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Issue 16 | 2017
The CAMLOG Partner Magazine

CAMLOG SETS CLEAR PRIORITIES AT THE IDS

Most change is not about WHAT we do but HOW we do it.

John Naisbitt (futurologist)

Dear readers

The 37th International Dental Show (IDS) in Cologne ended with a record result and a jubilant mood on March 25, 2017. It was interesting to observe how, and in which direction, the dental business is moving. Which trends are establishing themselves and which new topics, products or companies were represented at the trade fair.

If we look ahead, we can see that much is still uncertain. This affects us and the industry we operate in. Therefore we need to position our company as flexibly as possible with a keen eye on the future.

Our success to date is a good incentive to strive for more but never a reason for CAMLOG to rest on its laurels. Our products CAMLOG, CONELOG, iSy, COMFOUR, and now CERALOG following its launch at the IDS in Cologne, have demonstrated that we not only have a firm grasp on today and tomorrow but also well beyond.

We are always asking ourselves, "What do our customers need to be successful in the future? And what can we, as CAMLOG, contribute?"

And as the IDS has shown, markets that are changing in response to digitization require rapid adaptation across all areas. Breakthrough ideas can strike like lightning but require time and courageous action to see the light of day and come to fruition.
None of us really know exactly what the dental market and implant dentistry will look like in the future. But one thing is clear: implant dentistry offers enormous opportunities and considerable potential for us all. And it will enrich the lives of our patients in the long term. This is something we look forward to!

We are well placed, both in terms of understanding our business as well as with our product portfolio. CAMLOG is at the top of its game in Germany and is competitive, allowing us to continue operating with our strong customer focus.

To keep pace with our steady growth, the CAMLOG Group last August laid the cornerstone for a new administration building in Wimsheim. An excellent basis for creating new jobs and driving the expansion of CAMLOG. As of early 2018, this state-of-the-art building will give my team and me the opportunity to continue expanding and manifesting our outstanding team spirit, our appreciation for high-quality products, and our sustainable service to our customers.

As you can see, we have many exciting tasks and a host of interesting projects ahead of us to drive us to excel. And despite the changes in many areas, our objective for you as our partner remains: "Future needs heritage – CAMLOG will always be CAMLOG."

My team and I look forward to actively supporting and advising you in the future. I wish you an enjoyable read and for always seeing all the opportunities that the future offers us.

Sincerely

Michael Ludwig
Managing Director CAMLOG Vertriebs GmbH

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CAMLOG AS TRENDSETTER AT THE IDS 2017

INNOVATIONS AND STIMULATING DISCUSSIONS FASCINATE THE VISITORS

The International Dental Show (IDS) in Cologne opened its doors from March 21 to 25 and again broke all records: over 2,300 exhibitors from nearly 60 countries and more than 155,000 visitors from around the world attended the largest dental trade fair. Under the motto, "There is plenty to discover", CAMLOG presented the innovations in the CAMLOG®, CONELOG®, and iSy® Implant Systems on over 310 square meters. The highlight was the premiere of the CERALOG® Ceramic Implant System.

The CAMLOG stand amazed IDS visitors. Perfectly showcased, the products aroused curiosity and invited to a "Discovery tour". In expert discussions with familiar CAMLOG faces, the visitors found out everything there was to know about the new products and services. Meeting with colleagues, partners, and friends and exchanging experiences in person again all added up to a rewarding event for the guests. And last not least, the culinary delights and refreshing drinks in the bistro area contributed to the feel-good factor.

The CERALOG® Ceramic Implant System*

The CERALOG® Ceramic Implant System caught people's eyes and drew them to the stand. The exhibit included two ceramic implants that have been tested in practice: the one-piece CERALOG® Monobloc Implant and the two-piece CERALOG® Hexalobe Implant with reversible screw-retainable PEKK abutments. A true innovation for the Hexalobe implant was the customized, full zirconium oxide abutment available via DEDICAM. Detailed information on CERALOG is available from page 24.

The iSy workflow for CEREC® Users

Since its market launch in 2013, the key concept behind the iSy Implant System has been the efficiency of surgical and prosthetic workflows. iSy focuses on the essentials and is therefore synonymous with reduced complexity in the field of implant dentistry.

For CEREC® users at the IDS 2017, iSy presented the new scan adapter which is compatible with the Sirona Scanbodies S and streamlines processes even more.

This allows a definitive restoration to be fabricated in a single day in only a few and efficient work steps with no need for a model. The optimized iSy concept is explained in detail in the technical article on page 14.

Greater efficiency in the surgical workflow

The innovative packaging concept for the CAMLOG and CONELOG implant systems ensures a more efficient surgical workflow. The new packaging not only saves space but is also impressive thanks to the safe handling. Find out more about the other advantages offered by the new packaging concept on page 27.

We would like to give a big thank you to all partners, guests, and contributors for the many stimulating discussions as well as an unforgettable and successful IDS 2017!

***The CERALOG Implant System is not available in all countries.**

CERALOG® SYSTEM

CERALOG® IMPLANT SYSTEM – FACTS AND FIGURES AT A GLANCE

Françoise Peters BSc. MPH, Dr. sc. tech. Markus Kraft, Frédéric Wehrli MSc., Basle

The CERALOG Implant System is the innovative product of a strong cooperation between CAMLOG Biotechnologies AG and Axis biodental SA, a high-tech company specialized in the development of dental ceramic implants. This development has resulted in an ideal combination of material, surface, and design within the innovative concept of the CERALOG Implant System. CERALOG is based on more than 10 years of dedicated research and development for the benefit of the patient. Besides the original Monobloc design, the portfolio features the CERALOG Hexalobe Implants, the first two-piece ceramic implants with reversible screw-retained PEKK abutments.

Zirconium dioxide – the implant material

The CERALOG implants are made of yttria-stabilized tetragonal zirconia (Y-TZP) [1] – a ceramic widely used in the dental industry and other highly demanding fields. Zirconia is a chemically inert material, which makes it especially suitable as an implant material. Thanks to an additional process step known as hot isostatic pressing (HIP), it offers an outstanding combination of excellent mechanical properties and high tensile strength **(Fig. 1).**

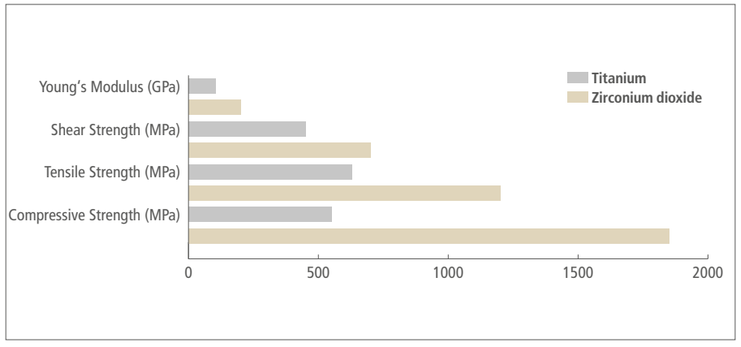

Fig. 1: Comparison of the most important static mechanical properties of titanium Grade 4 and Y-TZP zirconium dioxide [source – Titanium: Titanium Grade 4 MatWeb (http://www.matweb.com) | Zirconium dioxide: Y-TZP zirconium dioxide, AXIS biodental SA]

PEKK – the abutment material

Polyether ketone ketone (PEKK) is a high-performance polymer that belongs to the polyarylether ketone (PAEK) family. It combines excellent mechanical tensile strength with outstanding thermal properties and chemical stability [2]. As a material for implant applications, PEKK is largely prescribed for CMF applications such as cranial repair and for spinal applications such as fusion cages, lumbar posterior fusion rods **(Fig. 2).**

The biocompatibility of PEKK implant material has been established by Oxford Performance Materials Inc. in accordance with the ISO 10993-1 standard [3].

PEKK vs PEEK

Although PEKK and PEEK (polyether ether ketone) have a similar chemical structure and belong to the same polymer family (PAEK), PEKK offers significantly improved properties for implant dentistry applications:

- Higher mechanical stability
- Higher creep resistance
- Compression resistance up to 80% superior in comparison to PEEK
- Less sensitive to water absorption **(Fig. 3)**

Hexalobe – an ideal implant-abutment design

The design of the CERALOG Hexalobe implant- abutment connection was developed in close collaboration with the Swiss Federal Institute of Technology of Lausanne (EPFL). Finite element analysis simulations demonstrate that the Hexalobe connection is the most appropriate shape to transmit torque to a ceramic implant. [4].
Compared to a traditional hexagonal connection, the Hexalobe connection, with 0° drive angle, optimizes torque transmission and eliminates radial stresses **(Figs. 4 a–d).**

Dual surface texture

CERALOG implants are produced by Ceramic Injection Molding (CIM). This technology makes it possible to manufacture complex shapes with various surface textures without using any post-treatment. These surface textures ensure the proliferation of osteoblasts as evaluated in an in-vitro study performed at the University of Geneva [5] **(Figs. 5 a–b).**

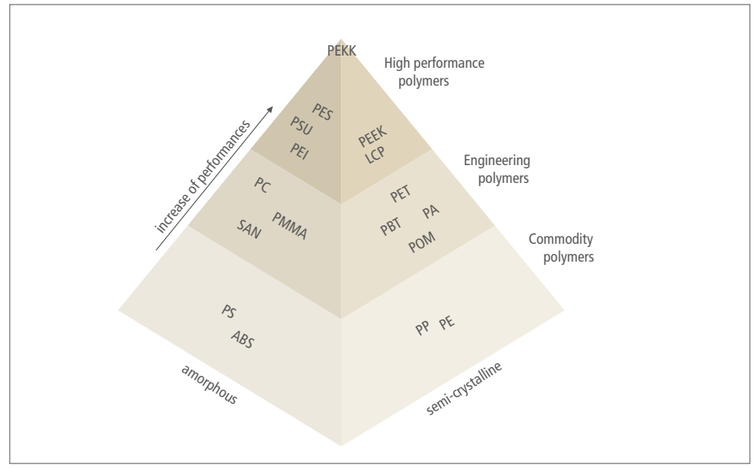

Fig. 2: Overview of polymers and their properties: the high-performance polymer PEKK has an outstanding combination of properties.

	PEKK	PEEK
Modulus of elasticity (GPa)	4.5	4.1
Tensile strength (MPa)	138	100
Transversal strength (MPa)	193	165
Compressive strength (MPa)	207	135
Elongation at break (%)	> 30	40
Melting temperature (°C)	360	340
Water absorption after 24h (%)	< 0.2	0.5
Density (g/cm3)	1.3	1.3

Fig. 3: Comparison of the main properties of PEKK and PEEK
[source: PEKK: OXPEKK®-IG 300 (implantable), OPM Inc. | PEEK – OPTIMA LT1 (implantable), Invibio Inc.]

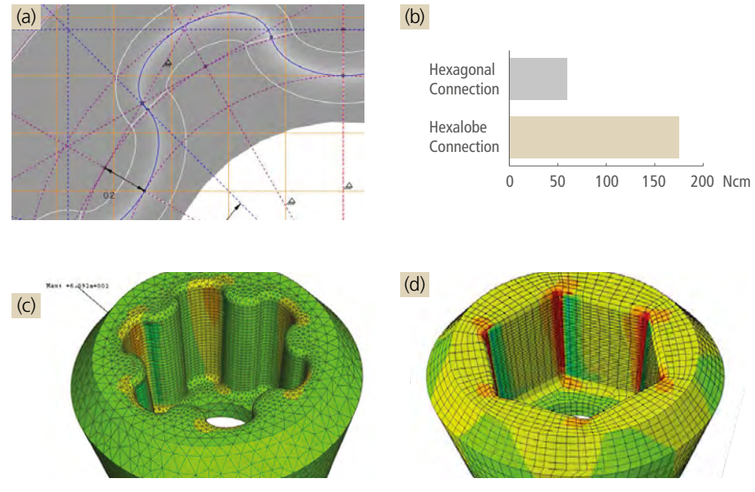

Fig. 4: Compared with hexagonal connections, the Hexalobe connection (a) results in a major reduction in load levels during torque application (c–d). As a result, there is a significant increase in the maximum torque that can be applied (b).

Clinical application

CERALOG implants showed excellent primary stability [6], comparable to a pure titanium implant with SLA surface [7]. Full ceramic single crowns were placed after 16 weeks healing on PEKK abutments, and after one year of loading the success rate was 100%.

Conclusion

1. CERALOG implants are a trendsetter in terms of ceramic dental implant development and clinical use.
2. The reversible screw-retained abutments are just one of the key benefits of the CERALOG Hexalobe implants.
3. The primary stability of CERALOG implants is comparable to that of titanium implants.

Clinical case

A 38-year old female patient presented with a vertical longitudinally fractured root of the left first upper premolar. The tooth was extracted four months prior to placing a CERALOG Hexalobe implant (L 10 mm). After a healing period of 4 months, the implant was restored with a screw-retained zirconium oxide crown which had been previously bonded onto a PEKK abutment in the laboratory **(Figs. 6-11).**

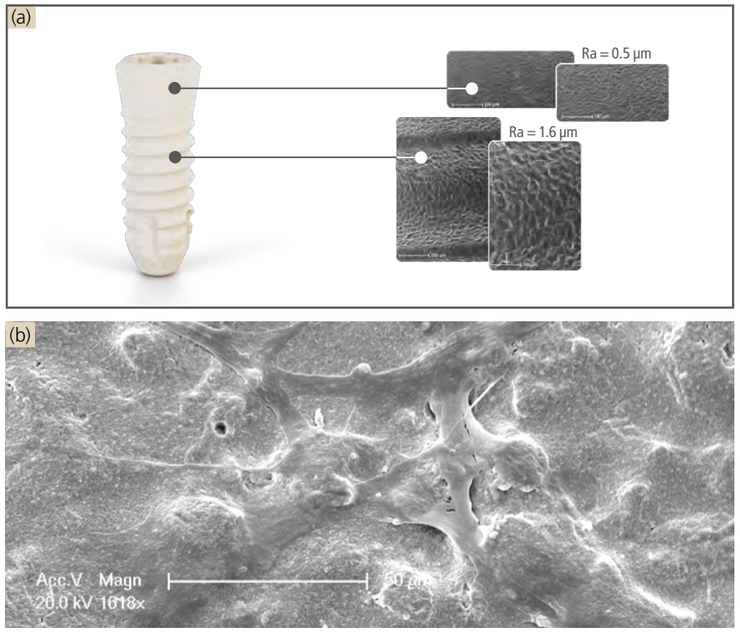

Fig. 5: Surface morphology of the CERALOG implant (a) and osteoblasts on the implant surface after 7 days' growth at 1000× magnification (b).

Clinical case with kind permission of Dr. F. Hermann, Zug, Switzerland

Fig. 6: Initial clinical situation four months after tooth extraction (FDI #24).

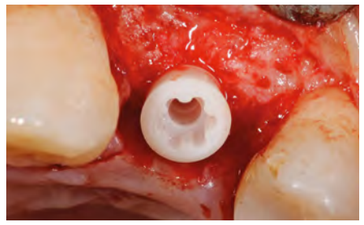

Fig. 7: Insertion of the implant with supracrestal positioning of the prosthetic shoulder (1.5 mm).

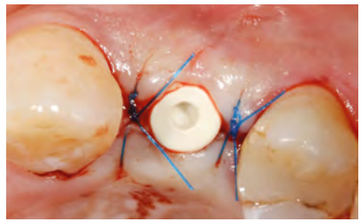

Fig. 8: Adaptive wound closure on the PEEK cover cap.

Fig. 9: Insertion of the definitive restoration on a PEKK abutment four months after healing.

Fig. 10: Lateral view of the crown–dynamic functionalization.

Fig. 11: Definitive restoration after one year of loading.

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[7] Tattan M, Kokovic V. Titanium or Zirconia?, clinical assessment of primary implant stability. 8th Dental-Facial Cosmetic int'l Conference 2016, Dubai UAE.

Fig. 1: This view shows the clinical initial situation from the occlusal aspect.

Fig. 2: The occlusal distance from lateral is reduced considerably by the elongated premolar.

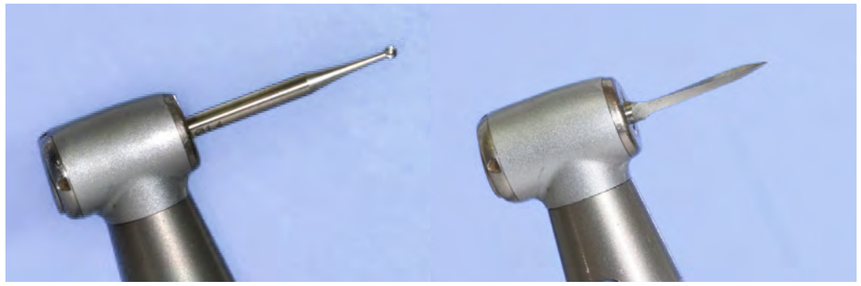

Fig. 3: The implant position is marked using the Ø 1.4 mm round bur.

Fig. 4: The marking of the implant bed is deepened using the triangular point drill.

Fig. 5: Pilot drilling to the exact implant length was performed using the Ø 2.4 mm pilot drill.

Fig. 6: The drilling channel is widened using the S form drill Ø 2.9 mm.

CERALOG – THE FULL CERAMIC SOLUTION FROM CAMLOG
ESTHETIC PREDICTABLE RESTORATION OPTION FOR A MAXILLARY PREMOLAR

Dr. Vladimir Kokovic, DDS, M. Sc, PhD, Shrajah, UAE

In the 1970s, titanium implants made their breakthrough in enossal implant dentistry. Intensive basic research by a working group led by Per-Ingvar Brånemark resulted in the chance discovery of a high tolerance for titanium in human bone tissue. This phenomenon was referred to as osseointegration. The demand for a careful, atraumatic, and "sterile" surgical technique with standardized drilling instruments [1–2] was followed by the development of a pure titanium screw with prosthetic connecting elements. Even today, some 50 years after Brånemark's first conclusive studies and a rapid development of a variety of systems, his insights into implant dentistry are just as valid as ever [3–4]. Following a statement issued by the DGZMK in 1998, implant dentistry was also established as a recognized therapeutic measure [5]. The scope of indications has become virtually limitless due to the development of new, complex, surgical and prosthetic methods. This has led to increased expectations with regard to functionality, esthetics, and long-term success and inevitably to new materials, such as the "white" zirconium dioxide.

Titanium dental implants no longer need to prove their osseointegration and long-term success anymore. However, in thin biotypes, titanium implants might leave a grayish shadow. As a result, a few cases of titanium tattooing have been reported for the use of zirconium oxide abutments on titanium implants [6]. This can be a concern for demanding patients. Furthermore, there are members of the public who request metal-free implants since it has been postulated that titanium allergy can occur. In both cases, ceramic implants might be considered the material of choice. Some advantages of zirconia implants have been widely described in the literature. Zirconium dioxide implants are reported to allow excellent cellular proliferation [7–8] and have a bone-implant contact comparable to that of titanium implants [9–10]. The primary stability of zirconium dioxide implants is comparable to that of titanium implants [11–12]. Good planning between practitioner, dental technician, and patient is the key to success.

Information about the patient and the treatment

A 32-year-old male patient reported to our medical center whose first premolar in the second quadrant had been extracted eighteen months before due to a vertical root fracture. The patient did not have any medical history that contraindicated the placement of an implant and he requested a metal-free implant.

The extraoral clinical examination revealed a symmetry of the face. On laughing, the lip completely covered the transition from the anterior teeth to the gums.

Intraoral examination revealed a healthy mucosa in regio 24 and around the adjacent teeth. The adjacent teeth and antagonists were healthy and firmly anchored in the bone. Both the height and width of the alveolar ridge were adequate for inserting implants. The inter-occlusal distance for reconstruction was 5 mm, and a bilateral canine guided occlusion and class I molar relationship was observed **(Figs. 1 and 2)**.

Following radiographic analysis of the edentulous region, the decision was made to use an 8 mm long two-piece CERLAOG® Hexalobe implant with a 4 mm diameter. (CERALOG® Hexalobe implant, CAMLOG Biotechnologies AG, Basle, Switzerland).

Implant placement

One hour before the implant placement procedure, the patient took an antimicrobial prophylaxis (Amoxicillin® 2 g) and rinsed his mouth for ten minutes with a chlorhexidine digluconate solution (0.2%) prior to the procedure. The implant placement was carried out under local anesthesia with 2% epinephrine (Xilestesin®; Espe Dental AG, Seefeld, Germany). After crestal incision and elevation of the flap, the implant bed was prepared in accordance with the company's surgical guideline **(Figs. 3–8)**. The Implant site was marked with a round bur (Ø 1.4 mm) and a point drill (Ø 1.5 mm) with a maximum speed of 800 rpm **(Figs. 3 and 4)**. The pilot drill (Ø 2.4 mm) was used for the first step of the preparation of the implant bed to the final depth **(Fig. 5)**. The directional gauge was used to control the depth of the bed and the implant orientation. The S-drill (Ø 2.9 mm – yellow ring) and the M-drill (Ø 3.4 mm – red ring) were each used for the final preparation of the implant bed with a maximum speed of 500 rpm **(Figs. 6 and 7)**. Definitive assessment of site depth and implant angulation was performed using the depth gauge M. The implant thread was precut (Ø 4.0 mm tap) to optimize torque resistance during insertion **(Fig. 8)**. The implant was removed from the blister using the implant holder **(Fig. 9)** and inserted into its final position in the implant bed site with a maximum torque of 35 Ncm and speed of 15 rpm. After placing the healing cap, the mucosal flap was adapted saliva-proof with single button sutures **(Fig. 10)**. Immediately after insertion, primary implant stability was measured using Resonance Frequency Analysis (Osstell Integration Diagnostics, Goteborg, Sweden). To this purpose, a SmartPeg™ was attached to the implant. The values of the implant stability quotient (ISQ) obtained showed an adequate primary stability (63 ISQ) **(Fig. 11)**. During the healing phase, implant stability was measured on a weekly basis up to the eighth week and

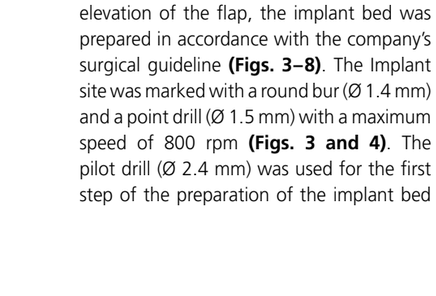

Fig 7: Expansion of the implant bed to 3.4 mm is performed with the M form drill.

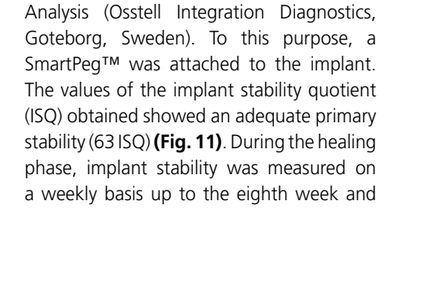

Fig. 8: The thread was tapped (Ø 4.0 mm) to optimize the torque resistance for insertion of the implant.

Fig 9: To insert the CERALOG Hexalobe implant, the insertion tool is pressed into the inner connection and the implant placed in situ.

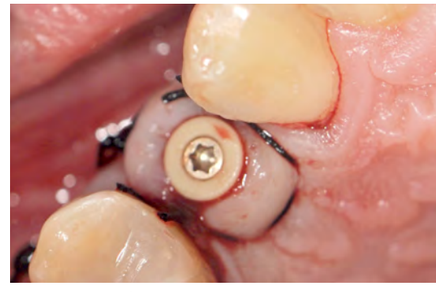

Fig. 10: Healing of the CERALOG Hexalobe implant was transgingival. To do this, a healing cap was placed and the mucoperiostal flap was adapted with single button sutures.

Fig 11: The implant stability quotient was measured using resonance frequency analysis.

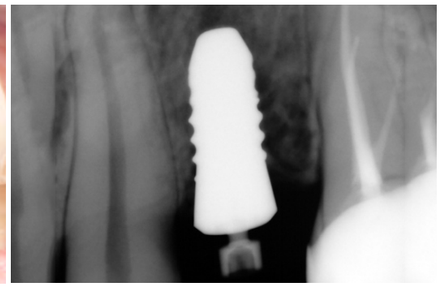

Fig. 12: The control image shows the slight supracrestal placement of the two-piece implant.

Fig 13: Healthy and stable soft tissue was present for impression taking of the situation.

Fig. 14: An impression post for the open impression technique was screwed in.

Fig. 15: An impression was taken using a customized impression tray.

Fig. 16: The PEKK abutment and the zirconium crown were delivered for the esthetic try-in.

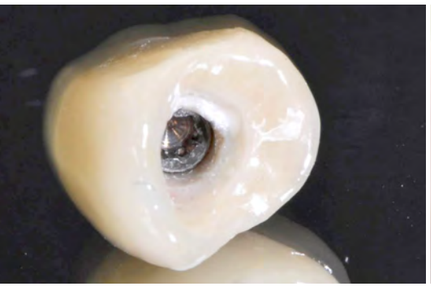

Fig. 17: After try-in, the components were silanized and bonded together.

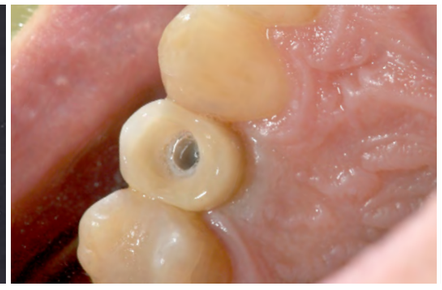

Fig. 18: The hybrid restoration was placed with a new abutment screw and a torque of 20 Ncm.

Fig. 19: A healthy soft tissue situation presented six months after insertion of the restoration.

thereafter at week 12 and 16 respectively. The final measurement indicated 73 ISQ which suggested good secondary stability.

Prosthetic phase

Four months after insertion, the patient presented for the prosthetic implant restoration with healthy soft and hard tissues **(Fig. 12)**. The healing cap was removed **(Fig. 13)** and a straight standard abutment was selected using the prosthetic planning set. The impression was taken with a post for the open tray impression technique and an individual tray **(Figs. 14 and 15)**. After fabricating the cast, the final zirconium oxide crown with an open screw access channel was prepared in the laboratory. Both the PEKK abutment as well as the zirconium dioxide crown were silanized for bonding the components. The crown and PEKK abutment were assembled using the dual-curing Multilink Implant (Ivoclar Vivadent) **(Figs. 16 and 17)**. The hybrid restoration was fixed on the implant in the mouth with a new abutment screw and a torque of 20 Ncm. The screw access channel was sealed with a sterile Teflon tape and a flow composite **(Fig. 18)**. The follow-up appointment six months after loading demonstrated a healthy and stable soft tissue situation **(Fig. 19)**.

Discussion

The use of zirconium dioxide implants is increasing. Even if they are less well documented than titanium implants, the reported results are promising [13]. The primary stability of an implant is an important factor for further loading. The use of resonance frequency analysis (RFA) for recording primary stability and its development is a well-documented method [14–16]. The stability of the CERALOG hexalobe implants from surgery to loading has been systematically reported in studies. The mean ISQ was 60.25 at insertion and 64 at loading in the maxilla [11]. The values obtained in the presented case, (63 at implantation and 73 at loading) are well in accordance with the study. Furthermore, a study comparing the primary stability of titanium and zirconium dioxide implants showed no statistically significant difference between the two systems [12].

Conclusion

The zirconium dioxide CERALOG Hexalobe dental implant is a therapy of choice for single tooth replacement in the esthetic and non-esthetic region. According to the results obtained for measuring implant stability during the healing phase using resonance frequency analysis, loading is possible 12 weeks after implant insertion.

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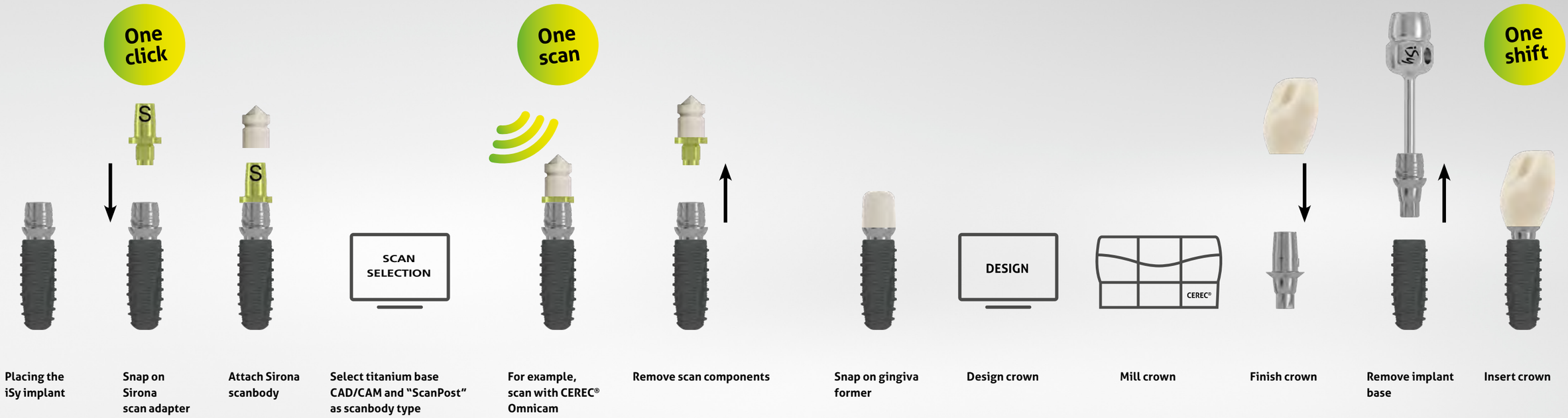

Fig. 1: The CEREC® workflow follows the principle – "one click, one scan, one shift".

ONE CLICK, ONE SCAN, ONE SHIFT – iSy MEETS CEREC: THE DIGITAL WORKFLOW

Jan Kielhorn, Öhringen

The introduction of new digital technologies, coupled with the possible applications for new materials, has changed the treatment procedures considerably in everyday practice. The present workflows need to be examined continuously with regard to patient demands, costs and profitability. iSy – the intelligent implant system stands for simplicity, modern protocols and an optimized workflow. With its innovative additional components it offers considerable added value and increases efficiency in implant therapy. For CEREC® users and their patients, the "one click, one scan, one shift concept" offers a new option that saves incredible amounts of time and increasingly places the focus on a fully digital workflow. This workflow is illustrated in the following patient case from planning, via digital impression taking to chairside fabrication of a hybrid crown.

The potential of digitization in dental practice is progressing rapidly. The digitization of dental radiology has proven to be a useful tool in the area of diagnostics and planning [1–3]. This allows an exact analysis of the patient's situation and enables determination of the implant positions, lengths, and diameters by overlaying data from a set-up in the sense of backward planning [4–5]. The processes of digitization are developing in stages [6]. Individual components are assembled and the digital process chain is extended successively. With the new scan adapters and scanbodies, the iSy Implant System enables CEREC users to fabricate a crown restoration in a single day with a fully digital workflow **(Fig. 1)**.

The patient case

The 45-year-old patient presented in our practice in December 2016 requesting to have a gap in the premolar region of the left maxilla filled **(Figs. 2 and 3)**. The exposure of the tooth gap strongly affected his esthetic perception. This inhibited his carefree approach to talking and laughing. He was therefore looking for a treatment team which could offer him an inexpensive and time-efficient option for replacing tooth 24. A DVT **(Fig. 4)** and a comprehensive diagnostic examination showed age-appropriate dentition with a confirmed occlusion with slight bruxism. The determined periodontal screening index was 0-1. Both the wisdom teeth as well as tooth 14 were missing. An impression taken of the situation was followed by treatment planning and an extensive consultation with the patient. As an alternative to reconstruction via implants, we presented the patient with a restoration via adhesive bridge with minimum preparation of the supporting teeth. The patient decided in favor of an implant as he preferred a single tooth restoration to a bridge construction and he did not want to have any filing performed on his canine. However, the precondition for the reconstruction was a restoration that did not exceed his rather limited budget and could be completed in just a few appointments. We offered him immediate restoration on the same day as implant surgery with the iSy System. Using the new iSy scan adapter which is attached to the pre-mounted iSy implant base, and the Sirona scanbody, which is clicked onto the scan adapter, digital impression taking is performed immediately after insertion – without any further intermediate steps or screwing or unscrewing components **(Fig. 5)**.

Fig. 2: The clinical situation shows healthy soft tissue with a vestibular bone deficit.

Fig. 3: X-ray of the initial situation.

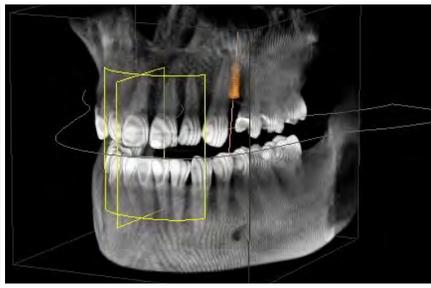

Fig. 4: The length and position of the implant was determined using volume tomography.

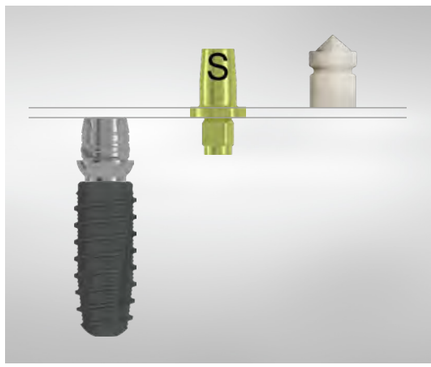

Fig. 5: One click, one scan, one shift: the new scan adapters, onto which the CEREC scanbodies are snapped for the intraoral scan, allow fabrication of a restoration with just a single change of abutment.

Fig. 6: The depth and direction indicator is a useful tool for checking implant inclination.

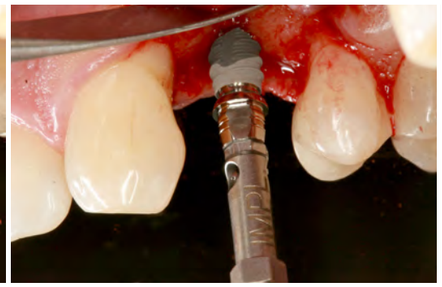

Fig. 7: The implant is inserted using the insertion tool which is mounted on the implant base to take the implant.

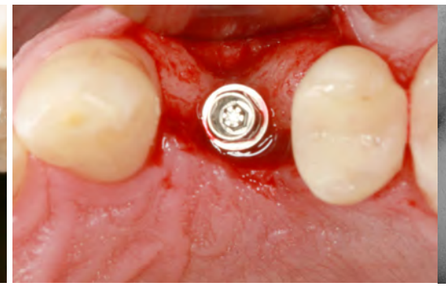

Fig. 8: The correct placement of the implant is checked in occlusal top view.

Fig. 9: The X-ray control image shows the subcrestal placement of the iSy implant.

Fig. 10: The iSy scan adapter was inserted into the implant base for intraoral scanning and the scanbody snapped on.

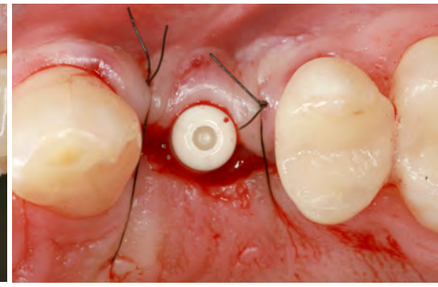

Fig. 11: The iSy gingiva former was attached and the soft tissue fixated with adaption sutures.

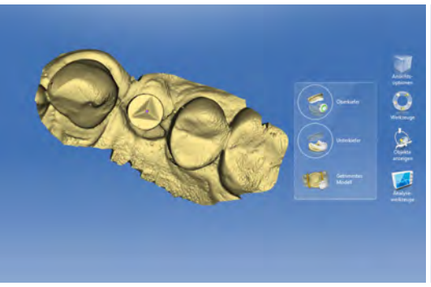

Fig. 12: The transferred intraoral scan shows the surrounding soft tissue and the pyramid of the CEREC® Scanbodies.

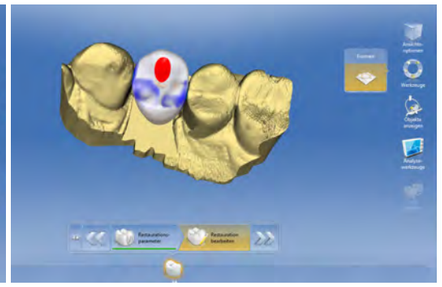

Fig. 13: The occlusal view shows the perfect positioning of the screw access channel.

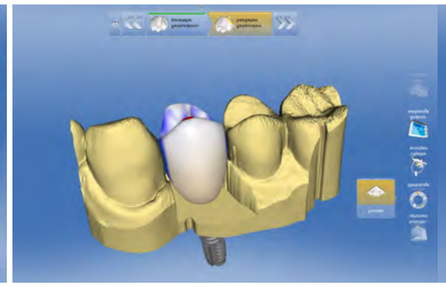

Fig. 14: The design, the crown emergence profile as well as the contact points were checked carefully.

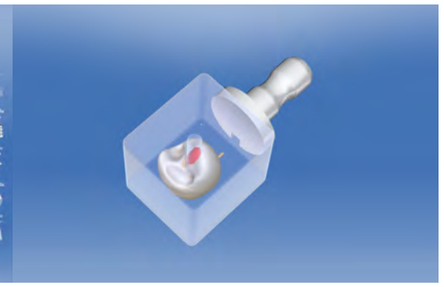

Fig. 15: The crown design was positioned perfectly on the blank for milling.

Fig. 16: Bonding of the CAD/CAM-fabricated lithium disilicate crown was performed extraorally on the titanium base.

Fig. 17: The hybrid crown was placed several hours after implantation.

Insertion of the iSy implant

No pre-treatment other than professional tooth cleaning was required. Preparation of the implant bed followed after crestal, slightly palatal oriented incision, and preparation of the mucosal flap. The implant position was first marked with a round bur using an orientation template prepared in the laboratory beforehand. In-depth preparation followed with the pilot drill. The iSy direction and depth indicator was used to check the axial alignment **(Fig. 6)**. Then the final implant bed was prepared with the single patient form drill included in the iSy implant set. The implant, which was pre-mounted on the iSy implant base (Ø 3.8 mm/L 11 mm), was inserted. Due to the platform switch, the implant shoulder can be placed slightly subcrestally for better hard and soft tissue adherence **(Figs. 7 and 8)**. Excellent primary stability was achieved due to the implant platform and the slightly under-dimensioned drill hole, so that the implant was restored as planned. Before sealing the soft tissue, we took an X-ray to exclude any possible damage to the surrounding tissue from a forensic perspective **(Fig 9)**.

Digital impression taking and CAD design of the hybrid crown

The new scan adapter is a well-thought out technical highlight which is simply clicked onto the implant base. The Sirona scanbody is then simply attached to allow digital intraoral impression taking with the Sirona Omnicam. Following data transfer, the scan adapter including the scanbodies were removed, the gingiva former was attached and the soft tissue sutured with two positioning sutures. As some swelling of the soft tissue can be expected, this suture is sufficient to give the emergence profile of the crown, which will be placed a few hours later, sufficient space **(Figs. 10 and 11)**.

The transferred scanning data was read and the hybrid crown fabricated on the titanium base CAD/CAM saved in the software. The screw access channel was created and the crown positioned virtually in the IPS emax® CAD blank **(Figs. 12 to 15)**. Alternatively, a temporary restoration with Telio CAD is possible at this point in time. Once the hybrid construction had been milled, the carrier connections to the blank were severed and carefully ground, the crown was customized somewhat with stains and then sintered in the ceramic furnace.

Option of laboratory fabrication

Modern intraoral scanners provide open STL data sets, so that both the design of the reconstruction as well as the fabrication of the crown can be performed lab-side with the appropriate equipment. The treatment teams are able to communicate and interact easily and conveniently via the digital workflow. The digital solution is often an efficient approach to meet patient wishes for inexpensive solutions.

Insertion of the reconstruction on the day of surgery

The bonding surfaces are activated corresponding to the materials for bonding the crown to the iSy titanium base CAD/CAM. This means sandblasting and silanizing the titanium base and etching the crown with 5% hydrofluoric acid. The components are finally bonded with Multilink® Implant (Ivoclar Vivadent) **(Fig. 16)**.

A few hours later the patient came into the practice for insertion of the hybrid crown. To this end, the gingiva former was removed, the abutment screw loosened and removed, the iSy implant base was removed using the abutment disconnector. The restoration was placed on the implant which had been inserted during the morning and the screw tightened with 30 Ncm **(Fig. 17)**. After checking occlusion and function, the screw access channel was sealed with Teflon tape and flow composite **(Figs. 18 and 19)**.

Discussion

Workflows are often used in implant dentistry that are regarded as "gold standards". However, daily and practiced workflows often overlook that there is sufficient evidence to allow reduced solutions for the benefit of the patient. These lead to the same, if not even better results [7].

In our dental practice I see the digital workflow as a commercial necessity to meet the demands of our patients for inexpensive solutions – and that also require fewer appointments [8–12]. The implementation of these technologies is of benefit to our dental practice – and can be measured in numbers. The new immediate restoration concepts drastically reduce actual "chairside times" and thus the practice costs. This way we meet patient needs in a targeted manner and improve our services continuously. The digital workflow can be implemented

Fig. 18: The abutment screw was retightened after removing the sutures.

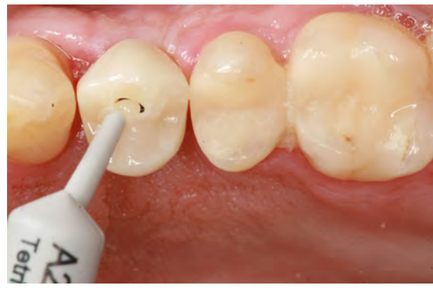

Fig. 19: The screw access channel was sealed with Teflon tape and a flow composite.

in gradual steps – following a modular principle – and the infrastructure expanded step by step. In this context, ensure that systems are purchased that can be linked easily and safely to the treatment partners. In the ideal case, the team would evaluate the various systems prior to purchasing the hardware and software and make a joint purchasing decision. After all, this forms the basis for problem-free networking and improved services.

Conclusion

iSy – the intelligent system – allows considerable reductions in treatment and costs and yet offers an absolutely reliable high quality result. To fully benefit from the potential, constructive cooperation of everyone involved is required next to the "digital technology". Smooth data transfer without any losses must be assured for the benefit of the patient. Backward planning has been in use for a long time and should be the focus of every treatment therapy.

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Dentist Jan Kielhorn studied in Heidelberg and worked in a private oral surgery practice in Oppenheim from 1998 to 2005. He is a specialist in oral surgery with a focus on implant dentistry and periodontology. His specialist fields include computer-guided tooth surgery, microscopic interventions, sanitation under anesthetics, immediate implantation with immediate restoration. In 2005, he founded the practice clinic Kielhorn & Kielhorn in Öhringen. Today, the practice clinic operates under the name Whiter by Kielhorn & Kielhorn. Together with dentist Siegfried Hoelzer he founded Whiter Consulting which is dedicated to optimizing dental workflows. Jan Kielhorn is an author and lecturer at a national and international level and holds an honorary professorship in Ludhiana, India. Jan Kielhorn is a member of the specialist associations DGI, DGZMK, BDO, DGOI, BDIZ, and the DGET.

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

PART 3: ABUTMENT HYGIENE – CLEANING IMPLANT-PROSTHETIC ABUTMENTS

Dr. Peter Gehrke, Ludwigshafen, DT Carsten Fischer, Frankfurt a. M.

The authors have been involved with CAD/CAM abutments for more than ten years and their work and publications have contributed to a paradigm change. In this series of three articles they summarize their experiences. After describing fabrication precision in the first part, the second part focused on surface topography. In part 3 they will now cover abutment hygiene and cleaning respectively. A practice-oriented approach is presented.

The controversial discussion about clinically necessary and practically feasible processing and cleaning procedures for implant abutments is held at numerous levels. Why? Customized abutments are medical devices that are largely classified as being semi-critical (Robert-Koch-Institute, RKI). Hence, valid cleaning is mandated. Conventional vaporizing is not sufficient and falls short of the disinfecting effect required by the standards [3]. In this context, the technical and dental work processes need to be reconsidered and reorganized if necessary. The EADT e.V. recently published the summary of an expert discussion panel on the topic and presented the current studies on the various options available [4]. Even if adequate answers are still missing for many questions and intensive research is still required, this is no reason to disregard the problem. The treatment team must accept that implant-prosthetic abutments should not be inserted into the mouth uncleaned. This article presents a possible workflow between the dental practice and the laboratory.

Surface topography

Looking back at Part 2 of the series of articles, surface topography needs to mentioned again in this context. A decisive role is played here by the surface of the implant abutment in the transmucosal region for perfect adhesion of the peri-implant mucosa. If the surface is too rough, there is a risk of increased plaque accumulation. However, if the surface is too smooth, the fibroblasts of the peri-implant mucosa cannot "attach" optimally. The study data presume that there is a threshold value at which bacterial and plaque accumulation on the surface is low while at the same time promoting the accumulation of fibroblasts. A medium roughness value (in µm: Ra = 0.21-0.40) is regarded as the ideal surface **(Fig. 1)**. We machine the basal region with special diamonded rubber polishers (sirius ceramics, Frankfurt/Main) and so obtain an Ra value of 0.32 µm with the Panther Lens 260 smooth; the proven standard for optimal tissue accumulation. Once we have reached this threshold value, the focus is on cleaning the abutment (medical device).

The issue

At present, there is no clear answer regarding the infection risk for patients due to insufficiently disinfected or sterilized abutments. However, initial studies have shown that inadequately processed abutments can lead to increased peri-implant bone resorption [1]. First of all, the treating dentist should decide whether the

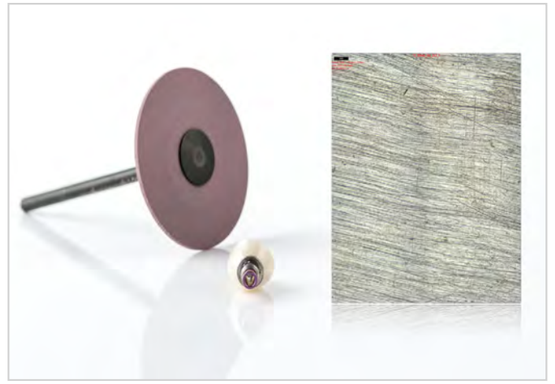
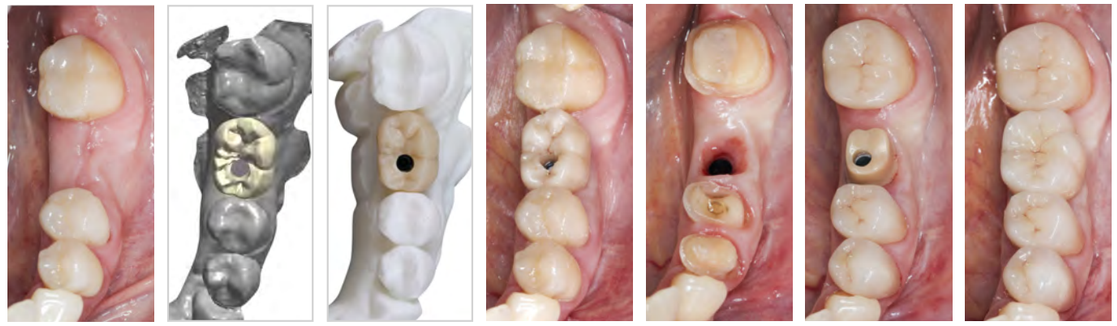


Fig. 1: A mean roughness value of 0.21 – 0.40 µm is recommended for the surface in the basal section of the abutment. The Sa-value with Panther Lens 260 smooth 0.32 µm (image on left).

Fig. 2 Mere vaporizing of the CAD/CAM abutment does NOT comply with the hygiene requirements for a semi-critical medical device.



Figs. 3 to 9: The individual sequences in the fabrication of an implant-prosthetic crown in the digital workflow (incl. intraoral scan in the surgery phase). The emergence profile is shaped with a customized healing abutment for exposure.

implant abutment is classified as a semi-critical or critical medical device.

- Semi-critical: the abutment is in contact with the mucosa. Cleaning and disinfection of the abutment is necessary according to RKI guidelines.
- Critical: the abutment penetrates the skin or mucosa and is in contact with blood and internal tissues. Sterilization of the abutment is necessary according to RKI guidelines (for example, in the immediate function of implants).

In abutment hygiene one needs to differentiate between cleaning, disinfection, and sterilization [4]. Cleaning describes the removal of debris (blood, protein, surface contamination). Disinfection describes the reduction of pathogens (bacterial spores are not inactivated by disinfection processes using steam). Validated sterilization processes inactivate bacterial spores, provided they comply with applicable standards (vegetative bacteria, viruses, and fungi are inactivated). There is no clear evidence about the effect of sterilization on the structure of ceramic abutments at humid heat. Despite existing hygiene standards there remains a gray zone between the dental practice and the dental laboratory with regard to cleaning of implant-prosthetic components. Using a synchronized work protocol, it is possible to integrate a clean abutment in the patient's mouth according to present knowledge **(Figs. 2 to 8)**. Who? When? For what? These responsibilities should be clarified within the team.

Status quo in abutment hygiene

Contamination can occur on implant abutments – regardless of being customized or pre-assembled – which leads to questions regarding a long-term stable outcome. In a study [2] it was observed that a variety of processing particles remain on the surface if the abutment simply undergoes vaporization **(Fig. 9)**. These are difficult to see macroscopically, nonetheless they are clinically relevant and can affect peri-implant structures [5]. In an examination of the surface cleanliness of various abutments, the level of cleanliness was assessed using electron microscopy as well as chemical analyses. ZrO^2 abutments were examined in this instance. The contamination that was detected drew attention to the requirement for adequate surface processing and cleaning. The massive inclusions and deposits on the examined abutments are largely attributable to technical processing parameters. In the CAM milling process, impurities remain on the surface, and these cannot be eliminated by a conventional cleaning procedure. We deliberately repeat our assertion: merely vaporizing the

individual abutments **does not remove** the particles – which are macroscopically hardly visible – from the surface.

Possible sources of process impurities:

- Cooling liquid from the CAM process
- Milling chips
- Blasting material
- Grease
- Polishing agent
- Palladium milling residue
- Sulfuric acid in case of zirconium abutments
- Adhesive residue
- Rubber residues

Possible procedure

Our own initial in-vitro investigations demonstrated that ultrasonically cleaned and disinfected abutments show a clear reduction in surface contamination. We therefore recommend to subject all abutments to a standardized cleaning and disinfection procedure prior to insertion in the patient. In order to ensure a clean and hygienically perfect abutment surface, we follow a systematic three-stage cleaning protocol (Finevo washing protocol) **(Fig. 11)**. Then the hygienically cleaned abutments are sealed and supplied to the dental practices. We have defined a roadmap within our team. The individual work steps are documented exactly.

Three-stage cleaning protocol for abutment hygiene

The standardized processing protocol presented here has been well established in our process and has proven itself. The procedure is simple and feasible, which may prove to be a valuable argument in everyday practice or laboratory routines. The abutment is cleaned successively in an ultrasonic bath in three different cleaning liquids for ten minutes at 60 °C.

The first step is the disinfection in an antibacterial cleaning liquid (Finevo, sirius ceramics, Frankfurt am Main). Then the object is placed in 96% ethyl alcohol and rinsed for a further ten minutes in the ultrasonic bath. After subsequent cleaning with pure medical distilled water, the assembly is sealed and supplied to the dental practice. This three-stage ultrasonic cleaning protocol has delivered excellent results in our in-vitro studies for the cleaned surfaces (test group) compared with surfaces cleaned with a steam vaporizer (control group).

Conclusion

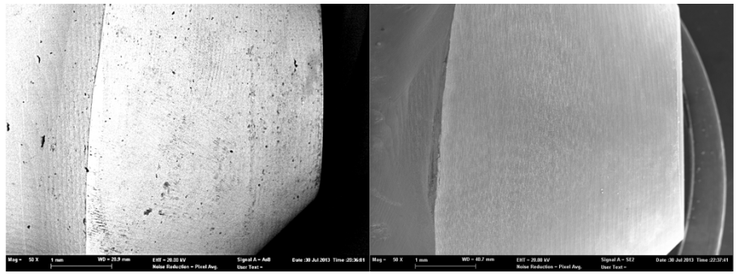
The implant-prosthetic treatment team should be aware that implant abutments are medical devices that have to meet certain criteria. Dental technicians in particular are therefore faced with a new range of tasks which they should take on responsibly. And even if the answers are still limited for many questions and the need for research exists, the fact remains: the treatment team should define a clear routine procedure that corresponds to current knowledge and legal requirements. It should be determined jointly who is responsible for which step, and how documentation is to be performed. We fully comply with the three-stage cleaning protocol. The procedure is practice-oriented and financially acceptable and the results comply with the recommendations existing for the present status of knowledge.

Cleaning protocol

The following washing units are performed in the high-frequency ultrasonic bath heated to 60 °C for ten minutes each:

1. Antibacterial cleaning solution (Finevo 01, Sirius Ceramics, Frankfurt/Main)
2. Ethyl bath (96% ethyl alcohol)
3. Pure medical distilled water
4. Sealing of cleaned abutment

Figs. 10 and 11: Standardized three-stage cleaning process with a washing protocol in the ultrasonic bath.



Figs. 12 and 13: Contaminated components before and after 3-stage cleaning.
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Carsten Fischer

Carsten Fischer has been a self-employed dental technician since 1996 in a specialist company in Frankfurt/Main. He has been an active international speaker since 1994 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 an 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 a part-time assistant at the Goethe University Frankfurt from 2012 to 2014 and continues his close cooperation. His contribution was honored as best lecture at the ADT by the Working Group Dental Technologies 2013. Carsten Fischer is a lecturer at the Steinbeis University of Applied Sciences, Berlin, and speaker for various organizations (DGI) as well as Vice President of the EADT.

CERALOG – AN INNOVATIVE CERAMIC IMPLANT SYSTEM

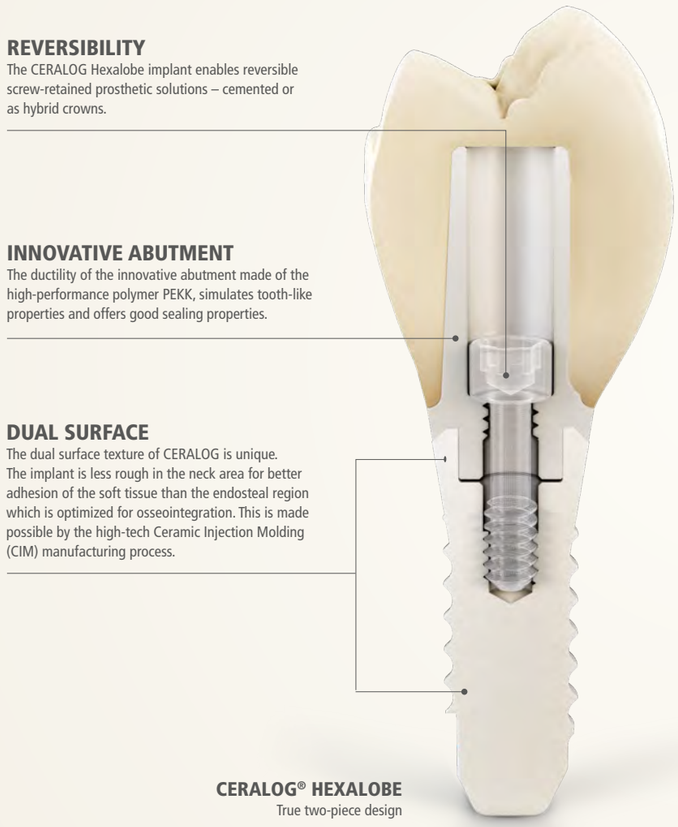
SUCCESSFUL IN CLINICAL USE FOR SEVERAL YEARS

The demand for ceramic implants has increased considerably over the past few years. Many patients ask for highly esthetic and particularly tissue-friendly dental prostheses. As a leader in innovation, CAMLOG has been involved intensively in ceramic implants for several years and finally acquired a majority holding in AXIS biodental SA in autumn 2016, a company specializing in the development and manufacturing of innovative dental implant solutions made from high-performance ceramics. The CERALOG System consists of one and two-piece implants. With its two-piece design, the new CERALOG implant enables reversible screw-retained prosthetic solutions and thus offers greater safety and freedom in esthetic restoration options. In addition, CERALOG has impressively good mechanical properties that have only been associated with titanium to date.

The two-piece CERALOG Hexalobe implant is a true two-piece design in conjunction with reversible screw-retained abutments made of the high-performance polymer PEKK. The abutment can be attached optionally in the implant with a titanium or gold screw. Alternatively, the one-piece CERALOG Monobloc implant is available for purely ceramic solutions. Both implants are available in lengths of eight, ten, and twelve millimeters and a diameter of four millimeters. The ivory color, which is very close to the color shade of a natural tooth, and the properties of zirconium dioxide make for highly esthetic results.

Innovative abutment with optimized Hexalobe implant-abutment connection

Whether cemented solutions or hybrid crowns, both are possible with CERALOG Hexalobe abutments. The PEKK abutment is ideal for extreme loading as the ductility of PEKK reduces the stress factor and simulates tooth-like properties. Taking the special requirements for zirconium dioxide into account, the Hexalobe implant-abutment connection was developed specifically for this material. During insertion, torque forces are introduced tangentially into the implant, allowing a considerably higher torque than can, for example, be transferred with a hexagonal connection. In addition to the straight and angled PEKK standard abutment, a customized full zirconium dioxide abutment has also been available for the two-piece implant since May 2017. This is available in two colors and supplied optionally with a gold or titanium screw.



More than ten years of experience

CERALOG is based on more than 10 years of dedicated research and development for the benefit of the patient. The first clinical studies were conducted in 2007 with the current material composition and surface texture. Marketing commenced with the one-piece Monobloc implant. The two-piece Hexalobe implant has been used successfully in clinical practice in its present configuration since early 2013. As such, CERALOG Hexalobe can draw on many years of clinical experience in the field of two-piece, reversible screw-retained zirconium dioxide implants. The dual surface texture combines two defined roughnesses on a single implant, whereby the implants are less rough in the neck area in order to promote soft tissue adaptation. The endosteal area of the implant body is provided with a micro-rough texture which enables targeted deposition of bone cells. This is made possible by Ceramic Injection Molding (CIM), a unique ceramic injection molding process that is used for manufacturing CERALOG Implants. This top technology makes it possible to manufacture complex shapes with various surface textures without additional abrasive processing steps.

Every single CERALOG implant is subject to quality control. In this process, the implant is tested optically and dimensionally and with appropriate mechanical loading in a controlled process.

More information at:
www.camlog.com/en/implant-systems/ceralog/

CAM TITANIUM BLANKS FROM CAMLOG

AN ORIGINAL WITH ADDED VALUE

The trend towards customized machine fabrication in dentistry is increasing steadily. Meanwhile numerous milling centers offer customized abutments, but dental laboratories are also increasingly investing in their own fabrication equipment. This has increased the demand for the original CAMLOG titanium blanks.

We are meeting this need and enable our customers to make customized one-piece titanium abutments or healing caps for CAMLOG implants themselves.

Two designs: Type IAC and type ME

The CAM titanium blanks are available in two variants:

- Type IAC with a clamping setup at the implant-abutment connection and
- Type ME with a clamping setup at the cylindrical section, which is compatible with the PreFace® abutment holders from Medentika®.

Both types of blanks have the original implant-abutment connections for the CAMLOG, CONELOG and iSy Implant Systems with the matching screw channels.

Integration into the CAM system

In order to integrate the blanks into the CAM system, we provide you with the geometry of the blanks as well as the holders for the type IAC blank. We offer you the following CAM libraries for the type ME blank:

- SUM3D from CIMSYSTEM in combination with exocad®
- hyperDENT® from FOLLOW-ME!® in combination with 3Shape® and exocad®

The libraries are technically integrated into your system through the suppliers of the corresponding holders as well as the CAM software.

GREATER EFFICIENCY IN THE SURGICAL WORKFLOW

THE NEW IMPLANT PACKAGING

This year CAMLOG has introduced a series of novelties which, among other things, also make work processes more efficient. This includes the innovative packaging system for CAMLOG® and CONELOG® Implants.

The new packaging not only saves space but also ensures safe and efficient handling during the surgical procedure. An ergonomically designed blister enables easy handling as well as a safe transfer of the implant into the sterile area.

The innovative implant holder is at the core of the new packaging concept. With its click mechanism, both the implant and the cover screw are secured in the implant holder. The new insertion post has a narrow head diameter and is ideal for reduced interdental spaces. This can be picked up directly with a manual insertion tool or an angled hand piece and inserted accordingly.

The transition to the new packaging concept will be carried out in stages, starting with the CONELOG® Implant System. From July 2017 onwards, the CAMLOG® Promote® Implants will follow along with CAMLOG® Promote® plus implants in October 2017.

Please also read the article on page 28 where the change in article numbers is described.

CAMLOG offers you a first class complete offer in combination with the numerous prosthetic options of the CAMLOG® and CONELOG® Systems, the multi-optional COMFOUR™ Abutment System, the precise Guide System.

Ergonomic blisters

- The new blister shape guarantees easy handling together with a safe and efficient transfer to the sterile area.

New implant holder

- Innovative holding system for the implant and the cover screw.
- Release of components via simple click mechanism.

Video tutorial

CAMLOG® SYSTEM

CONELOG® SYSTEM

NEW PRODUCT CATALOGS

MODERN DESIGN, PRACTICAL HANDLING

Modern, fresh and clearly structured – this best describes the new product catalogs for CAMLOG® and CONELOG®. They will be available completely revised and with new products added, all in a new look.

The first class product images and the clearly structured information will add to your browsing pleasure. An index has been added to provide you with better orientation and allow you to find the products quicker. The indication and screw overviews are also new in the additional information sections.

New article numbers

The new packaging concept was unveiled at the 37th International Dental Show in Cologne and has been introduced in stages since May 2017 (see article page 27). The process started with the transition of CONELOG® Implants to the new packaging. In addition, the article numbers also changed and these have been adapted in the new CAMLOG® and CONELOG® catalogs as follows:

Implant system	Old article number	New article number	Valid
CONELOG® Implants	C1062.xxxx	C1064.xxxx	since May 2017
CAMLOG® SCREW-LINE implants Promote®	K1042.xxxx	K1044.xxxx	since July 2017
CAMLOG® SCREW-LINE implants Promote® plus	K1052.xxxx	K1054.xxxx	from October 2017

ORAL RECONSTRUCTION FOUNDATION

Oral Reconstruction Foundation Board Members (left to right):
Prof. Dr. Thomas Taylor (USA), Prof. Dr. Fernando Guerra (PT), Prof. Dr. Mariano Sanz (ES), Dr. Alex Schär (CH), Prof. Dr. Jürgen Becker (President, DE), Prof. Dr. Frank Schwarz (DE), Prof. Dr. Wilfried Wagner (DE)

THE NEW INDEPENDENT FOUNDATION

THE CAMLOG FOUNDATION BECOMES THE ORAL RECONSTRUCTION FOUNDATION

Dr. Alex Schär, CEO and member of the foundation board of the Oral Reconstruction Foundation

Following its renaming as the Oral Reconstruction Foundation and the resulting independence from the company, the foundation is now open to extended areas in dentistry as well as for collaborations for advancing scientific research in the field of oral reconstruction. The partner foundation, "Oral Reconstruction Foundation - U.S. Section", had already been established in April 2016.

The objective of the CAMLOG Foundation has always been to create and disseminate knowledge by sponsoring research projects and further education as well as sponsoring young scientific talents.

The Foundation is convinced that scientists, practitioners, and the industry require an interface where they can exchange specialist knowledge and ideas as well as promoting progress in implant dentistry and related fields. And the focus is always on the patient.

The Foundation has financed more than 140 scientific projects, studies, and grants, as well as promoting continuous training and further education. In addition, a Foundation Research Award has been created which is awarded every two years and is endowed with a total of EUR 20,000.

The Foundation will remain true to its leading theme "Science – Education – Patient" under its new name of Oral Reconstruction Foundation. This interaction is reflected in the new logo.

Furthermore, the Oral Reconstruction Foundation supports and organizes national symposia and the Oral Reconstruction Foundation will be responsible for what was previously the International CAMLOG Congress, which will be held from **April 26 to 28, 2018, in Rotterdam, Netherlands**. Save the date now.
If you wish to attend one of our national events in the German-speaking region this year, you have the opportunity of participating on **September 22 and 23 2017** at the event "Update Implant Dentistry: Better is the enemy of good" in Wimsheim. In parallel, there is a national symposium under the motto: "When the wind of change blows, some erect walls, others build windmills" in Saalfelden, Austria.

Further information is available at
www.orfoundation.org

SAVE THE DATE

Oral Reconstruction Global Symposium 26 to 28 April in Rotterdam, Netherlands

Rotterdam is the second largest city in the Netherlands and Europe's largest seaport. A young, dynamic, cosmopolitan city with numerous facets, a city that continually reinvents itself. It has something for every visitor, whether partygoers, fashion-conscious trendsetters, or art lovers. Rotterdam is particularly well known for its amazing architecture. The pulsating city offers modern architecture under the motto: light, air, and space.

Glittering skyscrapers, an impressive port, unique restaurants and food halls, renowned museums and unforgettable festivals all call for a visit. **www.rotterdam.info**

ROTTERDAM NUMBER 5 IN THE TOP 10 OF LONELY PLANET'S BEST IN TRAVEL 2016
http://www.lonelyplanet.com/best-in-travel/cities

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www.instagram.com/orfoundation

SCIENCE • EDUCATION • PATIENT

HEALTHY AND MOTIVATED MANAGEMENT

AN INNOVATIVE APPROACH TO LEADERSHIP

It is not just dentistry but also the issue of leadership that is undergoing changes: whereas the leader as a person dominated 100 years ago, in the middle of the last century McGregor and Herzberg shifted the focus instead to employees, causing a major movement in human resources. In the 1970s and 1980s, pioneers such as Blake/Mouton, Schulz von Thun, and Schein, defined the relationship of employees and their supervisors and thus the social management expertise as a guarantee of good leadership. Around 1990 the focus moved to management skills. In the last two decades, the situation and the context have moved to the fore: situational management and the initial constructive approaches became the precursors of modern management.

Today, innovative leaders are supposed to combine all these skills. Furthermore, further development requires a high level of competence in self-control and, in particular, self-reflection. On the one hand, the objective is optimal support of employees to exploit their potentials in a targeted manner and on the other, to keep work satisfaction at a high level. Appreciation, individuality, and sustainability are the buzz words of today.

Sustainable management in the dental practice

What applies to large corporations, also applies to modern dental practices – particularly for larger practices. To ensure a dental practice operates continuously at high quality, a harmonious atmosphere and trustworthy working culture are essential. However, a working atmosphere or culture cannot be decreed – they are the product of management. And management is always up to the boss!
Health, enjoyment, and motivation at work are not only critical for maintaining the wellbeing of the practice team, they also make everyday practice routines easier as every form of dissonance is felt and lived by all concerned. The happier employees are, the fewer disagreements and communication problems as well as absences due to illness and demotivation. Promoting common ground and strengths in the team – but in particular also recognizing any differences – creates a stronger team spirit and a greater feeling of trust among each other. Practices wishing to position themselves successfully in a competitive environment should therefore invest in their human resources. The focus is increasingly on improving management quality and effectiveness also for cost reasons.

Customized strategies for successful leadership

To become a motivational leader, it is essential to first understand your own personality. "What drives me?" This apparently simple question stimulated Prof. Steven Reiss to investigate the topic of basic desires in depth. The 16 basic desires according to Reiss have an elementary effect on what we want, or do not want, what we welcome, reject, or tolerate, all of which is in the end reflected in our attitude, approach, and language. These desires, which are deeply rooted in the personality, not only dictate our behavior but inversely also have a major effect on how other people perceive us and what they think of us. As a logical consequence, our desires are major factors determining how we are perceived as a leader and how employees respond to our management. Respect, esteem, tolerance, rejection, frustration, demotivation, and many other feelings can be the result and are reflected in the behavior of the employees. The question of "Who am I?" thus automatically also leads to the question "How do I lead?". Finding one's own successful management strategy to keep motivation, team spirit, and mutual understanding at a permanently high level in the practice should therefore be a declared corporate goal.

Tyranny of own values

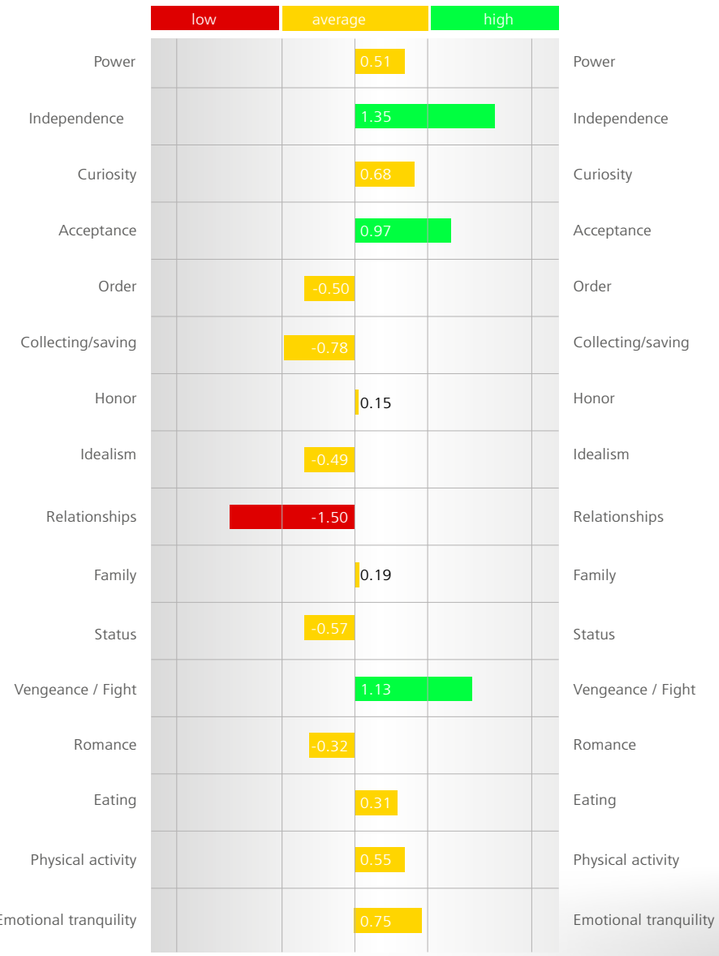
Of course, it is the nature of the situation that every person regards his or her motivational desires in a positive light. This leads to an unnoticed pronounced self-centeredness, known in technical jargon as "self-hugging" or "tyranny of values". This means that one's own values are defined as being the only right ones, even though they have no claim to being infallible but merely represent one's own view of the world. Those who can assimilate this line of thought obviously have it easier in dealing with other people and can be more tolerant, open, and appreciative.

The more desires that are relevant for leadership that are included in the analysis (see figure below), the more differentiated is the representation of the personality structure of the leader. On this basis, it is possible to evaluate what the person needs to be a motivational leader. If, for example, we only consider the two desires "Power" and "Independence", it quickly becomes clear how different management styles can evolve simply on the basis of these two desires.

Power as motive

The guiding principle for this desire is the pursuit of power, influence, control, and dominance. Whether these people enjoy using their power becomes particularly evident in their leadership behavior. Persons with a high desire for power are ambitious, performance-oriented, and enjoy making decisions. They are willing to take on responsibility and want to have influence. This type enjoys leading and this results in energy.

Persons with a low power motive are service and person-oriented. They do not



The 16 basic desires according to Prof. Steven Reiss

- Power
- Curiosity
- Order
- Honor
- Relationships
- Status
- Romance
- Physical activity
- Independence
- Acceptance
- Collecting / saving
- Idealism
- Family
- Vengeance / Fight
- Eating
- Emotional tranquility

Fig.: Example for a personality profile according to Prof. Steven Reiss.

enjoy making decisions but rather let others decide and avoid taking on responsibility.

The independence motive

This desire describes the need for emotional attachment or the desire for autonomy and independence. In its strongest form of expression this will either be a team player or an individualist. Persons with a high independence desire are autonomous loners who need freedom and prefer working independently. They make decisions on their own, enjoy being self-reliant, and avoid questions about their private life as it takes up too much energy to discuss emotional aspects.

In contrast, persons with a low independence desire enjoy closeness and commonality. They are supportive, cooperative, and community-oriented.

Let us now look at the combination possibilities of these two motives:

- Persons with pronounced power and pronounced independence are particularly suited to being owners of individual practices. They can also work well in a system with employed dentists as department head or clinic manager or with partners who do not wish to take on their leadership role.

- Persons with pronounced power and low independence could suffer from a conflict of desires. They want take decisions alone and take the lead but then feel they are too dominating and look for support from the team. A joint practice with equal partners could prove to be an ideal working environment.

- Persons with low power and low independence are strong team players. It could be that this type positions him/herself at the same level as the employees and is perceived as being very humane. A job as employed dentist could therefore be the job of choice.

- The type with low power and high independence could also suffer from a conflict of desires: these persons want to be part a team and yet remain emotionally autonomous. They would prefer to allow others to make decisions and to play a subordinate role. They need their freedom and therefore often search for opportunities to withdraw, even though they enjoy the social interaction. In this case, a practice partner or practice management who enjoy leading could be regarded as being pleasant. The combination with a practice partner with high power and high independence could be good for both parties.

No inclination is better or worse than the other. The strength of the desire says nothing about whether a person can lead or not but only indicates whether a person enjoys leading and how he or she leads. Viewed objectively, there is no rating of desire manifestations. Ratings always correspond with one's own view, and it is exactly this limited thought structure that helps to eliminate the Reiss structures and to adopt a neutral and appreciative manner.

As everything in this article revolves around a manager, the next contribution based on this article, will be devoted to the topic "Assessing employees correctly according to the Reiss profile".

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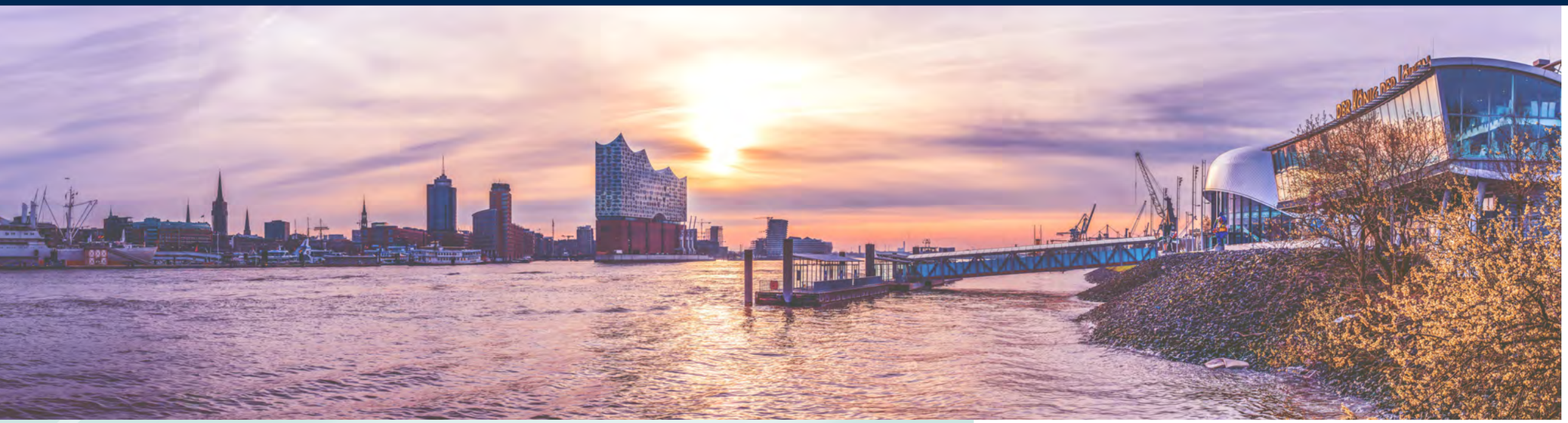
Syst. Business Coach, Reiss-Profile-Master, NLP Coach



A NEW STAR HAS RISEN OVER THE ELBE RIVER

The main church, St. Michaelis in Hamburg, has been one of the best known and most prominent landmarks of the "Gateway to the world" in the north of Germany for centuries and is now facing some stiff competition: the Elbe Philharmonic Hall which was opened ceremoniously in January 2017. Its exceptional architecture is of spectacular monumentality, its acoustics are breathtaking, and the list of performing artists and orchestras published to date reads like a "Who's who" of the premium quality segment worldwide.

Within the shortest of times, the Elbe Philharmonic Hall in the port of Hamburg has turned into a top level attraction for visitors. And this is despite giving the appearance not all that long ago that this epic feat would at best be a prime example of project management gone totally out of control with exploding costs and a total disregard for completion deadlines.

Let's not overdo things

The year 2012 went down in history as being particularly bad as construction costs reached dimensions beyond all good and evil. The bleak assumption that the city had fallen for a megalomaniac project was readily heard on the Jungfernstieg and the Elbchaussee. A terrible thought for the self-confident citizens of the free Hansa city which is proud of its national reputation as an economic powerhouse. As well as having a very special city, there is also the port, the cosmopolitan flair, and the self-assurance of being able to make its own decisions. This is a city that never needed outside masters to perform culture on the Elbe – this is something the citizens were quite capable of doing themselves, maybe not in baroque opulence, but certainly with Hamburg's typical tastefulness.

Order executed

And finally the Elbe Philharmonic Hall managed to delight the reserved Hanseatic citizens, who are better known for their business acumen than for overflowing euphoria, with this cultural pinnacle in the north! One would be unlikely to admit this in the city on the banks of the Alster, but one does enjoy basking in the light of cultural attention. And the word "Glamour" would never be permitted in Hamburg to describe such interest by the public!

In 2004, the then Senator for Culture, demanded that the Elbe Philharmonic Hall should be among the ten best concert halls in the world. Twelve years later, the job has been completed. And what are the acoustics like? At home in the Rothenbaumchaussee, Hamburg's always well-tempered North German Broadcasting Station, which seldom succumbs to emotional outbreaks, was almost carried away during its contribution on the musical presentations at the opening performance: "A mystical sound, seemingly coming out of nowhere. It takes a while until one can trace its origin. In a box over the stage to the left, fairly far up, stands oboist Kalev Kuljus of the NDR Elbe Philharmonic Hall Orchestra playing 'Pan' by Benjamin Britten. Effortlessly, he fills the hall with his soft sound, and even the finest of harmonics reach the other end of the hall. (…) Even the infernal noise of Bernd Alois Zimmermann's 'Photoptosis for large orchestra and organ' does not appear to test the limits of the hall."

Ode to joy

The refined acoustic masterpiece of Yasuhisa Toyota, the star among sound architects, was deeply impressive. This became obvious at the triumphant opening concert, where you could not miss a single note, quite literally. And although the large hall of the Elbe Philharmonic Hall can accommodate more than 2000 visitors, it creates an astonishingly intimate atmosphere thanks to its special design, which groups all visitors in terraces on ascending galleries surrounding the stage, and the soft lighting, but mainly through its transparent, but never penetrating, acoustics – even at the loudest volumes. What could have topped Ludwig van Beethoven's 9th symphony "Joy, fair spark of the gods" as the final of the opening concert? Maybe only the enthusiasm of Thomas Hengelbrock, chief conductor of the NDR Elbe Philharmonic Hall Orchestra: "We never want to leave here!"

So, what are you waiting for?

If concert halls were awarded stars like gourmet temples, the Elbe Philharmonic Hall would no doubt be in line for top ratings among the three-star category which the Michelin Guide describes as: "First-class premium products, pure and intense flavors, harmonious compositions – worth a trip!"

Sources: SPON, NDR and others

Jan Peters
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