

Influence of platform switching abutment design on crestal bone levels in the same implant system

– first results of a prospective randomized multicenter study

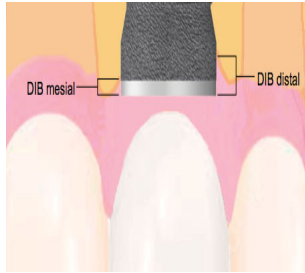


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Introduction: Prosthetic abutments with reduced width in relation to the implant diameter (platform switching, PS) seems to have potential to reduce crestal bone loss around dental implants. There are limited studies comparing this concept with standard abutments in the same implant system. In accordance to this, the study aimed to evaluate crestal bone level of the same implants in a definite indication restored with PS and with standard abutments (SA).

Figure 1: Measurement of radiological bone loss at the mesial and distal site



Materials and Methods: In a prospective randomized international multicenter study, 68 patients were provided with 163 implants (Camlog® Screw line) and restored with PS (n=83) as well as with SA (n=80) in the posterior mandible.

Indications were: ≥2 adjacent missing teeth, natural tooth mesial to proximal implant site, full opposition dentition, implants placed at least 6 weeks post extraction and no bone augmentation.

Primary objective was a comparison of changes in crestal bone levels (fig. 1) between the groups. We will report the first results of the implants after 1 and 2 years.

Results: After a total follow-up of 2 years, in the **PS group** a mean **bone gain** of 0.15 mm was recorded between the time of prosthesis placement and 12-months post-loading and 0.22 mm after 24-months post-loading (fig. 2). In comparison, a bone loss of 0.09 mm and 0.27 mm was measured in the SA group for the one and two-years loading period. For both time points the difference is significant (p=0.005 and 0.004; fig. 3,4 and 5). The total implant survival was 98.2%, 3 implants were lost.

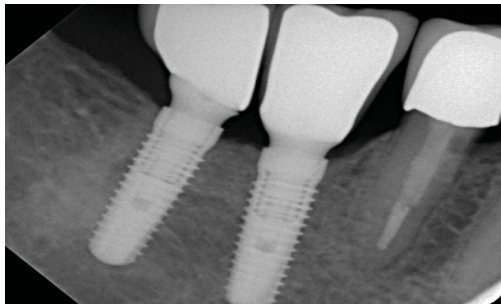


Figure 2: Exemplary single-tooth radiograph of a PS restoration 24 months after prosthetic loading. There is no bone loss to be seen.

Figure 4 (right): After 24 months, the opposing trend for the both groups is more evident. In the PS group, the mean gain of bone further increased.

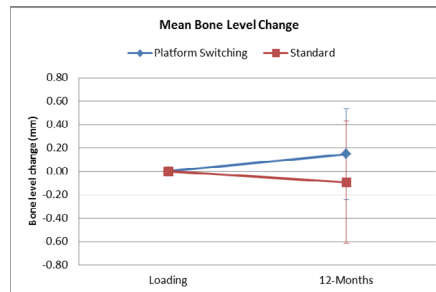
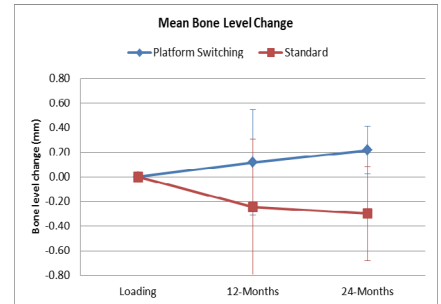


Figure 3 (left): After 12 months, a mean total gain of bone is seen in the PS group whereas for cases with SA, there is a slight decrease.



| Randomization | Platform switching | | Standard | | P-value* |
|----------------|--------------------|-------------|----------|---------------|----------|
| | N | MEAN ± SD | N | MEAN ± SD | |
| Baseline – 12M | 62 | 0.15 ± 0.39 | 57 | - 0.09 ± 0.52 | 0.005* |
| Baseline – 24M | 33 | 0.22 ± 0.48 | 35 | - 0.27 ± 0.80 | 0.004* |

Figure 5: Mean values (MEAN) as well as standard deviations (SD) and respective p-values for the groups restored with PS and SA after 12 and 24 months.

Discussion: the PS concept seems to be suitable in order to **limit crestal resorption** and to **preserve peri-implant bone levels**.

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