

Keramik als Alternative zu Titan

Dr. Jens Tartsch

DENTALE IMPLANTOLOGIE | Jg. 23 | Ausgabe 04 | Juni 2019 | 228 – 230

- [1] Brånemark PI, Adell R, Breine U, Hansson BO, Lindstrom J: Intra-osseous anchorage of dental prostheses. I. Experimental studies. *Scand J Plast Reconstr Surg* 3, 81–100 (1969).
- [2] Buser D et al.: 10-year survival and success rates of 511 titanium implants. *Clin Impl Dent* 14 (Issue 6), (2012).
- [3] Sandhaus S: Technic and instrumentation of the implant CBS (Cristalline Bone Screw). *Informatore Odonto-Stomatologico* 4 (3), 19–24 (1967).
- [4] Schulte W, Heimke G: Das Tübinger Sofortimplantat. *Quintessenz* 27 (6), 17–23 (1976).
- [5] Patientenumfrage Firma Straumann, Archivdaten.
- [6] Pieralli S, Kohal RJ, Jung RE, Vach K, Spies BC: Clinical outcomes of zirconia dental implants. A systematic review. *Journal of Dental Research* 96 (1), 38–46 (2017).
- [7] Hashim D, Cionca N, Courvoisier D, Mombelli A: A systematic review of the clinical survival of zirconia implants. *Clin Oral Invest* (2016).
- [8] Jung R et al.: In vitro colour changes of soft tissues caused by restorative materials. *Int J of Period and Rest Dent* 27 (3), (2007).
- [9] Stimmelmayer M et al.: Wear at the titanium-titanium and the titanium-zirconia implant-abutment interface. *Dent Mater* 28 (12), 1215–1220 (2012).
- [10] Benic G et al.: Spectrophotometric and visual evaluation of peri-implant soft tissue colour. *Clinical Oral Implants Research* 28 (2), 192–200 (2017).
- [11] Thoma D et al.: Discoloration of the peri-implant mucosa caused by zirconia and titanium implants. *International Journal of Periodontics and Restorative Dentistry* 36 (1), 39–45 (2016).
- [12] Scarano A, Piattelli M, Caputi S, Favero GA, Piattelli A: Bacterial adhesion on commercially pure titanium and zirconium oxide disks: An in vivo human study. *J Periodontol* 75, 292–296 (2004).
- [13] Ichikawa Y, Akagawa Y, Nikai H, Tsuru H: Tissue compatibility and stability of a new zirconia ceramic in vivo. *J Prosthet Dent* 68, 322–326 (1992).
- [14] Roehling S et al.: In vitro biofilm formation on titanium and zirconia implant surfaces. *J Periodontol* 88 (3), 298–307 (2016).
- [15] Kajiwarana N et al.: Soft tissue biological response to zirconia and metal implant abutments. *Implant Dentistry* 24 (1), (2015).
- [16] Cionca N, Mombelli A et al.: Pro-inflammatory cytokines at zirconia implants and teeth. A cross-sectional assessment. *Clin Oral Investig* (2016).
- [17] Spies C, Vach K, Kohal RJ, Hämmerle CHF, Jung RE: Three-year analysis of zirconia implants for single-tooth replacement and three-unit fixed dental prostheses. *Clin Oral Implants Res* 29 (3), 290–299 (2018).
- [18] Janner S, Gahlert M, Bosshardt D, Roehling S, Milz S, Higginbottom F, Buser D, Cochran DL: Bone response to functionally loaded, two-piece zirconia implants: A preclinical histometric study. *Clin Oral Implants Res* 29 (3), 277–289 (2018).
- [19] Roehling S, Gahlert M, Janner S, Bo Meng, Woelfler H, Cochran DL: Ligature-induced peri-implant bone loss around loaded zirconia and titanium implants. *International Journal of Oral & Maxillofacial Implants, Review process* (2018).
- [20] Chevalier J: What future for zirconia as a biomaterial. *Biomaterials* 27, 535–543 (2006).
- [21] Bosshardt D, Buser D, Saulacic N et al.: Acid and alkaline etching of sandblasted zirconia implants a histomorphometric study in miniature pigs. *Clinical Implant Dentistry and Related Research* (2013).
- [22] Oliva J, Oliva X, Oliva JD: Five-year success rate of 831 consecutively placed zirconia dental implants in humans: a comparison of three different rough surfaces. *Int J Oral Maxillofac Implants* 25 (2), 336–344 (2010).

- [23] Pieralli S, Kohal RJ, Jung RE, Vach K, Spies BC: Clinical outcomes of zirconia dental implants. A systematic review. *Journal of Dental Research* 96 (1), 38–46 (2017).
- [24] Joda T et al.: Ultimate force and stiffness of 2-piece zirconium dioxide implants with screw-retained monolithic lithium-disilicate reconstructions. *Journal of Prosthodontic Research* 62 (2), (2017).
- [25] Spies BC et al.: Stability and aging resistance of a zirconia oral implant using a carbon fiber-reinforced screwfor implant-abutment connection. *Dent Mater* (2018).
- [26] Metoxit AG, Thayngen, Schweiz. Datenblatt nach DIN EN 60 672.
- [27] Chevalier J, Loh J et al.: Low temperature degradation in zirconia with porous surface. *Acta Biomater* 7, 2986–2993 (2011).
- [28] Schneider J et al.: Low-temperature aging behavior of alumina-toughened zirconia. *Am Ceram Soc* 91 (11), 3613–3618 (2008).
- [29] Kohal R et al.: Was wissen wir über Implantate aus Zirkonoxid? *Implantologie* 22 (1), 9– 36 (2014).
- [30] Bosshardt D, Buser D, Saulacic N et al.: Acid and alkaline etching of sandblasted zirconia implants a histomorphometric study in miniature pigs. *Clinical Implant Dentistry and Related Research* (2013).
- [31] Vindasiute E, Linkevicius T et al.: Clinical factors influencing removal of the cement excess in implant-supported restorations. *Clin Implant Dent Relat Res* (2013).