

- [1] Friction J, Look JO, Wright E, Alencar FGP, Chen H, Lang M et al. Systematic review and meta-analysis of randomized controlled trials evaluating intraoral orthopedic appliances for temporomandibular disorders. *J Orofac Pain* 2010;24:237–54.
- [2] Riley P, Glenny A-M, Worthington HV, Jacobsen E, Robertson C, Durham J et al. Oral splints for patients with temporomandibular disorders or bruxism: a systematic review and economic evaluation. *Health Technol Assess* 2020;24:1–224. <https://doi.org/10.3310/hta24070>.
- [3] Behr M, Stebner K, Kolbeck C, Faltermeier A, Driemel O, Handel G. Outcomes of temporomandibular joint disorder therapy: observations over 13 years. *Acta Odontol Scand* 2007;65:249–53. <https://doi.org/10.1080/00016350701408206>.
- [4] Jokubauskas L, Baltrušaitytė A, Pileičikienė G. Oral appliances for managing sleep bruxism in adults: a systematic review from 2007 to 2017. *J Oral Rehabil* 2018;45:81–95. <https://doi.org/10.1111/joor.12558>.
- [5] Macedo CR, Silva AB, Machado MA, Saconato H, Prado GF. Occlusal splints for treating sleep bruxism (tooth grinding). *Cochrane Database Syst Rev* 2007;2007:CD005514. <https://doi.org/10.1002/14651858.CD005514.pub2>.
- [6] Jagger R. The effectiveness of occlusal splints for sleep bruxism. *Evid Based Dent* 2008;9:23. <https://doi.org/10.1038/sj.ebd.6400569>.
- [7] Rosentritt M, Schmidt M, Wulff J, Rauch A. Material für digitale Schienen. *Quintessenz Zahntechnik* 2023;2023:482–90.
- [8] Benli M, Eker Gümüş B, Kahraman Y, Gökçen-Rohlig B, Evlioğlu G, Huck O et al. Surface roughness and wear behavior of occlusal splint materials made of contemporary and high-performance polymers. *Odontology* 2020;108:240–50. <https://doi.org/10.1007/s10266-019-00463-1>.
- [9] Rosentritt M, Huber C, Strasser T, Schmid A. Investigating the mechanical and optical properties of novel Urethandimethacrylate (UDMA) and Urethanmethacrylate (UMA) based rapid prototyping materials. *Dent Mater* 2021;37:1584–91. <https://doi.org/10.1016/j.dental.2021.08.009>.
- [10] Wedekind L, Güth J-F, Schweiger J, Kollmuss M, Reichl F-X, Edelhoff D et al. Elution behavior of a 3D-printed, milled and conventional resin-based occlusal splint material. *Dent Mater* 2021;37:701–10. <https://doi.org/10.1016/j.dental.2021.01.024>.
- [11] Kim D, Shim J-S, Lee D, Shin S-H, Nam N-E, Park K-H et al. Effects of Post-Curing Time on the Mechanical and Color Properties of Three-Dimensional Printed Crown and Bridge Materials. *Polymers (Basel)* 2020;12. <https://doi.org/10.3390/polym12112762>.
- [12] Reymus M, Stawarczyk B. Influence of Different Postpolymerization Strategies and Artificial Aging on Hardness of 3D-Printed Resin Materials: An In Vitro Study. *Int J Prosthodont* 2020;33:634–40. <https://doi.org/10.11607/ijp.6634>.
- [13] Prpić V, Schauperl Z, Čatić A, Dulčić N, Čimić S. Comparison of Mechanical Properties of 3D-Printed, CAD/CAM, and Conventional Denture Base Materials. *J Prosthodont* 2020;29:524–8. <https://doi.org/10.1111/jopr.13175>.
- [14] Wulff J, Schmid A, Huber C, Rosentritt M. Dynamic fatigue of 3D-printed splint materials. *J Mech Behav Biomed Mater* 2021;124:104885. <https://doi.org/10.1016/j.jmbbm.2021.104885>.
- [15] Berli C, Thieringer FM, Sharma N, Müller JA, Dedem P, Fischer J et al. Comparing the mechanical properties of pressed, milled, and 3D-printed resins for occlusal devices. *J Prosthet Dent* 2020. <https://doi.org/10.1016/j.prosdent.2019.10.024>.
- [16] Gibreel M, Perea-Lowery L, Vallittu PK, Lassila L. Characterization of occlusal splint materials: CAD-CAM versus conventional resins. *J Mech Behav Biomed Mater* 2021;124:104813. <https://doi.org/10.1016/j.jmbbm.2021.104813>.

- [17] Rosentritt M, Behr M, Strasser T, Schmid A. Pilot in-vitro study on insertion/removal performance of hand-cast, milled and 3D printed splints. *J Mech Behav Biomed Mater* 2021;121:104612. <https://doi.org/10.1016/j.jmbbm.2021.104612>.
- [18] Alharbi N, Osman R, Wismeijer D. Effects of build direction on the mechanical properties of 3D-printed complete coverage interim dental restorations. *J Prosthet Dent* 2016;115:760–7. <https://doi.org/10.1016/j.prosdent.2015.12.002>.
- [19] Väyrynen VOE, Tanner J, Vallittu PK. The anisotropy of the flexural properties of an occlusal device material processed by stereolithography. *J Prosthet Dent* 2016;116:811–7. <https://doi.org/10.1016/j.prosdent.2016.03.018>.
- [20] Perea-Lowery L, Gibreel M, Vallittu PK, Lassila L. Evaluation of the mechanical properties and degree of conversion of 3D printed splint material. *J Mech Behav Biomed Mater* 2021;115:104254. <https://doi.org/10.1016/j.jmbbm.2020.104254>.
- [21] Reymus M, Stawarczyk B. In vitro study on the influence of postpolymerization and aging on the Martens parameters of 3D-printed occlusal devices. *J Prosthet Dent* 2021;125:817–23. <https://doi.org/10.1016/j.prosdent.2019.12.026>.
- [22] Wada J, Wada K, Gibreel M, Wakabayashi N, Iwamoto T, Vallittu PK et al. Effect of 3D Printer Type and Use of Protection Gas during Post-Curing on Some Physical Properties of Soft Occlusal Splint Material. *Polymers (Basel)* 2022;14. <https://doi.org/10.3390/polym14214618>.
- [23] Grymak A, Aarts JM, Ma S, Waddell JN, Choi JJE. Comparison of hardness and polishability of various occlusal splint materials. *J Mech Behav Biomed Mater* 2021;115:104270. <https://doi.org/10.1016/j.jmbbm.2020.104270>.
- [24] Grymak A, Aarts JM, Ma S, Waddell JN, Choi JJE. Wear Behavior of Occlusal Splint Materials Manufactured By Various Methods: A Systematic Review. *J Prosthodont* 2021. <https://doi.org/10.1111/jopr.13432>.
- [25] Hickl V, Strasser T, Schmid A, Rosentritt M. Effects of storage and toothbrush simulation on color, gloss, and roughness of CAD/CAM, hand-cast, thermoforming, and 3D-printed splint materials. *Clin Oral Invest* 2022. <https://doi.org/10.1007/s00784-022-04391-3>.
- [26] Orgev A, Levon JA, Chu T-MG, Morton D, Lin W-S. The effects of manufacturing technologies on the surface accuracy of CAD-CAM occlusal splints. *J Prosthodont* 2022. <https://doi.org/10.1111/jopr.13610>.
- [27] Marcel R, Reinhard H, Andreas K. Accuracy of CAD/CAM-fabricated bite splints: milling vs 3D printing. *Clin Oral Invest* 2020;24:4607–15. <https://doi.org/10.1007/s00784-020-03329-x>.
- [28] Palazzo G, Ronsivalle V, Oteri G, Lo Giudice A, Toro C, Campagna P et al. Comparison between Additive and Subtractive CAD-CAM Technique to Produce Orthognathic Surgical Splints: A Personalized Approach. *J Pers Med* 2020;10. <https://doi.org/10.3390/jpm10040273>.

ZMK 2024; 40 (5) S. 282-287

Prof. Dr. Etyenne Schnurr, Dr. Gregor Hocevar, Dr Ulrich Volz

Ästhetik und Funktionalität von Implantaten aus Zirkoniumdioxid im Seitenzahnbereich auf Gewebeniveau

- [1] Sales PHDH, Barros AWP, Oliveira-Neto OB, de Lima FJC, Carvalho AAT, Leão JC. Do zirconia dental implants present better clinical results than titanium dental implants? A systematic review and