SAUDI BOARD RESIDENCY TRAINING PROGRAM

ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS

Promotion Examination

Written Examination Format:

- The written examination shall consist of one paper with no fewer than 100 multiple-choice questions (MCQs), each with a single best answer (one correct answer out of four options). Up to 10% unscored items may be added for pretesting purposes.
- The examination shall contain Type K2 questions (interpretation, analysis, reasoning, and decision-making) and Type K1 questions (recall and comprehension).
- The examination shall include basic concepts and clinical topics relevant to the specialty.
- Clinical presentation questions include history, clinical findings, and patient approach.Diagnosis and investigation questions include possible diagnoses and diagnostic methods.Management questions include treatment and clinical management, whether therapeutic or non- therapeutic, and complications of management. Materials and instruments questions include material properties, usage, and the selection of instruments and equipment used. Health maintenance questions include health promotion, disease prevention, risk factor assessment, and prognosis.

Passing Score:

The trainee's performance is assessed in each of the evaluation formulas according to the following scoring system:

Score	Less than 50%	50% – 59.4%	60% - 69.4%	More than 70%
Description	Clear Fail	Borderline Fail	Borderline Pass	Clear Pass

1. To upgrade the trainee from a training level to the next level, she/he must obtain at least a Borderline Pass in each evaluation domain .
2. The program director may recommend to the local supervision committee to request the promotion of the trainee who did not meet the previous promotion requirement according to the following:

A. In case that the trainee gets a Borderline Fail result in one of the evaluation forms, the remaining evaluation forms must be passed with Clear Pass in at least one of them.

B. In case that the trainee gets a Borderline Fail result in two of the evaluation forms to a maximum, provided they do not fall under the same theme (Knowledge, Attitude, Skills). The remaining evaluation forms must be passed with Clear Pass in at least two of them.

C. The promotion must be approved in this case by the scientific council for the specialization.

Blueprint Outlines:

No.	Sections	Percentage
1	Anteroposterior (Class II, Class III)	15%
2	Vertical and Transverse	20%
3	Treatment Rationale - Tissue Reactions to Tooth Movement - Retention	18%
4	Anchorage and Superimposition	12%
5	Speech, Swallowing, Respiratory, Soft Tissue and Habits	5%
6	Orthognathic Surgery	15%
7	Interdisciplinary Treatment and Adult Orthodontics Occlusion Temporomandibular Joint Disorders	15%
Total		**100%**

Note:

- Blueprint distributions of the examination may differ up to +/- 5% in each category.
- Percentages and content are subject to change at any time. Seethe SCFHS website for the most up-to-date information.
- Research, Ethics, Professionalism and Patient Safety are incorporated within various domains.

Suggested References:

Superimposition Methods

1. **Doppel DM, Damon WM, Joondeph DR, Little RM**. An investigation of maxillary superimposition techniques using metallic implants. American Journal of Orthodontics and Dentofacial Orthopedics. 1994;105(2):161–168.

2. **Nielsen IL.** Maxillary superimposition: A comparison of three methods for cephalometric evaluation of growth and treatment change. American Journal of Orthodontics and Dentofacial Orthopedics. 1989;95(5):422–431.
3. **Nguyen T, Cevidanes L, Franchi L, Ruellas A, Jackson T.** Three-dimensional mandibular regional superimposition in growing patients. American Journal of Orthodontics and Dentofacial Orthopedics. 2018;153(5):747–754.

Speech, Respiratory Function , and Obstructive Sleep Apnea

1. **Johnson NC, Sandy JR.** Tooth position and speech—is there a relationship? Angle Orthodontist. 1999;69(4):306–310.
2. **Warren JJ, Bishara SE.** Duration of nutritive and nonnutritive sucking behaviors and their effects on the dental arches in the primary dentition. American Journal of Orthodontics and Dentofacial Orthopedics. 2002;121(4):347–356.
3. **Proffit WR, Mason RM.** Myofunctional therapy for tongue-thrusting: background and recommendations. Journal of the American Dental Association. 1975;90(2):403–411.
4. **Behrents RG, Shelgikar AV, Conley RS, Flores-Mir C, Hans M, Levine M, McNamara JA, Palomo JM, Pliska B, Stockstill JW, Wise J.** Obstructive sleep apnea and orthodontics: an American Association of Orthodontists white paper. American Journal of Orthodontics and Dentofacial Orthopedics. 2019;156(1):13–28.

5. **Neelapu BC, Kharbanda OP, Sardana HK, Balachandran R, Sardana V, Kapoor P, Gupta A, Vasamsetti S.** Craniofacial and upper airway morphology in adult obstructive sleep apnea patients: a systematic review and meta-analysis of cephalometric studies. Sleep Medicine Reviews. 2017;31:79–90.
6. Flores-Mir C, Korayem M, Heo C, Witmans M, Major MP, Major **PW.** Craniofacial morphological characteristics in children with obstructive sleep apnea syndrome. Journal of the American Dental Association. 2013;144(3).

Tissue Reactions to Tooth Movement

1. **Weltman B, Vig KW, Fields HW, Shanker S, Kaizar EE.** Root resorption associated with orthodontic tooth movement: a systematic review. American Journal of Orthodontics and Dentofacial Orthopedics. 2010;137(4):462–476.
2. **Burnheimer JM, Baxter DJ, Deeley KB, Vieira AR, Bezamat M.** Exploring etiologic contributions to the occurrence of external apical root resorption. American Journal of Orthodontics and Dentofacial Orthopedics. 2024; Epub ahead of print.
3. **Bartzela T, Türp JC, Motschall E, Maltha JC.** Medication effects on the rate of orthodontic tooth movement: a systematic literature review. American Journal of Orthodontics and Dentofacial Orthopedics. 2009;135(1):16–26.
4. **Kindelan SA, Day PF, Kindelan JD, Spencer JR, Duggal MS.** Dental trauma: an overview of its influence on the management of orthodontic treatment. Part 1. Journal of Orthodontics. 2008;35(2):68–78.

Treatment Rationale

1. **Kokich VG.** Surgical and orthodontic management of impacted maxillary canines. American Journal of Orthodontics and Dentofacial Orthopedics. 2004;126(3):278–283.
2. **Kokich VG, Kokich VO.** Congenitally missing mandibular second premolars: clinical options. American Journal of Orthodontics and Dentofacial Orthopedics. 2006;130(4):437–444.
3. **Yezdani A, Nandhini N, Padmavati R.** Serial extraction in orthodontics: a review. European Journal of Molecular and Clinical Medicine. 2020;7(2):6432–6441.
4. **Kouvelis G, Dritsas K, Doulis I, Kloukos D, Gkantidis N.** Effect of orthodontic treatment with four premolar extractions compared with nonextraction treatment on the vertical dimension of the face: a systematic review. American Journal of Orthodontics and Dentofacial Orthopedics. 2018;154(2):175–187.
5. **Stephens CK, Boley JC, Behrents RG, Alexander RG, Buschang PH.** Long-term profile changes in extraction and nonextraction patients. American Journal of Orthodontics and Dentofacial Orthopedics. 2005;128(4):450–457
6. **Leonardi R, Annunziata A, Licciardello V, Barbato E.** Soft tissue changes following the extraction of premolars in nongrowing patients with bimaxillary protrusion: a systematic review. Angle Orthodontist. 2010;80(1):211–216.
7. **Kokich VG, Shapiro PA.** Lower incisor extraction in orthodontic treatment: four clinical reports. Angle Orthodontist. 1984;54(2):139–153.
8. **Vilhjálmsson G, Zermeno JP, Proffit WR.** Orthodontic treatment with removal of one mandibular incisor: outcome data and the importance of extraction site preparation. American Journal of Orthodontics and Dentofacial Orthopedics. 2019;156(4):453–463.
9. **Sarver DM.** The importance of incisor positioning in the esthetic smile: the smile arc. American Journal of Orthodontics and Dentofacial Orthopedics. 2001;120(2):98– 111.
10. **Choi KY.** Analysis of facial asymmetry. Archives of Craniofacial Surgery. 2015;16(1):1–10. doi:10.7181/acfs.2015.16.1.1.

Anchorage in Orthodontics: traditional, skeletal, and extraoral approaches

1. **Hodge JJ, Nanda RS, Ghosh J, Smith D.** Forces produced by lip bumpers on mandibular molars. American Journal of Orthodontics and Dentofacial Orthopedics. 1997;111(6):613–622.
2. **Park HS, Jeong SH, Kwon OW.** Factors affecting the clinical success of screw implants used as orthodontic anchorage. American Journal of Orthodontics and Dentofacial Orthopedics. 2006;130(1):18–25.
3. **Poggio PM, Incorvati C, Velo S, Carano A.** "Safe zones": a guide for miniscrew positioning in the maxillary and mandibular arch. Angle Orthodontist. 2006;76(2):191–197.
4. **Matias M, Flores-Mir C, Almeida MR, Vieira BS, Freitas KMS, Nunes DC, Ferreira MC, Ursi W.** Miniscrew insertion sites of the infrazygomatic crest and mandibular buccal shelf in different vertical craniofacial patterns: a cone-beam computed tomography study. Korean Journal of Orthodontics. 2021;51(5):387–396.
5. **Chen Y, Kyung HM, Zhao WT, Yu WJ.** Critical factors for the success of orthodontic mini-implants: a systematic review. American Journal of Orthodontics and Dentofacial Orthopedics. 2009;135(3):284–291.
6. **Song KT, Park JH, Moon W, Chae JM, Kang KH.** Three-dimensional changes of the zygomaticomaxillary complex after mini-implant–assisted rapid maxillary expansion. American Journal of Orthodontics and Dentofacial Orthopedics. 2019;156(5):653–662.
7. **Brosh T, Portal S, Sarne O, Vardimon AD.** Unequal outer- and inner-bow configurations: comparing two asymmetric headgear systems. American Journal of Orthodontics and Dentofacial Orthopedics. 2005;128(1):68–75.
8 **Papageorgiou SN, Kutschera E, Memmert S, Gölz L, Jäger A, Bourauel C, Eliades T.** Effectiveness of early orthopaedic treatment with headgear: a systematic review and meta-analysis. European Journal of Orthodontics. 2017;39(2):176–187.
9 **Bilbo EE, Marshall SD, Southard KA, Allareddy V, Holton N, Thames AM, Otsby MS, Southard TE.** Long-term skeletal effects of high-pull headgear followed by fixed appliances for the treatment of Class II malocclusions. Angle Orthodontist. 2018;88(5):530–537.

Class III Malocclusion: Diagnosis and Treatment

1. **Ghiz MA, Ngan P, Gunel E.** Cephalometric variables to predict future success of early orthopedic Class III treatment. American Journal of Orthodontics and Dentofacial Orthopedics. 2005;127(3):301–306.
2. **Iwasaki H, Ishikawa H, Chowdhury L, Nakamura S, Iida J.** Properties of the ANB angle and the Wits appraisal in the skeletal estimation of Angle's Class III patients. European Journal of Orthodontics. 2002;24(5):477–483.
3. **Foersch M, Jacobs C, Wriedt S, Hechtner M, Wehrbein H.** Effectiveness of maxillary protraction using a facemask with or without maxillary expansion: a systematic review and meta-analysis. Clinical Oral Investigations. 2015;19(6):1181– 1192.
4. **Liu W, Zhou Y, Wang X, Liu D, Zhou S.** Effect of maxillary protraction with alternating rapid palatal expansion and constriction versus expansion alone in maxillary retrusive patients: a single-center, randomized controlled trial. American Journal of Orthodontics and Dentofacial Orthopedics. 2015;148(4):641–651

Class II Malocclusion : Diagnosis, Timing & Treatment

1. **Patel HP, Moseley HC, Noar JH.** Cephalometric determinants of successful functional appliance therapy. Angle Orthodontist. 2002;72(5):410–417.
2. **Baccetti T, Franchi L, McNamara JA Jr.** The cervical vertebral maturation (CVM) method for the assessment of optimal treatment timing in dentofacial orthopedics. Seminars in Orthodontics. 2005;11(3):119–129.
3. **Tulloch JC, Proffit WR, Phillips C.** Outcomes in a two-phase randomized clinical trial of early Class II treatment. American Journal of Orthodontics and Dentofacial Orthopedics. 2004;125(6):657–667.
4. **O'Brien K, Wright J, Conboy F, Sanjie Y, Mandall N, Chadwick S, Connolly I, Cook P, Birnie D, Hammond M, Harradine N.** Effectiveness of early orthodontic treatment with the Twin-block appliance: a multicenter, randomized, controlled trial. Part 1: dental and skeletal effects. American Journal of Orthodontics and Dentofacial Orthopedics. 2003;124(3):234–243.

5 **Wieslander L.** Long-term effect of treatment with the headgear–Herbst appliance in the early mixed dentition: stability or relapse? American Journal of Orthodontics and Dentofacial Orthopedics. 1993;104(4):319–329.

6 **Burkhardt DR, McNamara JA Jr, Baccetti T.** Maxillary molar distalization or mandibular enhancement: a cephalometric comparison of comprehensive orthodontic treatment including the pendulum and the Herbst appliances. American Journal of Orthodontics and Dentofacial Orthopedics. 2003;123(2):108–116.
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9 **Cacciatore G, Ghislanzoni LT, Alvetro L, Giuntini V, Franchi L.** Treatment and posttreatment effects induced by the Forsus appliance: a controlled clinical study. Angle Orthodontist. 2014;84(6):1010–1017.

10 **Janson G, Leon-Salazar V, Leon-Salazar R, Janson M, de Freitas MR.** Long-term stability of Class II malocclusion treated with two- and four-premolar extraction protocols. American Journal of Orthodontics and Dentofacial Orthopedics. 2009;136(2):154.e1–154.e10.

11 **George SM, Campbell PM, Tadlock LP, Schneiderman E, Buschang PH.** Keys to Class II correction: a comparison of two extraction protocols. American Journal of Orthodontics and Dentofacial Orthopedics. 2021;159(3):333–342.

Transverse Discrepancy (Maxillary Expansion)

1. **Ghoneima A, Abdel-Fattah E, Hartsfield J, El-Bedwehi A, Kamel A, Kula K.** Effects of rapid maxillary expansion on the cranial and circummaxillary sutures. American Journal of Orthodontics and Dentofacial Orthopedics. 2011;140(4):510–519.
2. **Lagravere MO, Major PW, Flores-Mir C.** Long-term dental arch changes after rapid maxillary expansion treatment: a systematic review. Angle Orthodontist. 2005;75(2):155–161.

3. **Garib DG, Henriques JF, Janson G, Freitas MR, Coelho RA.** Rapid maxillary expansion—tooth tissue-borne versus tooth-borne expanders: a computed tomography evaluation of dentoskeletal effects. Angle Orthodontist. 2005;75(4):548–557.
4. **Marshall SD, Southard KA, Southard TE.** Early transverse treatment. Seminars in Orthodontics. 2005;11(3):130–139.
5. **Mucedero M, Fusaroli D, Franchi L, Pavoni C, Cozza P, Lione R.** Long-term evaluation of rapid maxillary expansion and bite-block therapy in open-bite growing subjects: a controlled clinical study. Angle Orthodontist. 2018;88(6):702–708.
6. **Marchetti C, Pironi M, Bianchi A, Musci A.** Surgically assisted rapid palatal expansion versus segmental Le Fort I osteotomy: transverse stability over a 2-year period. Journal of Craniomaxillofacial Surgery. 2009;37(2):74–78.

7. **Wilmes B, Tarraf N, Drescher D.** Treatment of maxillary transverse deficiency using a mini-implant-borne rapid maxillary expander and aligners in combination. American Journal of Orthodontics and Dentofacial Orthopedics. 2021;160(1):147–154.
8. **Garrett BJ, Caruso JM, Rungcharassaeng K, Farrage JR, Kim JS, Taylor GD.** Skeletal effects to the maxilla after rapid maxillary expansion assessed with cone- beam computed tomography. American Journal of Orthodontics and Dentofacial Orthopedics. 2008;134(1):8–9.
9. **Pinto AS, Buschang PH, Throckmorton GS, Chen P.** Morphological and positional asymmetries of young children with functional unilateral posterior crossbite. American Journal of Orthodontics and Dentofacial Orthopedics. 2001;120(5):513–520.

10. **Song KT, Park JH, Moon W, Chae JM, Kang KH.** Three-dimensional changes of the zygomaticomaxillary complex after mini-implant–assisted rapid maxillary expansion. American Journal of Orthodontics and Dentofacial Orthopedics. 2019;156(5):653–662.
11. **Suri L, Taneja P.** Surgically assisted rapid palatal expansion: a literature review. American Journal of Orthodontics and Dentofacial Orthopedics. 2008;133(2):290–302.

Vertical Discrepancy (Deep Bite, Open Bite, Vertical Skeletal Dysplasia)

1. **Khosravi R, Cohanim B, Hujoel P, Daher S, Neal M, Liu W, Huang G.** Management of overbite with the Invisalign appliance. American Journal of Orthodontics and Dentofacial Orthopedics. 2017;151(4):691–699.
2. **Sankey WL, Buschang PH, English J, Owen AH III.** Early treatment of vertical skeletal dysplasia: the hyperdivergent phenotype. American Journal of Orthodontics and Dentofacial Orthopedics. 2000;118(3):317–327.
3. **Al-Buraiki H, Sadowsky C, Schneider BJ.** Effectiveness and long-term stability of overbite correction with incisor intrusion mechanics. American Journal of Orthodontics and Dentofacial Orthopedics. 2005;127(1):47–55.
4. **Greenlee GM, Huang GJ, Chen SS, Chen J, Koepsell T, Hujoel P.** Stability of treatment for anterior open-bite malocclusion: a meta-analysis. American Journal of Orthodontics and Dentofacial Orthopedics. 2011;139(2):154–169.
5. **Vaden JL, Pearson LE.** Diagnosis of the vertical dimension. Seminars in Orthodontics. 2002;8(3):120–129.

6. **Turley PK.** Orthodontic management of the short face patient. Seminars in Orthodontics. 1996;2(2):138–153.
7. **Cangialosi TJ.** Skeletal morphologic features of anterior open bite. American Journal of Orthodontics and Dentofacial Orthopedics. 1984;85(1):28–36.

8. **Kusnoto B, Schneider BJ.** Control of the vertical dimension. Seminars in Orthodontics. 2000;6(1):33–42.

Retention, Relapse, and Long-Term Stability

1. **Zachrisson BU.** Important aspects of long-term stability. Journal of Clinical Orthodontics. 1997;31(9):562–583.
2. **Little RM.** Stability and relapse of dental arch alignment. British Journal of Orthodontics. 1990;17(3):235–241.

3. **Bishara SE.** Third molars: a dilemma! Or is it? American Journal of Orthodontics and Dentofacial Orthopedics. 1999;115(6):628–633.
4. **Melrose C, Millett DT.** Toward a perspective on orthodontic retention. American Journal of Orthodontics and Dentofacial Orthopedics. 1998;113(5):507–514.
5. **Al-Moghrabi D, Littlewood SJ, Fleming PS.** Orthodontic retention protocols: an evidence-based overview. British Dental Journal. 2021;230(11):770.

Interdisciplinary Treatment & Adult Orthodontics

1. **Fields HW Jr, Larson BE, Sarver DM, Proffit WR.** Special considerations in treatment for adults. In: Proffit WR, Fields HW Jr, Larson BE, Sarver DM, editors. Contemporary Orthodontics. 7th ed. St. Louis: Elsevier; 2026. p. 611–635.
2. **Melsen B, Luzi C.** Adult Orthodontics. 2nd ed. Oxford: Wiley-Blackwell; 2018.
3. **Fields HW Jr, Larson BE, Sarver DM, Proffit WR.** Clear aligners in adults. In: Proffit WR, Fields HW Jr, Larson BE, Sarver DM, editors. Contemporary Orthodontics. 7th ed. St. Louis: Elsevier; 2024. p. 710–728.
4. **Tai S.** Clear Aligner Technique. Berlin: Quintessence; 2018. Chapters 2, 3, 6.

5. Hamilton RS, Gutmann JL. Endodontic–orthodontic relationships: a review of integrated treatment planning challenges. International Endodontic Journal. 1999;32(5):343–360.
6. **Kokich VG, Spear FM.** Guidelines for managing the orthodontic–restorative patient. Seminars in Orthodontics. 1997;3(1):3–20.
7. **Mathews DP, Kokich VG.** Managing treatment for the orthodontic patient with periodontal problems. Seminars in Orthodontics. 1997;3(1):21–38.
8. **Liaw JJL, Park JH, Shih IY, Yang SYH, Liao WWT.** Creative biomechanics for complex cases. Seminars in Orthodontics. 2024;30(3):591–601. doi:10.1053/j.sodo.2024.06.001.

Orthognathic Surgery

1. **Proffit WR, White RP, Sarver DM.** Contemporary Treatment of Dentofacial Deformities. St. Louis: Mosby; 2003.

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3. **Sabri R.** Orthodontic objectives in orthognathic surgery: state of the art today. World Journal of Orthodontics. 2006;7(2):177–191.
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5. **Wolford LM, Karras SC, Mehra P.** Considerations for orthognathic surgery during growth. Part 1: mandibular deformities. American Journal of Orthodontics and Dentofacial Orthopedics. 2001;119(2):95–101.

Occlusion and Temporomandibular Disorders

1. **Okeson JP.** Management of Temporomandibular Disorders and Occlusion. 8th ed. St. Louis: Elsevier; 2019.

Note:

This list is intended for use as a study aid only. SCFHS does not intend the list to imply endorsement of these specific references, nor are the exam questions necessarily taken solely from these sources.