

# QUARTERLY

Oral Implantology Scientific News and Reviews

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## Fit for the Future Part 1: Update on periimplantitis and implant hardware and computer-aided implantology

### Report on the International CAMLOG Congress 2008 in Basel/Switzerland

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«Our aim is the exchange of information between science and practice.» In this way, Prof Jürgen Becker (University of Düsseldorf/Germany) opened the International CAMLOG Congress 2008, which took place in Basel on 9 and 10 May. Part 1 of our report summarizes the presentations on the subjects periimplantitis and bisphosphonates. We also present important results on the accuracy of implant/abutment connections and on the correlations between implant hardware and periimplant tissues.

#### Epidemiology of periimplantitis

According to the literature search carried out by Prof Anton Sculean (University of Nijmegen/Netherlands), periimplantitis has an incidence of up to

19 per cent. In one study, progressive bone loss was observed after 9 to 14 years in almost 8 per cent of the implants investigated (Roos-Jansaker 2006). The incidence of periimplantitis is significantly higher in patients who have lost teeth as a result of chronic marginal periodontitis. In these patients, the success rate with regard to their implants was 52.4 per cent, in comparison with 79.1 per cent in the group without loss of teeth due to periodontitis (Karoussis 2003).

#### Risk prognosis of periimplantitis

The combination of IL-1 gene polymorphism and heavy smoking, in particular, has been shown to be a risk factor for periimplantitis. According to Prof Sculean, periodontal health must always be restored before implantations. Long-term follow-up care is essential. According to Prof Andrea

#### Editorial

Dear Reader,

Connecting science and practice on the highest level is a core request in the CAMLOG Family. Guided by the motto «Science meets practice – practice meets science», the International CAMLOG Congress 2008 in Basel on 9 and 10 May perfectly complied with this request.

This and the next issue of our Quarterly are dedicated to this outstanding event. More than 800 experts in implant dentistry and dental technology from 24 countries met in Basel despite the impending Whit weekend. Under the joint chairmanship of Prof Jürgen Becker, University of Düsseldorf/Germany, and Prof Robert Sader, University of Frankfurt am Main/Germany, approximately 50 speakers and teams from 14 countries presented the impressive results of the symbiosis of scientific research and its implementation in practice in the Basel Congress Center.

This Quarterly, issue 2008/5, focuses on the Congress contributions on periimplantitis and implant hardware. In the second part of issue 2008/5, you will find a first description of the new computer-assisted CAMLOG® Guide System presented by Prof Rolf Ewers, University of Vienna, and his team for the first time during the CAMLOG Congress 2008.

Thank you very much for your attention.

**Hans-Martin Müller**

Mombelli (University of Geneva/Switzerland), microbiological tests have so far not allowed a reliable risk prognosis in either of these diseases. These tests should therefore be used as an additional source of information only if there is clinical suspicion of an acute periimplant infection. Furthermore, the main germs responsible for periodontitis, namely *A. actinomycetemcomitans* and *P. gingivalis*, rarely occur in connection with periimplantitis and are to be found only in patients with previous periodontitis.

### Periimplantitis and implant hardware

PD Dr Frank Schwarz (University of Düsseldorf/Germany) has seen no proven connection between system-dependent differences in implant/abutment connections and the incidence of periimplantitis. In-vitro studies have shown that bacterial contamination occurs with all implant systems, and this can lead to an inflammatory periimplant infiltrate. However, this infiltrate is spatially very restricted and clearly delineated from healthy connective tissue – at least in animal experiments with the CAMLOG® Implant System (Schwarz 2008). According to Dr Schwarz, the clinical relevance of a microbial colonization is therefore doubtful. The correct estimation of individual factors, the positioning of the implant and accurate timing play a decisive role in the prevention of periimplantitis.

### Treatment of periimplantitis

To date, there exist no evidence-based therapeutic recommendations for periimplantitis. Although by decontaminating the implant surface with an Er:YAG laser a higher rate of bone contact can be achieved than with other methods, the risk of recurrence remains high and improvements in cli-

nical parameters have only been documented for a period of six months. According to Dr Schwarz, the combination of removal of deposits and local antibiotics with minocycline is to be recommended. In the case of supracrestal osteoclasts, the implant surface can be smoothed with rotating instruments. With intraosseal defects, controlled tissue regeneration is possible but is still not well documented.

### Implant hardware and biology of the periimplant tissues

According to Prof Jürgen Becker, rough, sand-blasted, etched implant surfaces such as CAMLOG Promote® are to be considered as standard. In Basel, he presented a new paper on Promote® Plus implants (Schwarz 2008). By shortening the machined shoulder portion to 0.4 millimeters, the periimplant bone is stabilized further towards the crown than with Promote® implants, which show a 2.0-millimeter machined portion. Prof Becker made the practical recommendation to use Promote® implants in the case of a thin biotype and a narrow, keratinized gingiva, because of the increased risk of recurrence.

### Accuracy of implant/abutment connections

Dr Katja Nelson (Charité, Berlin/Germany) investigated the positional stability of implant/abutment connections after 20-fold disassembly and reassembly. The rotatory deviations were significantly less with one particular implant system (CAMLOG) than with all the other systems (SteriOss, Astra, Replace Select, Straumann). Depending on the system used, the resultant cleft is calculated to be between 100 and 272 micrometers. The idea for this study came from Dr Nelson's team partner, master dental technician Jürgen Mehrhof (Berlin), who has

been dissatisfied with the accuracy of a number of implant systems.

### Implant therapy and bisphosphonate medication

The use of oral bisphosphonates for the prevention of osteoporosis can lead to metabolism-dependent changes in the jawbone. According to Prof Robert E. Marx (University of Miami/USA), bisphosphonate-induced osteonecrosis of the jaw (BIONJ) is to be expected as soon as a toxic concentration is reached. As the risk of BIONJ is greatly increased three years after the start of the medication, from this time onward, implantations should be carried out only with a CTX (bone-turnover marker) value of at least 150. This can be reached with a medication holiday of about nine months to be agreed with the medical specialist.

### PART 2 OF THE REPORT IN THE NEXT QUARTERLY

### Literature

- » Karoussis IK, Salvi GE, Heitz-Mayfield LJA, Brägger U, Hämmerle CHF, Lang NP. Long-term implant prognosis in patients with and without a history of chronic periodontitis: a 10-year prospective cohort study of the ITI Dental Implant System. *Clinical Oral Implants Research* 2003;14:329-339.
- » Roos-Jansaker AM, Lindahl C, Renvert H, Renvert S. Nine- to fourteen-year follow-up of implant treatment. Part II: presence of periimplant lesions. *J Clin Periodontol* 2006;33:290-295.
- » Schwarz F, Herten M, Bieling K, Becker J. Crestal bone changes at non-submerged implants (CAMLOG) with different machined collar lengths: a histomorphometric pilot study in dogs. *Int J Oral Maxillofac Implants* 2008;23:335-342.

## CAMLOG® Guide – The perfect solution based on computer-assisted planning and template-based implantation: Part 1

PROF. DR. ROLF EWERS

Over the past few years, the computer-assisted insertion of dental implants has shown an extremely dynamic development. Various concepts have been introduced into the market and have been widely discussed in the specialist world. The common aim of the different concepts is primarily the combination of efficient preoperative planning with simple and accurate intraoperative application.

With the innovative CAMLOG® Guide, CAMLOG has once again proved its technological market leadership. For the dentist, this development opens the way to immediate implantation ("teeth in one hour") and is the result of many years' experience in both implant dentistry and computer-assisted surgery. Through the complete coordination of hardware and software, a system clearly standing out against

competitors' products has been made available.

### The CAMLOG® Guide's benefits are:

1. Purely bone-related work flow. From computer planning through preparatory dental work to template-supported implant insertion, each step is taken in relation to the bone. Inaccuracies, e.g., due to shifting of the drill template on the soft-tissue mantle, are thus excluded.
2. A completely new concept of template-making. Requirements with regard to prostheses are considered in a natural way. Starting with a provisional prosthesis, the drill template is produced step by step. Therefore, the same template is used all the way through the whole process, from initial planning to intraoperative application, and any accumulation of errors is reliably prevented.

3. Increased treatment efficiency: As a considerable part of the technical preparation is carried out in the dental laboratory, the operator is clearly under less pressure and therefore able to concentrate on his/her main task, i.e., patient care.

An intuitive user surface in the Med3D planning software makes it possible to learn the planning procedure within a short time. The accuracy provided by the CAMLOG® Guide is a prerequisite for the preparation of the final prosthesis, which is implanted immediately after the operation. In this way, the long-felt wish of both doctors and patients for a rapid and efficient implantation is really fulfilled.

PART 2 OF THE REPORT WITH AN ILLUSTRATED WORK FLOW IN THE NEXT QUARTERLY



The picture gallery is online: [www.camlog.com/gallery/](http://www.camlog.com/gallery/)