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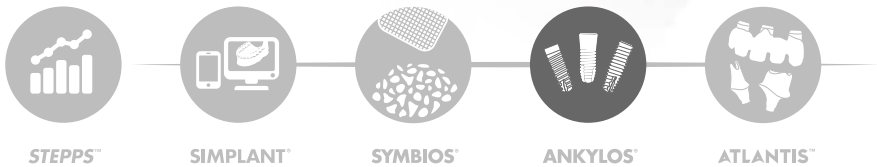

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Prof. Dr Herbert Deppe

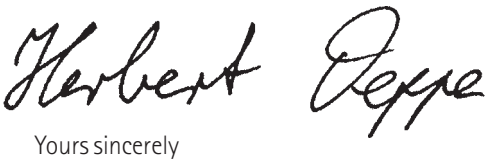
Dear colleagues,

_On this years' 44th congress of the DGZI in Düsseldorf, I was elected president of the society by the members' assembly after being assessor of the executive committee for three years. In my role as the president-elect, I want to move forward the intensification of the contacts with other specialised fields as periodontology or colleagues from prosthetics and biomechanics. Thereby, I would like to extend the already existing personal contacts as well as those of the DGZI and also initiate joint congresses with other specialised fields as the German Association for Periodontology. Furthermore, it is my heartfelt concern to intensify the collaboration between oral maxillofacial surgeons and the dental profession.

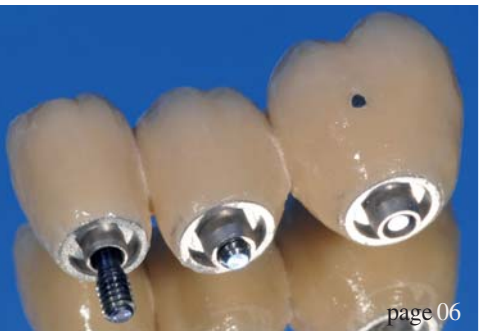
Traditionally, the DGZI has also a lot of international contacts, especially to colleagues in Japan and Switzerland. We are also strongly connected with the Arabian area, although keeping contact here is not easy in view of the continuing political tensions. This is another issue, which I would wish to address intensively within the executive committee. In general, there is no need to reinvent the DGZI. We should tackle things in all modesty. Thereby, we want to remain faithful to our values which are on the one hand letting established practitioners feel at home in the DGZI and on the other hand stick to the clear scientific demand of our society.

In the upcoming year, we as the German Association of Dental Implantology (DGZI) are faced with a lot of challenges. From my point of view, one of the biggest challenges is the strengthening of the implantological societies, which should occur in a cooperative way. The difficulty of establishing this cooperative thought becomes clear when thinking of the joint event of the big implantological societies in Munich planned in the year before which unfortunately failed to come about. In the area of science, development has to focus on materials research on the one hand—especially in the area of high-performance ceramics—but also on the biologisation of implants on the other hand.

Finally, a personal remark should be allowed: We have to remind ourselves day-to-day that we have one of the greatest professions. Here, modesty is called for. This also includes the insight that one or another step is better made by someone else and thus react accordingly. With this in mind, I would go along with the executive committee: Keep your feet on the ground—and keep reaching for the stars!



Yours sincerely
Prof. Dr Herbert Deppe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Clinical and radiological performance of short implants

A clinical study with two years follow up

Authors_Dr Jean-Nicolas Hasson, Dr Jacques Hassid, Dr Dominique Aubazac, France & Paul Zeman PhD, Switzerland

[PICTURE: ©ALICE-PHOTO]

_The aim of this study was to assess the clinical and radiological performance of short (6.5 mm) implants inserted in the premolar and molar regions of the maxillae. Eligible patients had to have a residual bone height of at least 6.5 mm and a bone width of at least 6.0 mm. Restoration was performed as single crowns or fixed large-span bridges and followed for up to two years after insertion.

_Background

The reconstruction of missing teeth in posterior regions is hampered by the limited bone availability and insufficient bone quality typically found in the posterior regions due to post-extraction bone atrophy both apico-occlusally and bucco-palatally, a pneumatised sinus, etc. Significant functional forces in the posterior segments of the maxillae, among other factors, increase the risk of implant failure.[1] Similar anatomical limitations are mentioned in the recent review by Estafanous et al.[2]

Bone quality

Restoration with implants in posterior regions is more complex if, for example, permanent teeth were lost at young age, bone quality is poor (D3 and D4 according to Misch's classification), or enhanced bone resorption due to mucous stimuli is present, and implant placement is complicated by the presence of anatomic structures such as the sinus cavity or inferior alveolar nerve.[3] Particularly in the maxillae, the use of short implants (i.e. the endosseous part is < 7 mm long) is advantageous to avoid sinus floor augmentation (sinus lift).

Several bone augmentation techniques have been developed with the goal of increasing the bone volume before implant placement, thereby allowing the use of longer and wider-diameter implants. The surgical problems and potential failures of such techniques have been clinically extensively documented.[4] The placement of shorter implants has the potential to avoid the need for such techniques. This would be beneficial for patients both in terms of reduced morbidity and financially.

Survival rates

Although early papers on short implants reported higher implant loss rates,[5–8] recent systematic literature reviews have found that initial survival rates were comparable to that of longer implants and thus constitute a viable alternative to additional augmentation procedures. This correlates well with the fact that model calculations by finite element analysis indicate clearly that the distribution of horizontal and vertical loading forces is similar to that of longer implants.[9–12] Other calculations have also demonstrated that bone stress should be almost independent of implant length; a more important role was assigned to implant diameter.[6, 13, 14]

Recent reports indicate that it is possible to achieve highly acceptable implant survival rates with the current short implants.[1, 14] Stellingsma et al. have shown survival rates of 88–100 % in atrophied mandibles.[13] A survival rate of 96 % was reported for short implants in severely atrophic maxillae.[15] Esposito et al. compared the three-year post-loading outcomes of short and long (with guided bone re-

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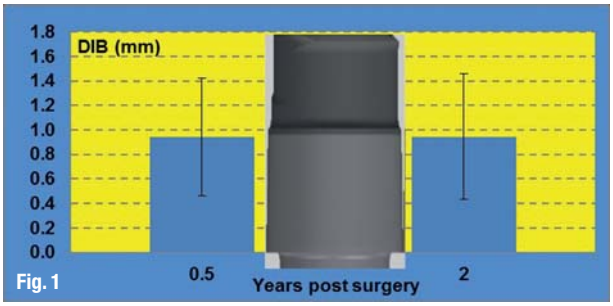


Fig. 1_Peri-implant (mesial and distal) bone level around short implants six months (0.5 years) and two years after implant insertion. The implant shoulder is included to visualise the periapical bone level also in relation to the implant geometry.

generation) implants in a randomised parallel group study.[16] They concluded that in cases with limited residual bone of 7–8 mm over the mandibular canal short implants are a viable alternative to vertical augmentation. The treatment is faster, cheaper and associated with reduced morbidity.

It is to be noted that implant insertion into pristine bone was compared with implants placed after preliminary sinus lift elevation.[17] In this prospective study, which included 393 implants and 155 patients treated in two groups, the implants placed into augmented sinuses had a lower survival rate compared with implants placed into pristine bone.

Crown-implant ratio

Excessive crown–implant ratios have been hypothesised to be detrimental to long-term withdrawal. For obvious reasons, this ratio must be given particular attention when using short implants. Birdi et al. determined the crown–implant ratios of 309 single-tooth implant-supported restorations on short implants.[18] The mean follow-up time was 21 months and the mean crown–implant ratio was 2, that is, rather unfavourable for a tooth. No statistically significant relationship was found between the crown–implant ratio and implant success, or the mesial or distal periapical bone level.

Short implants in posterior regions

De Santis et al. studied short implants (≤ 8.5 mm) placed in edentulous posterior regions, predominantly in the mandible, that were affected by high bone resorption.[3] After one- to three-year follow-up, they found a survival rate of 98.1 % (i.e. only 2 of 107 implants were lost) and a success rate of 96.3 % (i.e. only 4 of 107 implants failed the predefined success criteria). The results of this study therefore also support the use of short implants in posterior regions with highly resorbed bone. In this context, it is important to be aware that the implant length used by Brånemark et al. in their original protocol was established empirically.[19]

The implants at that time had a machined (smooth) endosteal surface. Current implants with microstructured endosteal surfaces are characterised by improved osseointegration and increased bone–implant contacts. Together with optimised geometry, contemporary implants are superior in maintaining implant stability.[3] This in turn should allow the use of shorter implants. Short implants are typically described as < 10 mm long,[20] but Hagi et al. have described short implants as < 7 mm long.[21] A European Association for Osseointegration consensus conference defined short implants as ≤ 8 mm. This is more practicable, as implants > 8 mm had been commonly used for a long time without any particular problem related to their length.[22]

Survival rates in studies reviewed

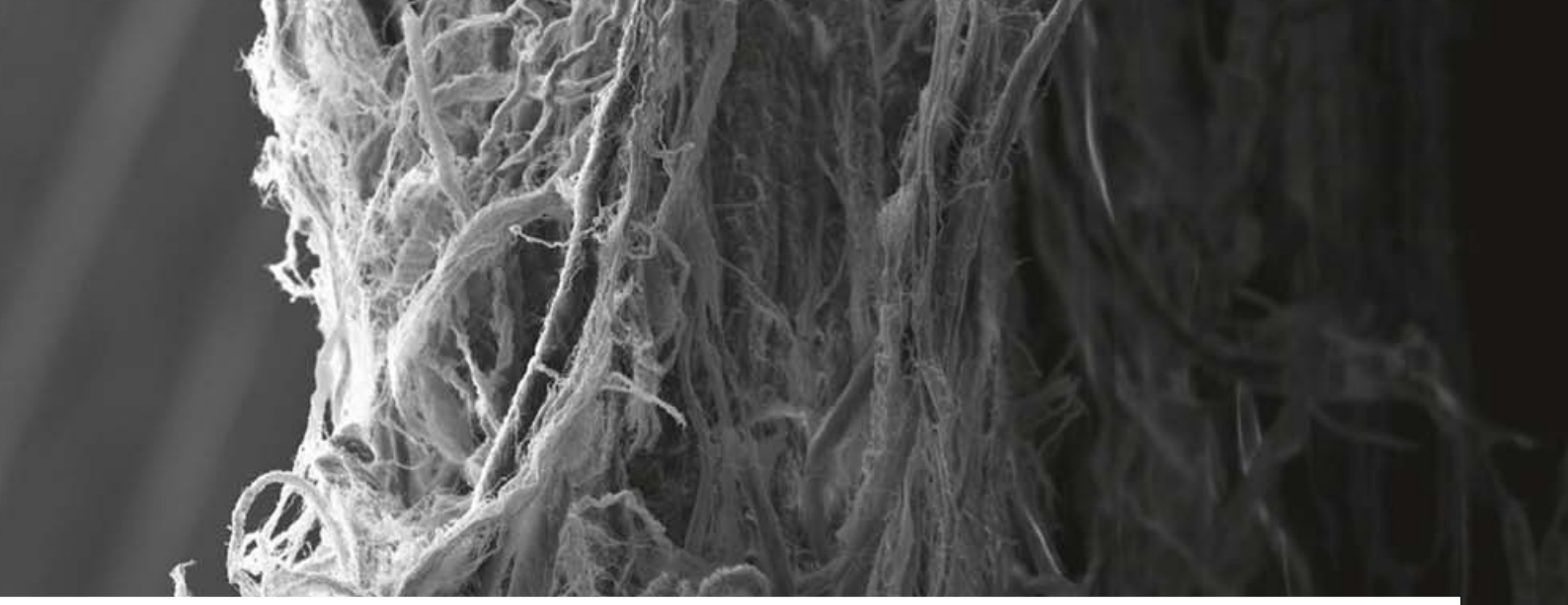
In a recent review on the meta-analysis of short implant survival studies,[20] it was found that the cumulative survival rate in the majority of the studies was similar to that of longer implants (92.5 % and 98.4 % for implants with machined and rough surfaces, respectively) and concluded that rehabilitation using short implants is a reliable treatment.[23] This conclusion is to be understood within the limitations of a meta-analysis and the lack of well-designed randomised trials. A similar conclusion was drawn by Telleman et al. from their systematic literature review of the survival rate of 2,611 short implants that were placed in partially edentulous patients.[24]

Nevertheless, Telleman et al. found an increase in implant survival (from 93.1 to 98.6%) that was associated with increasing implant length (from 5.0 to 9.5 mm).[24] The authors believe that there is fair evidence that short implants can be placed in partially edentulous patients, but with a tendency towards an increasing survival rate according to implant length and a better prognosis in the mandibles of non-smokers. Morand and Irinakis in their earlier literature review also concluded that, even though short implants are commonly used in the areas of the mouth under increased stress (posterior region), the success rate of short implants is similar to that of longer implants when careful case selection criteria have been applied.[25] Annibali et al. too concluded in their systematic review on short implants that prostheses retained by short implants in patients with atrophic alveolar ridges appears to be a successful treatment option in the short term, but recommended further studies to determine its success in the long term.[26]

_Clinical study

Patients

This prospective case series included 56 consecutive patients (35 females and 21 males) referred for dental implantation to three different practices (JNH, JH and DA). Patients were entered into the study consecutively, that is, with no specific selec-



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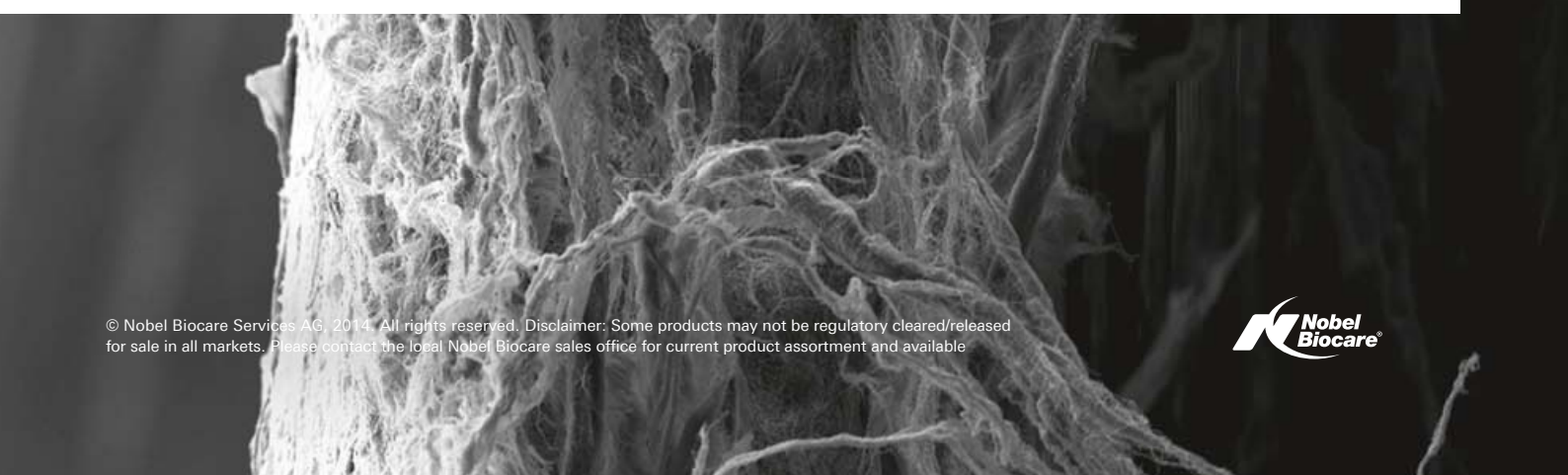

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