logo

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CAMLOG Partner Magazine

GREATER COMFOUR™ FOR USER AND PATIENT

Dear Reader

The function of product management covers planning, guiding, and controlling a product – from development right through to withdrawal of the product from the market. The aim in our sector is to achieve the best possible result for our customers but most of all for their patients. Launching new products is always an exciting task that everyone looks forward to. It is a fascinating but also polarizing issue and a challenging task: The product range should remain small and manageable, but different problems require specific solutions, possibly several because of varying preferences. There have also been different approaches used over time: A new product is developed, taking a step forward that starts a trend, or an existing solution is simply copied. Well evaluated and implemented product management helps provide qualitatively better knowledge about a product, technical changes, and customer needs. To find solutions to these in part contradictory requirements needs a great deal of commitment – but it is also a great deal of fun.

On the day of a product launch, the whole team is excited and everyone works at a fever pitch to ensure that everything goes as planned. This is why we are particularly pleased to be able to present two important innovations in this edition of logo. Firstly, in July 2015 screw-retained gingiva formers, impression posts for open and closed impression taking, and several prefabricated abutments and accessories were added to the prosthetics portfolio of the iSy Implant System. Then in October we introduced COMFOUR™, an occlusal screw-retained solution for straight and angled bar abutments for edentulous patients.

In both projects, we made a deliberate decision to work intensively with our customers. It is our objective to develop solutions for you as clinicians that simplify your routine tasks and create added value. And it appears that listening to you has paid off, because the reports coming in from the test market for COMFOUR™, for example, have been very positive. This is particularly pleasing because we did not simply follow the path of least resistance and copy a familiar competing product but rather we addressed the wishes of and challenges faced by users.

As well as these major product launches, we are continuing to optimize and supplement our existing range. An example of this is the abutment for temporary restorations made of titanium for CAMLOG mentioned above.

I hope you thoroughly enjoy reading the articles and wish you much success with our new products.

Sincerely

Christian Rähle
Director of Product Management, Development & Regulatory Affairs

DENTAL TECHNOLOGY IS SKILLED ABILITY MULTIPLIED BY DIGITAL TECHNOLOGY

FASCINATING IMPLANT PROSTHETICS AT THE 4TH DENTAL TECHNICIAN CONGRESS IN BERLIN

Dr. Jan H. Koch, Freising

Digital implant prosthetics offers a greater range of material and ensures greater precision. But is this why it is always the first choice? Prominent dental technicians showed an audience of about 750 that analog and digital methods complement one another – and together they open up completely new opportunities. These include milled custom gingiva formers, printed drilling templates, and optimized milling strategies for implant bars.

Computer-aided design and machine fabrication have been reality for many years with new technologies and materials entering the market all the time. "The sector has accelerated enormously." However, the expertise and perception of shape of dental technicians is as important as ever before, as Michael Ludwig, Managing Director of CAMLOG in Germany, stated in the introduction: "Those who position themselves as entrepreneurs while remaining close to technical development are equipped for a successful future."

How digital and analog methods can be intelligently coupled was demonstrated using several impressive examples presented by experts in Berlin. The analog work of their laboratories currently makes up between 30 and 90 percent. All agree that this is because it is still better to carry out some work steps using analog technology rather than digital. The master dental technician **Christian Hannker** (Rastede, Germany) designs his wax-ups manually as a matter of principle: "I can work on digital setups for three hours and still only achieve unsatisfactory results." Instead, he uses the natural tooth model "out of the drawer." He scans in the wax-up and plans the implant bar or telescopic bridge on the screen.

The primary and secondary constructions are then milled using his own machines. Mr. Hannker then transfers the tooth preparation onto the framework using a silicone index, removes the gingival areas, and duplicates the entire construction. Over several steps carried out by hand, the tooth areas are filled with dentin and enamel composite and stain inserts. Parallel to this, Mr. Hannker displayed the digital finalization of the restoration. The color play is achieved here using appropriate milling blanks and stains and glazes – stable data or long-term results are not yet available (1). To date, manual finalization of the restoration has been the most easily implemented route in his laboratory.

Open software and PEEK caps

Like his colleagues **Hans-Frieder Eisenmann** and **Kurt Reichel**, **Christian Hannker** prefers open software for digital constructions because this gives him the design freedom he requires. This freedom extends as far as modifying the CAM strategies. For bar covers, he simulates the use of the different burrs. In this rapid virtual procedure, he checks whether the abrasive reaches and correctly mills all parts of the object relevant for the fit. After the fabrication, he checks the friction of the bar again in the machine. If the friction fit is too tight, he goes back to the milling strategy and adjusts this in the micrometer range. This laborious adjustment is done in several steps where necessary.

Mr. Hannker (analog share: 30%) loves this work, which for him is comparable to an expensive hobby. At the same time, he emphasizes how important it is to remain closely involved with the technology:

"What use is the massive horsepower of a sports car if we don't open the throttle on the road?" Depending on the indication, Mr. Hannker works with different scanners, preferably in parallel with an optical and tactile device. He had not originally planned to offer a milling service: "That just happened."

Those who do not want to venture so far into the digital world can take other paths. **Jan Langner** (Schwäbisch Gmünd, Germany), for example, delegates computer-aided steps to his employees – he continues to work 100% analog. Mr. Langner uses digital fabrication technologies and is open to new ideas and techniques: For many years he has used zirconium oxide and lithium disilicate all-ceramic restorations and polyether ether ketone (PEEK) for telescope caps instead of using alloys. These newer materials are biocompatible and from his perspective have fascinating friction properties. Due to the lack of long-term data, most of the experts in Berlin were not forthcoming about this material, particularly regarding long-span PEEK bars or bridges.

Regardless of the technology, Mr. Langner advises structuring the day's work well: "Before I start working, I have to have it ready in my head, including the invoice. And I want to know how things are going to go tomorrow." Mr. Langner argues against standardized beauty and therefore recommends arranging teeth asymmetrically: "Give every patient their personality." This is quite rightly an argument for working with analog technology, at least in the anterior area.

Parallel freeways

For the Berlin master dental technician **Andreas Kunz**, developer of the Berlin concept, a lightweight construction for implant mesostructures, only patient photography (digital) and the functional and esthetic analysis (analog) are one-way streets. For everything else, analog and digital processes can be usefully combined. Mr. Kunz sees both concepts as parallel freeways and employing digital dental technology does not mean taking a detour with no ability to make a U-turn.

To remain economically successful, Mr. Kunz checks his work processes – daily – for quality and efficiency: To date he has preferred to model bars manually because they can be difficult to display on the screen (2). Before the CAM fabrication, he checks the model in the mouth. Mr. Kunz leaves the scanning and milling of complex bars to an external milling partner. He orders the workpieces in the raw state and finishes and polishes them in the laboratory.

Mr. Kunz shows how to successfully enter the field of CAD/CAM-supported implant prosthetics using order forms and checklists from the DEDICAM Scan & Design service. For customized abutments, working models, wax-ups, and removable gingival masks are sent to the milling center, along with information about the emergence profile, the pressure on the soft tissue, where necessary, and the position of the cervical step. The design of the abutment is then constructed by the dental technicians on the CAMLOG DEDICAM team. Alternatively, the abutment can be waxed up and sent in.

Firing for digital implant prosthetics

"We take on the responsibility." The dental technician **Martin Steiner** (Wimsheim, Germany), manager of the DEDICAM division, explains the CAMLOG quality guarantee for supplied semi-finished products.

Bars are tested using the Sheffield method to check for perfect passive fit. As Mr. Steiner impressively demonstrated, his team is all fired up about digital implant prosthetics – which is why they swear by in-depth communication with their dental technician clients.

The growing number of older patients means that the demand for dental technician services is growing. The volume of orders is also growing because of greater patient demands while at the same time, the dental laboratory workforce is shrinking. External service providers therefore provide an elegant solution with appropriate quality of service. The time saved can be used by dental technicians to provide services for patients and customers. This is known to be the best opportunity to differentiate your laboratory from those of your competitors.

Mr. Steiner advises checking the work processes in the laboratory for economic viability so that digitalization can be profitably and economically integrated. Whether dental technicians invest in the medium term in their own scanning and planning systems or even outsource these services depends on the particular orientation of the business. Mr. Steiner emphasizes that technical expertise and the corresponding material-specific and technical know-how form part of a well-designed digital planning and fabrication workflow.

3D printing and intraoral scans

Hans-Frieder Eisenmann (Amstetten, Germany) is part of the testing committee of the Stuttgart professional association.

In his laboratory, the master dental technician operates a 3D printer along with CAD/CAM milling technology, using the printer to prepare a considerable number of drilling templates for guided surgery. With the aid of virtual construction planning combined with the drilling templates, he can even supply customized gingiva formers or temporary abutment crowns for open healing and shaping a natural emergence profile (milled from PEEK). Mr. Eisenmann's printers work using a photopolymer that is applied in layers of 16 µm. His objective of increasing the precision compared to previous technology is thus achieved. The work pieces may only be worn for a maximum of 27 days because of regulatory requirements.

Kurt Reichel reported on his recollections of using analog dental technology. The master dental technician from Hermeskeil near Trier in Germany sees digitalization as a quantum leap for himself, his laboratory, and dental technology. These days, everything that requires uniformity is prepared in his laboratory using digital procedures. This includes support constructions, bars, and bridge frameworks. In esthetically demanding and highly sensitive areas, Mr. Reichel prefers to develop the emergence profile of anterior abutments using analog techniques while he fires the shoulder areas with lithium disilicate ceramics on zirconia for improved fluorescence.

Such steps can be done largely digitally using advanced software, but Mr. Reichel does not see any benefit to be had from this. He is himself a passionate advocate of skilled work and, like Mr. Hannker, argues for traditional training as a dental technician. "Modeling with a wax knife trains dental technicians mentally so that they are able to precisely replicate the tooth shape digitally," according to Mr. Reichel. He considers the future for dental technology to lie in a balance between analog and digital fabrication procedures.

Professor **Sven Reich**, head of the teaching and research division in computer-aided prosthetics at the University of Aachen, has a different vision. Intraoral scanners are still too imprecise for whole-jaw impressions but are already better than conventional impression materials for small fixed restorations, even on implants. Professor Reich described fascinating applications such as cutting out and rescanning previously scanned preparation areas. Intact dentition can be scanned in for subsequent restorations close to nature; however, the data should remain with the patient for privacy reasons.

Fluorescence as a myth?

Why precise shade replication is so difficult was demonstrated by **Sascha Hein** (Bad Wörishofen, Germany) using anterior teeth from the upper jaw (3). The master dental technician studied dental color theory at the University of Perth (Australia) in detail. Using fascinating images and analyses, Mr. Hein demonstrated the complex path of light that is refracted via the random order of enamel prisms and dentinal tubules. In contrast, composites and ceramics have a static refractory index.

As a result of their structure, for example, the incisal third of natural teeth can have the highest chroma effects – contrary to widespread opinion. According to Mr. Hein, fluorescence does not play a demonstrable role in the color effect so fluorescing abutments do not make any sense: "Sorry." The following vision that was proposed in Berlin was greeted with mixed responses but also fascination: The structure of the tooth substances – and thus their color effect – could one day be analyzed at depth and replicated by 3D printers, for example.

Anatomy in digital times

Dental technology is also digital ability raised to a higher power by skilled manual expertise. **Mr. Eisenmann**, **Mr. Hannker**, **Mr. Langner**, and **Mr. Reichel** all emphasized that (analog) dental anatomy knowledge must be passed on to the next generation of dental technicians under all circumstances. Dental prosthetics – as the product of a demanding medical skilled trade – also works best with close interdisciplinary exchange of information according to the convictions of **Michael Ludwig**. With their knowledge of dental technology and prosthetics and their familiarity with digital and materials-based possibilities, dental technicians support their dental clients not only as partners but also as expert advisers.

Not least the moderators in Berlin, **Gerhard Neuendorff**, master dental technician in Filderstadt, and **Dr. S. Marcus Beschnidt**, in private practice in Baden-Baden, Germany, stood by this concept. Dr. Beschnidt thanked all dental technicians for daily crowning his work: "Which patient is going to praise me for a great preparation?" All those participating in Berlin also felt as though they were a part of the team.

"Digital has long been a reality for us. We use digital technology where it makes sense – both economically and qualitatively. The challenge today lies in making the decision for each and every patient. And still establishing a trackable workflow. This is why we are constantly developing ourselves and our team."

Stefan and Britta Kloos, both MDTs and owners of the Jung Dental Laboratory (Kaltenkirchen near Hamburg, Germany); Thomas Säger, MDT and customer team leader

They used the opportunity to send many questions to the moderators using a specially programmed app so that they could be jointly discussed amongst the experts.

Coping with the change

That the change is unstoppable was also stressed in Berlin by **Dr. Michael Groß**, the Olympic swimmer and multiple medalist who also has a doctorate in German studies. As a management consultant, he knows that personal and team-related changes have to be able to be implemented by all. "What motivates me? Where do I want to go? What are my strengths?" Dr. Groß's experience has shown that these questions help to identify the personal path to success. Even in dental technology and implantology.

LITERATURE

[1] Hannker C. Oberkieferteleskopprothese aus CAD/CAM-gefertigten Primär-, Sekundär- und Tertiärstrukturen. Quintessenz Zahntechnik 2014;40(6):728-740.

[2] Kunz A. Stegversorgungen bei herausnehmbaren implantatgetragenen Restaurationen. Quintessenz Zahntechnik 2015;41(4):438-454.

[3] Hein S, Bazos P, Tapiea Guadix J, Zago Naves L. Farbinterpretationen jenseits des Sichtbaren erforschen. Quintessenz Zahntechnik 2014;40(9):1178-1191

Fig. 1: The patient presented in the dental practice with an inadequate denture.

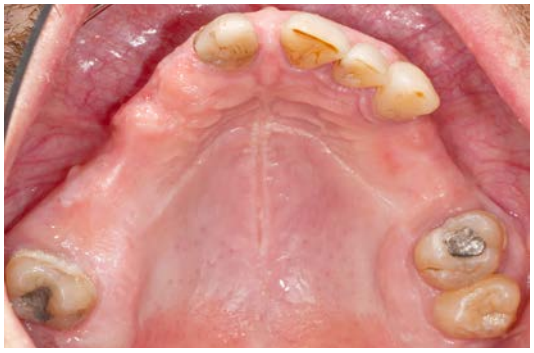

Fig. 2: The current oral situation shows periodontally compromised and non-preservable teeth.

Fig. 3: The model of the situation in the upper jaw was prepared by etching tooth 22 for the creation of a Guide template.

IMMEDIATE RESTORATION OF AN UPPER JAW WITH FOUR IMPLANTS USING THE COMFOUR™ SYSTEM

Dr. Ferenc Steidl, Sömmerda and Bad Frankenhausen, and MDT Sebastian Schuldes, M.Sc., Eisenach

Offering edentulous patients a fixed restoration on four or six implants is not new and has been easily achievable to date using the CAMLOG® VARIO SR System. In a close dialogue with its customers, CAMLOG has developed new system components with sophisticated details for the bar abutments. The range has been expanded by bar abutments angled at 17° and 30° in types A and B. CAMLOG has presented the new COMFOUR™ System components to VARIO SR users and made the components available to users for the clinical test phase. The therapeutic concept underlying the following case report is a temporary immediate restoration after extraction of non-preservable and periodontally compromised teeth in the upper jaw on four implants, based on the concept developed by Professor Paolo Maló [1, 2, 3], using the new components in the COMFOUR™ System.

For the long-term success of an immediate restoration, the experience of the clinical team comprising the surgeon, prosthodontist, and dental technician is of critical importance. Thorough preliminary examinations and carefully determining the indication, knowing how to handle the system components, and positioning the implants to obtain a sufficiently large load polygon without damaging the anatomic structures are criteria that must be satisfied. The implants inserted for an immediate restoration must have a high degree of primary stability and must be splinted or blocked. If these criteria are met, the concept provides a safe and predictable treatment outcome using only a single surgical procedure.

The initial findings

The 37-year-old patient, smoker, presented in January 2015 to our practice after referral by his dentist. The initial intraoral situation was characterized by a inadequate plastic clasp-retained denture and periodontally compromised teeth in the upper jaw. Despite therapy that had been promptly initiated, no significant improvement had been seen over the course. The highly mobile teeth could not be preserved. The patient expressed a wish for a permanent fixed restoration and a considerable improvement in the esthetic appearance. It was equally important to him during the healing phase of the implants to have a temporary fixed denture. After a meticulous case analysis and a diagnostic setup, we discussed our therapeutic concept with the patient. The concept is based on the Maló Clinic protocol. In our practice it has proven itself to be an outstanding concept following extraction of non-preservable teeth combined with immediate implantation and an immediate, fixed, temporary restoration with a reduced number of implants in the edentulous jaw.

The preoperative phase

After a thorough explanation for the patient and making the decision, we prepared the following treatment plan:

- Professional teeth cleaning with deep scaling in the lower jaw
- Guided surgery after three-dimensional implant planning and template preparation
- Fabrication of a long-term temporary restoration using CAD/CAM high-performance polymer
- Extraction, implantation, and immediate restoration on the bar abutments from the COMFOUR™ System in one sitting under general anesthetic

For the preparation of a scanning template, we made an impression of the upper and lower jaws in February 2015. The teeth in the lower jaw were professionally cleaned by a dental hygienist with a deep

Fig. 4: The dentition in the lower jaw: Free-end situation on the left and a shortened row of teeth in the 4th quadrant.

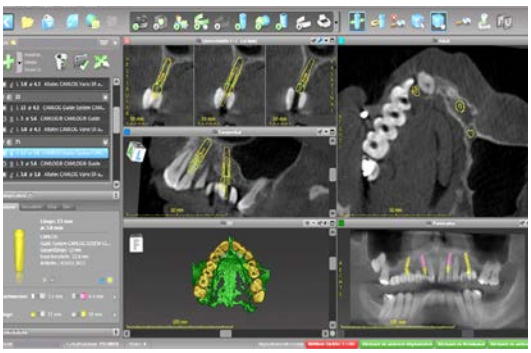

Fig. 5: Taking the anatomic structures into account, the implant positions were planned virtually.

Fig. 6: Optimal use was made of the original jaw bone thanks to the option to insert angled implants.

Fig. 7: To prepare the pre-fabricated immediate restoration, the anterior teeth were etched for bridge retention.

Fig. 8: The implant areas were ground away for insertion of the lab analogs.

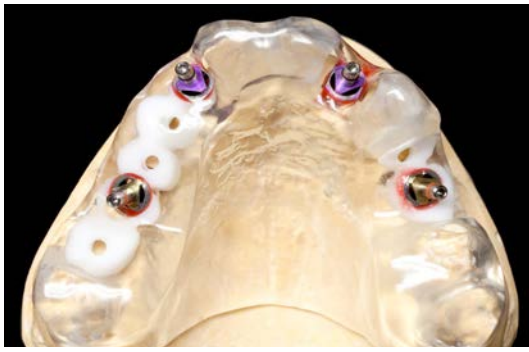

Fig. 9: The lab analogs were screwed in using the Guide insertion aid and the loose fit was checked in the model.

scaling, and the tooth color was determined for the maxillary restoration.

The fabrication of the temporary restoration

Because the setup met the esthetic and functional requirements, it was converted into polymer with added barium sulfate using the "backward planning" procedure [4, 5]. So that the prosthetic tooth axis can be made visible in the DVT data set, holes were drilled through the radiopaque teeth in this axis **(see Fig. 8)**.

The DVT imaging was carried out in the practice. The digital data were fed into the implant planning system and the optimal implant position and length were determined, taking into account the anatomic structures and the prosthetic requirements **(Fig. 5)**. The prerequisite for a successful outcome using this treatment concept is achieving a sufficiently large support for the restoration. The positioning of the dorsally angled implants is a critical requirement for the success of this treatment concept **(Fig. 6)**.

After the 3D planning, a precise drilling template was prepared in the laboratory for fully guided surgery using the guide sleeves from the CAMLOG Guide System. The template should be stably fixed intraorally over the natural teeth and the palate. So that the angled bar abutments from the COMFOUR™ System can be positioned precisely, the indexing of the inner implant configuration must be aligned with the marking on the guide sleeve. After preparing the template, the plaster teeth were removed and we used the drilling template for model implantation.

The model was ground away around the implants taking the axis alignment into account **(Fig. 7 and 8)**. **Figure 9** shows the use of the aligning tool that is placed on the Guide insertion aid for precise positioning of the cam in relation to the 17° and 30° angled bar abutments. The lab analogs screwed onto the CAMLOG® Guide insertion posts were fixed in the model, corresponding to the aligning tool **(Fig. 10 and 11)**.Near the lateral incisors, we inserted 17° and 30° angled bar abutments in regions 15 and 25.

The abutments were supplied pre-mounted on an insertion handle. This handle makes the positioning of the short bar abutments easier and ensures that the screwdriver has free access to the abutment screw **(see Fig. 28)**.

Fig. 10: With the help of the aligning tool in the COMFOUR™ System, the inner configuration of the implant can be aligned.

Fig. 11: The extension of the aligning tool shows the screw channel of the prosthetic restoration.

Fig. 12: Two 17° angled bar abutments from the COMFOUR™ System were used in the anterior region and two 30° angled bar abutments were used in the dorsal area.

Fig. 13: Bar abutments from the COMFOUR™ System angled at 17° and 30° and with various gingival heights. They are also available as type B. Not shown: Straight bar abutment.

Fig. 14: The titanium caps were shortened according to the occlusion and screwed on.

Fig. 18: To ensure the hygiene of the restoration, the basal rest areas and the interdental areas were polished.

Fig. 19: Checking the fit on the model indicated that the immediate restoration can be bonded in the mouth without tension.

Fig. 20: Tooth 22 was first carefully extracted.

After the titanium caps for bar abutments were shortened according to the occlusion, we screwed them on and scanned in the model. The digital model data were matched with the data from the setup, the construction was completed digitally, and the temporary restoration was fabricated in the CAM procedure using a high-performance polymer **(Fig. 12 to 16)**. The polymer bridge was separated from the blank and the fit checked, ensuring that there is sufficient space around the titanium caps for the intraoral "adhesion" **(Fig. 17 to 19)**.

The surgical phase

The surgery was carried out under intubation anesthesia on April 23, 2015. Firstly, we carefully removed the lateral incisor 22 because this region was intended for the strategically correct positioning of an implant based on the Maló principle **(Fig. 20)**. The remaining teeth were used for precise and stable fixation of the template during the fully guided insertion of the four CAMLOG® Guide SCREW-LINE Implants **(Fig. 21)**. The four implants (region 12 Ø 4.3 mm CAMLOG® SCREW-LINE Implant 13 mm length, region 22 Ø 4.3 mm/L 13 mm, region 14 Ø 3.8 mm/L 9 mm and region 25 Ø 3.8 mm/L 13 mm) [6] were inserted using a minimally invasive procedure according to the Guide protocol and the inner configuration was aligned with the marking on the Guide sleeves. The Guide insertion posts were then screwed on, the template removed, and the anterior teeth extracted **(Fig. 22 to 26)**.

The implants were then rinsed, and the 17° angled bar abutments were inserted in regions 12 and 22. These were supplied pre-mounted on a flexible insertion handle in sterile packaging. With the help of this handle, the abutment is positioned with the precise angular alignment into the implant **(Fig. 27)**. To insert the abutment screw, the handle is bent to one side, giving the surgeon free access to tighten the screw using the new, slim socket screwdriver **(Fig. 28)**. In the same way, the 30° angled bar abutments could also be rapidly inserted with precise alignment and then screwed in **(Fig. 29 and 30)**. We then screwed the titanium caps without rotation protection onto the bar abutments from the COMFOUR™ System and checked that sufficient space had been created around the caps to polymerize into the temporary restoration **(Fig. 31 to 33)**.

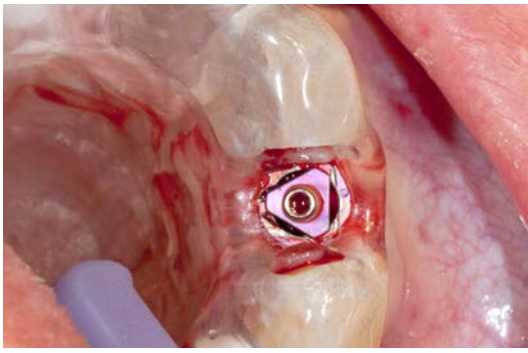

Fig. 24: The figure shows the precise alignment of the insertion post in relation to the inner configuration of the implant.

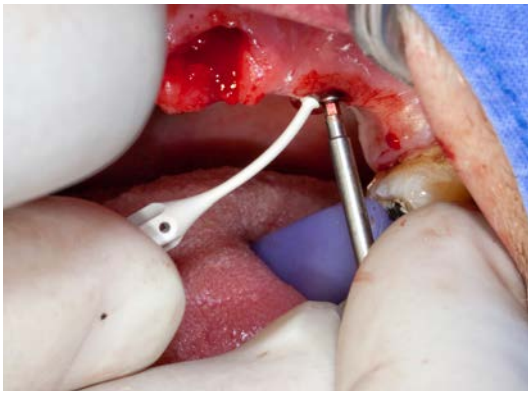

Fig. 28: The abutment screw was tightened using the socket screwdriver. To gain access, the flexible handle was gently bent to one side.

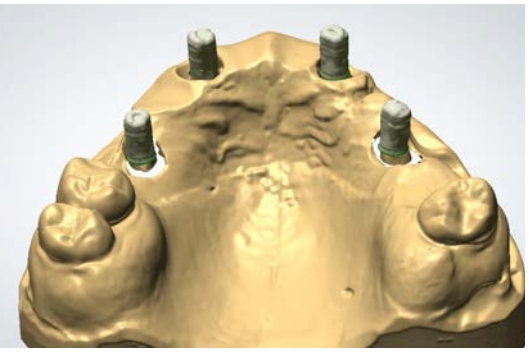

Fig. 15: The model with the titanium caps screwed on was scanned…

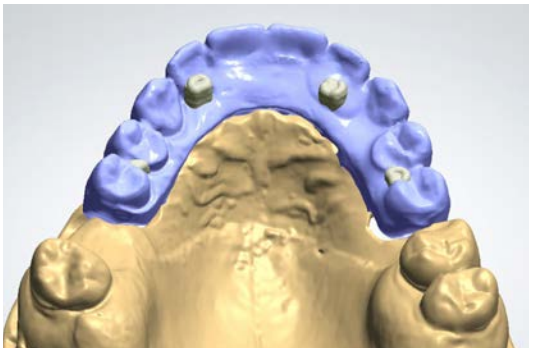

Fig. 16: …and matched with the previously scanned setup.

Fig. 17: The immediate temporary restoration was milled from high-performance PMMA and the areas around the titanium caps were generously ground away.

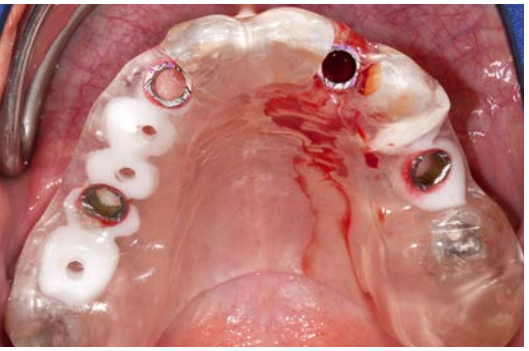

Fig. 21: The Guide template was stably fixed over the remaining teeth.

Fig. 22: In compliance with the minimally invasive Guide protocol, the implant bed in region 22 was prepared.

Fig. 23: The CAMLOG® SCREW-LINE implant Ø 4.3 mm / L 13 mm was inserted through the sleeve to the depth stop.

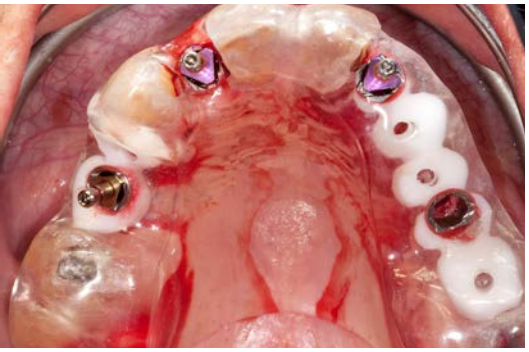

Fig. 25: After preparing the implant bed, the following three implants were inserted fully guided.

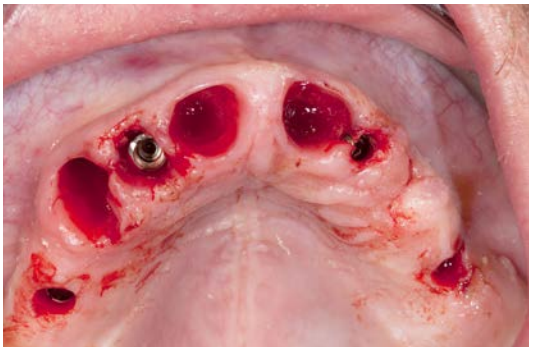

Fig. 26: The periodontally compromised, non-preservable anterior teeth were extracted after removal of the template.

Fig. 27: The 17° angled bar abutment was inserted into the implant with the help of the insertion handle with precise alignment.

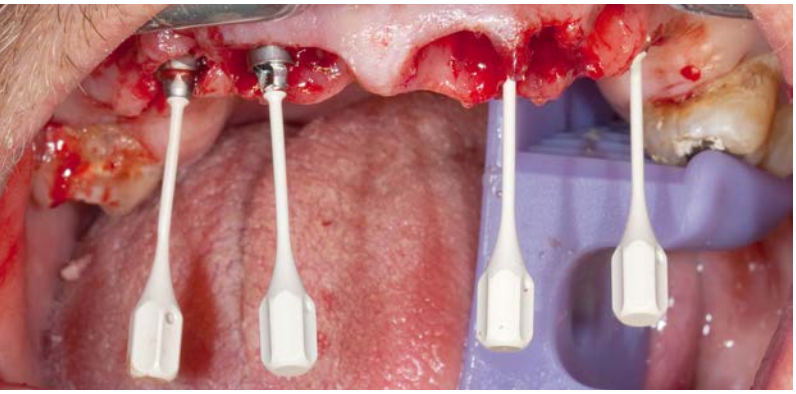

Fig. 29: The figure shows the approximately parallel alignment of the screw channels of the prosthetic restoration by means of the angled bar abutments.

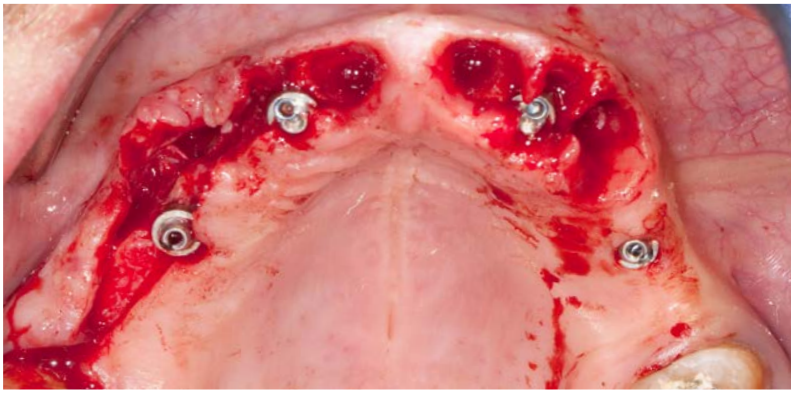

Fig. 30: The flap was formed after a crestal incision with a central band preserved around the incisive papilla.

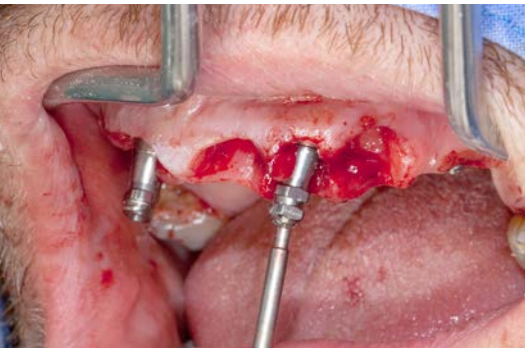

Fig. 31: The titanium caps were screwed onto the bar abutments.

Fig. 32: To check the esthetics and occlusion, the provisional PMMA bridge was inserted…

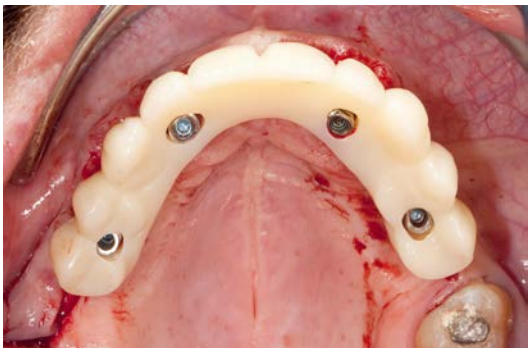

Fig. 33: …and the tension-free fit around the titanium caps was checked.

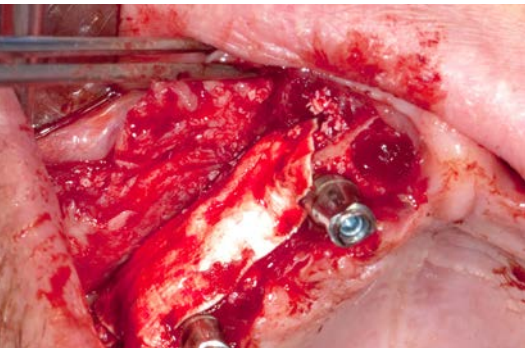

Fig. 37: The augmentation material was covered with a resorbable membrane (Bio-Gide®, Geistlich).

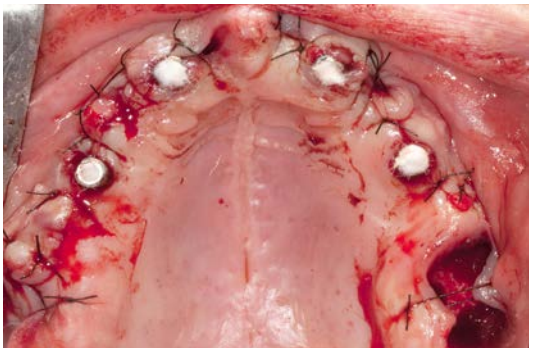

Fig. 38: Using individual button sutures, the soft tissue was closed, and the screw channels were covered with cotton pellets prior to the cold-cure polymerization.

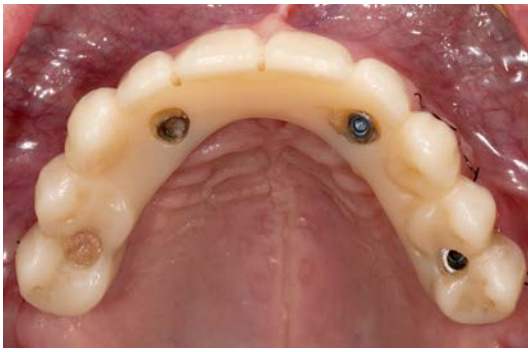

Fig. 39: The titanium caps of the COMFOUR™ system were polymerized free of tension in the immediate temporary restoration.

After the alveolar ridge incision and the flap formation, the three molars were extracted and the wisdom tooth 18 was extracted using osteotomy **(Fig. 34)**. Sufficient autologous bone chips were harvested in the process, which were then ground in the bone mill and mixed with xenogenous bone substitute material (Bio-Oss®, Geistlich) [7] to augment the bone defects identified virtually beforehand. We covered the augmentation material with a resorbable collagen membrane (Bio-Gide®, Geistlich) and closed the soft tissue with individual button sutures **(Fig. 35 to 37)**.

Insertion of the immediate temporary restoration

To prevent the polymer entering the screw channels of the titanium caps, we cover these prior to polymerization with cotton pellets and then "adhere" the temporary restoration tension free **(Fig. 38 and 39)**. The patient left the practice on the day of the surgical procedure with a screw-retained, temporary, fixed denture and detailed instructions on food intake. This means a diet consisting of only soft foods for the first two weeks and in the subsequent four weeks slowly shifting to more solid food. During the procedure the patient was administered 1000 mg amoxicillin as antibiotic prophylaxis and repeatedly and clearly instructed to abstain from nicotine as much as possible in the postoperative period.

Figure 40 shows soft tissue completely free of signs of irritation just a few days after surgery. After two weeks the sutures were removed. A follow-up radiograph was prepared and the occlusion of the temporary restoration was checked and minor corrections were made **(Fig. 41 and 42).**

Conclusion

The screw-retained, fixed reconstruction on four implants is a treatment concept that reduces both effort and costs. Immediate temporary restoration using the Maló Clinic protocol has been scientifically documented. Pre-implantation planning taking into account the surgical and prosthetic requirements is given special priority. With the help of 3D planning in the form of backward planning [8], implants can be positioned in the software in the precise angle (0°, 17°, and 30°) relative to one another, and the screw channels have no negative effect on either the esthetics or the function.

The new COMFOUR™ System is highly suitable for using with this treatment concept [9]. The angled bar abutments are available in different gingival heights and in type A and B. The insertion of the abutments in the correct position is safe and easy using the attached handle. To screw the abutment screws in, the flexible handle can be simply pushed to one side.

The new design of the bar abutments, which omits the bend, has a positive effect on the soft tissue augmentation. An additional feature is the aligning tools that are helpful for precisely positioning the cams. The concept is exceptionally well suited for providing edentulous patients with fixed, immediate temporary restorations in one surgical sitting.

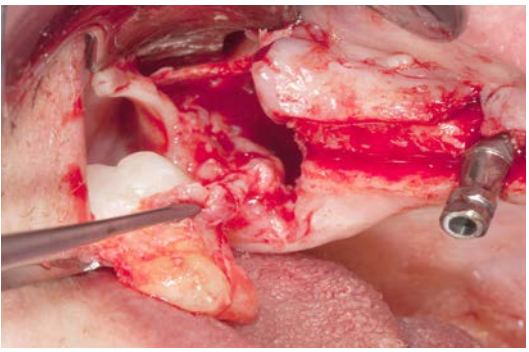

Fig. 34: The remaining teeth were extracted and the osteotomy of the displaced wisdom tooth was carried out.

Fig. 35: The bone chips obtained during the osteotomy were ground and mixed with bone substitute material (Bio-Oss®, Geistlich).

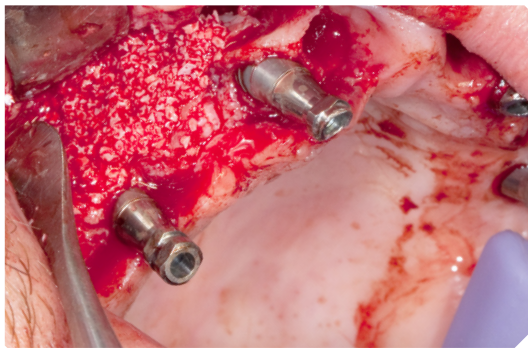

Fig. 36: The virtually identified bone deficits were augmented with the bone mixture.

Fig. 40: At the follow-up three days after the surgical procedure, the soft tissue was free of inflammation and well adapted.

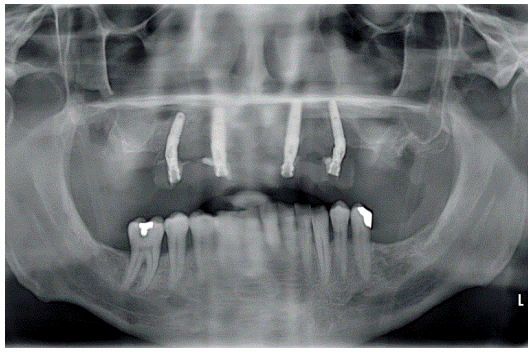

Fig. 41: The follow-up radiograph shows the angulated, well-anchored implants with the angled bar abutments from the COMFOUR™ System.

Fig. 42: The occlusal screw-retained temporary restoration forms an harmonious and esthetic lip line.

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MDT Sebastian Schuldes, born in 1974, graduated from 1991 to 1995 as dental technician, 1998/1999 qualification as Master Dental Technician. Since 1999, he has been Managing Director of Dental Laboratory Schuldes GmbH. From 1999 to 2000 he continued his studies in business administration specialising in crafts; 2006-2008 he studied for his Master of Science (M.Sc.) - Dental Technology at the Danube University Krems/Bonn. In 2007 Schuldes founded 'S-implant', a service provider in the field of 3D navigated implant planning, and in 2011 the milling center zaxocad Dental Solutions. Sebastian Schuldes works as a lecturer and author.

Fig. 1: The initial exploratory findings for the patient revealed periodontally normal dentition with agenesis of tooth 12 and microdontia of tooth 22.

Fig. 2: Instead of absent tooth 12, the incisor was moved using orthodontics.

ISY – THE INNOVATIVE IMPLANT SYSTEM IS BECOMING EVEN MORE FIRMLY ESTABLISHED IN DENTAL PRACTICES

Dr. Maximilian Blume, Frankfurt am Main

The past few years have seen a myriad of new ideas develop in our field of work with many established systems being put under close scrutiny based on a changing awareness of economics, science, and innovation. Innovations should primarily aim to make improvements, with the tried and true revealing itself in the process and the superfluous pruned away. In the eyes of Bob Dylan, "a man is a success if he gets up in the morning and gets to bed at night, and in between he does what he wants to do." Innovation and limitation contradict one another – even when working, a tool should enable its user to work creatively and freely and to implement the best ideas. Since the introduction of the iSy Implant System, it has become more and more firmly established in our department, particularly in situations where it becomes apparent that it creates freedom for both the clinician and the patient. It would be short sighted to label the iSy system as a cost-effective alternative for limited indications because it opens up enormous opportunities, mostly in the details, that only become apparent at second glance. Details that sometimes make the critical difference and in many aspects are even unique.

Initial findings

The 22-year-old patient presented for advice to the implant outpatient clinic of the Clinic for Oral and Maxillofacial Plastic Surgery at the Frankfurt University Hospital for the first time in 2014. Her primary concerns at the time were agenesis of tooth 12, in place of which tooth 13 was moved using orthodontics, and a missing tooth 26 that had been extracted four months prior. Both gaps had not been provisionally restored at the time of the initial presentation. The initial exploratory findings indicated a preserved, well cared for and periodontally normal, youthful dentition. Along with the agenesis of tooth 12, microdontia of tooth 22 was also observed **(Fig. 1 and 2)**.

The patient met all the prerequisites for a safe, planned implantation with transgingival healing [1, 2]. The clinical and radiological examinations classified the bone bed horizontally and vertically as sufficient with a broad band of attached gingiva covering the bone bed. Augmentation measures around the hard and soft tissue were thus not indicated.

The patient wanted to eliminate both gaps; a bridge restoration was discussed as an option, but after explaining the benefits and drawbacks, a restoration of this type was ruled out. Along with the insertion of two implants, the restoration of an harmonious and symmetrical anterior upper jaw using the adhesive technique was also planned together with the patient. The patient declined surgical crown lengthening of tooth 22.

The preservation of hard and soft tissue throughout the entire treatment and elevation procedure was prioritized, and in the anterior area in particular the challenge was to achieve a balanced and natural red/white esthetics [3, 4].

Implantation treatment sequence

The procedure proceeded without any problems under local anesthesia and was carried out in accordance with the standard iSy protocol. The implant bed was revealed using a minimally invasive crestal incision with the basal part of the attached gingiva of the vestibular and

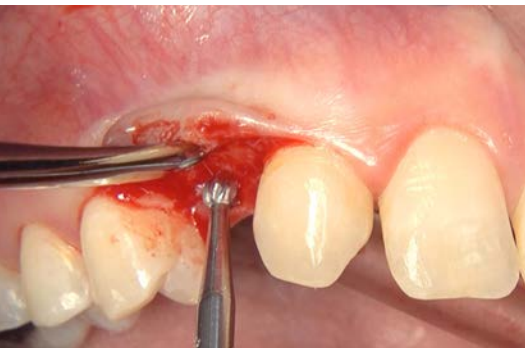

Fig. 3: After the minimally invasive crestal incision, the implant bed was first prepared using the round burr.

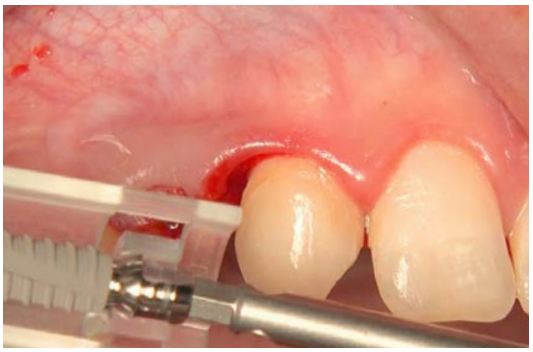

Fig. 4: The iSy implant was inserted according to the iSy drilling protocol using the pilot drill and single-patient form drill.

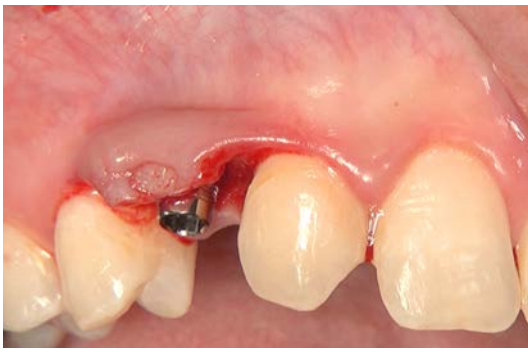

Fig. 5: The iSy implant underwent transgingival healing. The basal parts of the attached gingiva of the vestibular and palatal flaps were not detached.

Fig. 6: Using a 4-mm punch, the mucosa in region 13 was precisely shaped around the implant base.

Fig 7: Only that area critical for an harmonious gingival line was specifically removed.

Fig. 8: Individual button sutures were used to suture the minimally invasive incision around the gingiva former inserted into the implant base.

Fig. 9: To achieve an esthetic emergence profile, the soft tissue around the gingiva former in region 26 was removed using a slightly larger punch.

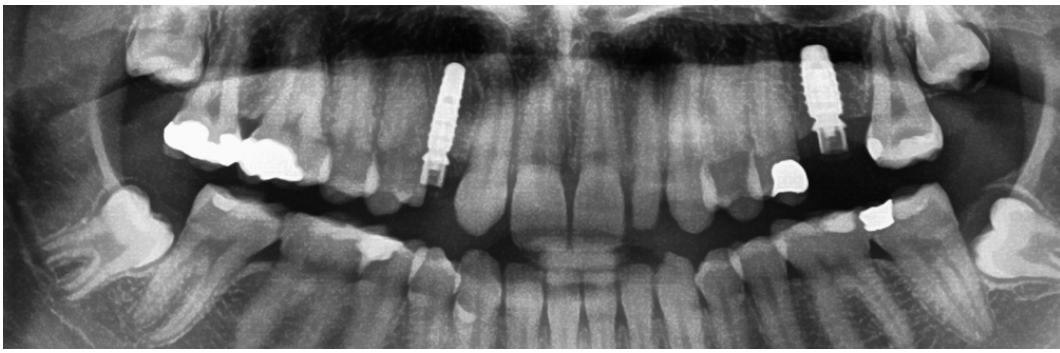

Fig. 10: A radiographic image was taken at the end of the surgical procedure to check the situation. It shows an iSy implant with Ø 3.8 mm and a length of 13 mm in region 13 and in region 26 an implant of Ø 4.4 mm / L 11 mm with the pre-mounted implant bases that bear the PEEK gingiva formers.

palatal flap not detached. The drill sequence in the iSy System is made up of a round burr, the Ø 2.8 mm pilot drill, and the single-patient form drill corresponding to the implant diameter, with the latter being supplied with the implant **(Fig. 3 to 5)**.

In the area of the vestibular flap in region 13, after insertion of the implant the mucosa was precisely shaped using a 4 mm punch. It is recommended to use the punch only after completing the implantation because at this point only that area that is critical in this case for an harmonious gingival line is precisely and specifically reduced **(Fig. 6 and 7)**.

At the time of the implantation, a wide gingiva former was not yet supplied with the iSy System which was why a punch was also used here that had a diameter slightly larger than that of the gingiva former. In this way, a naturally shaped emergence profile is effectively obtained in order to optimally shape the soft tissue for a molar [5].

The suturing was done using Prolene 6/0 (Ethicon) and individual button sutures **(Fig. 8 and 9)** and radiographic imaging was carried out to check the situation **(Fig. 10)**. When the sutures were removed seven days later, the tissue around the PEEK gingiva former was completely free of irritation **(Fig. 11 to 13)**.

Fig. 11: Seven days after the surgical procedure the sutures were removed.

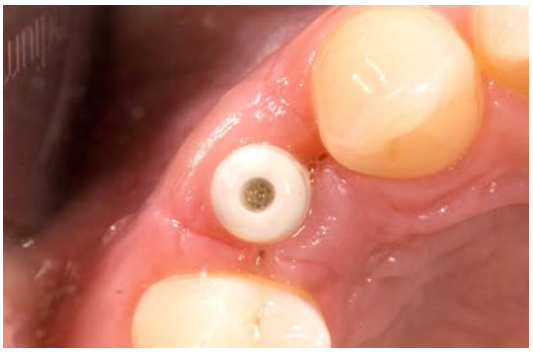

Fig. 12: The soft tissue was completely free of irritation.

Fig. 13: Four weeks postoperative the patient attended for impression taking for a temporary restoration.

Fig. 16: Using the handle, the mounted gingiva formers were removed.

Fig. 17: The iSy implant base remained in the implant…

Fig. 18: …and the multifunctional cap was simply attached for the impression taking.

Prosthetic restoration

Impressions were taken of the implants using Impregum™ (3M Espe) four weeks after surgery with mucosal conditions completely free of irritation. The path from the intraoral situation to the master model follows an intuitive workflow and does not require the implant base to be removed. Two multifunctional caps are included as standard with each iSy implant along with the pre-drill and the cover cap. As well as conventional pick-up impression taking, the multifunctional caps can be used as scan bodies, for immediate temporary restorations, or even coding of bite registrations.

For the impression taking, only the gingiva formers have to be removed using the detachment instrument and replaced by the multifunctional cap. Both lock in securely and index precisely on the shoulder of the factory-mounted implant base **(Fig. 14 to 20)**.

On the prepared master model, the implant and soft tissue situation was digitally recorded using a Cerec scanner (Sirona), and a provisional crown was designed in region 13 **(Fig. 21)**.

The gingiva former in region 13 was replaced by a milled PMMA temporary restoration in order to individually shape the soft tissue in this area. The desired emergence profile was created in the gingival mask of the master model so that it could be precisely transferred to the definitive restoration [6].
The temporary restoration was removed from the occlusion and designed proximally to assure balanced shaping and stabilization of the papillae during the complete osseointegration **(Fig. 22 to 24)**. In regio 26 the gingiva former could be repositioned after the impression taking and left until the definitive integration.

The planned single-tooth restoration in the left upper jaw was implemented with a screw-retained, hybrid abutment crown made of IPS e.max® CAD with the design and fabrication of the molar crown carried out completely using the CAD/CAM process with a Cerec milling unit [7, 8].

Generally, the screw channel is first sealed with a temporary light-curing composite to ensure the fixing screw remains easily accessible until the first check-up if required. The channel is then sealed with a tooth-colored composite.

One of the major advantages of hybrid restorations is the precise factory fit of the connection of the titanium base to the ceramic block fabricated in the CAM process. The connection is assured precisely using indexing and it allows the fabrication of both screw-retained, one-piece restorations and individual mesostructures. The crown is also cemented on the base extraorally. This allows any residual cement to be easily removed and the transition can be beautifully polished [9, 10].

IPS e.max® CAD is a lithium disilicate (LS2) glass ceramic with a very high tensile strength (360 MPa) and not only for this reason is it one of the main components for CAD/CAM fabricated single-tooth restorations in our clinic since its market introduction.

Fig. 14: Fully anatomical soft tissue conditioning was performed using a temporary restoration on the iSy implant base.

Fig. 15: At this point the soft tissue was stable and healthy and the gingival contour was harmonious.

Fig. 19: The multifunctional caps click audibly onto the implant bases. The pronounced undercut holds the caps in the impression material with no rotation.

Fig. 20: Using the pick-up impression method, impressions were taken of the multifunctional caps.

Fig. 21: After the cast fabrication, the implant position was scanned in.

Fig. 22: The temporary restoration was fabricated in the CAD/CAM process using high-performance PMMA.

Fig. 23: The temporary restoration was evaluated both for occlusion and function.

Fig. 24: Until the osseointegration was complete, the balanced shaping and stabilization of the papillae was assured by the design of the temporary restoration.

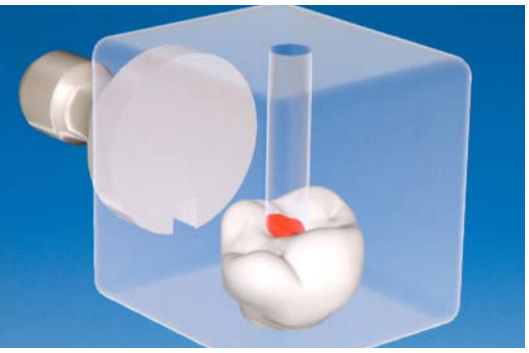

Fig. 25: The hybrid abutment crown was fabricated in region 26 using the CAD/CAM process.

Fig. 26: The anatomic hybrid abutment crown was milled from the lithium disilicate glass ceramic IPS e.max®.

Fig. 27: The "blue" crown was customized before the firing process using staining shades.

Fig. 31: The customized titanium abutment was screwed in…

Fig. 32: …and the contouring of the soft tissue was checked with the zirconia crown framework.

Fig. 33: The custom layered zirconia crown was cemented onto the titanium abutment and the remaining cement was carefully removed.

IPS e.max® CAD is polished in a "soft" interim stage in which the material has a bluish color. The customization can then be carried out using e.max® Ceram stains and a subsequent crystallization firing at 840–850°C during which the final tensile strength of 360 MPa and the desired properties such as tooth color, translucency, and brightness are produced.

For this patient an LT block with low translucency was selected. This is very suitable for fully anatomical hybrid crowns in the posterior area **(Fig. 25 to 29)**.

In region 13 a slender conventional titanium abutment was fabricated for the definitive restoration. The individual ceramic was layered on a milled zirconia framework and the restoration was cemented intraorally **(Fig. 30 to 33)**.

The success of this standardized treatment concept is illustrated at the recall after one year. The gingiva is stable and attached around the implant restoration in regions 13 and 26 **(Fig. 34 to 36)**.

Conclusion

iSy is not only a cost-effective alternative but also a system with enormous potential for the practice that enables completely free and creative work. Even if the present case does not represent an instance of major surgery, it nevertheless represents a majority of the routine indications for many colleagues enthused about implantology.

After the expansion of the system this year, initial limitations have also been eliminated. The iSy family was expanded by a 7.3 mm short implant and subgingival healing is now just as easy as contouring for wider emergence profiles.

Time will tell whether this concept will resemble a true innovation. But there is already much to suggest it will.

I am very grateful to MDT Thorsten Peter, Deputy Head of the dental service of the Polyclinic for Dental Prosthetics, and Mr. Andreas Kusch, dental technician and CAD/CAM specialist, who made a considerable contribution to the outcome achieved thanks to their great support.

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Fig. 28: After firing, the anatomical crown emergence profile and the occlusion were checked on the model.

Fig. 29: The anatomical crown shape and the precisely created proximal contacts encourage stabilization of the interdental papillae.

Fig. 30: In region 13 a slender titanium abutment was used to cement an individually veneered zirconia crown.

Fig. 34: The screw access channel was sealed with composite.

Fig. 35: One year postoperative sees a stable gingival cuff and closed interdental spaces.

Fig. 36: With the iSy implant concept, the requirements of an esthetically challenging reconstruction in the anterior area are successfully satisfied.

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Since 2011 Dr. Maximilian Blume has worked with Professor Sader in the Clinic for Oral, Maxillofacial and Plastic Surgery at the University Clinic Frankfurt. In 2014 he successfully completed his specialist training in oral surgery specializing in the area of implantology. The focus of his work includes oral implantology and prosthetic reconstruction using implants for patients treated for cancer. Since the start of 2014 he has also been employed by Dr. Weigl in the Department for Postgraduate Training in the Carolinum Zahnärzliches Universitäts-Institut GmbH, where he works as a supervisor and clinician as part of the Master of Science (MSc.) in oral implantology.

THE COMFOUR™ SYSTEM

VERSATILE AND COMFORTABLE FOR BOTH USER AND PATIENT

Occlusal screw retention is again state-of-the-art. COMFOUR™ equally enables several different treatment concepts. It is a multi-option system that permits bar and single-tooth restorations for straight and angled bar abutments in addition to screw-retained bridges for immediate and delayed restorations. The COMFOUR™ System is available now for the CAMLOG® Implant System and from January 2016 for the CONELOG® Implant System. The major advantages of the new abutment system are its versatility and the product design, combined with safety and a high level of comfort for user and patient.

The best of both worlds

During the development of the COMFOUR™ System, CAMLOG incorporated the extensive feedback and many suggestions from customers received over the past few years; not only from Germany but from users around the world. The aim of the development was to market a system for occlusal screw-retained treatment concepts that provided noticeable advantages to both users and patients.

Occlusal screw-retained restorations were already possible using the CAMLOG® VARIO SR System. This system functioned well but did also have its limitations. The suggestions for improvement were used to design a completely new system. After detailed analysis, the development team and product management at CAMLOG decided to develop the new abutment system for occlusal screw retention on the basis of the former bar abutments. The range of bar abutments was greatly expanded and modified, and the collaboration with experienced clinicians enabled the creation of the new COMFOUR™ Abutment System.

Slender and stable

New machinery was specifically purchased for the production. This enables the angled bar abutments to be designed to be as slender as possible. This left plenty of room around the abutment for the hard and soft tissues. Presuming sufficient primary stability of the implant, the sterile bar abutments can be immediately inserted after surgery and fitted with the temporary restoration. Alternatively, the bar abutments can be sealed with a healing cap. All other treatment steps such as impression taking and the definitive restoration are done at the abutment level. This avoids irritating the gingival cuff as a result of repeatedly detaching the soft tissue attachment during insertion and removal of the abutment.

The COMFOUR™ System provides clinicians with a modern, easily handled abutment system not only for restorations on four or six implants but one that also comes with a range of options to meet the challenges of routine clinical practice. The refinement of the familiar and tested bar abutments

is welcome. A comparison with current systems offered by competitors shows that with vertical and horizontal abutment dimensions that are comparable or even less, the prosthetic screws in the COMFOUR™ System (M1.6) have greater dimensions – for greater stability.

Summary of the range

Along with straight bar abutments, the COMFOUR™ System also includes 17° and 30° angled bar abutments. These are also available as type A and type B (60° offset cam arrangement). All bar abutments are available in two gingival heights; straight bar abutments from a diameter of 3.8 mm are even available in three gingival heights. Useful additional components are the titanium caps for bar abutments for both temporary and 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 precise alignment of the inner implant configuration.

The scan caps for bar abutments create an interface in digital fabrication. They allow the position of the bar abutments and the lab analogs to be digitalized, thus enabling the fabrication of frameworks and bars using DEDICAM®.

Sterile and flexible

To ensure that the handling of the components in the COMFOUR™ System is as simple as possible, a critical change was made to the previously familiar bar abutment system. All the accessories that are used during surgery are packaged sterile. This means that there is no need to sterilize the bar abutments, healing caps for bar abutments, the impression caps for bar abutments, and closed trays before use.

The insertion of the angled bar abutments is simplified by an ingenious flexible handle that is used as an insertion aid. The handle is fixed in the thread of the prosthetic screw and holds the bar abutment in place. In order to screw the abutment screw that is already located in the bar abutment into the implant, the handle can be simply bent to one side. Particularly when the vertical space available is limited, the handle can be very useful (see page 15).

If impression taking with the open tray technique is indicated, the titanium caps for bar abutments are mounted and combined with screws of three different lengths, each of which can be shortened by 2.5 mm.

New light blue screws

The familiar bar abutment components such as the burn-out, laser-weldable, solderable, and cast-on bases are fully compatible with the COMFOUR™ System. Only the abutment and prosthetic screws have been modified. All screws and screw-retained components are color-coded light blue to make system identification easier.

Conclusion

The new COMFOUR™ Abutment System enables permanent, occlusal screw-retained restorations and satisfies patient desires for an immediate, comfortable, and permanent denture. COMFOUR™ saves time during use and offers clinicians and dental technicians greater flexibility for occlusal screw-retained designs. With its options for bar and single-tooth restorations, COMFOUR™ extends the prosthetic options available at bar abutment level and has a number of impressive technical advantages such as its anti-rotation mechanism, pre-mounted flexible handle, the Guide-compatible aligning tool, and an extremely slim design.

INITIAL EXPERIENCES WITH THE COMFOUR™ SYSTEM

Offering patients a restoration on four or six implants is not new and has been easily achievable to date using the CAMLOG® VARIO SR System. CAMLOG has worked closely with its customers and with the help of investments in new machines, we have expanded the range of bar abutments by adding angled versions with a slender, pointed design. This new system will be sold under the name COMFOUR™. Dr. Ferenc Steidl and MDT Sebastian Schuldes M.Sc., users during the test phase, were asked by the logo editorial team about their impressions of and their initial experiences with the new system.

The concept popularized by Professor Paulo Maló for occlusal screw-retained immediate restorations requires at least four implants in the edentulous lower jaw and edentulous upper jaw. The Implantology Consensus Conference recommends six implants in the lower jaw and eight implants in the upper jaw for fixed restorations. Dr. Steidl, what should guide the clinician's choices here?

Dr. F. Steidl: The consensus conference draws up principles or guidelines for implantology treatment. In our opinion, these form a therapeutic corridor with flexible limits which vary depending on the individual situation of a patient and/or clinician. For example, the "one implant per tooth" concept favored and publicized by some colleagues for fixed restorations with eight implants in some cases and ten or twelve in others must be mentioned.

This is contrasted by fixed reconstructions with four implants, which is a therapeutic option that saves both effort and costs. The scientific foundation of these treatment strategies ranges from studies conducted by P. Ledermann on immediate restorations on four implants in the interforaminal region in the lower jaw [1] to studies by Professor P. Maló with obliquely inserted distal implants in the upper and lower jaws [2]. The current S3 guidelines from the DGI/ DGZMK (AWMF REGISTER NO. 083-010) do not include any recommendations for or against the Maló concept [3]. The authors believe this to be a highly promising approach.

We consider the Maló mode of treatment to be a safe concept for fixed, immediate oral rehabilitation in our practice and clinic [4]. Consequently, of course we provide a full 5-year warranty for restorations using the COMFOUR™ System, as we do for other implant treatments.

Many years ago you and your team started to treat your patients using this concept. How steep was the learning curve for this type of treatment?

Dr. F. Steidl: Like every new therapeutic approach, there are details of the surgery and dental prosthesis that are only worked out over many treatments. What was surprising to us, however, was the tolerance of the VARIO SR System, and now the COMFOUR™ System, regarding sources of error. We were therefore able to resolve as a team all those surgical and prosthetic difficulties that arose.

MDT S. Schuldes, M.Sc.: When providing treatment using the Maló concept, you must understand the principle and have a precise understanding of the prosthetic challenges you will face. Pre-implantation planning taking into account the surgical and prosthetic requirements is given special priority. Computer-aided, three-dimensional planning in the form of backward planning has proven its worth here. The implants can be positioned in the planning software in the precise 0°, 17°, or 30° angle relative to one another. From the prosthetic perspective, it is particularly important to position the implants so that the screw channels of the screw-retained immediate restoration – but even more importantly those of the subsequent definitive restoration – do not negatively impact either the esthetics or the function.
On this basis, we then fabricate a CAD/CAM bridge from a polymer that is bonded free of tension in the mouth of the patient following the fully guided insertion of the implants using the CAMLOG® Guide System. In our opinion, this procedure involves considerably fewer compromises than the traditional procedure in which impressions are taken of the inserted implants intraoperatively and a temporary restoration is then prepared using cold-curing acrylic resin.

How often did something go wrong?

Dr. F. Steidl: The implant loss rate during the healing phase with VARIO SR in our patient population does not differ significantly from that of other implant treatment modalities. We will definitely be able to maintain this success rate using the COMFOUR™ System. The COMFOUR™ System will offer us even more treatment options. We do not consider there to be an increased risk associated with fully guided, immediate temporary restorations after 3D planning.
Tricky and important is the question regards the reproducible fixation of the drill templates intraorally if provisional implants are not used. We had a considerable learning curve in this area going from fixation by the assistant to osteosynthesis screws to multiple template operations.

MDT S. Schuldes, M.Sc.: As already mentioned, thorough planning prior to the implantation is very important. A fracture in the immediate restoration can also lead to complications during the osseointegration. In light of this, materials with a high fracture toughness should be used. This is the only way to reduce failures to a minimum.

You actively participated in the development of the new angled bar abutments in the COMFOUR™ System and even treated some of the first patients with this system. Could you describe your impressions of the implementation from a surgical and technical perspective, and what are the differences to VARIO SR?

Dr. F. Steidl: From a implant surgery perspective, nothing has changed in the treatment sequence. The insertion of the angled bar abutments is fun. This is because of the handle that ensures safe transfer of the abutments into the mouth and makes correct alignment easier. The flexibility of the handle and the help of the sophisticated screwdriver means that the abutment screws can be screwed in without any difficulty.

MDT S. Schuldes, M.Sc.: The 17° and 30° angled bar abutments in the A and B versions with various gingival heights provide a generous leeway for the treatment. All the components of the COMFOUR™ System have a slender design and low profile. This makes the prosthetic restoration considerably easier. For improved soft tissue augmentation, the new design of the abutment with the "bend" makes itself felt. Thanks to the impression posts and the titanium caps with the anti-rotation mechanism, occlusal screw-retained single-tooth and telescope restorations at the abutment level are also possible.
If the implants are not inserted under full guidance, the new aligning tools to make fine adjustments of the rotation cams during implantation are an exceptional tool.

Will this type of therapy establish itself extensively in practices?

Dr. F. Steidl: Certainly not extensively. Angled implantation, where necessary also with an immediate restoration, is surgically, prosthetically, and technically demanding. I therefore believe that practices and clinics with a focus on implantology should at least carry out the surgical part.
For general practitioners, the COMFOUR™ System is an interesting option if they are involved in prosthetics. To be able to rehabilitate an edentulous patient not just dentally but also often psychosocially in a single sitting without repeated impression taking or fittings is an inspirational therapeutic tool.

Thank you for the interview.

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iSy IMPLANT SYSTEM

GREATER OPPORTUNITIES AND ATTRACTIVE ALL-IN-SETS

iSy is the inexpensive quality system from CAMLOG. It is slim and flexible, as well as being impressive in the practice thanks to its easy handling, efficient workflow, and very economical prices. As of July 1, 2015, CAMLOG extended the iSy Implant System and now satisfies the requests of many users who want to be able to use the iSy Implants in a wider range of cases.

The 7.3 mm short iSy Implants were added to the product range. These are suitable for cases with limited bone volume and extend the indication spectrum of the system. Also new are the Esthomic® gingiva formers, which can be screwed directly into the implant, as well as the option of impression taking at the implant level using open and closed impression posts, plus numerous prosthetic components and instruments.

The new iSy Esthomic® Abutments allow esthetically cemented reconstructions. Their emergence profile is congruent in shape with the Esthomic® Gingiva former and impression posts of open and closed trays. At the same time, the manufacturer has also released the iSy Implant base for final restorations. These extensions give the treatment team even more options – whilst staying true to the original iSy concept and its benefits of simplicity and efficiency.

The concept of the iSy Implant System is based on all-in-sets which not only include one or four implants but also valuable additional components. This comprises the iSy Implant bases, which are pre-mounted in the implant, a single patient form drill, gingiva formers, and multifunctional caps 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.

Further information on the iSy Implant System is available on the website: **www.isy-implant.com**.

ISY WEBSITE FACELIFT

iSy Implant System – greater opportunities online as well

Slim, flexible, and modern: the same can be said of the new iSy internet presence. The new website enables dentists and dental technicians working in implantology to quickly find the information they need. Not only are new system components and attractive specials available online, iSy scores with its new website thanks to plenty of new material and increased user friendliness.

New design

The iSy website has had a facelift and now visitors can orient themselves quickly and effectively. The navigation menu has a clear structure and has been reduced to a few menu items with succinct subheadings.

All recent news about iSy is prominently communicated on the home page and users can directly access the details and background information with a single click. The fresh design automatically adjusts to any screen format – regardless of whether visitors are seeking information via a desktop or a mobile device.

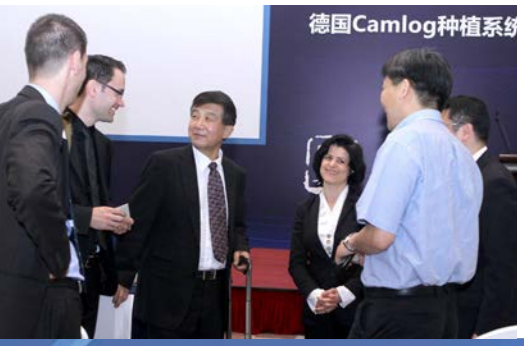
More contents – greater flexibility

The website not only provides information about the possibilities for using iSy, it also presents the full range of system components. Under the menu item "iSy System instructions", users can directly access the most recent versions of the instructions manual and preparation instructions on the ifu portal*.

Under "Working with iSy", therapy concepts are presented by experienced users. The case studies represent different treatment options and reveal the enormous flexibility of iSy application.

Coming soon!
Be impressed by the successful web presence at **www.isy-implant.com**.

*(ifu = Instructions for use; website containing all the instruction manuals and work and preparation instructions for all CAMLOG products)



SUCCESSFUL LAUNCH FOR CAMLOG IN CHINA

In April of this year the go ahead was given for another CAMLOG international branch. A branch in China will tap into an enormous potential market and furthers the internationalization of the CAMLOG group.

Just a few weeks after the official start, the new distributor from Shanghai organized a roadshow in the three major cities Guangzhou, Xi'an, and Beijing. With a total of more than 200 participating dentists, this was an extremely auspicious start. The many advantages of the CAMLOG® Implant System appear to be arousing interest.

Three renowned experts, Wang Zing, the president of the China Stomatology Association, and Professor Lin Ye and Professor Li Dehua, the presidents of the CSA Implantology Association, were on board to professionally manage the program. Two international experts, Dr. Frederic Hermann from Switzerland and Dr. Karl-Ludwig Ackermann from Germany, have enthused their audiences with interesting presentations about CAMLOG Implants as part of the CAD/CAM workflow.

After the presentations, the two were long available for interested participants for an expert question and answer session.
Inspired by the successful start, other events are planned in China to enthuse even more dentists about the benefits of the CAMLOG® Implant System.

To be continued.

ICC 2016

6TH INTERNATIONAL CAMLOG CONGRESS IN KRAKOW, JUNE 9-11, 2016

The preparations for the next CAMLOG congress in Krakow are already in full swing, and the organizing team is very excited at being able to present the program and the city to you very soon. We are convinced that next June we can offer you something quite special in and about Krakow.

The Thursday

On June 9, 2016, the whole show will get off to a great start and begin with a number of practical workshops. Current issues such as microsurgery, soft tissue management, bone and soft tissue augmentation, and suture techniques will be professionally explained using practical exercises by experts in groups with a maximum of 20 participants. Parallel to the workshops, a full-day digital symposium will be offered that will demonstrate the current workflow of and with CAMLOG. Because we expect a number of local participants, a Polish preliminary congress will also take place on the Thursday.

The Friday

The start of the official part of the congress will, as always, remain a secret. It will definitely be worth your while to be there right from the start. The first part of the scientific program will then begin with "Basic principles in treatment planning, implant surgery, and prosthetics" and "How to manage the esthetic zone". After the lunch break, two further sessions are on the program: "How to manage the posterior area" and "Find the balance for daily practice", which will be held as a round table discussion in teams. Following the two sessions, participants can expect a highlight. The Special Speaker Professor Markus Gross, CEO of Disney Research, will carry his audience off to another world. We are already looking forward to his futuristic presentation about "Virtual man". On Friday evening the legendary CAMLOG party starts. Dive into the young and lively city of Krakow and celebrate with friends into the night. More information will not be revealed at this point.

The Saturday

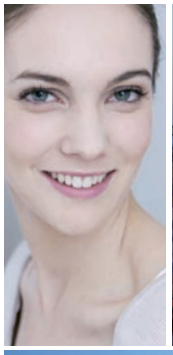
The day starts off on a scientific note with "Clinical research for daily practice". After a coffee break, the plenum will dedicate itself to the fascinating subject of "The transmucosal area" before the congress finishes up with the popular discussion session on the subject of "Controversial topics".
For the first time, we are offering participants the opportunity to ask interactive questions of the experts and vote in polls during the presentations. Use your time in Krakow to take part in discussions and to network. The organizing team has a number of other activities up their sleeves to surprise you.

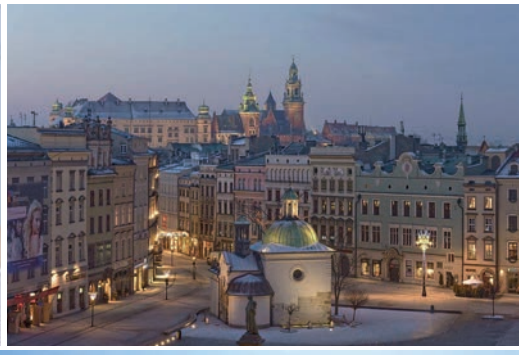
The congress center and the city

The modern, brand-new congress center delights us more and more during every preliminary visit. Look forward to perfect conditions in an ideal location. The same can be said of Krakow. This wonderful city fascinates us time and time again, and both its cultural and culinary highlights are sure to mean you will take home many positive impressions. The imposing castle and the countless historical churches and buildings as well as the lively streets with their cellar pubs, bars, and restaurants invite you to linger before or after the congress.

An attractive early bird congress rate, moderate hotel prices for a very good standard, and good connections by plane will make your decision to take part in the 6th International CAMLOG Congress even easier. We look forward to welcoming you.

You will be able to register for the congress at www.camlogcongress.com from end of November 2015.





English-Polish PHRASEBOOK

Part 2

English	Polish	Pronunciation
Good evening!	Dobry wieczór!	[D**oh**-brih vee-etch-oo-r]
Good night!	Dobranoc!	[doh-brah-n**o**ts]
Hello! / Bye!	Cze !	[ch**e**shch]
Hi!	Witam!	[vee-t**a**m]
Goodbye!	Do widzenia!	[d-oh veedz**e**nia]
See you tomorrow!	Do jutra!	[do y**oo**-tra]
I like that!	To mi si podoba!	[to mee sh'ye po-d**o**-ba]
I would like…	Poprosz	[po-pr**o**-she]

HOMAGE TO THE PERSONAL CONVERSATION

Communication is one of the fundamental features of human life. What will happen when the increasing digitalization of our world changes our communication?

Communication has already changed greatly over the course of the last century. While previously communication could only be personal, at the end of the 18th century the telephone came onto the scene and allowed humans to communicate over distances for the first time. The internet has once again revolutionized our communication: Fast, easy, and cheap, from one-to-one to one-to-many communication. A new type of communication has developed. First, people started to communicate within networks. Interwoven relationships developed thanks to communities that specialized in subjects or interests. Communication with friends, acquaintances, business partners, and even family has shifted in large part to digital communication channels.

Human communication is made up on one side of language – that is, the spoken and written word. Communication is also made up of non-verbal signals. The most common of these are facial expressions and gestures. Non-verbal communication also includes a number of other aspects such as body language, eye contact, or even the physical distance between those conversing. Tactile communication, such as contact or olfactory communication or smells, also form part of this aspect. Non-verbal communication is anchored within us as a result of our evolution. It gives expression to the messages sent and thus provides information about the intention of the messages. We decode these linguistic elements using our mirror neurons, individual empathic abilities, or learned knowledge. Digital communication cannot transmit this critical aspect of language.

Even easier, even faster

To be able to communicate faster, we use our mobile devices more and more these days – emails are barely used any more to communicate privately. The use of mobile end devices has, however, consequences for communication: From a language maintenance perspective, the grammatical construction of our communications is simplified and reduced. The richness of vocabulary and the potential for expression of our language is narrowed even further. Interpersonal dialog is made more difficult or distorted because we quickly stumble when decoding messages not only because of the overly simplified linguistic style but also thanks to incorrect or missing punctuation. Smileys or emoticons are used as substitutes for non-verbal communication. They are only of limited use for expressing the intention behind the message – misinterpretations are daily occurrences.

These changes mean that communication in the business environment is also increasingly more relaxed: The letter was the first to succumb, being replaced by the formal email. The tone of the email in turn changed over time. And now even some business information is communicated via WhatsApp.

Together alone

But what are the consequences of this development on interpersonal relationships? Firstly, considerably more time is invested in communication than in the past without the quality of that communication necessarily being improved. And declining direct communication is also affected because many people communicate with others while they are talking to someone.
Digital communication can appear more superficial and less transparent. This affects our behavior because it causes us to appear non-committal and unreliable. Likewise, friendliness can suffer as a result of the casual tone because these days you no longer have to confront unpleasant situations in person. Communication has quite definitely become more prone to

misunderstanding because the important non-verbal signals are missing. The potential omnipresence of communication tools also has a certain addictive element. Many people now find it difficult to go a day without communicating via the internet.

A factor that should not be underestimated is how this has simplified daily life, however. This new type of communication opens up new opportunities for people to work and to live. It has fundamentally enabled people to be close over great distances and to experience things together. People no longer lose sight of one another and friendships can be cultivated more intensively or even maintained from one side of the world to the other.

For all the positives and negatives, the development cannot be stopped but there has been no technology to date that has been able to replace the personal conversation.