

Apexifikation vs. Revitalisierung

Therapieoptionen zur Behandlung wurzelunreifer Zähne mit einer Pulpanekrose

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- [1] Bücher K, Neumann C, Hickel R, Kühnisch J: Traumatic dental injuries at a German University Clinic 2004–2008. *Dental Traumatology* 2013, 29(2):127-133.
- [2] Oldin A, Lundgren J, Nilsson M, Noren JG, Robertson A: Traumatic dental injuries among children aged 0-17 years in the BITA study - a longitudinal Swedish multicenter study. *Dent Traumatol* 2015, 31(1):9-17.
- [3] Cvek M: Prognosis of luxated non-vital maxillary incisors treated with calcium hydroxide and filled with gutta-percha. A retrospective clinical study. *Endod Dent Traumatol* 1992, 8(2):45-55.
- [4] Matoug-Elwerfelli M, ElSheshtawy AS, Duggal M, Tong HJ, Nazzal H: Vital pulp treatment for traumatized permanent teeth: A systematic review. *Int Endod J* 2022, 55(6):613-629.
- [5] Andreasen JO, Ravn JJ: Epidemiology of traumatic dental injuries to primary and permanent teeth in a Danish population sample. *Int J Oral Surg* 1972, 1(5):235-239.
- [6] Glendor U, Koucheki B, Halling A: Risk evaluation and type of treatment of multiple dental trauma episodes to permanent teeth. *Endod Dent Traumatol* 2000, 16(5):205-210.
- [7] Andreasen JO, Andreasen FM, Andersson L: Textbook and color atlas of traumatic injuries to the teeth: John Wiley & Sons; 2018.
- [8] Rowe AH, Pitt Ford TR: The assessment of pulpal vitality. *Int Endod J* 1990, 23(2):77-83.
- [9] Abbott PV: Prevention and management of external inflammatory resorption following trauma to teeth. *Aust Dent J* 2016, 61 Suppl 1:82-94.
- [10] Lauridsen E, Hermann NV, Gerds TA, Ahrensburg SS, Kreiborg S, Andreasen JO: Combination injuries 3. The risk of pulp necrosis in permanent teeth with extrusion or lateral luxation and concomitant crown fractures without pulp exposure. *Dent Traumatol* 2012, 28(5):379-385.
- [11] Ng YL, Mann V, Rahbaran S, Lewsey J, Gulabivala K: Outcome of primary root canal treatment: systematic review of the literature -- Part 2. Influence of clinical factors. *Int Endod J* 2008, 41(1):6-31.
- [12] Doyon GE, Dumsha T, von Fraunhofer JA: Fracture resistance of human root dentin exposed to intracanal calcium hydroxide. *J Endod* 2005, 31(12):895-897.
- [13] Andreasen JO, Farik B, Munksgaard EC: Long-term calcium hydroxide as a root canal dressing may increase risk of root fracture. *Dent Traumatol* 2002, 18(3):134-137.
- [14] Andreasen JO, Munksgaard EC, Bakland LK: Comparison of fracture resistance in root canals of immature sheep teeth after filling with calcium hydroxide or MTA. *Dent Traumatol* 2006, 22(3):154-156.

- [15] Rosenberg B, Murray PE, Namerow K: The effect of calcium hydroxide root filling on dentin fracture strength. *Dent Traumatol* 2007, 23(1):26-29.
- [16] Tittle KW: Apical closure induction using bone growth factors and mineral trioxide aggregate; 1997.
- [17] Wikstrom A, Brundin M, Romani Vestman N, Rakhimova O, Tsilingaridis G: Endodontic pulp revitalization in traumatized necrotic immature permanent incisors: Early failures and long-term outcomes-A longitudinal cohort study. *Int Endod J* 2022, 55(6):630-645.
- [18] Ree MH, Schwartz RS: Long-term Success of Nonvital, Immature Permanent Incisors Treated With a Mineral Trioxide Aggregate Plug and Adhesive Restorations: A Case Series from a Private Endodontic Practice. *J Endod* 2017, 43(8):1370-1377.
- [19] Pace R, Giuliani V, Nieri M, Di Nasso L, Pagavino G: Mineral trioxide aggregate as apical plug in teeth with necrotic pulp and immature apices: a 10-year case series. *J Endod* 2014, 40(8):1250-1254.
- [20] Bucher K, Meier F, Diegritz C, Kaaden C, Hickel R, Kuhnisch J: Long-term outcome of MTA apexification in teeth with open apices. *Quintessence Int* 2016, 47(6):473-482.
- [21] Nygaard-Ostby B, Hjortdal O: Tissue formation in the root canal following pulp removal. *Scand J Dent Res* 1971, 79(5):333-349.
- [22] Horsted P, Nygaard-Ostby B: Tissue formation in the root canal after total pulpectomy and partial root filling. *Oral Surg Oral Med Oral Pathol* 1978, 46(2):275-282.
- [23]. Iwaya SI, Ikawa M, Kubota M: Revascularization of an immature permanent tooth with apical periodontitis and sinus tract. *Dent Traumatol* 2001, 17(4):185-187.
- [24] Banchs F, Trope M: Revascularization of immature permanent teeth with apical periodontitis: new treatment protocol? *J Endod* 2004, 30(4):196-200.
- [25] Galler KM, Krastl G, Simon S, Van Gorp G, Meschi N, Vahedi B, Lambrechts P: European Society of Endodontontology position statement: Revitalization procedures. *Int Endod J* 2016, 49(8):717-723.
- [26] Hu X, Wang Q, Ma C, Li Q, Zhao C, Xiang K: Is Etiology a Key Factor for Regenerative Endodontic Treatment Outcomes? *J Endod* 2023, 49(8):953-962.
- [27] Casey SM, Fox D, Duong W, Bui N, Latifi N, Ramesh V, Podborots E, Flake NM, Khan AA, Gibbs JL: Patient Centered Outcomes among a Cohort Receiving Regenerative Endodontic Procedures or Apexification Treatments. *J Endod* 2022, 48(3):345-354.
- [28] Iranmanesh P, Torabinejad M, Saatchi M, Toghraie D, Razavi SM, Khademi A: Effect of Duration of Root Canal Infection on the Ability of Dentin-Pulp Complex Regeneration of Immature Permanent Teeth: An Animal Study. *J Endod* 2022, 48(10):1301-1307 e1302.
- [29] Kim YJ, Chandler NP: Determination of working length for teeth with wide or immature apices: a review. *Int Endod J* 2013, 46(6):483-491.
- [30] Keinan D, Asbi T, Shalish M, Slutsky-Goldberg I: An Assessment of the Effects of Orthodontic Treatment after Apexification of Traumatized Immature Permanent Teeth: A Retrospective Study. *J Endod* 2022, 48(1):96-101.
- [31] Ioannidou-Marathiotou I, Zafeiriadis AA, Papadopoulos MA: Root resorption of endodontically treated teeth following orthodontic treatment: a meta-analysis. *Clin Oral Investig* 2013, 17(7):1733-1744.