

Activity and material conditions required for obtaining the ORTHODONTICS specialty examination

1. Purpose of the postgradual training:

Dental medical doctor candidates in professional postgraduate training should become acquainted with the modern principles of orthodontics and facial orthopedic treatment, as well as the relevant domestic and international literature, using learning outcome-based methods.

With an evidence-based approach, they should be able to master modern diagnostic procedures and set up a correct treatment plan and collegial collaboration, taking into account interdisciplinary principles. Based on the treatment plan, they should be able to provide an adequate medical service, manage the characteristics and changes of the anomalies properly, and be able to retain the achieved result (retention) according to the professional protocols.

A further aim of the postgradual training is to carry out the work of the specialist in accordance with the professional guidelines, to take economic, ethical and legal (civil and criminal) responsibility for the results, and to direct patients to a center suitable for advanced care if needed.

2. Qualifications and conditions required to participate in the training:

Diploma in dentistry
(dental medical doctor)

3. Training duration:

36 months (26 months of basic training, 10 months of internship)

4. Personal and material conditions of the training:

A dental office accredited for orthodontic specialist training is suitable for postgraduate training if it can provide the professional and material conditions necessary to obtain the Orthodontic qualification during the postgradual practical training of the candidate and facilitates the candidate's preparation for the orthodontic specialist exam.

An orthodontic specialist can be a tutor if he/she has had a professional qualification and is practicing orthodontics for at least 5 years.

For the *orthodontic specialist examination*, in addition to the minimum conditions of the specialized dental practice (orthodontics), the necessary material means for the interventions forming the subject of practical training (e.g. CBCT, lateral and PA cranial wedge hardware / software, orthodontic forceps and other orthodontic devices, mouthpieces, etc.) must be provided. *Additional* recommended material conditions are as follows:

- Special camera with (ring)flash for taking extra- and intraoral photos
- Lupe
- Clinic sandblaster
- Gracey set
- Articulator, facial arch
- Digital scanner, 3D printer
- Mounting option for study samples

5. Detailed topics of training: based on 22/2012 (IX.14.) EMMI regulation:

Duration of training: 36 months

Training program: 26 months training time, mandatory elements:

- emergency knowledge
- 6 months practical course at the Semmelweis University Faculty of Dentistry, Department of Paedodontics and Orthodontics
- 10 months at an accredited private venue

6. List of orthodontic topics an intervention to be performed during the postgradual training required for admission to the specialty examination: indicator interventions

Knowledge to be acquired:

- the medical specialty of orthodontics, significance of orthodontics, and its relation with the oral health (caries and periodontal diseases)
- development and growth of the craniofacial complex
- normal and pathological development of teeth, the role and significance of permanent dentition in orthodontics, basic concepts and terminology of orthodontics
- etiology and pathogenesis of dental disorders
- interaction between function and dental anomalies
- timing of treatment initiation and duration, retention time, biological and mechanical-physical principles of orthodontic treatment
- biological and mechanical evaluation of tooth movement types, anchorage, law of action and reaction
- the principles of retention, the issue of relapse
- special issues in adult orthodontics
- complex multidisciplinary treatment of cleft lip and palate, the importance of teamwork for other craniofacial disorders, orthodontic care of patients with dental traumatic injuries
- orthodontic imaging procedures and other documentations, and their significance, general principles for treatment planning
- consequential diseases of caries and their treatment in primary dentition
- traumatic injuries of primary teeth
- consequential diseases of caries and their treatment in permanent dentition
- traumatic injuries of permanent teeth
- adult orthodontics-indication and general principles of pre-prosthetic, periodontal, surgical orthodontic treatment
- correlation between temporomandibular joint dysfunction and orthodontics
- airways, craniofacial development and malocclusion
- surgical orthodontic treatment of severe skeletal anomalies

Knowledge to be acquired and applied:

- a. Angle classification- evaluation, advantages, disadvantages, additional tests
- b. model-analysis
- c. role and significance of X-ray diagnosis
- d. cephalometric evaluations, measuring points and planes

- e. cephalometric evaluation methods (e.g.: Ricketts, Hasund)
- f. diagnosis of antero-posterior (sagittal) anomalies
- g. diagnosis of vertical anomalies
- h. diagnosis of transversal anomalies
- i. canine impaction and retention: diagnosis and treatment
- j. functional diagnostics, temporomandibular joint evaluation, muscle function abnormalities
- k. main groups of orthodontic appliances, historical survey of the orthodontic appliances
- l. general evaluation of the removable appliances: construction, advantages, disadvantages
- m. active and passive plates: evaluation, mechanism of action, construction
- n. functional orthopaedic appliances: indication, mechanisms of action
- o. simple fixed appliances: inclined bite plane, active or passive space maintainer
- p. fixed appliances: Hyrax, Goshgarian, lingual arch
- q. appliances with extraoral anchorage: chin cup, head-gear, reverse facebow
- r. direct-bonding; types and material of braces, locks forms, adhesive for braces
- s. multiband/multiband/multibracket systems; standard-edgewise, bending rules (3rd order bend)
- t. multiband/multiband/multibracket systems; twin-wire technique, light-wire technique
- u. multiband/multiband/multibracket; straight-wire technique, triple control braces (according to the bending rules)
- v. multiband/multiband/multibracket technique; Ricketts' bioprogressive system, quad-helix, utility-arch
- w. multiband/multiband/multibracket fixed techniques: Roth, Alexander, MBT
- x. types, profiles and characteristics of orthodontic arch wires
- y. general principles and possibilities of early treatment, prevention
- z. treatment possibilities during primary dentition
- aa. treatment possibilities during mixed dentition
- bb. treatment possibilities during permanent dentition
- cc. aligner systems
- dd. complex treatment of orthodontic anomalies combined with missing teeth
- ee. extraction as part of orthodontic treatment: generalities, indication and protocols.
Development control using the serial extraction (Hotz) method
- ff. ambulant surgical intervention for orthodontic purpose, methods of preventing relapse
- gg. complex treatment methods of cleft lip and palate
- hh. treatment principles of Angle I. anomalies; local manifestation forms (diastema medianum, dens supernumerarius, oligodontia, retention, cross bite, ectopic canine)
- ii. treatment principles of Angle I. anomalies; general manifestation forms (narrow arch, open bite, deep bite)
- jj. treatment principles of Angle II/1. anomalies
- kk. treatment principles of Angle II/2. anomalies
- ll. treatment principles of Angle III. anomalies
- mm. distractors
- nn. anchorage types, Temporary Anchorage Device (TAD's)
- oo. orthodontic treatment for retention purposes

Skills to be acquired: Candidates should be able to:

- pp. **diagnose** the complexity of dental/skeletal anomalies, including developmental disorders, hormone and metabolic disorders, syndromes etc.
- qq. **properly use diagnostic methods (occlusal diagnostics, X-ray, cephalometric diagnoses)**
- rr. **establish an adequate treatment plan (goal setting, treatment method, treatment time, retention)**
- ss. **demonstrate practical proficiency in using basic appliances and treatment techniques, to apply orthodontic diagnosis, medical and administrative management of treatment in practice** and carry out **epidemiological studies**. Candidates also should be familiar with treatment methods (orthodontic, surgical-orthodontic, pre-prosthetic, periodontal-orthodontic), types of appliances, and device techniques.
- tt. **organize the ergonomics of orthodontic treatments, have practical orthology skills**

Candidates also should have basic knowledge of **paediatric dentistry**.

Interventions to be carried out

<u>Intervention</u>	<u>Case number</u>
- Diagnosis and treatment planning (e.g.: OP, cephalometric evaluation, model-analysis, index-measurement etc.)	100
- Prevention and early treatment (e.g.: use of placeholders, getting rid of bad habits etc.)	7
- Treatment of Angle class I. anomalies, local manifestation forms (e.g.: single tooth crossbite / inclined bite plane/ median diastema, angulation etc.)	10
- Treatment of Angle class I. anomalies, general manifestation forms (e.g.: deep bite, open bite etc.)	5
- Treatment of Angle class II. anomalies (II/1, II/2)	20
- Treatment of Angle class III. anomalies	1
- Adult orthodontic treatment (e.g.: preprosthetic treatment etc.)	1
- Participation in dysgnathic surgery	2

Comment:

- 1. At least half of the cases have to be treated with a fixed appliance.*
- 2. In addition to treating their own patients, the candidates should take an active part in the day-to-day work of the practice.*

3. Detailed treating procedures should be part of the documentation.

* The system of requirements for additional subjects (Dentoalveolar surgery, Paedodontics, Endodontics, Prosthodontics, Periodontology) is included in the common training topics according to certain theoretical and practical performances.

The course of the practical exam:

- Completion of a test exam, in case of insufficient completion of which the exam cannot be continued
- Examination of the documentation of the cases selected by the examiner (minimum 2), on-site lateral X-ray evaluation (minimum one analysis: according to Ricketts, evaluation is done manually, digital software cannot be used), diagnosis and treatment planning, justification.
- Arch bending, description of device elements
- Out of the 9 personal, completed, finished cases prepared for the orthodontic specialist exam, to be presented at the practical part of the final examination as a PPT, with complete documentation, the candidate should present in detail two during the practical exam and one during the theoretical exam. The necessity of the latter may be considered by the Orthodontic Examination Board. Nevertheless, the Candidate must bring the 9 selected cases with him / her also to the theoretical part of the examination and, if any member of the Examination Board deems it necessary, present it on request. He/she also needs to answer theoretical questions.
- The case to be presented in the theoretical part of the professional examination can be triggered if the Candidate publishes at least one of the cases in the Hungarian Dental Journal (Fogorvosi Szemle), publication also accepted in English, or any other international journal with an impact factor, and the case presentation was accepted for publication after the standard evaluation process. If not yet under press, the acceptance email should be annexed as an auxiliary document. This does not apply to the presentation of a minimum of two own cases in the practical part.
- Only completed, finished cases can be presented during the practical and theoretical exam.

Basic required literature:

- Fábrián, Gábris, Tarján: Gyermekfogászat, fogsabályozás és állcsont-ortopédia - 2. kiadás, Semmelweis Kiadó 2015 (ISBN: 978-9-633-31341-1)
- Proffit et al: Contemporary Orthodontics – 6th Edition (ISBN:978-0-323-54387-3)
- Diedrich P: Kieferorthopädie I, II,III. PDZ 11/I,II,III, Urban & Fischer 2000 (ISBN: 3-437-05280-2)

Recommended literature:

- Nanda RS: Esthetics and Biomechanics in Orthodontics. Elsevier 2015 (ISBN: 978-1-4557-5085-6)
- Graber, Vanarsdall, Vig, Huang: Orthodontics. Current Principles and Techniques. Mosby 2016 (978-0-323.37832-1)
- Moyers R. handbook of orthodontics. 4th ed. Year Book Medical Publ. 1988 (ISBN: MO-4 0-8151-6003-8)
- Alexander RG: The Alexander Discipline. Long-Term Stability. Quintessence 2011 (ISBN: 978-0-86715-468-9)

- Melsen B: Adult Orthodontics. Wiley-Blackwell 2012 (ISBN: 978-14443-3675-7)
- Reháč G, Riskó R: Hasund orthodoncia. Savaria 2001 (ISBN: 963-00-4286-x)

- Trevisi H, Trevisi ZR: State-of-the-art Orthodontics. 2011 (ISBN:978-0-7234-3653-9)
- Cousley R: The Orthodontic Mini-implant Clinical Handbook. Wiley-Blackwell 2013 (ISBN: 978-1-1182-75993)
- Berkowitz S: Cleft Lip and Palate. Diagnosis and Management. Springer 2013 (ISBN: 978-3-442-30769-0)
- Jacobson A, Jacobson RL: Radiographic Cephalometry. From Basic to 3D Imaging. Quintessence 2006 (ISBN: 978-0-89715-461-0)
- Kapila SD: Cone Beam Computed Tomography in Orthodontics: Indications, Insights, and Innovations. Wiley-Blackwel 2014 (ISBN: 978-1-118-44848-9)
- Sander FG, Schwanzer N, Ehrenfeld M: Kieferorthopädie. Thieme 2011 (ISBN:978-3-13-593802-8)
- Wichelhaus A: Kieferorthopädie – Grundlegende Behandlungskonzepte. Thieme 2017 (ISBN: 978-3-13-241783-D)
- Schopf P: Curriculum Kieferorthopädie I-II. Quintessence 2008 (ISBN: 3-938-94765-9)

and orthodontic publications in domestic (Fogorvosi Szemle, Magyar Fogorvos, Orvosi Hetilap etc.) and international journals.

7. Competences and activities that can be acquired in the possession of the exam:

According to the levels and descriptors of the **Hungarian Qualifications System the Candidate is expected to show the following:**

Knowledge	Skill	Attitude	Autonomy, responsibility
In detail knowledge of development and growth of the cranio-facial region and the developmental and growth disorders of the area.	Professional use of the concepts of orthodontics and jaw orthopedics.	Aspiration to put the latest advances in orthodontics and jaw orthopedics into clinical practice	Taking professional and moral responsibility for the care provided by them
Familiarity with standard orthodontic documentation; and orthodontic diagnosis steps for setting up.	Ability to perform functional as well as TMJ and muscle function examination.		
	Analytic skills for digital or analog dental casts (space analysis, occlusion analysis etc.).		
Familiarity of imaging procedures used in diagnosis (e.g. bite	Use of lateral cephalometry (e.g. Ricketts, Bergen).		

recording, OPG, lateral X-ray, PA recording, CBCT).			
In detail knowledge of the biology of the area, the principles of tooth movement, and the types of tooth movement used during treatment.	Professional application of the principles of tooth movement in the treatment process.		
Familiarity with Angle's diagnostic system, advantages and limitations	Ability to identify sagittal, vertical and anomalies and to plan treatment accordingly.		Ability to make responsible decisions during treatment, reflection on the effectiveness of care provided
Comprehensive knowledge of dental and skeletal disorders. Awareness of indications, contraindications and complications of treatment.	Ability to assess the effects of treatment on teeth, periodontium, dental arches, jaws, masticatory system, and facial aesthetics.		Ability to perform treatment independently according to the rules of the profession. Ability to recognize cases beyond own professional competence, and adequate referral in such cases
Advanced knowledge of the types of anchorage, as well as the types and indications of anchorage planning.	Ability to determine anchorage need, and to use up-to-date anchorage devices for uncompromised results.		Responsibility to use competences to achieve state-of-the-art treatment results.
Ability to determine the treatment and selection of appliances to be used during therapy	Capability to create treatment plans and manage treatment accordingly.	Commitment to the continuous improvement of the quality of oral health services and dental care	
In detail knowledge of removable and fixed orthodontic appliances, their indication and contraindication.	Capability to deliver fixed appliance treatment (including wire bending, assembling the appliance and bonding appliances).		

Knowledge of principles of complex treatment of cleft lip and palate.		The candidate should consider the interests of patients to be binding on himself/herself.	Awareness of professional competence and its limits. Eg redirection of patients with cleft lip or palate to centers without delay.
Familiarity with the orthodontic preparation for orthognathic surgeries, principles and indications of surgical treatment	Ability to determine the adequate therapy of skeletal lesions and is ability to distinguish between the need for conservative treatment or orthognathic surgery.		Awareness of professional competence and its limits. Referral of surgical cases to care center at an early stage, without delay.
Awareness of principles of extraction-treatment, indication and realization	Ability to determine whether extraction therapy is required to treat the patient.	Realistic self-awareness and critical evaluation of own practices and treatments	During the course of practice the candidate should take full responsibility for their activity and decisions (which should be evidence based)
Knowledge of necessity of interdisciplinary modern care and its implementation (periodontology, dentoalveolar surgery, prosthetics, conservative dentistry).	Ability to recognize cases requiring interdisciplinary care and to manage complex care requiring interdisciplinary coordination.	Capability to do team-work and professional cooperation	
Familiarity with modern retention protocols and their application. (different treatment stages and ages).	Professional use of retainers and ability to control and correct the process.	Aspiration to provide a high level of care.	
Knowledge of the relationships between temporomandibular joint and occlusion, as well as the detrimental effects of occlusion abnormalities created naturally or artificially on the TMJ.	Awareness of the damaging effects to TMJ of improper occlusion as a result of orthodontic treatment and ability to prevent harmful side effects.		
Knowledge of traumatic injuries of	Awareness of the therapeutic principles		Provision of emergency dental care according

the head and neck.	of traumatically damaged teeth and ability to perform adequate treatment.		to the rules of the profession.
--------------------	---	--	---------------------------------

8. Defining the requirements for practical training places

Vocational training blocks can be completed at an accredited training center, which must meet the personal and material conditions described in point 4.

6 months of the 24 months of practice must be completed in a University orthodontics department.

The document was made by: Dr. Végh András /Budapest/, Dr. Segatto Emil, dr. Pinke Ildikó /Szeged/, Dr. Herényi Gejza /Pécs/, Dr. Borbély Péter /Debrecen/, Dr. Kaán László Miklós, Dr. Rózsa Noémi Katinka /Budapest/

Budapest, 15th November, 2018. Updated: 4th May, 2021



Dr. med habil Rózsa Noémi Katinka MSc, PhD

associate professor, secretary

Hungarian Society of Pediatric Dentistry and Orthodontics