

Master of Science in Periodontology (M.Sc.) 60 ECTS

This Master program is divided into 8 obligatory modules, four days each, that will be held in Paris, and 2 exams modules to be presented at the University delivering the master's degree.

Two Years Program - 60 Ects

One Year Program Leads to University Diploma in Periodontology – 30 Ects

Modules 1 & 2

Histology & Anatomy of the Periodontium, Classification & Treatments of Periodontal Diseases

The healthy periodontium

- Gingiva
- Periodontal ligament
- Root cement
- Alveolar bone
- Blood supply
- Lymphatic system of the periodontium
- Nerve supply to the periodontium

Definition and classifications of periodontal diseases

- Gingival diseases
- Plaque-induced gingival diseases
- Non plaque-induced gingival diseases
- Chronic periodontitis
- Aggressive periodontitis
- Periodontitis as a manifestation of a systemic disease
- Necrotizing periodontal diseases
- Periodontal abscess
- Periodontitis associated with endodontic lesions
- Congenital or acquired deformities

Epidemiology of periodontal diseases

- Basic terminology
 - o Incidence and prevalence
 - o Age and gender
 - o Patterns of progression
- Epidemiological risk factors of periodontitis
- Epidemiology of plaque-induced periodontal diseases
- Epidemiology of gingival recession
- Epidemiology of peri-implant diseases

Etiology and pathogenesis of periodontal diseases

- Development of pathogenic bacteria
- Periodontal pathogens (microorganisms)
 - o Immunology
 - o Non-specific immune response
 - o Specific immune response
 - o Direct microbe-induced tissue destruction
- Genetic polymorphisms
- Environmental factors associated with host susceptibility
- Biomechanical aspects

Systemic illness and its effect on the periodontium

- Metabolic and endocrine disorders
- Hematological disorders
- Congenital and hereditary general disorders
- Virus infection
- Fungal infection
- Mucocutaneous disorders
- Gastrointestinal disorders
- Drug-induced periodontal manifestations

Histopathology of periodontitis

- Gingival inflammation (gingivitis)
- The initial lesion
- The early lesion
- The established lesion
- The advanced lesion

Microbiology of periodontitis

- Dental plaque as a biofilm
 - o Definition, presence and composition of microbial biofilms
 - o Stages of microbial biofilm development
 - o Microbial communication in biofilms
 - o Presence of microbial biofilms
 - o Composition and structure of oral biofilms
 - o IPeriodontal pathogens

- Actinobacillus actinomycetemcomitans
- Porphyromonas gingivalis
- Prevotella intermedia
- Tannerella forsythensis
- Treponema denticola

Diagnostic microbiology

- Relevance of microbial etiology of periodontitis for the dental practice
 - Validity, sensitivity, specificity, cross reactions, predictive value
 - Microscopy
 - Bacteria cultivation
- Bacteriological DNA analysis
- Immunological assays
- Enzyme assays
- Biological susceptibility
 - Polymorphonuclear (PMN) leucocytes
 - Antibody titer
 - Monocyte reaction to lipopolysaccharides
- Components of sulcus fluid
 - Arachidonic acid metabolites
 - Cytokines
 - Collagenases

Diagnostic procedure for periodontitis patients

- Symptoms of periodontitis
- Clinical findings
- Extraoral findings
- Intraoral findings
- Functional findings
- Periodontal findings
 - Clinical periimplant diagnosis
 - Mucogingival findings
 - Oral hygiene
 - Pocket depth measurement
 - Measurement of the level of attachment
- Possible errors in periodontal probing
- Assessment of furcation involvement
- Assessment of tooth mobility
- Sounding
- Conventional periodontal diagnosis and its limitations
- Progress in traditional diagnostic procedures

- Pressure-calibrated, standardized probes
- Digital radiography

- Radiological findings
 - Panoramic x-ray
 - Dental film
 - Computerized tomography

Treatment planning

Treatment schedule

- Pre-phase – assessment of systemic health, oral hygiene
- Phase 1 – causal, antimicrobial, anti-infective treatment
- Phase 2 – surgical, corrective treatment
- Phase 3 – life-long prophylactic and anti-infective treatment

Plaque control at home

- Mechanical procedures
 - Toothbrushes
 - Brushing techniques
 - Hygiene of interdental spaces
 - Toothpastes

- Chemical procedures
 - Chlorhexidine
 - Volatile oils
 - Cetylpyridinium chloride (CPC)
 - Triclosan
 - Metal ions

Periodontal debridement

- Initial treatment
 - Hand instruments
 - Mechanical instruments and their use
 - Sonic scalers
 - Ultrasonic scalers
 - Technique using ultrasound-activated particles
 - Air abrasion polishing technique
 - Laser

- Antimicrobial photodynamic therapy (aPDT)

- Establishment of patient capability of oral hygiene
- Correction of iatrogenic stimuli

- Hand instruments for scaling and root planing
- Care of instruments
- Sickle scalers
- Universal curettes
- Area-specific curettes
- Manual sharpening of hand instruments
- Machine sharpening of hand instruments
- Options and limits of closed treatment

Concomitant anti-infective therapy – use of antibiotics in the treatment of periodontitis

Antibiotics – susceptibility and resistance of bacteria

Systemic versus local antimicrobial treatment

Workshop 1

- Oral microbiology and pathogenesis
- Decision as to whether treatment is required
- Use of devices supporting diagnosis, and their interpretation
- Clinical exercises associated with diagnosis and the documentation of findings
- Supragingival and subgingival tooth cleaning in a phantom including presentation explanation of instruments and sharpening course
- Classification of periodontal diseases
- Development of a treatment concept depending on the individual diagnosis
- Case presentation – decision-making

Workshop 2

- Basic principles of digital photography
- Practical exercises for intraoral photography
- Camera equipment
- Sources of light and lighting systems
- Cheek retractor systems and photographic mirrors
- Photo status
- Extraoral photography
- Documentation of dental treatment process
- Photography of soft tissues documentation of mucosal changes
- Intraoral camera
- Digital systems
- Quality analysis

Modules 3 & 4

Interdisciplinary Relationship, Periodontal surgeries, resective periodontology

Prosthodontic - Periodontal - Relationship

- Biological Width
- Functional Crown Lengthening
- Alternative Passive Eruption
- Aesthetic Crown Lengthening
- Pontic Design
- Prosthetic Design around Implants

Endodontic - Periodontal - Relationship

- Pulp influence on the periodontium
- Manifestation of endodontic lesions in the periodontium
- Effects of endodontic treatment on the periodontium
- External root resorption
- Influence of periodontal disease and periodontal treatment on pulp
- Endoperiodontal lesions

Periodontal wound healing

- Periodontal regeneration
- Periodontal repair
- Periodontal reattachment

- Complex factors influencing periodontal wound healing
- Mitogenic factors
- Signal transduction
- Extracellular matrix

- Conditioning of the root surface

- Regeneration of gingival connective tissue
- New formation of cementum
- Osseous remodeling
- Restoration of the periodontium with fibers inserting into the root surface

External/internal gingivectomy

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|---------------------|-----------------------|
| - Indications | - Approach |
| - Contraindications | - Follow-up treatment |
| - Instruments | - Prognosis |

Gingivoplasty

- Indications
- Contraindications
- Instruments
- Approach
- Electrotome gingivoplasty
- Follow-up treatment
- Prognosis

Apical advancement flap

- Biologic width
- Surgical crown lengthening
- Indications
- Contraindications
- Instruments
- Approach, osteoplasty
- Follow-up treatment
- Prognosis

Treatment of furcation defects

- Formation of multi-rooted teeth (furcation)
- Classifications
- Morphological basic terminology
- Structures in the area of furcation
- Treatment of furcations – aids to decision-making
- Resective treatment of furcations
- Root amputation and hemisection
- Premolarization
- Tunneling
- Regenerative treatment of furcations using guided tissue regeneration (GTR)

Workshop 3

- Surgical techniques in dental surgery - sutures
- Practical endodontic treatment – lecture and practical training
- Options and limits for dental restoration from an endodontic point of view

Workshop 4

Periodontological and surgical suture course

- Incisions, flap designs and various suture techniques

Exercises in surgical resective periodontitis therapy techniques on a pig's jaw

- Mucosal flaps
- Mucoperiosteal flaps
- Gingivectomy techniques
- Osteoplasty
- Ostectomy
- Distal excisions

Flap surgery

- Indications
- Contraindications
- Instruments
- Approach – various techniques
- Approach - modified Widman flap
- Follow-up treatment
- Prognosis

Distal wedge

- Indications
- Contraindications
- Instruments
- Approach
- Follow-up treatment
- Prognosis

Management of soft tissue and aesthetic aspects in periodontology and implantology

Regenerative periodontal surgery

- Defect anatomy
- Regenerative materials and techniques, overview and indication
- Withdrawal and processing of autogenic bone
- Root conditioning and bone replacement materials
- Autografts, allografts, xenografts

- Coronally displaced mucosal and mucoperiosteal flap surgery

- Guided Tissue Regeneration (GTR)
- Guided Bone Regeneration (GBR)
- Selection of normally used membranes
- Membrane placement

- Regeneration with growth and differentiation factors and proteins
- Regeneration using Emdogain

- Regenerative treatment of furcations using guided tissue regeneration (GTR)
- Adjuvant antibiotic therapy

Plastic and esthetic periodontal surgery

- Definition, discourse and differentiation of plastic periodontal surgery procedures
- Free mucosal graft
 - o Epithelialized and deepithelialized grafts
 - o Graft harvesting instruments
 - o Thickness and shaping of grafts
 - o Advantages and disadvantages of free mucosal grafts

- Connective tissue grafts
 - o Methods for connective tissue graft harvesting
 - o Nelson's technique

- Rotation flaps
- Advancement flaps

Periodontal recession defects

- Etiology of recession defects
- Classifications
- Surgical techniques for coverage of recession defects
- Free soft tissue graft
- Free mucosal graft
- Free connective tissue graft
- Pedicled advancement flap
- Lateral advancement flap
- Coronal advancement flap
- Semilunar flap
- Acellular dental matrix
- Enamel matrix proteins

Papillary defects

- Loss of papillary height – classification
- Possible solutions - conservative, prosthodontic, or surgical approach

Increasing keratinized tissue

- Indications
- Contraindications
- Instruments
- Approach
- Follow-up treatment
- Prognosis

Socket/ridge preservation

- Wound healing following tooth extraction
- Factors influencing healing of alveolar bone
- Bone atrophy following extraction
- Minimal invasive extraction methods
- Loss of soft tissue following extraction
- Immediate implantation
- Delayed immediate implantation
- Alveolar augmentation using autologous bone and bone replacement materials

Implants for successfully treated periodontitis patients

- Criteria for diagnosis and decision-making
- Treatment concepts and results
- Recall – management of implant problems

Periimplantitis

- Etiopathogenesis
- Diagnosis
- Prevalence
- Early periimplantitis
- Risk factors
- Therapy
- Decontamination
- Implantoplasty
- Soft tissue situation
- Preservative treatment

Periodontology and specialized orthodontics

- Specialized orthodontic tooth movement in adults following periodontitis
- Periodontal aspects in specialized orthodontic treatment of adults
- Orthodontic surgery
 - o Fibrotomy
 - o Frenotomy
 - o Elimination of gingival invaginations (clefts)
 - o Gingivectomy

Workshop 5

Regenerative procedures and periodontal plastic surgery

- Microsurgery techniques, augmentations
- Single and multiple recession defects

Exercises in regenerative and plastic periodontal surgery on a pig's jaw

- Coronally advanced flaps
- Laterally advanced flaps
- Tunneling techniques
- Connective tissue grafts
- Biomaterials

Workshop 6

Periodontological principles in implantology

- Socket preservation
- Biologic width
- Papilla preservation

Complication management

- Treatment of periimplant mucositis, periimplantitis

Surgical periimplantitis treatment

Module 7

Live Surgeries & Clinical training

Practical periodontology training

- Hygiene phase
- Re-evaluation after hygiene phase
- Maintenance therapy
- Resective and Regenerative Periodontal Surgery (flaps, suturing, etc.)
- Mucogingival surgery
- Recession Coverage
- White and pink esthetics
- Periodontal Plastic Surgery. Recession Coverage.
- Periimplant soft tissues
- Periimplant Plastic Surgery. Up-to-date Protocols and Materials
- Alveolar Ridge Preservation
- Bone Regeneration
- Vestibuloplasty, enlargement of keratinised tissues

Module 8

Master thesis and exam preparation

The master thesis is a scientific paper taking into consideration the relevant literature.

Presentation and discussion of Clinical cases

Dentists must present and discuss their own cases; Showing results of Perio Treatments and Surgeries done in their dental clinic on their own patients through during the 2 years of Master .