Endodontics I

Year 3 — Bachelor of Dental Surgery

Reference and Resource List — Chapters 1 to 20

Supporting the MCQ, SBA, SAQ and flashcard question bank

BM Education FZE

Disclaimer

Questions in this bank were generated with the assistance of artificial intelligence and reviewed against the references listed. They are provided for educational revision only, are not a substitute for prescribed textbooks, clinical guidelines or supervised clinical training, and no warranty is given as to their accuracy or completeness.

References are presented in Vancouver style. Part 1 lists the core sources that apply across the whole subject; Part 2 lists, for each chapter, the relevant core sources by their Part 1 number together with additional chapter-specific reading.

PART 1 — CORE REFERENCES (ALL CHAPTERS)

1.1 Principal endodontic textbooks

1. Hargreaves KM, Berman LH, editors. Cohen's Pathways of the Pulp. 12th ed. St Louis: Elsevier; 2021.
2. Torabinejad M, Fouad AF, Shabahang S. Endodontics: Principles and Practice. 6th ed. St Louis: Elsevier; 2021.
3. Patel S, Barnes JJ, editors. The Principles of Endodontics. 3rd ed. Oxford: Oxford University Press; 2019.
4. Chong BS, editor. Harty's Endodontics in Clinical Practice. 7th ed. Edinburgh: Elsevier; 2017.
5. Rotstein I, Ingle JI, editors. Ingle's Endodontics. 7th ed. Raleigh (NC): PMPH USA; 2019.
6. Gopikrishna V, editor. Grossman's Endodontic Practice. 14th ed. New Delhi: Wolters Kluwer (India); 2021.
7. Bjørndal L, Kirkevang LL, Whitworth J, editors. Textbook of Endodontology. 3rd ed. Oxford: Wiley Blackwell; 2018.

1.2 Pulp biology, oral biology and microbiology

8. Nanci A. Ten Cate's Oral Histology: Development, Structure, and Function. 10th ed. St Louis: Elsevier; 2024.
9. Berkovitz BKB, Holland GR, Moxham BJ. Oral Anatomy, Histology and Embryology. 5th ed. Edinburgh: Elsevier; 2017.
10. Marsh PD, Lewis MAO, Rogers H, Williams DW, Wilson M. Marsh and Martin's Oral Microbiology. 6th ed. Edinburgh: Elsevier; 2016.
11. Lamont RJ, Hajishengallis GN, Koo H, Jenkinson HF, editors. Oral Microbiology and Immunology. 3rd ed. Washington (DC): ASM Press; 2019.
12. Kumar V, Abbas AK, Aster JC, editors. Robbins Basic Pathology. 11th ed. Philadelphia: Elsevier; 2023.
13. Fejerskov O, Nyvad B, editors. Dental Caries: The Disease and Its Clinical Management. 4th ed. Oxford: Wiley Blackwell; 2025.

1.3 Dental anatomy and root canal morphology

14. Nelson SJ. Wheeler's Dental Anatomy, Physiology and Occlusion. 11th ed. St Louis: Elsevier; 2020.
15. Scheid RC, Weiss G. Woelfel's Dental Anatomy. 9th ed. Philadelphia: Wolters Kluwer; 2017.
16. Vertucci FJ. Root canal anatomy of the human permanent teeth. Oral Surg Oral Med Oral Pathol. 1984;58(5):589-99.
17. Vertucci FJ. Root canal morphology and its relationship to endodontic procedures. Endod Topics. 2005;10(1):3-29.
18. Ahmed HMA, Versiani MA, De-Deus G, Dummer PMH. A new system for classifying root and root canal morphology. Int Endod J. 2017;50(8):761-70.

1.4 Restorative interface and post-endodontic restoration

19. Ritter AV, Boushell LW, Walter R, editors. Sturdevant's Art and Science of Operative Dentistry. 7th ed. St Louis: Elsevier; 2019.
20. Banerjee A, Watson TF. Pickard's Guide to Minimally Invasive Operative Dentistry. 10th ed. Oxford: Oxford University Press; 2015.
21. Mannocci F, Bhuva B, Roig M, Zarow M, Bitter K. European Society of Endodontology position statement: the restoration of root filled teeth. Int Endod J. 2021;54(11):1974-81.

1.5 Radiology and imaging for endodontics

22. Whaites E, Drage N. Essentials of Dental Radiography and Radiology. 6th ed. Edinburgh: Elsevier; 2021.
23. Mallya SM, Lam EWN. White and Pharoah's Oral Radiology: Principles and Interpretation. 9th ed. St Louis: Elsevier; 2025.
24. European Society of Endodontology. Position statement: use of cone beam computed tomography in endodontics. Int Endod J. 2019;52(12):1675-8.
25. Special Committee to Revise the Joint AAE/AAOMR Position Statement on Use of CBCT in Endodontics. AAE and AAOMR joint position statement: use of cone beam computed tomography in endodontics - 2015 update. Oral Surg Oral Med Oral Pathol Oral Radiol. 2015;120(4):508-12.
26. European Commission. Cone Beam CT for Dental and Maxillofacial Radiology: Evidence-Based Guidelines. Radiation Protection No. 172. Luxembourg: European Commission; 2012.
27. Public Health England, Faculty of General Dental Practice (UK). Guidance Notes for Dental Practitioners on the Safe Use of X-ray Equipment. 2nd ed. London: PHE; 2020.
28. Faculty of General Dental Practice (UK). Selection Criteria for Dental Radiography. 3rd ed. London: FGDP(UK); 2018.

1.6 Pain control, pharmacology and prescribing

29. Malamed SF. Handbook of Local Anesthesia. 8th ed. St Louis: Elsevier; 2022.
30. Meechan JG. Practical Dental Local Anaesthesia. 2nd ed. London: Quintessence; 2011.
31. Segura-Egea JJ, Gould K, Şen BH, et al. European Society of Endodontology position statement: the use of antibiotics in endodontics. Int Endod J. 2018;51(1):20-5.
32. Scottish Dental Clinical Effectiveness Programme. Clinical guidance in dentistry, including Drug Prescribing for Dentistry and Management of Acute Dental Problems. Dundee: SDCEP. Available from: https://www.sdcep.org.uk
33. National Institute for Health and Care Excellence. Prophylaxis against infective endocarditis. Clinical guideline CG64. London: NICE. Available from: https://www.nice.org.uk/guidance/cg64

34. National Institute for Health and Care Excellence. Antimicrobial stewardship: systems and processes for effective antimicrobial medicine use. NICE guideline NG15. London: NICE. Available from: https://www.nice.org.uk/guidance/ng15

1.7 Guidelines, position statements and professional standards

35. Duncan HF, Kirkevang LL, Peters OA, et al. Treatment of pulpal and apical disease: the European Society of Endodontology (ESE) S3-level clinical practice guideline. Int Endod J. 2023;56(Suppl 3):238-95.
36. Duncan HF, Galler KM, Tomson PL, et al. European Society of Endodontology position statement: management of deep caries and the exposed pulp. Int Endod J. 2019;52(7):923-34.
37. Patel S, Lambrechts P, Shemesh H, Mavridou A. European Society of Endodontology position statement: external cervical resorption. Int Endod J. 2018;51(12):1323-6.
38. Patel S, et al. European Society of Endodontology position statement on root resorption. Int Endod J. 2023. Available from: https://doi.org/10.1111/iej.13916
39. European Society of Endodontology. Position statement: revitalization procedures. Int Endod J. 2016;49(8):717-23.
40. Levin L, Day PF, Hicks L, O'Connell A, Fouad AF, Bourguignon C, et al. International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: general introduction. Dent Traumatol. 2020;36(4):309-13.
41. Bourguignon C, Cohenca N, Lauridsen E, Flores MT, O'Connell AC, Day PF, et al. International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 1. Fractures and luxations. Dent Traumatol. 2020;36(4):314-30.
42. Fouad AF, Abbott PV, Tsilingaridis G, Cohenca N, Lauridsen E, Bourguignon C, et al. International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 2. Avulsion of permanent teeth. Dent Traumatol. 2020;36(4):331-42.
43. American Association of Endodontists. Glossary of Endodontic Terms. 10th ed. Chicago: AAE; 2020. Available from: https://www.aae.org
44. British Endodontic Society. A guide to good endodontic practice. London: BES. Available from: https://britishendodonticsociety.org.uk
45. De Moor R, Hülsmann M, Kirkevang LL, Tanalp J, Whitworth J. Undergraduate curriculum guidelines for endodontology. Int Endod J. 2013;46(12):1105-14.
46. General Dental Council. The Safe Practitioner: a framework of behaviours and outcomes for dental professional education. London: GDC; 2023. Available from: https://www.gdc-uk.org
47. General Dental Council. Standards for the Dental Team. London: GDC; 2013. Available from: https://www.gdc-uk.org
48. Royal College of Surgeons of England, Faculty of Dental Surgery. Clinical guidelines and standards. London: RCS England. Available from: https://www.rcseng.ac.uk

1.8 Key journals for currency

International Endodontic Journal · Journal of Endodontics · Dental Traumatology · Australian Endodontic Journal · Endodontic Topics · British Dental Journal · Journal of Dentistry · Clinical Oral Investigations

PART 2 — CHAPTER-SPECIFIC REFERENCES

Chapter 1 — Foundations of Endodontics

1.1 Definition, scope and goals of endodontic therapy · 1.2 Endodontic terminology · 1.3 Endodontics in the restorative plan (endo–restorative continuum; coronal seal) · 1.4 Indications, contraindications and referral thresholds · 1.5 Decision-making basics: restorability, periodontal status, strategic value · 1.6 Principles of minimal harm

Core texts: [1] Ch. 1 (Diagnosis) and Ch. 5 (Case Assessment and Treatment Planning) · [2] introductory and treatment-planning chapters · [3] Chs. 1–3 · [4] introductory chapters · [6] Chs. 3 and 8 · [7] Section on the scope of endodontology · [35] full guideline · [45] curriculum outcomes

Additional

- Ng YL, Mann V, Gulabivala K. Tooth survival following non-surgical root canal treatment: a systematic review of the literature. Int Endod J. 2010;43(3):171-89.
- Ng YL, Mann V, Rahbaran S, Lewsey J, Gulabivala K. Outcome of primary root canal treatment: systematic review of the literature - Part 1. Effects of study characteristics on probability of success. Int Endod J. 2007;40(12):921-39.
- Setzer FC, Kim S. Comparison of long-term survival of implants and endodontically treated teeth. J Dent Res. 2014;93(1):19-26.
- Torabinejad M, Anderson P, Bader J, Brown LJ, Chen LH, Goodacre CJ, et al. Outcomes of root canal treatment and restoration, implant-supported single crowns, fixed partial dentures, and extraction without replacement: a systematic review. J Prosthet Dent. 2007;98(4):285-311.
- Duncan HF, El-Karim I. Endodontic S3-level clinical practice guidelines: the European Society of Endodontology process and recommendations. Br Dent J. 2025;238(7):580-6.
- American Association of Endodontists. Glossary of Endodontic Terms. 10th ed. Chicago: AAE; 2020. Available from: https://www.aae.org
- British Endodontic Society. A guide to good endodontic practice. London: BES. Available from: https://britishendodonticsociety.org.uk

Chapter 2 — Pulp and Periradicular Tissues

2.1 Pulp anatomy (zones, cells, vascular supply, innervation) · 2.2 Pulp physiology relevant to pain and sensibility testing · 2.3 Dentine–pulp complex: reactionary vs reparative dentine · 2.4 Age changes · 2.5 Periradicular tissues: PDL, cementum, alveolar bone, apical region · 2.6 Biological basis of periapical healing

Core texts: [1] Ch. 13 (Structure and Function of the Dentin–Pulp Complex) and Ch. 14 (Pulp Reactions to Caries and Dental Procedures) · [2] chapter on pulp and periradicular tissues · [3] Ch. 2 (Life of a Tooth) · [6] Ch. 1 · [8] chapters on dentine, pulp and the periodontium · [9] chapters on tooth-supporting structures

Additional

- Brännström M. The hydrodynamic theory of dentinal pain: sensation in preparations, caries, and the dentinal crack syndrome. J Endod. 1986;12(10):453-7.
- Smith AJ, Cassidy N, Perry H, Bègue-Kirn C, Ruch JV, Lesot H. Reactionary dentinogenesis. Int J Dev Biol. 1995;39(1):273-80.
- Smith AJ, Duncan HF, Diogenes A, Simon S, Cooper PR. Exploiting the bioactive properties of the dentin-pulp complex in regenerative endodontics. J Endod. 2016;42(1):47-56.
- Byers MR, Närhi MV. Dental injury models: experimental tools for understanding neuroinflammatory interactions and polymodal nociceptor functions. Crit Rev Oral Biol Med. 1999;10(1):4-39.
- Bergenholtz G. Inflammatory response of the dental pulp to bacterial irritation. J Endod. 1981;7(3):100-4.
- Murray PE, Stanley HR, Matthews JB, Sloan AJ, Smith AJ. Age-related odontometric changes of human teeth. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2002;93(4):474-82.
- Nair PNR. Apical periodontitis: a dynamic encounter between root canal infection and host response. Periodontol 2000. 1997;13:121-48.

Chapter 3 — Etiology, Pathogenesis and Microbiology of Endodontic Disease

3.1 Etiology: caries, cracks, trauma, iatrogenic and restorative factors · 3.2 Pathogenesis: reversible to irreversible pulpitis, necrosis, apical disease · 3.3 Root canal microbiology and the biofilm concept · 3.4 Host response and inflammation · 3.5 Periapical lesions: granuloma, cyst, abscess · 3.6 Endodontic flare-ups

Core texts: [1] Ch. 15 (Microbiology and Treatment of Endodontic Infections) and Ch. 16 (Pathobiology of Apical Periodontitis) · [2] chapters on etiology and endodontic microbiology · [3] Ch. 2 · [6] Chs. 2, 4 and 5 · [10] and [11] for general oral microbiology · [13] for the caries process

Additional

- Kakehashi S, Stanley HR, Fitzgerald RJ. The effects of surgical exposures of dental pulps in germ-free and conventional laboratory rats. Oral Surg Oral Med Oral Pathol. 1965;20:340-9.
- Möller AJR, Fabricius L, Dahlén G, Öhman AE, Heyden G. Influence on periapical tissues of indigenous oral bacteria and necrotic pulp tissue in monkeys. Scand J Dent Res. 1981;89(6):475-84.
- Sundqvist G. Ecology of the root canal flora. J Endod. 1992;18(9):427-30.
- Siqueira JF Jr, Rôças IN. Diversity of endodontic microbiota revisited. J Dent Res. 2009;88(11):969-81.
- Siqueira JF Jr, Rôças IN. Clinical implications and microbiology of bacterial persistence after treatment procedures. J Endod. 2008;34(11):1291-301.
- Ricucci D, Siqueira JF Jr. Biofilms and apical periodontitis: study of prevalence and association with clinical and histopathologic findings. J Endod. 2010;36(8):1277-88.
- Nair PNR. Pathogenesis of apical periodontitis and the causes of endodontic failures. Crit Rev Oral Biol Med. 2004;15(6):348-81.
- Siqueira JF Jr. Microbial causes of endodontic flare-ups. Int Endod J. 2003;36(7):453-63.

Chapter 4 — Diagnosis and Treatment Planning in Endodontics

4.1 History taking and pain analysis · 4.2 Clinical examination · 4.3 Pulp sensibility tests: cold, heat, EPT · 4.4 Periapical tests: percussion, palpation, bite test, mobility · 4.5 Periodontal screening for endodontic cases · 4.6 Radiographic interpretation · 4.7 Diagnostic categories · 4.8 Differential diagnosis · 4.9 Treatment planning basics

Core texts: [1] Chs. 1–5 (Diagnosis; Radiographic Interpretation; Lesions That Mimic Endodontic Pathosis; Toothache of Nonodontogenic Origin; Case Assessment and Treatment Planning) · [2] chapters on diagnosis and case selection · [3] Ch. 3 · [6] Chs. 6 and 8 · [22] for radiographic technique · [35] diagnostic recommendations

Additional

- American Association of Endodontists. Consensus conference recommended diagnostic terminology. J Endod. 2009;35(12):1634.
- Mejare IA, Axelsson S, Davidson T, Frisk F, Hakeberg M, Kvist T, et al. Diagnosis of the condition of the dental pulp: a systematic review. Int Endod J. 2012;45(7):597-613.
- Chen E, Abbott PV. Dental pulp testing: a review. Int J Dent. 2009;2009:365785.
- Petersson A, Axelsson S, Davidson T, Frisk F, Hakeberg M, Kvist T, et al. Radiological diagnosis of periapical bone tissue lesions in endodontics: a systematic review. Int Endod J. 2012;45(9):783-801.
- Jafarzadeh H, Abbott PV. Review of pulp sensibility tests. Part I: general information and thermal tests. Int Endod J. 2010;43(9):738-62.
- Jafarzadeh H, Abbott PV. Review of pulp sensibility tests. Part II: electric pulp tests and test cavities. Int Endod J. 2010;43(11):945-58.
- Abbott PV, Yu C. A clinical classification of the status of the pulp and the root canal system. Aust Dent J. 2007;52(1 Suppl):S17-31.
- Renton T. Chronic orofacial pain. Oral Dis. 2017;23(5):566-71.

Chapter 5 — Endodontic Radiology and Imaging

5.1 Periapical radiographs: paralleling vs bisecting-angle technique · 5.2 The endodontic radiographic series (pre-operative, working length, master cone, post-operative) · 5.3 Angulation errors, distortion and apex cut-off prevention · 5.4 Radiographic anatomy relevant to endodontics · 5.5 CBCT basics: indications, limitations and radiation awareness

Core texts: [1] Ch. 2 (Radiographic Interpretation) · [3] Ch. 3 · [22] Whaites and Drage, chapters on periapical technique and dental radiographic interpretation · [23] White and Pharoah, chapters on intraoral projections and CBCT · [24]–[28] imaging guidance and radiation protection standards

Additional

- European Society of Endodontology. Position statement: use of cone beam computed tomography in endodontics. Int Endod J. 2019;52(12):1675-8.
- Patel S, Durack C, Abella F, Shemesh H, Roig M, Lemberg K. Cone beam computed tomography in endodontics - a review. Int Endod J. 2015;48(1):3-15.
- Special Committee to Revise the Joint AAE/AAOMR Position Statement on Use of CBCT in Endodontics. AAE and AAOMR joint position statement: use of cone beam computed tomography in endodontics - 2015 update. Oral Surg Oral Med Oral Pathol Oral Radiol. 2015;120(4):508-12.
- Brynolf I. A histological and roentgenological study of the periapical region of human upper incisors. Odontol Revy. 1967;18(Suppl 11).
- Bender IB. Factors influencing the radiographic appearance of bony lesions. J Endod. 1982;8(4):161-70.
- Estrela C, Bueno MR, Leles CR, Azevedo B, Azevedo JR. Accuracy of cone beam computed tomography and panoramic and periapical radiography for detection of apical periodontitis. J Endod. 2008;34(3):273-9.
- Public Health England, Faculty of General Dental Practice (UK). Guidance Notes for Dental Practitioners on the Safe Use of X-ray Equipment. 2nd ed. London: PHE; 2020.

Chapter 6 — Tooth Morphology for Endodontics

6.1 External root morphology: number of roots, root form, curvatures · 6.2 Internal anatomy: pulp chamber, horns, canal orifices, isthmuses · 6.3 Apical anatomy: constriction, foramen, delta, accessory canals · 6.4 Common variations by tooth group · 6.5 Clinical implications: missed canals, calcification, curvature, MB2 awareness

Core texts: [1] Ch. 7 (Tooth Morphology, Isolation and Access Preparation) · [2] chapter on tooth morphology and access · [3] Ch. 5 · [6] Ch. 13 (Anatomy of the Pulp Cavity and its Access Opening) · [14] and [15] for dental anatomy · [16]–[18] canal configuration systems

Additional

- Kuttler Y. Microscopic investigation of root apexes. J Am Dent Assoc. 1955;50(5):544-52.
- Dummer PMH, McGinn JH, Rees DG. The position and topography of the apical canal constriction and apical foramen. Int Endod J. 1984;17(4):192-8.
- Weine FS, Healey HJ, Gerstein H, Evanson L. Canal configuration in the mesiobuccal root of the maxillary first molar and its endodontic significance. Oral Surg Oral Med Oral Pathol. 1969;28(3):419-25.
- Cleghorn BM, Christie WH, Dong CCS. Root and root canal morphology of the human permanent maxillary first molar: a literature review. J Endod. 2006;32(9):813-21.
- de Pablo OV, Estévez R, Péix Sánchez M, Heilborn C, Cohenca N. Root anatomy and canal configuration of the permanent mandibular first molar: a systematic review. J Endod. 2010;36(12):1919-31.
- Versiani MA, Pécora JD, Sousa-Neto MD. Root and root canal morphology of four-rooted maxillary second molars: a micro-computed tomography study. J Endod. 2012;38(7):977-82.
- Fan B, Cheung GSP, Fan M, Gutmann JL, Bian Z. C-shaped canal system in mandibular second molars: Part I - anatomical features. J Endod. 2004;30(12):899-903.

Chapter 7 — Operatory Setup, Rubber Dam, Asepsis and Armamentarium

7.1 Rubber dam: indications, contraindications, patient communication · 7.2 Rubber dam armamentarium and troubleshooting · 7.3 Endodontic tray setup and four-handed workflow · 7.4 Asepsis and the sterile field · 7.5 Hand instruments: broach, K-file, H-file, reamer · 7.6 Rotary adjuncts: Gates-Glidden and orifice openers

Core texts: [1] Ch. 7 (Tooth Morphology, Isolation and Access Preparation) · [2] chapter on isolation and armamentarium · [3] Ch. 5 · [4] chapters on instruments and isolation · [6] Chs. 10 and 14 · [19] for isolation in operative dentistry

Additional

- Ahmad IA. Rubber dam usage for endodontic treatment: a review. Int Endod J. 2009;42(11):963-72.
- Ahmed HMA, Cohen S, Levy G, Steier L, Bukiet F. Rubber dam application in endodontic practice: an update on critical educational and ethical dilemmas. Aust Dent J. 2014;59(4):457-63.
- Lin PY, Huang SH, Chang HJ, Chi LY. The effect of rubber dam usage on the survival rate of teeth receiving initial root canal treatment: a nationwide population-based study. J Endod. 2014;40(11):1733-7.
- Whitworth JM, Seccombe GV, Shoker K, Steele JG. Use of rubber dam and irrigant selection in UK general dental practice. Int Endod J. 2000;33(5):435-41.
- Walton RE. Current concepts of canal preparation. Dent Clin North Am. 1992;36(2):309-26.
- Department of Health. Health Technical Memorandum 01-05: decontamination in primary care dental practices. London: DH; 2013. Available from: https://www.gov.uk
- British Endodontic Society. A guide to good endodontic practice. London: BES. Available from: https://britishendodonticsociety.org.uk

Chapter 8 — Pain Control and Local Anaesthesia for Endodontics

8.1 Why inflamed pulps are harder to anaesthetise · 8.2 Infiltration vs block techniques · 8.3 Supplemental techniques: intraligamentary, intraosseous, intrapulpal · 8.4 Analgesics: NSAIDs and paracetamol; premedication concepts · 8.5 Emergency pain relief and referral

Core texts: [1] Ch. 6 (Pain Control) · [2] chapter on local anaesthesia · [3] Ch. 3 · [6] Ch. 7 · [29] Malamed, chapters on techniques and complications · [30] Meechan · [32]–[34] prescribing guidance

Additional

- Hargreaves KM, Keiser K. Local anesthetic failure in endodontics: mechanisms and management. Endod Topics. 2002;1(1):26-39.
- Nusstein JM, Reader A, Drum M. Local anesthesia strategies for the patient with a 'hot' tooth. Dent Clin North Am. 2010;54(2):237-47.
- Kung J, McDonagh M, Sedgley CM. Does articaine provide an advantage over lidocaine in patients with symptomatic irreversible pulpitis? A systematic review and meta-analysis. J Endod. 2015;41(11):1784-94.
- Aggarwal V, Singla M, Miglani S, Kohli S. Comparison of the anaesthetic efficacy of different volumes and concentrations of articaine and lidocaine for inferior alveolar nerve block. Int Endod J. 2012;45(11):1029-35.
- Reader A, Nusstein J. Local anesthesia for endodontic pain. Endod Topics. 2002;3(1):14-30.
- Aminoshariae A, Kulild JC, Donaldson M, Hersh EV. Evidence-based recommendations for analgesic efficacy to treat pain of endodontic origin: a systematic review of randomized controlled trials. J Am Dent Assoc. 2016;147(10):826-39.
- Scottish Dental Clinical Effectiveness Programme. Management of acute dental problems. Dundee: SDCEP. Available from: https://www.sdcep.org.uk

Chapter 9 — Access Cavity Preparation

9.1 Objectives: straight-line access, complete de-roofing, conservative pericervical dentine · 9.2 Pre-operative assessment · 9.3 Access designs by tooth type · 9.4 Pulp chamber floor anatomy and orifice location · 9.5 Canal scouting and negotiation · 9.6 Errors and prevention: gouging, missed canals, perforation · 9.7 Temporary restorations and coronal seal

Core texts: [1] Ch. 7 (Tooth Morphology, Isolation and Access Preparation) · [2] chapter on access cavity preparation · [3] Ch. 5 · [4] chapter on access · [6] Ch. 13 · [14] and [15] for chamber anatomy

Additional

- Patel S, Rhodes JS. A practical guide to endodontic access cavity preparation in molar teeth. Br Dent J. 2007;203(3):133-40.
- Krasner P, Rankow HJ. Anatomy of the pulp-chamber floor. J Endod. 2004;30(1):5-16.

- Clark D, Khademi J. Modern molar endodontic access and directed dentin conservation. Dent Clin North Am. 2010;54(2):249-73.
- Silva EJNL, Rover G, Belladonna FG, De-Deus G, da Silveira Teixeira C, da Silva Fidalgo TK. Impact of contracted endodontic cavities on fracture resistance of endodontically treated teeth: a systematic review of in vitro studies. Clin Oral Investig. 2018;22(1):109-18.
- Rover G, Belladonna FG, Bortoluzzi EA, De-Deus G, Silva EJNL, Teixeira CS. Influence of access cavity design on root canal detection, instrumentation efficacy, and fracture resistance assessed in maxillary molars. J Endod. 2017;43(10):1657-62.
- Kishen A. Mechanisms and risk factors for fracture predilection in endodontically treated teeth. Endod Topics. 2006;13(1):57-83.
- Fuss Z, Trope M. Root perforations: classification and treatment choices based on prognostic factors. Endod Dent Traumatol. 1996;12(6):255-64.

Chapter 10 — Working Length Determination

10.1 Definitions: working length vs canal length; apical constriction · 10.2 Radiographic working length method · 10.3 Electronic apex locators: principle, use and accuracy · 10.4 Preflaring and its impact on working length accuracy · 10.5 Consequences of over- and under-instrumentation

Core texts: [1] Ch. 8 (Cleaning and Shaping of the Root Canal System) · [2] chapter on cleaning and shaping · [3] Ch. 5 · [4] chapter on working length · [6] Ch. 14 · [22] for radiographic method

Additional

- Gordon MPJ, Chandler NP. Electronic apex locators. Int Endod J. 2004;37(7):425-37.
- Kuttler Y. Microscopic investigation of root apexes. J Am Dent Assoc. 1955;50(5):544-52.
- ElAyouti A, Weiger R, Löst C. Frequency of overinstrumentation with an acceptable radiographic working length. J Endod. 2001;27(1):49-52.
- Ricucci D, Langeland K. Apical limit of root canal instrumentation and obturation, part 2. A histological study. Int Endod J. 1998;31(6):394-409.
- Wu MK, Wesselink PR, Walton RE. Apical terminus location of root canal treatment procedures. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2000;89(1):99-103.
- Kim E, Lee SJ. Electronic apex locator. Dent Clin North Am. 2004;48(1):35-54.
- Stoll R, Betke K, Stachniss V. The influence of different factors on the survival of root canal fillings: a 10-year retrospective study. J Endod. 2005;31(11):783-90.

Chapter 11 — Cleaning and Shaping (Hand Instrumentation Emphasis)

11.1 Objectives: debridement, disinfection, shaping for obturation · 11.2 Glide path and canal negotiation · 11.3 Hand techniques: watch-winding, step-back, balanced force · 11.4 Taper and apical size selection · 11.5 Lubricants and chelators · 11.6 Curved canals: pre-curving and anti-curvature filing · 11.7 Procedural errors: ledge, transportation, zipping, perforation · 11.8 Instrument separation

Core texts: [1] Ch. 8 (Cleaning and Shaping of the Root Canal System) · [2] chapter on cleaning and shaping · [3] Ch. 5 (Root canal preparation) · [4] chapters on preparation techniques · [6] Ch. 14 · [35] recommendations on instrumentation

Additional

- Schilder H. Cleaning and shaping the root canal. Dent Clin North Am. 1974;18(2):269-96.
- Roane JB, Sabala CL, Duncanson MG Jr. The 'balanced force' concept for instrumentation of curved canals. J Endod. 1985;11(5):203-11.
- Abou-Rass M, Frank AL, Glick DH. The anticurvature filing method to prepare the curved root canal. J Am Dent Assoc. 1980;101(5):792-4.

- Peters OA. Current challenges and concepts in the preparation of root canal systems: a review. J Endod. 2004;30(8):559-67.
- Peters OA, Schönenberger K, Laib A. Effects of four Ni-Ti preparation techniques on root canal geometry assessed by micro computed tomography. Int Endod J. 2001;34(3):221-30.
- Parashos P, Messer HH. Rotary NiTi instrument fracture and its consequences. J Endod. 2006;32(11):1031-43.
- Panitvisai P, Parunnit P, Sathorn C, Messer HH. Impact of a retained instrument on treatment outcome: a systematic review and meta-analysis. J Endod. 2010;36(5):775-80.
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Chapter 12 — Irrigation and Canal Disinfection

12.1 Rationale: tissue dissolution, biofilm disruption, smear layer · 12.2 Sodium hypochlorite: mechanism, concentration, risks · 12.3 EDTA and smear layer removal · 12.4 Chlorhexidine: indications, limitations and interactions · 12.5 Delivery systems, needle types and agitation · 12.6 Irrigation protocols and the final rinse · 12.7 Complications and the hypochlorite accident

Core texts: [1] Ch. 8 (Cleaning and Shaping of the Root Canal System) · [2] chapter on irrigation and disinfection · [3] Ch. 5 · [6] Ch. 15 (Irrigants and Intracanal Medicaments) · [35] recommendations on irrigation

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Chapter 13 — Intracanal Medicaments and Inter-appointment Care

13.1 Indications for medicaments · 13.2 Calcium hydroxide: mechanism, placement and limitations · 13.3 Temporary sealing between visits: leakage, thickness and material selection · 13.4 Inter-appointment flare-up prevention

Core texts: [1] Ch. 8 and Ch. 18 (Management of Endodontic Emergencies) · [2] chapter on intracanal medicaments and temporisation · [3] Ch. 5 · [6] Ch. 15 · [35] recommendations on intracanal dressing

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Chapter 14 — Obturation Fundamentals

14.1 Objectives: the three-dimensional seal · 14.2 Gutta-percha: properties and handling · 14.3 Sealers: zinc oxide-eugenol, resin and calcium silicate · 14.4 Techniques: cold lateral condensation, single cone, warm vertical compaction · 14.5 Post-obturation evaluation: length, density, taper, voids and extrusion

Core texts: [1] Ch. 9 (Obturation of the Root Canal System) · [2] chapter on obturation · [3] Ch. 6 (Root canal filling) · [4] chapter on root filling · [6] Ch. 16 · [35] recommendations on root canal filling

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Chapter 15 — Post-Endodontic Restoration

15.1 Importance of coronal seal and immediate restoration · 15.2 Restorability assessment: remaining tooth structure, cracks, cusp coverage · 15.3 The ferrule concept · 15.4 Provisional vs definitive restoration timing · 15.5 Posts: indications, contraindications, fibre vs metal

Core texts: [1] Ch. 22 (Restoration of the Endodontically Treated Tooth) · [2] chapter on restoration of the treated tooth · [3] Ch. 7 · [6] chapter on post-endodontic restoration · [19] and [20] for operative principles · [21] ESE position statement

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Chapter 16 — Endodontic Emergencies

16.1 Symptomatic irreversible pulpitis: principles of emergency care · 16.2 Acute apical abscess: drainage concepts and occlusal reduction · 16.3 Antibiotics in endodontics: when indicated and when not · 16.4 Flare-ups: prevention and basic management

Core texts: [1] Ch. 18 (Management of Endodontic Emergencies) · [2] chapter on endodontic emergencies · [3] Ch. 3 · [6] Ch. 7 · [31]–[34] antibiotic and prescribing guidance · [35] recommendations on emergency management

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Chapter 17 — Trauma and Endodontics

17.1 Pulp responses to trauma: necrosis, calcific metamorphosis, resorption · 17.2 Crown fractures with pulp exposure and vital pulp therapy · 17.3 Luxation injuries: overview and referral thresholds · 17.4 Immature teeth: apexogenesis, apexification and referral triggers

Core texts: [1] Ch. 20 (The Role of Endodontics after Dental Traumatic Injuries) and Ch. 23 (Vital Pulp Therapy) · [2] chapter on management of traumatic injuries · [3] Ch. 4 · [6] Ch. 11 · [40]–[42] IADT guidelines · [39] revitalization statement

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Chapter 18 — Resorption

18.1 Internal resorption: causes, recognition and management concepts · 18.2 External resorption: inflammatory and cervical patterns, recognition and referral · 18.3 Radiographic differentiation

Core texts: [1] Ch. 17 (Root Resorption) · [2] chapter on resorption · [3] Ch. 9 · [6] chapter on resorption · [37] and [38] ESE position statements · [24] CBCT position statement

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Chapter 19 — Endo–Perio Relationship

19.1 Pathways: apical foramen, lateral canals, dentinal tubules · 19.2 Lesion patterns: primary endodontic, primary periodontal and combined · 19.3 Diagnostic approach: probing, vitality testing and radiographs · 19.4 Management principle: treat suspected primary endodontic disease first

Core texts: [1] Ch. 24 (Endo–Perio) · [2] chapter on endodontic-periodontal interrelationships · [3] Ch. 3 · [6] chapter on endodontic-periodontal lesions · [35] diagnostic recommendations

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Chapter 20 — Documentation, Consent, Quality and Professionalism

20.1 Endodontic records: diagnosis, tests, working length method, irrigants, obturation and restoration · 20.2 Consent and key risks · 20.3 Radiation protection principles for endodontic imaging · 20.4 Referral criteria

Core texts: [1] Ch. 19 (Iatrogenic Events, the Legal Standard of Care and Risk Management) · [3] Ch. 10 (Dento-legal aspects of endodontics) · [4] chapter on records and professional practice · [27] and [28] radiation protection · [44]–[48] professional standards and guidance

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