

Goals and description of the Postgraduate Program in Orthodontics in Gothenburg

Background

In Gothenburg the postgraduate training in orthodontics is run and financed by the Public Dental Service, Region Västra Götaland, at the Specialist Clinic for Orthodontics. The clinic is located inside the building of the Institute of Odontology where also the undergraduate education run by the University of Gothenburg takes place.

Within the field of orthodontics, the university staff (professors and associate professors) are mainly involved in the undergraduate education, particularly in the theoretical part of the undergraduate education. Research is of course another task for the academic staff.

Mission-involvement in education of the Specialist Clinic for Orthodontics

The orthodontists at the Specialist Clinic for Orthodontics (Public Dental Service) are involved in various activities, beside patients' orthodontic care:

- Orthodontic care of patients with CLP and syndromes
- Supervision of undergraduate students' practical/clinical training
- Supervision and teaching of postgraduate training in orthodontics
- Training of orthodontic assistants on a national level

Program goals

The purpose of the postgraduate program is to prepare the resident to become a competent orthodontist, able to carry out any kind of orthodontic treatment in children and adults. Along with the development of technical skills, this demands a thorough understanding of general biological principles and function, as well as comprehension of the science of orthodontics. Furthermore, the graduate will learn to understand and critically evaluate literature related to orthodontics.

Additional aims are to expose the resident to experience in teaching and research, by e.g., being involved in the undergraduate training and working with a research project that should be amenable for publication.

The ambition of the program is to maintain a good balance between extensive clinical training on a broad variety of cases, an analytic approach to the orthodontic field seeking scientific evidence and experience of contemporary and updated clinical orthodontic tools.

Further ambition of the postgraduate program is to maintain a high standard of education on an international level.

Admission requirements

To be admitted to the postgraduate program in orthodontics the applicant must have earned a L.D.S. or an equivalent degree and have acceptable academic records and references. Additionally, a minimum period of two years of clinical practice in general dentistry is required.

Curriculum

The curriculum comprises six semesters (three academic years) of full-time training, 40 hours per week, including clinical activity, therapy planning meetings and theoretical parts of the program.

The program is based on approximately a total amount of 1 840 hours each year and is divided into roughly 50% theoretical training (including courses, treatment planning etc.) and 50% clinical training. See below for a description of the content.

The program is based on the guidelines of the Swedish Board of Health and Welfare (Sw. Socialstyrelsen) for specialisation in orthodontics from 2017 (HSLF-FS 2017:77). The program also follows the recommendations of the 1992 Consensus Curriculum in European Orthodontic Postgraduate Education and is a member of the Network of the Erasmus Based Orthodontic Postgraduate Programs (NEBEOP).

Theoretical courses

The program involves specific courses on various aspects of orthodontics as well as many other fields of odontology. The sources of knowledge are research articles, textbooks and well-substantiated clinical evidence. The seminar leader/lecturer, with their broad experience, act as a guide for the students in interpreting and examining controversies.

During the first year of the program the postgraduate student goes through an introductory theoretical course based on active discussion on the content of textbooks for instance "Contemporary Orthodontics", Proffit et al 2018; "Orthodontics, current principles and techniques", Graber et al 2011; and the "Fundamentals of orthodontic treatment mechanics", Bennett and McLaughlin 2014, under the guidance of a supervisor.

Clinical courses

Several practical courses are given on the clinical treatment of various oral and dental problems. The training includes different types of clinical techniques with removable/functional and fixed appliances.

Clinical practice

The clinical practice, 20-24 hours per week, is performed at the Specialist Clinic for Orthodontics in Gothenburg. The postgraduate student is responsible for the treatment of about 110-120 patients presenting a wide variety of malocclusions including:

- Class I cases with crowding (treated with and without extractions)
- Class II cases with crowding (treated with and without extractions)
- Class II cases with large overjet
- Deep bite and open bite cases with and without crowding
- Spacing
- Agenesis of lateral incisors, premolars, including those combined with other malocclusions
- Palatally and buccally impacted upper cuspid unilateral or bilateral open and closed exposure
- Class III cases (forced bite) in mixed dentition or early permanent dentition (interceptive)
- Surgery: open bite, class II, class III
- Adult cases, orthodontic treatment only or pre-prosthetic orthodontics
- If necessary interceptive cases in mixed dentition with crossbites (removable plate or Quad Helix) and anterior crossbites (removable plate, fixed appliance involving molars and incisors, cross elastics or Delaire face mask), class II with large overjet (activator) or mild crowding (EOT)

Most of the following treatment modalities/appliances are experienced during the postgraduate training: Fixed buccal SW appliance according to MBT treatment guidelines, the Goshgarian transpalatal bar (soldered), Quad Helix, Rapid maxillary expansion, intrusion arch, auxiliary arches, Forsus, Herbst (casted), EOT, Delaire face mask, Lingual technique (incognito), miniscrews for skeletal anchorage and mesialisation/distalisation of dental groups (Orthoeasy and Vector TAS systems), Invisalign, self-ligating

bracket system, EOT activator, removable appliances (expansion, protrusion of incisors, bite raising etc.) and cross-elastics.

The clinical practice is limited to orthodontics only.

Scientific literature seminars (Journal club)

12-16 seminars with evaluation and discussion of scientific literature within different areas of clinical orthodontics are held each year.

Clinical seminars

Treatment planning meetings together with the clinical faculty are held twice per week. The graduate presents most of his/her cases for discussion in these seminars.

Laboratory training

Methods, techniques and appliances are practiced in the lab and/or phantom heads before being applied on patients in the clinical practice: preparation of Essix splints and retainers made of twisted stainless-steel wires, preparation/grinding of Andresen and EOT activation, activation/adjustment of removable appliances, bending and adjustment of Goshgarian, Quad Helix and EOT, and wire bending for insertion in straight wire bracket system.

Research seminars

A series of research seminars is given on basic methods for conceiving a research project, writing a research protocol and implementing and carrying out a research task.

Clinical research

The graduate takes part in a clinical research project. The progress of the research project is reported in form of an oral presentation every year. A written report of this research project is handed in and evaluated.

Teaching experience

The graduate is trained in various forms of presentations of clinical and scientific topics and participates in the teaching of undergraduate students.

Evaluation and examinations

Oral test assessments are included in most of the theoretical courses. As part of the evaluation of the clinical progress, presentation of cases, critical analysis of scientific articles and presentation of seminars are carried out by the postgraduate student, either each semester or each year. In addition to that, the progress and performance is evaluated quarterly or both by the faculty members and by the graduate himself/herself.

Requirements for the Certificate in Orthodontics

To be allowed to take part in the final examination, the graduate must have successfully completed all theoretical and clinical courses given during the six semesters, as well as completed all written reports of the seminar series. A total of 30 fully treated orthodontic cases are selected by the graduate for evaluation and critical analysis by the program director and the external examiner.

The final examination of the graduate comprises the evaluation of the 30 documented cases. Of those, 15 cases are clinically assessed by a supervisor member of the faculty and an oral examination and evaluation of the research report is performed by an external examiner.

Upon successful completion of the examination, a Certificate of Specialisation in Orthodontics is issued.

Additional activities for each postgraduate student

Introduction course

- Contemporary Orthodontics; William R Proffit, 6th Edition, 2018
- Orthodontic Treatment Mechanics and the Preadjusted Appliances; John C Bennett, Richard P McLaughlin, 1st Edition, 1993
- Orthodontics: Current Principles and Techniques; 6th Edition, Graber et al, 2016
- Orthodontic Diagnosis and Treatment Planning; Per Johan Wisth and Kirsten Thunold
- Introduction to the Bergen Technique. A technical manual organized by Per Johan Wisth

Demonstration for and supervision of undergraduate students

Clinical supervision: 40 hours

Congresses

Attendance in one national/international congress during 2nd and 3rd year:

SOF (Svenska Ortodonti Föreningen) annual meeting

EOS (European Orthodontic Society Congress) annual meeting

AAO (American Orthodontic Association) annual meeting

Involvement in undergraduate training

Five full days or ten half-days during 2nd year

Consultations at general dentistry clinics, Public Dental Service

At least eight half-days during 2nd – 3rd year

Consultations at Clinic of Oro-facial pain

Two full days during 2nd year

Seminars prepared by the postgraduate student

1st year (Example of seminar topic: *Class II functional appliances*): 1,5 hours

2nd year (Example of seminar topic: *Orthodontic treatment and soft tissue changes*): 1 hour

3rd year (Example of seminar topic: *Treatment of impacted canines*): 1,5 hours

Journal clubs

Examples of literature/articles:

Abrahamsson C, Henrikson T, Nilner M, Sunzel B, Bondemark L, Ekberg EC.

TMD before and after correction of dentofacial deformities by orthodontic and orthognatic treatment. Int J Oral Maxillofac Surg. 2013 Jun;42(6):752-8

Al-Sibaie S, Hajeer MY. *Assessment of changes following en-masse retraction with miniimplants anchorage compared to two-ste retraction with conventional anchorage in patients with class II division 1 malocclusion: a randomized controlled trial.* Eur J Orthod. 2014 Jun;36(3):275-83

Afrand M, Ling CP, Khosrotehrani S, Flores-Mir C, Lagravère-Vich MO. *Anterior cranial-base time-related changes: A systematic review.* Am J Orthod Dentofacial Orthop. 2014 Jul;146(1):21-32

Jonathan Sandler, Alison Murray, Badri Thiruvengkatachari, Rodrigo Gutierrez, Paul Speight and Kevin O'Brien. *The effectiveness of 3 methods of anchorage reinforcement for maximum anchorage in adolescents; a 3-arm multicenter randomized clinical trial.* Am J Orthod Dentofac Orthop 2014;146:10-20

Follow-up cases

One 5-years retention control presentation

One 10-years follow-up case presentation

Observation at CLP clinic

Two full days during 3rd year

Research Project

During 1st year a research project is decided upon to be performed during 2nd and 3rd year. Preferably to be presented at an international congress during 3rd year.

Example: A comparison of treatment outcome between lingual and labial fixed orthodontic appliances (to be presented as a poster at EOS Stockholm)