



Scientific Review for Straumann® Bone Level SLActive® Implants.

Tooth replacement with implants in esthetically demanding sites are clinically challenging tasks. Straumann® Bone Level Implants can be effectively used to restore both function and esthetics – to satisfy the high expectations of the dentist and the patient.

Over the last years the Straumann® Bone Level Implant has been extensively researched in preclinical and clinical studies.

The preclinical studies assessed the **effectiveness of the horizontal offset** of the implant-abutment interface. **Less inflammatory reactions and a higher stability** of the marginal bone level compared to butt-joined connections could be shown. Also assessed was the **optimal distance of adjacent implants**.

A number of 7 clinical studies have been performed. In general the clinical studies have demonstrated an excellent performance of Straumann® Bone Level Implants in different clinical indications and in different patient conditions. The implants have been used also in cases with very challenging indications, such as early placement in the anterior maxilla or implant placement in augmented sites. In all of these studies the implant survival rates after 1 year have always reached between **98 % and 100 %**. In a recent review of the published literature by den Hartog et al. 2008, an overall implant survival rate of other implants in comparable indications has been documented with 95.5%. Marginal bone loss in the first year ranged between **0.1mm and 0.5mm**, and more importantly, **very stable marginal bone level** conditions were observed over the years in function. As a consequence the **esthetic**

outcome was very pleasing, and the satisfaction of the patient and dentist was always at a very high level.

The following statements for **Straumann® Bone Level SLActive® Implants** are proven by scientific evidence:

- The **horizontal offset** of the interface eliminates inflammation. Excellent marginal bone stability is supported by the design of the implant-abutment connection (Jung et al. 2008, Cochran 2009, Heitz-Mayfield et al. 2013, Cochran 2013).
- Excellent clinical performance, outstanding esthetics and high patient satisfaction **in daily dental practice** (Filippi et al. 2013, Furze et al. 2012).
- **Flexibility during placement** of adjacent implants (Elia et al. 2011).
- Long-term proven **clinical performance** and **pleasing esthetic** outcomes in the anterior maxilla (Buser et al. 2009, Buser et al. 2011, (Buser et al. 2013, not published)).
- Proven evidence for **one-stage surgical procedure** in the esthetic zone. A second surgery can be avoided also in augmented sites, resulting in reduced treatment time, lower costs and higher comfort for the patient (Hämmerle et al. 2011, Cordaro et al. 2012, Sanz et al. 2013).
- High predictability of **implant placement in augmented sites** (Santing et al. 2013, Chiapasco et al. 2012 a, Chiapasco et al. 2012 b).

In conclusion, based on the available evidence, Straumann® Bone Level Implants can be recommended in all kinds of clinical indication, but especially in esthetically challenging indications like the anterior maxilla.

REFERENCES

Buser D, Halbritter S, Hart C, Bornstein MM, Grütter L, Chappuis V, Belser UC.: Early implant placement with simultaneous guided bone regeneration following single-tooth extraction in the esthetic zone: 12-month results of a prospective study with 20 consecutive patients. *J Periodontol.* 2009 Jan;80(1):152–62. **Buser D**, Wittneben J, Bornstein MM, Grütter L, Chappuis V, Belser UC.: Stability of contour augmentation and esthetic outcomes of implant-supported single crowns in the esthetic zone: 3-year results of a prospective study with early implant placement post-extraction. *J Periodontol.* 2011 Mar;82(3):342–9. **Chiapasco M**, Casentini P, Zaniboni M, Corsi E.: Evaluation of peri-implant bone resorption around Straumann Bone Level implants placed in areas reconstructed with autogenous vertical onlay bone grafts. *Clin Oral Implants Res.* 2012 Sep;23(9):1012–21. **Chiapasco M**, Casentini P, Zaniboni M.: Implants in Reconstructed Bone: A Comparative Study on the Outcome of Straumann® Tissue Level and Bone Level Implants Placed in Vertically Deficient alveolar Ridges Treated by Means of Autogenous Onlay Bone Grafts. *Clin Implant Dent Relat Res.* 2012 Apr 11. **Cochran DL**, Bosshardt D, Grize L, Higginbottom FL, Jones AA, Jung RE, Wieland M, Dard M: Bone Response to Loaded Implants With Non-Matching Implant-Abutment Diameters in the Canine Mandible. *J Periodontol.* 2009;80:609–617. **Cochran DL**, Mau LP, Higginbottom FL, Wilson TG, Bosshardt DD, Schoolfield J, Jones AA: Soft and hard tissue histologic dimensions around dental implants in the canine restored with smaller-diameter abutments: a paradigm shift in peri-implant biology. *Int J Oral Maxillofac Implants.* 2013 Mar-Apr;28(2):494–502. **Cordaro L**, Torsello F, Chen S, Ganeles J, Brägger U, Hämmerle C.: Implant-supported single tooth restoration in the aesthetic zone: transmucosal and submerged healing provide similar outcome when simultaneous bone augmentation is needed. *Clin Oral Implants Res.* 2012 Jun 15. **Elia N**, Bloom M, Dard M, Cho SC, Trushkowsky RD, Tarnow D.: Effect of interimplant distance (2 and 3 mm) on the height of interimplant bone crest: a histomorphometric evaluation. *J Periodontol.* 2011 Dec;82(12):1749–56. **Filippi A**, Higginbottom FL, Lambrecht T, Levin BP, Meier JL, Rosen PS, Wallkamm B, Will C, Rocuzzo M.: A prospective noninterventional study to document implant success and survival of the Straumann Bone Level SLActive dental implant in daily dental practice. *Quintessence Int.* 2013;44(7):499–512. **Furze D**, Byrne A, Donos N, Mardas N.: Clinical and esthetic outcomes of single-tooth implants in the anterior maxilla. *Quintessence Int.* 2012, Feb;43(2):127–34. **Hämmerle CH**, Jung RE, Sanz M, Chen S, Martin WC, Jackowski J.: Implant-supported single tooth restoration in the aesthetic zone: transmucosal and submerged healing provide similar outcome when simultaneous bone augmentation is needed. *Clin Oral Implants Res.* 2012 Jun 15. **Heitz-Mayfield LJ**, Darby I, Heitz F, Chen S.: Preservation of crestal bone by implant design. A comparative study in minipigs. *Clin Oral Implants Res.* 2013 Mar;24(3):243–9. **Jung RE**, Jones AA, Higginbottom FL, Wilson TG, Schoolfield J, Buser D, Hämmerle CH, Cochran DL.: The influence of non-matching implant and abutment diameters on radiographic crestal bone levels in dogs. *J Periodontol.* 2008 Feb;79(2):260–70. **Santhig HJ**, Raghoobar GM, Vissink A, den Hartog L, Meijer HJ.: Performance of the Straumann Bone Level Implant system for anterior single-tooth replacements in augmented and nonaugmented sites: A prospective cohort study with 60 consecutive patients. *Clin Oral Implants Res.* 2013 Aug;24(8):941–8. **Sanz M**, Ivanoff CJ, Weingart D, Wiltfang J, Gahlert M, Cordaro L, Ganeles J, Brägger U, Jackowski J, Martin WC, Jung RE, Chen S, Hämmerle C.: Clinical and Radiologic Outcomes after Submerged and Transmucosal Implant Placement with Two-Piece Implants in the Anterior Maxilla and Mandible: 3-Year Results of a Randomized Controlled Clinical Trial. *Clin Implant Dent Relat Res.* 2013 Jul 9.



International Headquarters

Institut Straumann AG

Peter Merian-Weg 12

CH-4002 Basel, Switzerland

Phone +41 (0)61 965 11 11

Fax +41 (0)61 965 11 01

www.straumann.com