

Keramikimplantate – die Alternative zu Titanimplantaten

Dr. Frederik Hermann

ZMK 9, 2017 (33), S. 568-576

[1] Thoma DS1, Benic GI1, Muñoz F2, Kohal R3, Sanz Martin I4, Cantalapiedra AG2, Hämmeler CH1, Jung RE1. Histological analysis of loaded zirconia and titanium dental implants: an experimental study in the dog mandible. *J Clin Periodontol.* 2015 Oct;42(10):967-75

[2] Happe A, Schulte-Mattler V, Strassert C, Naumann M, Stimmelmayr M, Zoller JE, Rothamel D. In vitro color changes of soft tissues caused by dyed fluorescent zirconia and nondyed, nonfluorescent zirconia in thin **mucosa**. *Int J Periodontics Restorative Dent.* 2013 Jan-Feb;33(1):e1-8.

[3] Holländer J, Lorenz J, Stübinger S, Hölscher W, Heidemann D, Ghanaati S, Sader R, Zirconia Dental Implants: Investigation of Clinical Parameters, Patient Satisfaction, and Microbial Contamination. *Int J Oral Maxillofac Implants.* 2016 Jul-Aug;31(4):855-64. doi: 10.11607/jomi.4511.

[4] Bächle M, Butz F, Hübner U, Bakalinis E, Kohal RJ.: Behavior of CAL72 osteoblast-like cells cultured on zirconia ceramics with different surface topographies. *Clin Oral Implants Res.* 2007 Feb;18(1):53-9

[5] Koch FP¹, Weng D, Krämer S, Biesterfeld S, Jahn-Eimermacher A, Wagner W: Osseointegration of one-piece zirconia implants compared with a titanium implant of identical design: a histomorphometric study in the dog. *Clin Oral Implants Res.* 2010 Mar;21(3):350-6. doi: 10.1111/j.1600-0501.2009.01832.x. Epub 2010 Jan 13.

[6] Thoma DS, Benic GI, Muñoz F, Kohal R, Sanz Martin I, Cantalapiedra AG, Hämmeler CH, Jung RE. Histological analysis of loaded zirconia and titanium dental implants: an experimental study in the dog mandible. *J Clin Periodontol.* 2015 Oct;42(10):967-75. doi: 10.1111/jcpe.12453. Epub 2015 Oct 28

[7] Depprich R, Zipprich H, Ommerborn M, Mahn E, Lammers L, Handschel J, Naujoks C, Wiesmann P, Kübler NR, Meyer U. Osseointegration of zirconia implants: an SEM observation of the bone-implant interface. *Head & Face Medicine* 2008;4:25 doi:10.1186/1746-160X-4-25

[8] Depprich R, Zipprich H, Ommerborn M, Naujoks C, Wiesmann P, Kiattavorncharoen S, Lauer HC, Meyer U, Kübler NR, Handschel J. Osseointegration of zirconia implants compared with titanium: an in vivo study. Osseointegration of zirconia implants: an SEM observation of the bone-implant interface. *Head & Face Medicine* 2008;4:30 doi:10.1186/1746-160X-4-30

[9] Oleinick AJ, Osseointegration versus fibro-Osseointegration: review of endosseous dental implant systems. *Gen Dent.* 1993 Sep-Oct;41(5):406-8.)

[10] Linkow LI, Rinaldi AW. The significance of "fibro-osseous integration" and "osseointegration" in endosseous dental implants. *Int J Oral Implantol.* 1987;4(2):41-6.

[11] Chrcanovic BR, Albrektsson T, Wennerberg A. Review Reasons for failures of oral implants. *J Oral Rehabil.* 2014;41:443-76

[12] Kohal RJ, Knauf M, Larsson B, Sahlin H, Butz F.: One-piece zirconia oral implants: one-year results from a prospective cohort study. 1. Single tooth replacement. *J Clin Periodontol.* 2012 Jun;39(6):590-7. doi: 10.1111/j.1600-051X.2012.01876.x. Epub 2012 Apr 23.

[13] Kohal RJ, Bächle M, Att W, Chaar S, Altmann B, Renz A, Butz F.: Osteoblast and bone tissue response to surface modified zirconia and titanium implant materials. *Dent Mater.* 2013 Jul;29(7):763-76. doi: 10.1016/j.dental.2013.04.003.

[14] Osman RB, Ma S, Duncan W, De Silva RK, Siddiqi A, Swain MV.: Fractured zirconia implants and related implant designs: scanning electron microscopy analysis. *Clin Oral Implants Res.* 2013 May;24(5):592-7. doi: 10.1111/j.1600-0501.2011.02411.x. Epub 2012 Jan 26. PMID: 22276596

[15] Fontana F, Rocchietta I, Dellavia C, Nevins M, Simion M. Biocompatibility and manageability of a new fixable bone graft for the treatment of localized bone defects: preliminary study in a dog model. *Int J Periodontics Restorative Dent.* 2008 Dec;28(6):601-7.

[16] Tattan M, Kokovic V. Titanium or Zirconia? clinical assessment of primary implant stability. 8th Dental-Facial Cosmetic int'l Conference 2016, Dubai UAE),

[17] Yuen D, Junchaya C, Zuclich G, Ulreich JB, Lin HB, Li ST. A resorbable, reconstituted Type 1 collagen membrane for guided tissue regeneration and soft tissue augmentation. Society for Biomaterials 2000:1228

[18] Ulreich JB, Zuclich G, Lin HB, Li ST. Prediction of in vivo stability of a resorbable, reconstituted Type 1 collagen membrane by in vitro methods. 2000 Society World Biomaterials Congress Transactions, Sixth World biomaterias Congress Transactions.

[19] (ASTMF2820-12. Standard Specification for Polyetherketoneketone (PEKK) polymers for Surgical Implant Applications) (High Performance Thermoplastic OXPEKK Materials, Medical Grades (MG) and Implant Grades (IG) - Unfilled, Product data sheet, version DS02 Rev 20091011; Oxford Performance Materials, Enfield CT (USA)).

[20]Dural S. Test report: Assessment of bone cells growth on different zirconia surfaces. University of Geneva, Nov. 2011.]