



Implantatprothetik: Symbiose aus analoger und digitaler Zahnheilkunde

Echtes Teamwork

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Literaturangabe

- [1] Adibrad M, Shahabuei M, Sahabi M. Significance of the width of keratinized mucosa on the health status of the supporting tissue around implants supporting overdentures. *Journal of Oral Implantology*: October 2009, Vol. 35, No. 5, pp. 232-237
- [2] Assif D, Fenton A, Zarb G, Schmitt A: Comparative accuracy of implant impression procedures. *Int J Periodontics Restorative Dent* 12: 112 (1992)
- [3] Bencharit S, Staffen A, Yeung M, Whitley D 3rd, Laskin DM, Deeb GR. In Vivo Tooth-Supported Implant Surgical Guides Fabricated With Desktop Stereolithographic Printers: Fully Guided Surgery Is More Accurate Than Partially Guided Surgery. *J Oral Maxillofac Surg*. 2018 Feb 21. pii: S0278-2391(18)30126-5. doi: 10.1016/j.joms.2018.02.010
- [4] Bover-Ramos F, Viña-Almunia J, Cervera-Ballester J, Peñarrocha-Diogo M, García-Mira B. Accuracy of Implant Placement with Computer-Guided Surgery: A Systematic Review and Meta-Analysis Comparing Cadaver, Clinical, and In Vitro Studies. *Int J Oral Maxillofac Implants*. 2017 Jun 20. doi: 10.11607/jomi.555
- [5] Cerqueira NM, Ozcan M, Gonçalves M, da Rocha DM, Vasconcelos DK, Bottino MA, Yener-Salihoglu E. A strain gauge analysis of microstrain induced by various splinting methods and acrylic resin types for implant impressions. *Int J Oral Maxillofac Implants*. 2012 Mar-Apr;27(2):341-5
- [6] Choi W, Nguyen BC, Doan A, Girod S, Gaudilliere B, Gaudilliere D. Freehand Versus Guided Surgery: Factors Influencing Accuracy of Dental Implant Placement. *Implant Dent*. 2017 Jul 20. doi: 10.1097/ID.0000000000000620
- [7] Cloyd S, Puri S. Using the double-cord packing technique of tissue retraction for making crown impressions. *Dent Today*. 1999 Jan;18(1):54-9
- [8] D'haese J, Ackhurst J, Wismeijer D, De Bruyn H, Tahmaseb A. Current state of the art of computer-guided implant surgery. *Periodontol* 2000. 2017 Feb;73(1):121-133. doi: 10.1111/prd.12175
- [9] El-Damanhoury HM, Gaintantzopoulou MD. Self-etching ceramic primer versus hydrofluoric acid etching: Etching efficacy and bonding performance. *J Prosthodont Res*. 2018 Jan;62(1):75-83. doi: 10.1016/j.jpor.2017.06.002. Epub 2017 Jun 23
- [10] Elshenawy EA, Alam-Eldein AM, Abd Elfatah FA. Cast accuracy obtained from different impression techniques at different implant angulations (in vitro study). *Int J Implant Dent*. 2018 Mar 20;4(1):9. doi: 10.1186/s40729-018-0118-6
- [11] Elshiyab SH, Nawafleh N, Öchsner A, George R. Fracture resistance of implant-supported monolithic crowns cemented to zirconia hybrid-abutments: zirconia-based crowns vs. lithium disilicate crowns. *J Adv Prosthodont*. 2018 Feb;10(1):65-72. doi: 10.4047/jap.2018.10.1.65. Epub 2018 Feb 12
- [12] Evans CD, Chen ST. Esthetic outcomes of immediate implant placements. *Clin Oral Implants Res*. 2008 Jan;19(1):73-80. Epub 2007 Oct 22
- [13] Fickl S, Zuhr O, Wachtel H, Bolz W, Huerzeler M. Tissue alterations after tooth extraction with and without surgical trauma: a volumetric study in the beagle dog. *J Clin Periodontol*. 2008 Apr;35(4):356-63. doi: 10.1111/j.1600-051X.2008.01209.x
- [14] Fürst E-M.: Untersuchung zur Passgenauigkeit von CAD/CAM – gefrästen Zirkonoxid-Einzelkronengerüsten bei unterschiedlichem Präparationswinkel. Dissertation München 2008
- [15] Gehrke P, Tabellion A, Fischer C. Microscopical and chemical surface characterization of CAD/CAM zirconia abutments after different cleaning procedures. A qualitative analysis. *J Adv Prosthodont*. 2015 Apr;7(2):151-9. doi: 10.4047/jap.2015.7.2.151. Epub 2015 Apr 23
- [16] Gobbato L, Avila-Ortiz G, Sohrabi K, Wang CW, Karimbux N. The effect of keratinized mucosa width on peri-implant health: a systematic review. *Int J Oral Maxillofac Implants*. 2013 Nov-Dec;28(6):1536-45. doi: 10.11607/jomi.3244
- [17] Goodacre C, Goodacre B. Fixed vs removable complete arch implant prostheses: A literature review of prosthodontic outcomes. *Eur J Oral Implantol*. 2017;10 Suppl 1:13-3
- [18] Gargiulo AW, Wentz FM, Orban B. Dimensions and relations of the dentogingival junction in humans. *J Periodontol* 1961;32:261-267
- [19] Hayama H, Fueki K, Wadachi J, Wakabayashi N. Trueness and precision of digital impressions obtained using an intraoral scanner with different head size in the partially edentulous mandible. *J Prosthodont Res*. 2018 Mar 1. pii: S1883-1958(18)30003-3. doi: 10.1016/j.jpor.2018.01.003
- [20] Hogg WS, Zulauf K, Mehrhof J, Nelson K. The Influence of Torque Tightening on the Position Stability of the Abutment in Conical Implant-Abutment Connections. *Int J Prosthodont*. 2015 Sep-Oct;28(5):538-41. doi: 10.11607/jip.3853
- [21] Hmaidouch R.: Untersuchung zum Einfluss von Präparationsart, Zementspalteinstellung und Art des Befestigungszements auf die Passgenauigkeit CAD/CAM gefertigter vollkeramischer Kronengerüste. Diss. Charité´ Berlin 2011

- [22] Kuhr F, Schmidt A, Rehmann P, Wöstmann B. A new method for assessing the accuracy of full arch impressions in patients. *J Dent.* 2016 Dec;55:68-74. doi: 10.1016/j.jdent.2016.10.002. Epub 2016 Oct 4
- [23] Kwon JH, Son YH, Han CH, Kim S. Accuracy of implant impressions without impression copings: a three-dimensional analysis. *J Prosthet Dent.* 2011 Jun;105(6):367-73. doi: 10.1016/S0022-3913(11)60075-9
- [24] Lazzara RJ, Porter SS. Platform switching: a new concept in implant dentistry for controlling postrestorative crestal bone levels. *Int J Periodontics Restorative Dent.* 2006 Feb;26(1):9-17
- [25] Linkevicius T, Apse P, Grybaukas S, Ouisys A. The influence of soft tissue thickness on crestal bone changes around implants: a 1-year prospective controlled clinical trial. *Int J Oral Maxillofac Implants.* 2009 Jul-Aug;24(4):712-719
- [26] Linkevicius T, Apse P, Grybauskas S, Puisys A. Influence of thin mucosal tissues on crestal bone stability around implants with platform switching: a 1-year pilot study. *J Oral Maxillofac Surg.* 2010 Sep;68(9):2272-7. doi: 10.1016/j.joms.2009.08.018
- [27] Linkevicius T, Puisys A, Steigmann M, Vindasiute E, Linkeviciene L. Influence of Vertical Soft Tissue Thickness on Crestal Bone Changes Around Implants with Platform Switching: A Comparative Clinical Study. *Clin Implant Dent Relat Res.* 2014 Mar 28. doi: 10.1111/cid.12222
- [28] Lorenzoni M, Pertl C, Penkner K, Polansky R, Sedaj B, Wegscheider WA. Comparison of the transfer precision of three different impression materials in combination with transfer caps for the Frialit-2 system. *J Oral Rehab* 27: 629 (2000)
- [29] Luthard R G, Loos R, Quaas S.: Accuracy of intraoral data acquisition in comparison to the conventional impression. *Int J Comput Dent.* 2005 Oct; 8 (4) 283-94
- [30] Luthardt RG, Walter MH, Quaas S, Koch R, Rudolph H. Comparison of the three-dimensional correctness of impression techniques: a randomized controlled trial. *Quintessence Int.* 2010 Nov-Dec;41(10):845-53
- [31] Marconcini S, Giammarinaro E, Toti P, Alfonsi F, Covani U, Barone A. Longitudinal analysis on the effect of insertion torque on delayed single implants: A 3-year randomized clinical study. *Clin Implant Dent Relat Res.* 2018 Jan 23. doi: 10.1111/cid.12586
- [32] Moreira AH, Rodrigues NF, Pinho AC, Fonseca JC, Vilaça JL. Accuracy Comparison of Implant Impression Techniques: A Systematic Review. *Clin Implant Dent Relat Res.* 2015 Oct;17 Suppl 2:e751-64. doi: 10.1111/cid.12310. Epub 2015 Apr 1
- [33] Neumeister A, Schulz L, Glodecki C. Investigations on the accuracy of 3D-printed drill guides for dental implantology. *Int J Comput Dent.* 2017;20(1):35-51 Norton MR. The Influence of Low Insertion Torque on Primary Stability, Implant Survival, and Maintenance of Marginal Bone Levels: A Closed-Cohort Prospective Study. *Int J Oral Maxillofac Implants.* 2017 Jul/Aug;32(4):849-857. doi: 10.11607/jomi.5889
- [34] Nishioka RS, De Santis LR, De Melo Nishioka GN, Kojima AN, Souza FÁ. Strain Gauge Evaluation of Transfer Impression Techniques of Multiple Implant-Supported Prosthesis. *Implant Dent.* 2018 Mar 9. doi: 10.1097/ID.0000000000000744
- [35] Norton MR. The Influence of Low Insertion Torque on Primary Stability, Implant Survival, and Maintenance of Marginal Bone Levels: A Closed-Cohort Prospective Study. *Int J Oral Maxillofac Implants.* 2017 Jul/Aug;32(4):849-857. doi: 10.11607/jomi.5889
- [36] Okabe E, Ishihara Y, Kikuchi T, Izawa A, Kobayashi S, Goto H, Kamiya Y, Sasaki K, Ban S, Noguchi T, Kawai T, Mitani A. Adhesion Properties of Human Oral Epithelial-Derived Cells to Zirconia. *Clin Implant Dent Relat Res.* 2016 Oct;18(5):906-916. doi: 10.1111/cid.12369. Epub 2015 Aug 5
- [37] Porojan L, Topală F, Porojan S, Savencu C. Effect of frame design and veneering material on biomechanical behavior of zirconia dental crowns veneered with overpressing ceramics. *Dent Mater J.* 2017 May 31;36(3):275-281. doi: 10.4012/dmj.2016-096. Epub 2017 Feb 1
- [38] Ritter L, Elger MC, Rothamel D, Fienitz T, Zinser M, Schwarz F, Zöller JE. Accuracy of peri-implant bone evaluation using cone beam CT, digital intra-oral radiographs and histology. *Dentomaxillofac Radiol.* 2014;43(6):20130088. doi: 10.1259/dmfr.20130088. Epub 2014 May 2
- [39] Saboury A, Neshandar Asli H, Dalili Kajan Z. The Accuracy of Four Impression-making Techniques in Angulated Implants Based on Vertical Gap. *J Dent (Shiraz).* 2017 Dec;18(4):289-297.
- [40] Sanders MA, Hoyjberg C, Chu CB, Leggitt VL, Kim JS. Common orthodontic appliances cause artifacts that degrade the diagnostic quality of CBCT images. *J Calif Dent Assoc.* 2007 Dec;35(12):850-7
- [41] Saker S, Ibrahim F, Ozcan M. Effect of different surface treatments on adhesion of In-Ceram Zirconia to enamel and dentin substrates. *J Adhes Dent.* 2013 Aug;15(4):369-76. doi: 10.3290/j.jad.a29013
- [42] Schoenbaum TR, Chang YY, Klokkevold PR, Snowden JS. Abutment emergence modification for immediate implant provisional restorations. *J Esthet Restor Dent.* 2013 Apr;25(2):103-7. doi: 10.1111/jerd.12007. Epub 2012 Nov 15
- [43] Siqueira FS, Alessi RS, Cardenas AF, Kose C, Souza Pinto SC, Bandeca MC, Loguercio AD, Gomes JC. New Single-bottle Ceramic Primer: 6-month Case Report and Laboratory Performance. *J Contemp Dent Pract.* 2016 Dec 1;17(12):1033-1039
- [44] Spray JR, Black CG, Morris HF, Ochi S. The influence of bone thickness on facial marginal bone response: stage 1 placement through stage 2 uncovering. *Ann Periodontol.* 2000 Dec;5(1):119-28
- [45] Trevor Burke FJ, Lawson A, Green DJB, Mackenzie L. What's New in Dentine Bonding?: Universal Adhesives. *Dent Update.* 2017 Apr;44(4):328-30, 332, 335-8, 340
- [46] Tribst J, Anami LC, Özcan M, Bottino MA, Melo RM, Saavedra G. Self-etching Primers vs Acid Conditioning: Impact on Bond Strength Between Ceramics and Resin Cement. *Oper Dent.* 2018 Mar 7. doi: 10.2341/16-348-L
- [47] Ueno D, Nakamura K, Kojima K, Toyoshima T, Tanaka H, Ueda K, Koyano K, Kodama T. A stepwise under-prepared osteotomy technique improves primary stability in shallow-placed implants: a preliminary study for simultaneous vertical ridge augmentation. *Odontology.* 2018 Apr;106(2):187-193. doi: 10.1007/s10266-017-0316-3. Epub 2017 Aug 2
- [48] Wesemann C, Muallah J, Mah J, Bumann A. Accuracy and efficiency of full-arch digitalization and 3D printing: A comparison between desktop model scanners, an intraoral scanner, a CBCT model scan, and stereolithographic 3D printing. *Quintessence Int.* 2017;48(1):41-50. doi: 10.3290/j.qi.a37130
- [49] Wöstmann B, Rehmann P, Balkenhol M: Influence of impression technique and material on the accuracy of multiple implant impressions. *Int J Prosthodont* 21: 299 (2008)
- [50] Zhang Y, Zhang L, Zhu XR, Lee AK, Chambers M, Dong L. Reducing metal artifacts in cone-beam CT images by preprocessing projection data. *Int J Radiat Oncol Biol Phys.* 2007 Mar 1;67(3):924-32. Epub 2006 Dec