

# implants

international magazine of oral implantology

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| **research**

A time shift link:  
Implant planning affects  
periimplant diseases

| **case report**

Quality of implant surfaces and  
poor osseointegration

| **events**

“Dental technology and implantology —  
Interface to success”



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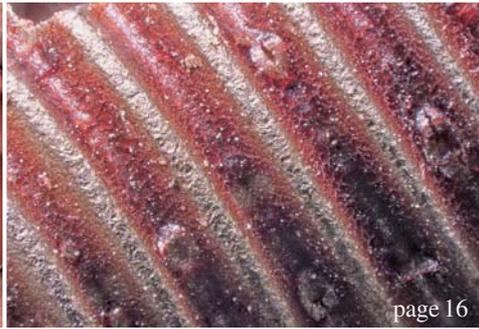
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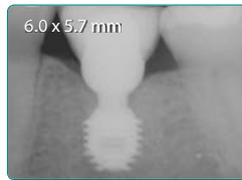
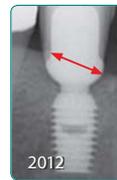
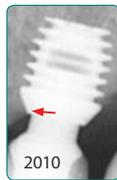
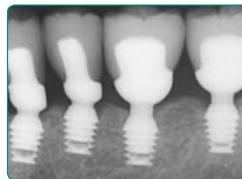
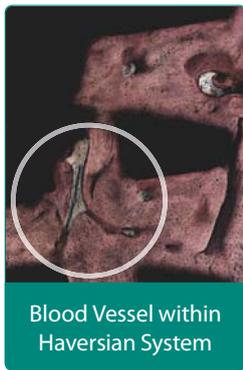
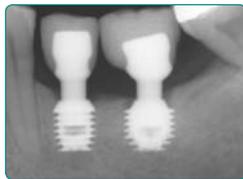
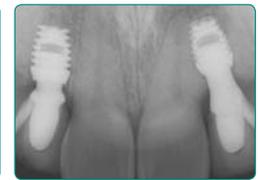
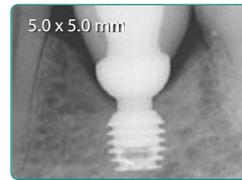
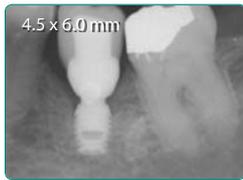
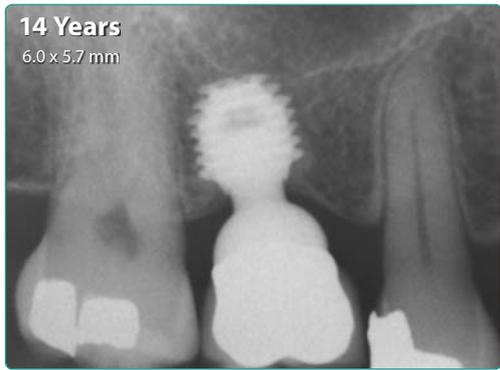
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# Implant planning affects periimplant diseases

## A time shift link

**Author** Rainer Buchmann, Daniel Torres-Lagares & Guillermo Machuca-Portillo, Germany & Spain

Implants are becoming increasingly popular with low-cost offers promoting this development. The number of customers preferring implants to customary restorations is expanding. The variety of client demands, individual settings, treatment options and risks related to inflammation and bone damage following implant treatment advocate evident, comprehensible and durable solutions.

Safeguarding implant treatment commences with careful tooth removal, pre-implant treatment and implant planning respecting four key issues:

1. Early decision making to ensure implant bone support with limited number of implant placements.
2. Sound tooth removal to protect bone loss by intraalveolar root dissection.
3. Accuracy of implant diagnosis and implant placement by 3-D visualization (DVT) of implant surgical access.
4. Minimal surgical involvement with short and low diameter implants while restricting augmentation to prosthetic relevant settings.

### Planning

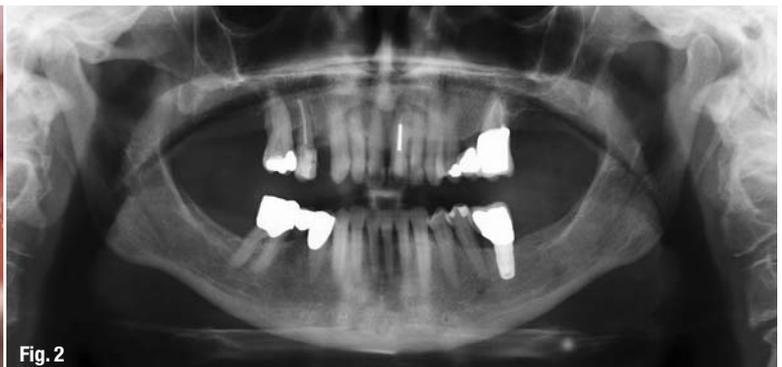
#### Early Decision Making

Early implant decision making comprises anatomical, functional and economic issues:

- a) Anatomy: Treated severe periodontitis usually displays clinical stability with further drawbacks around implant supported bone at buccal plates or interapproximal sites by inflammation (Figs. 1 & 2).<sup>1</sup>
- b) Function: Following untreated periodontal diseases or tooth removal, shifting of single tooth initiates due to myofunctional imbalance. By loss of front-canine equilibration, a group side shift emerges with further bite reduction as result of age and misuse.<sup>2</sup>
- c) Dues: Periodontal therapy of severely compromised teeth with bone loss > 50% often results in a later date implant treatment that doubles dental efforts and bills. Economic issues should downregulate this strategy.
- d) Oral comfort: Stability, oral hygiene and esthetics become fostered by timely implant placement and optimized implant prosthetics.

**Fig. 1** Severe periodontitis, residual inflammation and bacteremia. Poor hygienic capability, comfort and esthetics with furcation caries.

**Fig. 2** Drawn-out expectation period in advanced periodontal disease at # 15, 16 with horizontal alveolar bone resorption at assigned implant site (see Fig. 14).



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**Fig. 3** Surgical access to deep intrabony periodontal pockets securing the residual dentition and safeguarding inflammation prior to implant placement following completion of non-surgical periodontal therapy.

**Fig. 4** Microsurgical revision using a vascular pedicle flap to maintain interdental papillae and augment resting periodontal pockets with autogenous bone. Usage of Osteora (antiinflammatory) or Emdogain, if applicable.

**Fig. 5** Relaxation appliance in the maxilla with a frontal plateau to decompensate age and use related bite reduction prior to final implant planning.

**Fig. 6** Temporary relief from damage resulting from use (wear) and habits by restoring a front-canine equilibration.

**Fig. 7** Vertical release of 1 mm achieving premolar and molar relief to promote bone healing following treatment of periodontal compromised sites prior to implant surgery.

Clinical practice emphasizes a time-tested planning with (i) removal of severely compromised teeth, (ii) periodontal therapy securing the residual dentition, supplemented by (iii) microsurgical revision of deep intrabony pockets prior to implant placement to safeguard inflammation (Figs. 3 & 4). Implant planning resides tentatively. A final quotation will be drawn after completion of functional relief and 3-D digital evaluation of the implant bone anatomy.

*Functional decompensation*

Fully and partially edentulous patients frequently reveal a bite reduction by usage (wear) with loss of front-canine equilibration and a resulting left and right grouped pemolar and molar sideshift.<sup>3</sup> Dysfunction and habits (pressing, grinding etc.) promote further damage. In severe periodontitis, group sideshift accelerates disease progression, impedes post therapy healing and weakens alveolar bone assigned for later implant placement. Early implant planning includes following key issues:

1. Inspection of the oral cavity comprises evaluation of the mastication muscels (M. temporalis, M. masseter) and the temporomandibular joints (M. pterygoideus medialis und lateralis) with focus of tension, induration and pain pressure.
2. Osteopathic examination of craniocaudal dysfunctions: initiated by body statics (inclined position), (mis-)posture, walk (activity) etc. should exclude somatic sources. If applicable supportive therapy. If applicable, manual osteopathic treatment to improve physiologic function, i.e. body alignment, symmetry and support homeostasis that has been altered by somatic dysfunctions.<sup>4</sup>
3. Carefull reduction of prominent protrusive contacts (front) and sliding bars during laterotrusion on the operating side.
4. Placement of a relaxation appliance in the maxilla (overbite and deep bite in the mandible) for functional decompensation with a frontal plateau allowing a front-canine equilibration and temporary relief in molars by vertical release of 1 mm (Figs. 5–7).



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