

Literatur I – Leitlinien und grundlegende Arbeiten

Ausgewählte Quellen zur autogenen Zahntransplantation und biologischen Grundlagen

Leitlinien und frühe Evidenz

1. **DGZMK, DGZ.** Autogene Zahntransplantation. S2k-Leitlinie 083-013. 2012.
2. **DGMKG, DGZMK et al.** Therapie des dentalen Traumas bleibender Zähne. S2k-Leitlinie 083-004. 2022.
3. **Slagvold O, Bjercke B.** Indications for autotransplantation in cases of missing premolars. Am J Orthod. 1978;74:241–257. doi:10.1016/0002-9416(78)90201-4.
4. **Andreasen JO, Paulsen HU, Yu Z, Bayer T, Schwartz O.** A long-term study of 370 autotransplanted premolars. Part II: Tooth survival and pulp healing. Eur J Orthod. 1990;12:14–24.
5. **Andreasen JO, Paulsen HU, Yu Z, Schwartz O.** A long-term study of 370 autotransplanted premolars. Part III: Periodontal healing. Eur J Orthod. 1990;12:25–37.

Biologie, Prognose und Langzeitdaten

6. **Paulsen HU, Andreasen JO, Schwartz O.** Pulp and periodontal healing, root development and root resorption subsequent to transplantation and orthodontic rotation. Am J Orthod Dentofacial Orthop. 1995;108:630–640. doi:10.1016/S0889-5406(95)70009-9.
7. **Czochrowska EM, Stenvik A, Bjercke B, Zachrisson BU.** Outcome of tooth transplantation: survival and success rates 17–41 years posttreatment. Am J Orthod Dentofacial Orthop. 2002;121:110–119.
8. **Tsukiboshi M.** Autotransplantation of teeth: requirements for predictable success. Dent Traumatol. 2002;18:157–180. doi:10.1034/j.1600-9657.2002.00118.x.
9. **Kristerson L, Lagerström L.** Autotransplantation of teeth in cases with agenesis or traumatic loss of maxillary incisors. Eur J Orthod. 1991;13:486–492.
10. **Kvint S, Lindsten R, Magnusson A, Nilsson P, Bjerklin K.** Autotransplantation of teeth in 215 patients: a follow-up study. Angle Orthod. 2010;80:446–451.

Literatur II – Evidenz, KFO-Integration und digitale Planung

Aktuelle Reviews, Vergleich mit Alternativen und 3D-gestützte Verfahren

KFO-Entscheidung, Alternativen und Evidenz

- 11. Robertsson S, Mohlin B.** The congenitally missing upper lateral incisor: orthodontic space closure versus restorative treatment. *Eur J Orthod.* 2000;22:697–710. doi:10.1093/ejo/22.6.697.
- 12. Kokich VG, Kinzer GA.** Managing congenitally missing lateral incisors. Part I: Canine substitution. *J Esthet Restor Dent.* 2005;17:5–10. doi:10.1111/j.1708-8240.2005.tb00076.x.
- 13. Chung WC, Tu YK, Lin YH, Lu HK.** Outcomes of autotransplanted teeth with complete root formation: a systematic review and meta-analysis. *J Clin Periodontol.* 2014;41:412–423. doi:10.1111/jcpe.12228.
- 14. Rohof ECM, Kerdijk W, Jansma J, Livas C, Ren Y.** Autotransplantation of teeth with incomplete root formation: a systematic review and meta-analysis. *Clin Oral Investig.* 2018;22:1613–1624. doi:10.1007/s00784-018-2408-z.
- 15. Nimčenko T, Omerca G, Varinauskas V, et al.** Tooth autotransplantation as an alternative treatment option: a literature review. *Dent Res J (Isfahan).* 2013;10(1):1–6. doi:10.4103/1735-3327.111756.

Digitale Planung und neuere Übersichten

- 16. Lee SJ, Jung IY, Lee CY, Choi SY, Kum KY.** Clinical application of computer-aided rapid prototyping for tooth transplantation. *Dent Traumatol.* 2001;17:114–119.
- 17. Verweij JP, van Westerveld KJH, Anssari Moin D, Mensink G, van Merkesteyn JPR.** Autotransplantation with a 3-dimensionally printed replica of the donor tooth minimizes extra-alveolar time and intraoperative fitting attempts: a multicenter prospective study of 100 transplanted teeth. *J Oral Maxillofac Surg.* 2020;78:35–43.
- 18. Peña-Cardelles JF, Ortega-Concepción D, Moreno-Pérez J, Asensio-Acevedo R, Pascual Sánchez A, García-Guerrero I, Gómez-de-Diego R.** Third molar autotransplant planning with a tooth replica. A year of follow-up case report. *J Clin Exp Dent.* 2021;13(1):e75–e80. doi:10.4317/jced.57066.
- 19. Baxmann M, Huth KC, Kárpáti K, Baráth Z.** Autogenous transplantation of teeth across clinical indications: a systematic review and meta-analysis. *J Clin Med.* 2025;14(14):5126. doi:10.3390/jcm14145126.
- 20. Meto A, Çota K, Meto A, Bara S, Boschini L.** Tooth autotransplantation in contemporary dentistry: a narrative review of its clinical applications and biological basis. *J Clin Med.* 2025;14(17):6249. doi:10.3390/jcm14176249.
- 21. Rowland HG, Ferrer Molina M, Hijazi Alsadi T, Muwaquet Rodriguez S.** Outcomes of dental autotransplantation in relation to dental root formation. *BioMed Eng OnLine.* 2025;24:153. doi:10.1186/s12938-025-01450-0.

Literatur III – ergänzende Quellen und Bildnachweise

Ergänzungen zu Historie, digitaler Planung und Folienabbildungen

Historische Quellen und Entwicklungsstadien

- 22. Paré A.** Dix livres de la chirurgie, avec le magasin des instruments nécessaires à icelle. 1564.
- 23. Fauchard P.** Le chirurgien dentiste, ou traité des dents. Paris: Jean Mariette; 1728.
- 24. Hunter J.** The Natural History of the Human Teeth: Explaining Their Structure, Use, Formation, Growth, and Diseases. London: J Johnson; 1771.
- 25. Hale ML.** Autogenous transplants. J Am Dent Assoc. 1954;49:193–198.
- 26. Nordenram Å.** Autotransplantation of teeth: a clinical and experimental investigation. Acta Odontol Scand. 1963;21(Suppl 33):7–76.
- 27. Moorrees CFA, Fanning EA, Hunt EE Jr.** Age variation of formation stages for ten permanent teeth. J Dent Res. 1963;42:1490–1502.

Bildnachweise

- Eigene klinische und radiologische Aufnahmen sowie eigene schematische Darstellungen.
- Paulsen HU et al. 1995; Peña-Cardelles JF et al. 2021; Wikimedia Commons / Wellcome Collection.
- Komplikationsabbildungen: Müller DD et al. Sci Rep. 2020;10:2841. doi:10.1038/s41598-020-59843-1; Asgary S et al. Case Rep Dent. 2022;2022:5178339.

Ergänzende klinische und digitale Quellen

- 28. Schütz S, Beck I, Kühl S, Filippi A.** Results after wisdom tooth transplantation. Schweiz Monatsschr Zahnmed. 2013;123(4):303–313.
- 29. Wu Y, Chen G, Shen M, et al.** Mature impacted tooth transplantation using a 3D replica and guided bone regeneration: two case reports. BMC Oral Health. 2019;19:248.
- 30. Takahashi Y, Haga S, Ohshima H.** Delayed autologous tooth transplantation in a compromised recipient region: a 4-year follow-up case report. Front Dent Med. 2023;4:1061362.
- 31. Wong J, Fok EHW, Li KY, Zhang C, Cheung GSP.** Clinical outcomes of tooth autotransplantation: a systematic review and meta-analysis of survival. Restor Dent Endod. 2026;51(2):e17. doi:10.5395/rde.2026.51.e17.
- 32. Huang J et al.** Outcomes of third molars with complete root formation: a systematic review and meta-analysis. J Evid Based Dent Pract. 2023;23:101842.
- 33. Lucas-Taulé E, Bofarull-Ballús A, Llaquet M, Mercadé M, Hernández-Alfaro F, Gargallo-Albiol J.** Does root development status affect the outcome of tooth autotransplantation? A systematic review and meta-analysis. Materials. 2022;15:3379. doi:10.3390/ma15093379.