

Parodontologie von A bis Z: Teil 3: Regenerative Parodontalchirurgie

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- [1] Wikesjö UME, Selvig KA: Periodontal wound healing and regeneration. *Periodontology* 2000 19, 21–39 (1999).
- [2] Camelo M, Nevins M, Schenk R, Simion M, Rasperini G, Lynch S, Nevins M: Clinical, radiographic, and histologic evaluation of human periodontal defects treated with Bio-oss® and Bio-Gide. *Int J Periodont Rest Dent* 18, 321–331 (1998).
- [3] Caton JG, Greenstein G: Factors related to periodontal regeneration. *Periodontology* 2000 1, 9–15 (1993).
- [4] Richardson CR, Mellonig JT, Brunsvold MA, McDonnell HT, Cochran DL: Clinical evaluation of Bio-Oss: a bovine-derived xenograft for the treatment of periodontal osseous defects in humans. *J Clin Periodontol* 26, 421–428 (1999).
- [5] Gottlow J, Nyman S, Lindhe J, Karring T, Wennström J: New attachment formation in the human periodontium by guided tissue regeneration. Case reports. *J Clin Periodontol* 13, 604–616 (1986).
- [6] Cortellini P, Pini-Prato G, Tonetti M: Periodontal regeneration of human infrabony defects. V. Effect of oral hygiene on long term stability. *J Clin Periodontol* 21, 606–610 (1994).
- [7] Cortellini P, Pini-Prato G, Tonetti M: The modified papilla preservation technique. A new surgical approach for interproximal regenerative procedures. *J Periodontol* 66, 261–266 (1995).
- [8] Eickholz P, Hörr T, Klein F, Hassfeld S, Kim T-S: Radiographic parameters for prognosis of periodontal healing of infrabony defects: two different definitions of defect depth. *J Periodontol* 75, 399–407 (2004).
- [9] Klein F, Kim T-S, Hassfeld S, Staehle HJ, Reitmeir P, Holle R, et al: Radiographic defect depth and width for prognosis and description of periodontal healing of infrabony defects. *J Periodontol* 72, 1639–1646 (2001).
- [10] Tonetti MS, Pini-Prato G, Cortellini P: Periodontal regeneration of human intrabony defects. IV. Determinants of healing response. *J Periodontol* 64, 934–940 (1993).
- [11] Tsitoura E, Tucker R, Suvan J, Laurell L, Cortellini P, Tonetti M: Baseline radiographic defect angle of the intrabony defect as a prognostic indicator in regenerative periodontal surgery with enamel matrix derivative. *J Clin Periodontol* 31, 643–647 (2004).
- [12] Takei HH, Han TJ, Carranza FA Jr, Kenney EB, Lekovic V: Flap technique for periodontal bone implants. Papilla preservation technique. *J Periodontol* 56, 204–210 (1985).

- [13] Cortellini P, Pini-Prato G, Tonetti MS: The simplified papilla preservation flap. A novel surgical approach for the management of soft tissues in regenerative procedures. *Int J Periodontics Restorative Dent* 19, 589–599 (1999).
- [14] Eickholz P: Glossar der Grundbegriffe für die Praxis: Chirurgische Parodontitistherapie: 3. Papillenerhaltungslappen: klassisch, modifiziert, vereinfacht. *Parodontologie* 14, 411–418 (2003).
- [15] Murphy K: Interproximal tissue maintenance in GTR procedures. A new surgical technique and 1-year reentry results. *Int J Periodontics Restorative Dent* 16, 463–477 (1996).
- [16] Cortellini P, Pini-Prato G, Tonetti M: Periodontal regeneration of human intrabony defects. I Clinical measures. *J Periodontol* 64, 254–260 (1993).
- [17] Cortellini P, Tonetti M: Clinical performance of a regenerative strategy for intrabony defects: scientific evidence and clinical experience. *J Periodontol* 76, 341–350 (2005).
- [18] Froum S, Lemler J, Horowitz R, Davidson B: The use of enamel matrix derivative in the treatment of periodontal osseous defects: A clinical decision tree based on biologic principles of regeneration. *Int J Periodontics Restorative Dent* 21, 437–449 (2001).
- [19] Cortellini P, Tonetti M: Focus on intrabony defects: guided tissue regeneration. *Periodontology* 2000 22, 104–132 (2000).
- [20] Pontoriero R, Lindhe J: Guided tissue regeneration in the treatment of degree II furcations maxillary molars. *J Clin Periodontol* 22, 756–763 (1995).
- [21] Murphy KG, Gunsolley JC: Guided tissue regeneration for the treatment of periodontal intrabony and furcation defects. A systemic review. *Ann Periodontol* 8, 266–302 (2003).

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Bakterieller Biofilm – deutlich zu sehen

Dr. Gabriele David

Literatur

- [1] Kneist S, Callaway A. Kariesätiopathogenese aus mikrobiologischer Sicht – Aktueller Stand. ZWR 2015;124:18-23.
- [2] Fischer K. Wissenschaftliche Dokumentation Plaque Test. Ivoclar Vivadent 2012.
- [3] Edwards RC, Sullivan WW. An evaluation of plaque disclosants. US Navy Med 62 1973;28-30.
- [4] Sagel PA, Lapujade PG, Miller JM, Sunberg RJ. Objective quantification of plaque using digital image analysis. Monogr Oral Sci 2000;17:130-143.
- [5] Vanobbergen J, Martens L, Lesaffre E, Bogaerts K, Declerck D. The value of a baseline caries risk assessment model in the primary dentition for the prediction of caries incidence in the permanent dentition. Caries Res 2001;35:442-450.

1. Hangiandreou NJ, O'Connor TJ, Felmlee JP. An evaluation of the signal and noise characteristics of four CCD-based film digitizers. Med Phys 1998;25:2020-6.
2. Schulze R, Rosing S, d'Hoedt B: Contrast perception in digitized panoramic radiographs compared to their film based origin; Oral Surg Oral Med Oral Pathol Oral Radiol Endod, Volume 94, pp. 388-394, 2002."
3. Pasler, F. A. (2008). Panoramaaufnahmen und Zusatzprogramme in der Zahnmedizin; In: Zahnärztliche Radiologie (5. Auflage, S. 180). Thieme, Stuttgart.
4. Bundeszahnärztekammer. (2007). Durchführungsempfehlungen zur Qualitätssicherung in der zahnärztlichen Röntgenologie. S. 1-5.
5. Barfuß, A. (2013). Expertenzirkel: Digitales Röntgen. Dentalmagazin Ausgabe #5 Juli 2013, S. 14-25.
6. Anissi, H. D., Geibel, M. A. (2014). Intraoral Radiology in General Dental Practices – A Comparison of Digital and Film-Based X-Ray Systems with Regard to Radiation Protection and Dose Reduction. Rofo
7. Deutsche Gesellschaft für Zahn-, Mund- und Kieferheilkunde. (2000). Digitale Radiographie. S. 1-3.
8. Rubia-Bullen, I. R., Escarpinati, M. C., Schiabel, H., Vieira, M. A., Rubira, C. M., Lauris, J. R. (2007). Digitizing radiographic films: a simple way to evaluate indirect digital images. J Appl Oral Sci, 15 (1), S. 14-17.
9. Goga, R., Chandler, N. P., Love, R. M. (2004). Clarity and diagnostic quality of digitized

conventional intraoral radiographs. *Dentomaxillofac Radiol*, 33 (2), S. 103-107.

10. Prapayasatok, S., Janhom, A., Verochana, K., Pramojanee, S. (2006). Digital camera resolution and proximal caries detection. *Dentomaxillofac Radiol*, 35 (4), S. 253-257.
11. Valizadeh, S., Tavakoli, M. A., Zarabian, T., Esmaeili, F. (2009). Diagnostic accuracy of digitized conventional radiographs by camera and scanner in detection of proximal caries. *J Dent Res Dent Clin Dent Prospects*, 3(4), S. 126-131.
12. Peretz, B., Kaffe, I., Amir, E. (2009). Digital images obtained with a digital camera are not associated with a loss of critical information--a preliminary study. *Br Dent J*, 206(5), S. E9; discussion 268-269.
13. Suchetha N. Malleshi, M. V. G., Anudeepa Raina, Karthikeya Patil. (2013 August). A Subjective Assessment of Perceived Clarity of Indirect Digital Images and Processed Digital Images with Conventional Intra-oral Periapical Radiographs.
14. Javadi, M., Subhannachart, P., Levine, S., Vijitsanguan, C., Tungsagunwattana, S., Dowell, S. F., Olsen, S. J. (2006). Diagnosing pneumonia in rural Thailand: Digital cameras versus film digitizers for chest radiograph teleradiology. *Int J Infect Dis*, 10 (2), S. 129-135.
15. Salazar, A. J., Camilo Camacho, J., Andres Aguirre, D. (2011). Comparison between differently priced devices for digital capture of X-ray films using computed tomography as a gold standard: a multireader-multicase receiver operating characteristic curve study. *Telemed J E Health*, 17 (4), S. 275-282.

Feste dritte Zähne an einem Tag – ein Fallbericht

1. Young MP, Quayle AA, Sloan P, Carter DH. A survey of clinical members of the Association of Dental Implantology in the United Kingdom. Part III. The use of augmentation techniques in dental implant surgery. *Implant Dent* 2001; 10: 291–298.
2. Lambrecht JT, Cardone E, Kuhl S. Status report on dental implantology in Switzerland in 2006. A cross-sectional survey. *Eur J Oral Implantol*; 3: 71–74.
3. Thorwarth M, Schultze-Mosgau S, Kessler P, Wiltfang J, Schlegel KA. Bone regeneration in osseous defects using a resorbable nanoparticulate hydroxyapatite. *J Oral Maxillofac Surg* 2005; 63: 1626–1633.
4. Meyerhoefer CD, Zuvekas SH, Manski R. The demand for preventive and restorative dental services. *Health economics* 2014; 23: 14–32.
5. Ramachandran Nair PN, Pajarola G, Schroeder HE. Types and incidence of human periapical lesions obtained with extracted teeth. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 1996; 81: 93–102.
6. Richards D. Review finds that severe periodontitis affects 11% of the world population. *Evidence-based dentistry* 2014; 15: 70–71.
7. Tan WL, Wong TL, Wong MC, Lang NP. A systematic review of post-extraction alveolar hard and soft tissue dimensional changes in humans. *Clin Oral Implants Res* 2012; 23 Suppl 5: 1–21.
8. Troedhan A, Schlichting I, Kurrek A, Wainwright M. Primary implant stability in augmented sinuslift-sites after completed bone regeneration: a randomized controlled clinical study comparing four subantrally inserted biomaterials. *Scientific reports* 2014; 4: 5877.
9. Lee CY, Rohrer MD, Prasad HS, Stover JD, Suzuki JB. Sinus grafting with a natural fluorohydroxyapatite for immediate load: a study with histologic analysis and histomorphometry. *J Oral Implantol* 2009; 35: 164–175.
10. Simion M, Fontana F, Rasperini G, Maiorana C. Vertical ridge augmentation by expanded-polytetrafluoroethylene membrane and a combination of intraoral

autogenous bone graft and deproteinized anorganic bovine bone (Bio Oss). Clin Oral Implants Res 2007; 18: 620–629.

11. Weibull L, Widmark G, Ivanoff CJ, Borg E, Rasmusson L. Morbidity after chin bone harvesting – a retrospective long-term follow-up study. Clin Implant Dent Relat Res 2009; 11: 149–157.

12. Schley J-S, Terheyden H, Wolfart S, Boehme P, Gómez-Róman G, Keese E, et al. Implantatprothetische Versorgung des zahnlosen Oberkiefers. S3 Leitlinie. DGZMK 2013; 5: 2–28.

13. Wagner W, Steenberghe D. Einblick Konsensuskonferenz. 2014: https://www.for.org/sites/default/files/FOR_Article_Consensus_Mainz_2014_DE_2010.pdf.

14. Malo P, de Araujo Nobre M, Lopes A, Moss SM, Molina GJ. A longitudinal study of the survival of All-on-4 implants in the mandible with up to 10 years of follow-up. Journal of the American Dental Association 2011; 142: 310–320.

15. Malo P, Rangert B, Nobre M. "All-on-Four" immediate-function concept with Branemark System implants for completely edentulous mandibles: a retrospective clinical study. Clin Implant Dent Relat Res 2003; 5 Suppl 1: 2–9.

16. Ender A, Mehl A. Full arch scans: conventional versus digital impressions – an in-vitro study. Int J Comput Dent 2011; 14: 11–21.

17. Ender A, Mehl A. In-vitro evaluation of the accuracy of conventional and digital methods of obtaining full-arch dental impressions. Quintessence Int 2015; 46: 9–17.

18. Mehl C, Kern M, Freitag-Wolf S, Wolfart M, Brunzel S, Wolfart S. Does the Oral Health Impact Profile questionnaire measure dental appearance? Int J Prosthodont 2009; 22: 87–93.

19. Davis LG, Ashworth PD, Spriggs LS. Psychological effects of aesthetic dental treatment. J Dent 1998; 26: 547–554.

20. Davies P, Payne I. The evaluation of relative stress levels associated with common dental procedures. Dental update 1980; 7: 339–342.

21. Astrand P, Ahlqvist J, Gunne J, Nilson H. Implant treatment of patients with edentulous jaws: a 20-year follow-up. Clin Implant Dent Relat Res 2008; 10: 207–217.

22. Balshi SF, Wolfinger GJ, Balshi TJ. A prospective study of immediate functional loading, following the Teeth in a Day protocol: a case series of 55 consecutive edentulous maxillas. Clin Implant Dent Relat Res 2005; 7: 24–31.

23. Lekholm U, Grondahl K, Jemt T. Outcome of oral implant treatment in partially edentulous jaws followed 20 years in clinical function. *Clin Implant Dent Relat Res* 2006; 8: 178–186.
24. Jacobs R, van Steenberghe D. Comparative evaluation of the oral tactile function by means of teeth or implant-supported prostheses. *Clin Oral Implants Res* 1991; 2: 75–80.
25. van Steenberghe D, Quirynen M, Molly L, Jacobs R. Impact of systemic diseases and medication on osseointegration. *Periodontol 2000* 2003; 33: 163–171.
26. Abarca M, van Steenberghe D, Malevez C, De Ridder J, Jacobs R. Neurosensory disturbances after immediate loading of implants in the anterior mandible: an initial questionnaire approach followed by a psychophysical assessment. *Clin Oral Investig* 2006; 10: 269–277.

Vollanatomisch gefräster Zahnersatz aus Zirkoniumdioxid – die Zukunft?

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ZMK 4 (31) 2015, S. 228–235

- [1] Theobald AH, Wong BK, Quick AN, Thomson WM: The impact of the popular media on cosmetic dentistry. *N Z Dent J* 102, 58–63 (2006).
- [2] Mehl C, Harder S, Byrne A, Kern M: Prosthodontics in digital times: a case report. *Quintessence Int* 44, 29–36 (2013).
- [3] Priest G, Priest J: Promoting esthetic procedures in the prosthodontic practice. *J Prosthodont* 13, 111–117 (2004).
- [4] Mehl C, Kern M, Freitag-Wolf S, Wolfart M, Brunzel S, Wolfart S: Does the Oral Health Impact Profile questionnaire measure dental appearance? *Int J Prosthodont* 22, 87–93 (2009).
- [5] Mehl CJ, Harder S, Kern M, Wolfart S: Patients' and dentists' perception of dental appearance. *Clin Oral Investig* 15, 193–199 (2001).
- [6] Beuer F, Schweiger J, Edelhoff D: Digital dentistry: an overview of recent developments for CAD/CAM generated restorations. *Br Dent J* 204, 505–511 (2008).
- [7] Bittner N, Hill T, Randi A: Evaluation of a one-piece milled zirconia post and core with different post-and-core systems: An in vitro study. *J Prosthet Dent* 103, 369–379 (2010).
- [8] Rosch R, Mericske-Stern R: [Zirconia and removable partial dentures]. *Schweizer Monatsschrift für Zahnmedizin = Revue mensuelle suisse d'odonto-stomatologie = Rivista mensile svizzera di odontologia e stomatologia / SSO* 118, 959–974 (2008).
- [9] Paniz G, Stellini E, Meneghello R, Cerardi A, Gobbato EA, Bressan E: The precision of fit of cast and milled full-arch implant-supported restorations. *Int J Oral Maxillofac Implants* 28, 687–693 (2013).
- [10] Peche WA, Van Vuuren LJ, Park C: Full-arch milled titanium implant bridge: technical report. *N Z Dent J* 107, 101–103 (2011).
- [11] Parel SM: The single-piece milled titanium implant bridge. *Dent Today* 22, 96–99 (2003).
- [12] Zembic A, Bosch A, Jung RE, Hammerle CH, Sailer I: Five-year results of a randomized controlled clinical trial comparing zirconia and titanium abutments supporting single-implant crowns in canine and posterior regions. *Clin Oral Implants Res* 24, 384–390 (2013).
- [13] Sailer I, Feher A, Filser F, Gauckler LJ, Luthy H, Hammerle CH: Five-year clinical results of zirconia frameworks for posterior fixed partial dentures. *Int J Prosthodont* 20, 383–388 (2007).
- [14] Weigl P, Hahn L, Lauer HC: Advanced biomaterials used for a new telescopic retainer for removable dentures. *J Biomed Mater Res* 53, 320–336 (2000).
- [15] Zembic A, Philipp AO, Hammerle CH, Wohlwend A, Sailer I: Eleven-year follow-up of a prospective study of zirconia implant abutments supporting single all-ceramic crowns in anterior and premolar regions. *Clin Implant Dent Relat Res* (2014).
- [16] Sailer I, Pjetursson BE, Zwahlen M, Hammerle CH: A systematic review of the survival and complication rates of all-ceramic and metal-ceramic reconstructions after an observation period of at least 3 years. Part II: Fixed dental prostheses. *Clin Oral Implants Res* 18 (Suppl 3), 86–96 (2007).
- [17] Pjetursson BE, Sailer I, Zwahlen M, Hammerle CH: A systematic review of the survival and complication rates of all-ceramic and metal-ceramic reconstructions after an observation period of at least 3 years. Part I: Single crowns. *Clin Oral Implants Res* 18 (Suppl 3), 73–85 (2007).

- [18] Long HA: A predictable approach to an all-ceramic full-arch restoration. *Compend Contin Educ Dent* 34, 274–281 (2013).
- [19] Ender A, Mehl A: Full arch scans: conventional versus digital impressions – an in-vitro study. *Inter J Comp Dent* 14, 11–21 (2011).
- [20] Priest G: Virtual-designed and computer-milled implant abutments. *J Oral Maxillofac Surg* 63, 22–32 (2005).
- [21] Reich S, Ganz S, Weber V, Wolfart S: Digital processes in implant dentistry. *Implantologie* 19, 263–271 (2011).
- [22] Mehl C, Harder S, Lin J, Vollrath O, Kern M: Perception of dental esthetics: influence of restoration type, symmetry, and color in four different countries. *Int J Prosthodont* 28, 60–64 (2015).
- [23] Mehl C, Wolfart S, Vollrath O, Wenz HJ, Kern M: Perception of dental esthetics in different cultures. *Int J Prosthodont* 27, 523–529 (2014).

Vom Gold-Standard zur Gold-Alternative

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ZMK 4 (31), S. 214-226

1. Dammaschke T, Nykiel K, Sagheri D, Schäfer E. Influence of coronal restorations on the fracture resistance of root canal-treated premolar and molar teeth: a retrospective study. *Aust Endod J* 2013; 39: 48–56.
2. Donovan T, Simonsen RJ, Guertin G, Tucker RV. Retrospective clinical evaluation of 1,314 cast gold restorations in service from 1 to 52 years. *J Esthet Restor Dent* 2004; 16: 194–204.
3. Ernst CP. Die Verwendung eines weiß-opaken Flow-Komposites zur Markierung tiefer Kavitätenanteile in der Klasse II. *Ästhetische Zahnmedizin* 2004; 7: 160–169.
4. Ernst CP, Rullmann I, Janssen B, Willershausen B. Polymerization shrinkage stress of bulk fill resin composites. Vortrag auf der IADR Jahrestagung 2014. <https://iadr.confex.com/iadr/13iags/webprogram/Paper170911.html>.
5. Erpenstein H, Kerschbaum T, Halfin T. Long-term survival of cast-gold inlays in a specialized dental practice. *Clin Oral Investig* 2001; 5 :162–166.
6. Frankenberger R, Reinelt C, Roggendorf MJ, Krämer N. Direkte oder indirekte Restaurationen im Seitenzahnbereich? *Quintessenz* 2010; 561: 575–579.
7. Frankenberger R, Hehn J, Hajto N, Krämer N, Naumann M, Koch A, Roggendorf MJ. Effect of proximal box elevation with resin composite on marginal quality of resin composite inlays in vitro. *Clin Oral Investig* 2013; 17: 177–183.
8. Hellwig E, Klimek J, Attin T. Restaurationen mit Einlagefüllungen. In: *Einführung in die Zahnerhaltung*, Urban&Schwarzenberg, München-Wien-Baltimore, 1995: 199.
9. Hickel R, Ernst CP, Haller B, Hugo B, Kunzelmann KH, Merte K, Ott K, Schmalz G, Staehle HJ. Direkte Kompositrestaurationen im Seitenzahnbereich – Indikation und Lebensdauer. *zm* 2005; 95: 74–76.
10. Kelly PG, Smales RJ. Long-term cost-effectiveness of single indirect restorations in selected dental practices. *Br Dent J* 2004; 22 (196): 639–643.
11. Krejci I, Lutz F, Reimer M. Marginal adaptation and fit of adhesive ceramic inlays. *J Dent* 1993; 21: 39–46.

12. Loomans BA, Opdam NJ, Roeters FJ, Bronkhorst EM, Burgersdijk RC.
Comparison of proximal contacts of Class II resin composite restorations in vitro. Oper Dent 2006; 3: 688–693.
13. Loomans BA, Opdam NJ, Roeters JF, Bronkhorst EM, Plasschaert AJ.
Influence of composite resin consistency and placement technique on proximal contact tightness of class II restorations. J Adhes Dent 2006; 8: 305–310.
14. Reiner A. Margin elevation technique. zm 2013; 103: 44–46.
15. Roggendorf MJ, Krämer N, Dippold C, Vosen VE, Naumann M, Jablonski-Momeni A, Frankenberger R. Effect of proximal box elevation with resin composite on marginal quality of resin composite inlays in vitro. J Dent 2012; 40: 1068–1073.
16. Rosentritt M, Behr M, Kolbeck C, Handel G. Flexural strength of restorative composites after different aging conditions. Vortrag auf der IADR-Jahrestagung 2014.
<https://iadr.confex.com/iadr/13iags/webprogram/Paper171330.html>
17. Rullmann I, Schattenberg A, Marx M, Willershausen B, Ernst CP.
Spannungsoptische Messungen der Polymerisationsschrumpfkraft schrumpfreduzierter Komposite. Schweiz Monatsschr Zahnmed 2012; 122: 8–12.
18. Zaruba M, Göhring TN, Wegehaupt FJ, Attin RT. Influence of a proximal margin elevation technique on marginal adaptation of ceramic inlays. Acta Odontol Scand 2013; 71: 317–324.