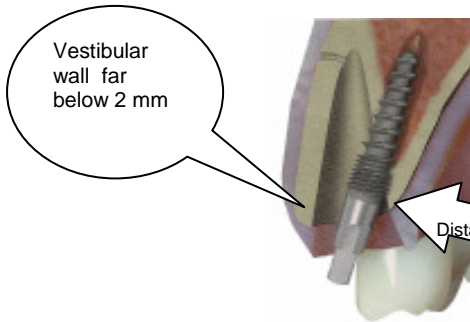


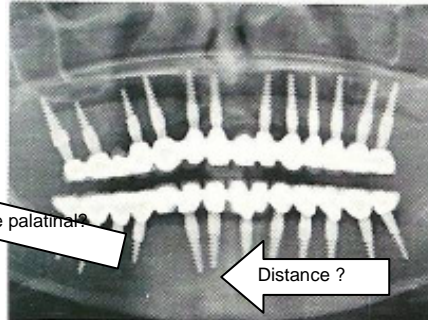
# Space Requirement for Screw Implants

A space of less than 2 mm distance from the outer buccal wall is insufficient for the positioning of a screw. According to *Schliephake*, an average loss of bone height of 2.1 mm can be expected if the vestibular thickness of the alveolar wall is 0.5 mm (Fig.2.1.). At 0.9 mm wall thickness, however, you have to expect a loss of 0.9 mm.<sup>1</sup> As a result, the implant must be placed in the direction of the palatal wall. But according to Fig.1 the problem now occurs on the palate side.

With regard to the mesio-distal distance of the screw implant to an adjacent tooth, *Schliephake* claims that you also require 2 mm distance. Between two adjacent implants placed at the same time, you consequently need a distance of 4 mm (Fig. 2-3).S



**Fig.1** Dental-Barometer 3\_2012  
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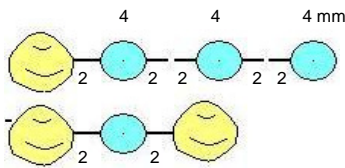


**Fig. 2** Dental-Barometer 2\_2012  
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**Fig. 2.1.** Rezenion of bone  
Foto Stefan Matthijs (BEL)

If you want to meet the requirements of *Schliephake* for a screw implant design fixture one needs a space of 8 mm per implant if the implant has a diameter of 4 mm. Otherwise the remodeling phase will be impeded. It leads to an excessive bone loss because the negative consequences of bone bruise will overlap. If a potential loss of bone height has to be avoided, you need enough space between the screw design implant fixture the tooth or next implant Fig. 3).



**Fig3** Tooth with 3 Implants and  
Implant between 2 teeth

According to *Neugebauer et al.* the bone level between two implants is most stable at a distance of at least 2-3 mm.<sup>2</sup>

If two adjacent single-rooted teeth or one molar is missing, then in the mesial distal direction there is enough room for one single screw-implant with a diameter of 4 mm.

Therefore you need 8mm space for each implant. This applies in all directions and for each tooth.

But where can you find this space?

In order to provide screw implants, a bridge is often used to fill the gaps and to stabilize the implants shortly before the beginning of remodeling phase.

Screw implants become loose at this stage (secondary stability), because of the crushed cell walls of the bone.<sup>3</sup> Two or more interlocked implants can not mutually stabilize themselves.

The force is transmitted from one pillar to the next, so that all interlocked implants will move. In the lower jaw (Fig. 2) all-over-blocking is particularly unfortunate, as the arch of the jaw deforms itself under pressure. The results are forwarded micro-movements to all involved implants.

Micro-movements lead to periimplantitis, gaps, bone-loss, loss of gingiva and in the end, loss of the implant

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**Many of these problems can be reduced by oval-conical ROSI® implants.**

<sup>1</sup> *Schliephake*, Der Freie Zahnarzt 3\_2012, S.69-74 (71).

<sup>2</sup> *Neugebauer / Karapetian / Lingohr / Zöller*, Implantologie Journal der DGZI (Deutsche Gesellschaft für Zahnärztliche Implantologie e.V.).

<sup>3</sup> *S. Raghavendra / M. C. Wood / T. D. Taylor*. Int J Oral Maxillofac Implants 2005; S. 425-431.