

**Reduced treatment time, predictable results and lower costs**

# Immediate restoration in the digital workflow

JOSÉ EDUARDO MATÉ SÁNCHEZ DE VAL AND JOSÉ LUIS CALVO GUIRADO

## Literature

1. Araújo MG, Lindhe J. Dimensional ridge alterations following tooth extraction. An experimental study in the dog. *J Clin Periodontol* 2005;32: 212–218.
2. Araújo MG, Sukekava F, Wennström JL, Lindhe J. Tissue modeling following implant placement in fresh extraction sockets. *Clin Oral Implants Res* 2006;17:615–624.
3. Chen ST, Darby IB, Reynolds EC . A prospective clinical study of non-submerged immediate implants: Clinical outcomes and esthetic results. *Clin Oral Implants Res* 2007;18:552–562.
4. Berglundh T, Lindhe J. Dimension of the periimplant mucosa. Biological width revisited. *J Clin Periodontol* 1996;23:971–973.
5. Hermann JS, Cochran DL, Nummikoski PV, Buser D. Crestal bone changes around titanium implants. A radiographic evaluation of unloaded nonsubmerged and submerged implants in the canine mandible. *J Periodontol* 1997;68:1117–1130.
6. Cochran DL, Hermann JS, Schenk RK, Higginbottom FL, Buser D. Biologic width around titanium implants. A histometric analysis of the implant-gingival junction around unloaded and loaded non-submerged implants in the canine mandible. *J Periodontol* 1997;68:186–198.
7. Hermann JS, Buser D, Schenk RK, Schoolfield JD, Cochran DL. Biologic width around one- and two-piece titanium implants. *Clin Oral Implants Res* 2001;12:559–571.
8. Hermann JS, Schoolfield JD, Nummikoski PV, Buser D, Schenk RK, Cochran DL. Crestal bone changes around titanium implants: A methodologic study comparing linear radiographic with histometric measurements. *Int J Oral Maxillofac Implants* 2001;16:475–485.
9. Lazzara RJ, Porter SS. Platformswitching. A new concept in implant dentistry for controlling post-restorative bone levels. *Int J Periodontics Restorative Dent* 2006;26:9–17.
10. Tarnow D, Elian N, Fletcher P, et al. Vertical distance from the crest of bone to the height of the interproximal papilla between adjacent implants. *J Periodontol* 2003;74:1785–1788.
11. Tarnow DP, Magner AW, Fletcher P. The effect of the distance from the contact point to the crest of bone on the presence or absence of the interproximal dental papilla. *J Periodontol* 1992;63:995–996.
12. Gardner DM. Platform switching as a means to achieving implant esthetics. A case study. *NY State Dent J* 2005;71:34–37.
13. Abdullah, M.R., Goharian, A., Abdul Kadir, M.R. & Wahit, M.U. (2015) Biomechanical and bioactivity concepts of polyetheretherketone composites for use in orthopedic implants-a review. *Journal of Biomedical Materials Research, Part A*. 103: 3689-3702.
14. Berglundh, T. & Lindhe, J. (1996) Dimension of the periimplant mucosa. Biological width revisited. *Journal of Clinical Periodontology* 23: 971-973.
15. Briem, D., Strametz, S., Schröder, K., Meenen, N.M., Lehmann, W., Linhart, W., Ohl, A. & Rueger, J.M. (2005) Response of primary fibroblasts and osteoblasts to plasma treated polyetheretherketone (PEEK) surfaces. *Journal of Material Sciences, Material Medicine* 16 : 671–677.
16. Eschbach, L. (2000) Nonresorbable polymers in bone surgery. *Injury* 31: 22–27.
17. Hahnel, S., Wieser, A., Lang, R. & Rosentritt, M. (2014) Biofilm formation on the surface of modern implant abutment materials. *Clinical Oral Implants Research*. doi: 10.1111/clr.12454.
18. Jarman-Smith, M. (2008) Evolving uses for implantable PEEK and PEEK based compounds. *Medical Device Technology* 19: 12–15.

19. Baumgarten H, Cocchetto R, Testori T, Meltzer A, Porter SS. A new implant design for crestal bone preservation: Initial observations and case report. *Pract Periodontics Aesthet Dent* 2005;17:735–740.
20. Aparicio C, Lang NP, Rangert B. Validity and clinical significance of biomechanical testing of implant/bone interface. *Clin Oral Implants Res* 2006;17(suppl 2):2–7.
21. Schwarz F, Hegewald A, Becker J. Impact of implant– abutment connection and positioning of the machined collar/ microgap on crestal bone level changes. A systematic review. *Clin. Oral Impl. Res.* 25, 2014, 417–425
22. Canullo L, Rasperini G. Preservation of peri-implant soft and hard tissues using platform switching of implants placed in immediate extraction sockets: A proof-of-concept study with 12- to 36-month follow-up. *Int J Oral Maxillofac Implants* 2007;22:995–1000.
23. Göthberg C, André U, Gröndahl K, Thomsen P, Slotte C. Bone Response and Soft Tissue Changes Around Implants With/Without Abutments Supporting Fixed Partial Dentures: Results From a 3-Year, Prospective, Randomized, Controlled Study. *Clin Implant Dent Relat Res*. 2015 Mar 19. doi: 10.1111/cid.12315.
24. Stona D, Burnett LH Jr, Mota EG, Spohr AM. Fracture resistance of computer-aided design and computer-aided manufacturing ceramic crowns cemented on solid abutments. *J Am Dent Assoc.* 2015 Jul;146(7):501–7. doi: 10.1016/j.adaj.2015.02.012.
25. Nejatidanesh F, Shakibamehr AH, Savabi O. Comparison of Marginal and Internal Adaptation of CAD/CAM and Conventional Cement Retained Implant-Supported Single Crowns. *Implant Dent.* 2015 Oct 26.
26. Reich S, Schley J, Kern T, Fiedler K, Wolfart S. Examples of model-free implant restorations using Cerec inLab 4.0 software. *Int J Comput Dent.* 2012;15(3):207–25.