

Factors affecting the success of dental implants

Surface: SLActive®

For years, implants with the Straumann® SLA® surface have delivered excellent long-term results and clinically documented high implant success rates¹⁻¹². SLActive® is based on the scientifically proven SLA® topography. In addition, it has a fundamentally improved hydrophilic surface chemistry which promotes the initial healing reaction¹³⁻¹⁵, osseointegration properties¹⁶⁻²² and shows excellent survival and success rates of 97% or higher²³⁻²⁶ even in challenging clinical situations²⁷⁻³³.

Supporting Literature*

- (1) Buser D, Schenk RK, Steinemann S, Fiorellini JP, Fox CH, Stich H. Influence of surface characteristics on bone integration of titanium implants. A histomorphometric study in miniature pigs. *J Biomed Mater Res* 1991;25(7):889-902.
- (2) Cochran DL, Nummikoski PV, Higginbottom FL, Hermann JS, Makins SR, Buser D. Evaluation of an endosseous titanium implant with a sandblasted and acid-etched surface in the canine mandible: radiographic results. *Clin Oral Implants Res* 1996;7(3):240-252.
- (3) Buser D, Nydegger T, Hirt HP, Cochran DL, Nolte LP. Removal torque values of titanium implants in the maxilla of miniature pigs. *Int J Oral Maxillofac Implants* 1998;13(5):611-619.
- (4) Fischer K, Stenberg T. Prospective 10-year cohort study based on a randomized controlled trial (RCT) on implant-supported full-arch maxillary prostheses. Part 1: sandblasted and acid-etched implants and mucosal tissue. *Clin Implant Dent Relat Res* 2012;14(6):808-815.
- (5) Roccuzzo M, Bonino L, Dalmaso P, Aglietta M. Long-term results of a three arms prospective cohort study on implants in periodontally compromised patients: 10-year data around sandblasted and acid-etched (SLA) surface. *Clin Oral Implants Res* 2014;25(10):1105-1112.
- (6) Buser D, Janner SF, Wittneben JG, Bragger U, Ramseier CA, Salvi GE. 10-year survival and success rates of 511 titanium implants with a sandblasted and acid-etched surface: a retrospective study in 303 partially edentulous patients. *Clin Implant Dent Relat Res* 2012;14(6):839-851.
- (7) Roccuzzo M, Aglietta M, Bunino M, Bonino L. Early loading of sandblasted and acid-etched implants: a randomized-controlled double-blind split-mouth study. Five-year results. *Clin Oral Implants Res* 2008;19(2):148-152.

- (8) Bornstein MM, Wittneben JG, Bragger U, Buser D. Early loading at 21 days of non-submerged titanium implants with a chemically modified sandblasted and acid-etched surface: 3-year results of a prospective study in the posterior mandible. *J Periodontol* 2010;81(6):809-818.
- (9) Bornstein MM, Schmid B, Belser UC, Lussi A, Buser D. Early loading of non-submerged titanium implants with a sandblasted and acid-etched surface. 5-year results of a prospective study in partially edentulous patients. *Clin Oral Implants Res* 2005;16(6):631-638.
- (10) Cochran D, Oates T, Morton D, Jones A, Buser D, Peters F. Clinical field trial examining an implant with a sand-blasted, acid-etched surface. *J Periodontol* 2007;78(6):974-982.
- (11) Cochran DL, Jackson JM, Bernard JP et al. A 5-year prospective multicenter study of early loaded titanium implants with a sandblasted and acid-etched surface. *Int J Oral Maxillofac Implants* 2011;26(6):1324-1332.
- (12) Salvi GE, Gallini G, Lang NP. Early loading (2 or 6 weeks) of sandblasted and acid-etched (SLA) ITI implants in the posterior mandible. A 1-year randomized controlled clinical trial. *Clin Oral Implants Res* 2004;15(2):142-149.
- (13) Nicolau P, Korostoff J, Ganeles J et al. Immediate and Early Loading of Chemically Modified Implants in Posterior Jaws: 3-Year Results from a Prospective Randomized Multicenter Study. *Clin Implant Dent Relat Res* 2011.
- (14) Bornstein MM, Wittneben JG, Bragger U, Buser D. Early loading at 21 days of non-submerged titanium implants with a chemically modified sandblasted and acid-etched surface: 3-year results of a prospective study in the posterior mandible. *J Periodontol* 2010;81(6):809-818.
- (15) Buser D, Chappuis V, Kuchler U et al. Long-term stability of early implant placement with contour augmentation. *J Dent Res* 2013;92(12 Suppl):176S-182S.
- (16) Buser D, Broggini N, Wieland M et al. Enhanced bone apposition to a chemically modified SLA titanium surface. *J Dent Res* 2004;83(7):529-533.
- (17) Schwarz F, Ferrari D, Herten M et al. Effects of surface hydrophilicity and microtopography on early stages of soft and hard tissue integration at non-submerged titanium implants: an immunohistochemical study in dogs. *J Periodontol* 2007;78(11):2171-2184.
- (18) Gottlow J, Dard M, Kjellson F, Obrecht M, Sennerby L. Evaluation of a new titanium-zirconium dental implant: a biomechanical and histological comparative study in the mini pig. *Clin Implant Dent Relat Res* 2012;14(4):538-545.
- (19) Wen B, Zhu F, Li Z, Zhang P, Lin X, Dard M. The osseointegration behavior of titaniumGÇözirconium implants in ovariectomized rabbits. *Clinical Oral Implants Research* 2013;n/a.
- (20) Oates TW, Valderrama P, Bischof M et al. Enhanced implant stability with a chemically modified SLA surface: a randomized pilot study. *Int J Oral Maxillofac Implants* 2007;22(5):755-760.
- (21) Lang NP, Salvi GE, Huynh-Ba G, Ivanovski S, Donos N, Bosshardt DD. Early osseointegration to hydrophilic and hydrophobic implant surfaces in humans. *Clin Oral Implants Res* 2011;22(4):349-356.

- (22) Lai HC, Zhuang LF, Zhang ZY, Wieland M, Liu X. Bone apposition around two different sandblasted, large-grit and acid-etched implant surfaces at sites with coronal circumferential defects: an experimental study in dogs. *Clin Oral Implants Res* 2009;20(3):247-253.
- (23) Barter S, Stone P, Bragger U. A pilot study to evaluate the success and survival rate of titanium-zirconium implants in partially edentulous patients: results after 24 months of follow-up. *Clin Oral Implants Res* 2012;23(7):873-881.
- (24) Al-Nawas B, Bragger U, Meijer HJ et al. A Double-Blind Randomized Controlled Trial (RCT) of Titanium-13Zirconium versus Titanium Grade IV Small-Diameter Bone Level Implants in Edentulous Mandibles - Results from a 1-Year Observation Period. *Clin Implant Dent Relat Res* 2012;14(6):896-904.
- (25) Freiburger P, Al-Nawas B. Non-interventional Study on Success and Survival of TiZr Implants. EAO 2012 Copenhagen 2012.
- (26) Ganeles J, Zollner A, Jackowski J, ten BC, Beagle J, Guerra F. Immediate and early loading of Straumann implants with a chemically modified surface (SLActive) in the posterior mandible and maxilla: 1-year results from a prospective multicenter study. *Clin Oral Implants Res* 2008;19(11):1119-1128.
- (27) Lindgren C, Mordenfeld A, Hallman M. A Prospective 1-Year Clinical and Radiographic Study of Implants Placed after Maxillary Sinus Floor Augmentation with Synthetic Biphasic Calcium Phosphate or Deproteinized Bovine Bone. *Clin Implant Dent Relat Res* 2010.
- (28) Van AN, Michels S, Naert I, Quirynen M. Randomized controlled trial to compare two bone substitutes in the treatment of bony dehiscences. *Clin Implant Dent Relat Res* 2013;15(4):558-568.
- (29) Rocuzzo M, Wilson TG, Jr. A prospective study of 3 weeks' loading of chemically modified titanium implants in the maxillary molar region: 1-year results. *Int J Oral Maxillofac Implants* 2009;24(1):65-72.
- (30) Heberer S, Kilic S, Hossamo J, Raguse JD, Nelson K. Rehabilitation of irradiated patients with modified and conventional sandblasted acid-etched implants: preliminary results of a split-mouth study. *Clin Oral Implants Res* 2011;22(5):546-551.
- (31) Khandelwal N, Oates TW, Vargas A, Alexander PP, Schoolfield JD, Alex MC. Conventional SLA and chemically modified SLA implants in patients with poorly controlled type 2 Diabetes mellitus - a randomized controlled trial. *Clin Oral Implants Res* 2011;24(1):13-19.
- (32) Stoker GT, Wismeijer D. Immediate loading of two implants with a mandibular implant-retained overdenture: a new treatment protocol. *Clin Implant Dent Relat Res* 2011;13(4):255-261.
- (33) Cordaro L, Torsello F, Mirisola DT, V, Baricevic M. Rehabilitation of an edentulous atrophic maxilla with four unsplinted narrow diameter titanium-zirconium implants supporting an overdenture. *Quintessence Int* 2013;44(1):37-43.