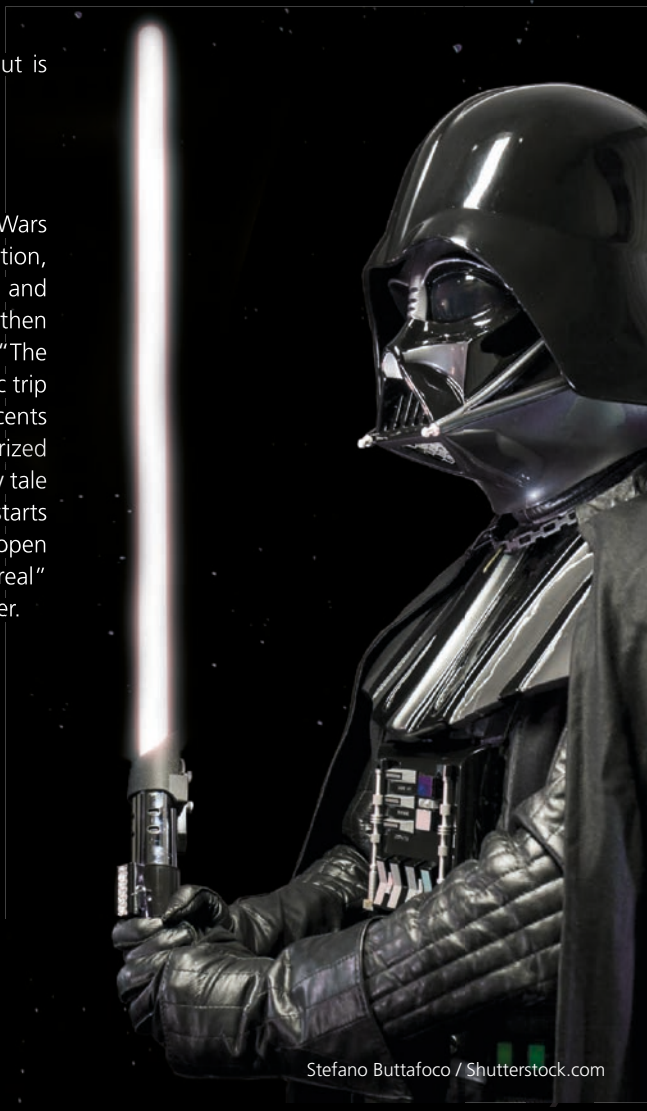
Somehow sounds familiar

Wherever the original cast, weapons and spaceships from previous episodes were not used, Abrams and his co-author Lawrence Kasdan created easily identifiable equivalents: there is an Obi-Wan-Kenobi equivalent, a Yoda variation, and the bar in Mos Eisley is recreated as good as new. Unfortunately, Abrams' and Kasdan's phantasy fell short when creating the new super weapon of the "First Order" and its omnipotent leader: it is basically the same as before, zoomed several times – but is still impressive!

Family reunion

Let yourself be overpowered by Star Wars episode No. VII – and, by way of exception, after depositing your social reflective and critical abilities at the wardrobe. Only then can Star Wars veterans fully enjoy "The Force Awakens" and go on a nostalgic trip into yesteryear. And today's adolescents might get an inkling of what mesmerized their parents back in 1978. As the fairy tale of the so terribly nice Jedi-Sith family starts all over again in this film, the virtual open fire is kept alive – where millions of "real" families can enjoy the warmth together.

(Sources: SPON, dpa and others.)



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