Undergraduate teaching in Periodontology at UiT – The Arctic University of Norway

Clinical teaching in Periodontology is organized, within the two main courses Clinical Dentistry part 1 (semesters 5 and 6) and Clinical Dentistry part 2 (semesters 8-10), in five semesters which will be outlined below.

General reading assignment:
The recommended textbook (which has actually evolved from a script that had been used for undergraduate teaching for more than a decade) is Mueller HP. Periodontology – The Essentials, 2nd ed. New York: Thieme; 2015. Voluminous textbooks, such as Newman MG, Takei H, Carranza FA, editors. Carranza’s Clinical Periodontology, 12th ed. St. Louis: Saunders Elsevier; 2014; and Lindhe J, Lang NP, editors. Clinical Periodontology and Implant Dentistry, 6th ed., Oxford: Wiley-Blackwell; 2015, which even comes in two volumes (Basic Concepts and Clinical Concepts) are highly recommended reference books and available in several copies at the University Library at the Faculty of Health Sciences. They are mainly useful for postgraduate studies as additional sources possibly complementing the vast original literature. For undergraduate students, certain chapters of either book might be of special interest and recommended accordingly.
Semester 5 (5 h lectures, 7 h seminars, 21 h practical sessions)

Lectures

1. Introduction in Periodontology (2 h)

Learning goals:
After having attended the lecture, students should be able

• to recognize that Dentistry and Periodontology have been practiced for millennia in human history
• to name important scientists involved in solving periodontal problems since the Middle Ages and, in particular, in the 20\textsuperscript{th} century and beyond
• to comprehend the unique situation of teeth penetrating soft tissue barriers for the development of various diseases including those affecting periodontal tissues
• to explain why dental treatment is usually complex involving, e.g., surgical, periodontal, operative, or restorative procedures which are done during well-defined treatment phases
• to distinguish and describe cause-related from corrective periodontal treatment, and measures for maintenance of periodontal health

Reading assignment:
Mueller HP. Periodontology – The Essentials, 2\textsuperscript{nd} ed., New York: Thieme; 2016

2. Classification of periodontal diseases

Learning goals:
After having attended the lecture, students should be able

• to explain the possible influence of local factors on plaque-induced gingival diseases
• to list possible hormonal factors modifying plaque-induced gingival disease
• to list certain medications frequently leading to gingival enlargement
• to understand that gingival diseases may be caused by bacteria, viruses and fungi unrelated to dental plaque and list a few examples
• to recognize that certain muco-cutaneous disorders may affect the oral mucosa
• to explain the current differentiation between chronic and aggressive periodontitis
Reading assignment:


3. Clinical diagnosis

Learning goals:
After having attended the lecture, students should be able
- to realize the need for a multilevel periodontal diagnosis taking into account the subject, the tooth and the site
- to outline different diagnostic test systems used in the clinic to describe the severity of gingival inflammation and periodontal destruction and amount of bacterial deposits
- to know the appropriate pressure for measuring periodontal probing depth and clinical attachment level and how to calculate it from probe diameter and probing force
- to comprehend the importance of taking risk factors furcation involvement and tooth mobility into account in order to reasonably assess tooth prognosis
- to describe what is meant by extent and severity of periodontal disease at the subject level

Reading assignment:

4. Dental plaque and calculus

Learning goals:
After having attended the lecture, students should be able
- to identify dental plaque as a biofilm
- to realize that biofilm infections differ from common acute and chronic infections in that the causing bacteria are situated on solid surfaces
- to describe properties of a typical biofilm including bacterial interaction, a primitive circulatory system and information exchange
- to describe the successive formation steps of dental biofilms from the first colonizers to a climax community
- to realize that supra and subgingival dental calculus differ in composition and formation
Reading assignment:

Seminars (7 h)

Seminars and practical sessions in semester 5, which will be held in the simulation clinic, are part of the Propaedeutic course.

Reading assignment:

1. Basic principles of cause-related periodontal therapy

Learning goals:
After having attended the seminar, students should be able
• to realize that any dental treatment commences with addressing the main cause of dental disease, i.e., dental plaque and calculus
• to specifically outline aims and means of cause-related therapy
• to describe how patients may be motivated and instructed in proper oral hygiene
• to describe the certain strategies of systematic toothbrushing and interdental cleaning
• to list the necessary steps during supra and subgingival scaling

2. Introduction of periodontal scalers

Learning goals:
After having attended the seminar, students should be able
• to describe the design of a typical periodontal scaler, for instance, the mini sickle scaler
• to outline where the use of the mini sickle scaler may be indicated and where not
3. Supragingival scaling, polishing

*Learning goals:* After having attended the seminar, students should be able
- to describe how a scaler is held and activated during supragingival scaling
- to explain why tooth surfaces have to be polished after scaling
- to explain why fluoride has to be applied in appropriate concentration after polishing

4. Introduction of periodontal curettes

*Learning goals:* After having attended the seminar, students should be able
- to describe the design of a universal curette, for instance the Syntette, and to outline where the use of the Syntette may be indicated
- to describe the design of area-specific curettes, for instance Gracey curettes
- to list Gracey curettes provided in the student clinic and in which respective areas they are used

5. Advanced subgingival scaling techniques

*Learning goals:* After having attended the seminar, students should be able
- to describe how a curette is held and activated during subgingival scaling
- to outline why traditional scaling methods may fail to be effective in removing all subgingival bacteria
- to explain why alternative scaling techniques may be more effective in removing bacterial deposits from subgingival areas and to describe them in some detail

6. Introduction of ultrasonic instruments

*Learning goals:* After having attended the seminar, students should be able
- to describe advantages and disadvantages of hand instrumentation and ultrasonic scalers
- to explain that loss of tactile sensitivity when scaling with ultrasonic instruments generally finishing with hand instruments
• to detail infection control problems and how they are to be solved when using ultrasonic scalers

7. Sharpening of periodontal instruments

*Learning goals:* After having attended the seminar, students should be able
• to describe in detail the special design of any scaler and curette and outline how cutting edges are identified
• to explain why it is necessary to maintain the shape of scalers and curettes
• to detail the necessary steps when sharpening scalers and curettes

Practical sessions (21 h)

Currently, scaling is exercised in two pairs of Frasaco models equipped with silicone “gingiva”. Supra and subgingival bacterial deposits are simulated with water-soluble wall paint. Periodontal probing is done first, from the bone crest to the gingival margin, at six sites per tooth. A dental hygiene model is used to exercise supragingival scaling. The periodontitis model Zurich is scaled first without gingiva, then after models have been equipped with gingiva.

*Learning goals:* After having completed the practical sessions in the simulation clinic, students should be able
• to independently and to a reasonable degree of excellence conduct scaling and root planing in a set of periodontally affected models in manikins
• independently and to a reasonable degree of excellence conduct sharpening of periodontal scalers and curettes
Semester 6 (6 h lectures, 3 h seminars, 9 h practical sessions)

Lectures

1. Periodontal therapy within comprehensive dental care (1 h)

Learning goals:
After having attended the lecture, students should be able
- to explain why cause-related therapy is necessary in any patient with dental problems
- to describe necessary measures during the hygienic phase (Phase I, cause-related therapy) and to formulate a respective treatment plan

Reading assignment:

2. Review of the anatomy of the periodontium (1 h)

Learning goals:
After having attended the lecture, students should be able
- to describe the development of the periodontium as part of tooth development
- to describe the different soft and hard tissues of the periodontium and explain why they are considered a developmental, biological and functional unit
- to describe the enamel organ, its cells and derivatives; the dental papilla, its cells and derivatives, and the dental follicle, its cells and derivatives
- to outline when and how acellular extrinsic fiber cementum is deposited on the root surface
- to list the different oral mucosa varieties and explain specific peculiarities as regards epithelium, senses, lamina propria and submucosa
- to differentiate various zones of gingiva and describe its appearance in different ethnicities
- to describe different varieties of root cementum, their main location and functional properties
- to describe the composition of the periodontal ligament, its innervation, blood and lymphatic supply
- to describe the alveolar bone proper as part of the periodontium
- to explain the physiology of the periodontium and its different tissue components as regards turnover and remodeling, defense mechanisms, and repair and possibilities of regeneration.
Reading assignment:

3. Microbiology of periodontal disease (2 h)

Learning goals:
After having attended the lecture, students should be able
- to explain in their own words how highly conserved and variable regions in the genome of bacteria may be used for the identification of so far unknown species
- to realize that this technology has revolutionized our understanding of the breadth of cultivable and yet not cultivable oral microflora
- to name a few beneficial and, for the periodontal tissues, pathogenic bacteria
- to describe why and how Koch’s postulates have been weakened in order to identify periodontal pathogens
- to explain the line of evidence which has led to the current opinion of a certain clone of Aggregatibacter actinomycetemcomitans of being a true/exogenous pathogen

Reading assignment:

4. Pathogenesis of periodontal diseases (1 h)

Learning goals:
After having attended the lecture, students should be able
- to explain the current paradigm of the pathogenesis of periodontitis beginning with the initial, early and established lesions in the gingiva and advanced stages of periodontal tissue destruction
- to describe gingival infiltrates in normal gingiva, the initial, early and established lesions and explain the progression into the advanced lesion under the current paradigm
- to explain the fact that not the bacteria residing on the tooth surface are responsible for periodontal tissue destruction but mainly pro-inflammatory cytokines and mediators which may activate catabolic mechanisms

Reading assignment:
5. Supportive periodontal therapy (1 h)

Learning goals:
After having attended the lecture, students should be able
- to outline why the quality of scaling and root planing can hardly be assessed in the same session but needs to be reevaluated after a couple of weeks allowing healing of the tissues
- to list various clinical parameters which are supposed to improve after cause-related therapy
- to explain what is meant by clinical attachment gain as compared to true attachment gain
- to realize that a number of risk factors operating at the site, the dentition and the subject level determine whether periodontal disease recurs
- to consider modification of certain risk factors during periodontal therapy
- to outline planning and conducting of a recall session

Reading assignment:

Seminars (3 h)

Reading assignment:
Mueller HP. Periodontology – The Essentials, New York: Thieme; 2005, chapters 7, 10

1. Examination, recording and charting

Learning goals:
After having attended the seminar, students should be able
- to realize that periodontal disease has to be diagnosed at the site, tooth and subject levels
- to comprehend the need for recording several causal and clinical parameters of periodontal disease
- to describe how patients are to be examined in a most effective way
2. Disclosing and recording plaque, motivation and instruction in oral hygiene measures

Learning goals:
After having attended the seminar, students should be able
- to describe the tools for motivation and instruction in oral hygiene
- to explain objective measures of the individual oral hygiene level and ways how this information may be conveyed to the patient in order to improve oral hygiene
- to describe reasonable ways of patient instruction in oral hygiene measures in simple words

3. Scaling with hand instruments, ultrasonic debridement

Learning goals:
After having attended the seminar, students should be able
- describe why hand instrumentation is essential in removing plaque and calculus from tooth and root surfaces
- describe advantages and disadvantages of ultrasonic scalers
- explain the aims of tooth polishing and topical fluoridation as a final step of an oral prophylaxis session

Practical sessions (9 h)

Students are conducting periodontal examination and oral prophylaxis session on fellow students, and record and chart the findings in groups of 3. There will be three 3-hr sessions when students are simulating successively a “dentist”, a “patient”, and a “dental assistant”.

Learning goal:
After having completed the practical sessions in the student clinic, students should be able
- to independently and to a reasonable degree of excellence conduct an oral prophylaxis session including periodontal examination, recording and charting, motivation and instructions in oral hygiene using simple words; and scaling/root planing (if needed) and polishing/fluoride application
Semester 8 (13 h lectures, 1 h seminar, 3 h practical sessions)

Lectures

1. Chronic and aggressive periodontitis (1 h)

*Learning goals:*
After having attended the lecture, students should be able
- to describe the clinical and radiological characteristics of chronic and aggressive periodontitis
- to explain differences between the two diseases as regards age, the relative importance of bacterial deposits, specific bacteria, and the host response
- to distinguish prevalence, extent and severity of chronic and aggressive periodontitis
- to outline basic principles of treating chronic periodontitis and explain why a different approach is necessary in aggressive periodontitis.

*Reading assignment:*

2. Acute periodontal infections (1 h)

*Learning goals:*
After having attended the lecture, students should be able
- to describe the different forms and clinical characteristics of necrotizing periodontal diseases (NUG/P)
- to outline differential diagnoses such as trauma or herpetic gingivostomatitis
- to list risk factors of necrotizing ulcerative gingivitis
- to outline diagnostic and therapeutic steps in a patient with NUG/P
- to differentiate gingival from periodontal abscesses
- to list possible anatomical factors related to a periodontal abscess
- to explain, step by step, treatment of a periodontal abscess.

*Reading assignment:*
3. Risk factors for periodontal disease (2 h)

Learning goals:
After having attended the lecture, students should be able
  • to describe the different lines of evidence for dental plaque causing periodontal disease and to provide certain classic examples
  • to compare poor oral hygiene as a risk factor for periodontal disease with other acquired and behavioral risk factors
  • to list some of the established risk factors for periodontitis and explain how they might be addressed in order to reduce prevalence of the disease
  • to illustrate the fact that risk factors may operate at the site, the tooth, and the subject level by giving respective examples
  • to explain how this information can be used to assess an individual’s risk for disease recurrence.

Reading assignment:

4. Indications for periodontal surgery (1 h)

Learning goals:
After having attended the lecture, students should be able
  • to explain why various anatomical access problems may be an indication for periodontal surgery
  • to formulate a reasonable classification of bony periodontal lesions
  • to describe the different classification systems of periodontal lesions in multirooted teeth
  • to list medications which might result in gingival enlargement which in turn might represent an indication for gingivectomy
  • to describe what is meant by the periodontal phenotype.

Reading assignment:
5. Gingivectomy and surgical crown lengthening (1 h)

*Learning goals:*
After having attended the lecture, students should be able

- to list rare indications and contraindications for gingivectomy
- to describe, step-by-step, the procedures during gingivectomy
- to realize that healing may be prolonged demanding close postoperative care
- to list possible indications for and explain caveats of electrosurgery
- to describe what is meant by the biological width and explain possible consequences when violating it during restorative procedures
- to list some indications for surgical crown lengthening and describe the procedures.

*Reading assignment:*

6. Access flaps (1 h)

*Learning goals:*
After having attended the lecture, students should be able

- to recall the long history of flap surgery in Periodontics giving some pertinent examples
- to realize that tissue preservation is nowadays a hallmark of most procedures in periodontal surgery
- to describe the different incisions described in the modified Widman flap procedure
- to list different methods for suturing in periodontal surgery
- to describe all necessary measures for postoperative care
- to realize that periodontal surgery in plaque-infected dentitions is contraindicated because of deleterious results.

*Reading assignment:*

7. Special flaps (1 h)

*Learning goals:*
After having attended the lecture, students should be able

- to identify indications for different flap designs such as the distal wedge procedure, as well as apically and coronally repositioned flaps
- to identify needs for surgical papilla preservation and measures how to do so
• to describe the procedures of different flap designs and possible treatment outcomes
• to describe special suturing measures such as horizontal, vertical and combined mattress suture.

Reading assignment:

8. Wound healing (1 h)

Learning goals:
After having attended the lecture, students should be able
• to describe tissue reactions during the main phases of wound healing after injury and surgery in general
• to recognize the extremely delicate situation of hard and soft periodontal tissues which demands special attention after periodontal surgery in order to achieve proper results
• to give examples how the periodontal wound might be stabilized after surgery
• to distinguish between different healing results as they may depend on which of the various periodontal tissues come into contact with the tooth surface
• to give examples of certain surgical strategies aiming in the exclusion of epithelial cells and gingival connective tissue during wound healing in order to allow progenitor cells in bone and the periodontal ligament to proliferate and lead to new connective tissue attachment
• to realize that NNT (number needed to treat) of 9 to achieve one additional site with 2 mm or more attachment gain (in the case of enamel matrix derivative, Emdogain) signals a hardly relevant advantage of an adjunct treatment.

Reading assignment:

9. Assessment of treatment outcomes (1 h)

Learning goals:
After having attended the lecture, students should be able
• to describe why the effect of any periodontal treatment can only be assessed during re-evaluation of the clinical situation
• to identify suitable measures for assessing gingival inflammation, plaque levels, attachment and bone gain after therapy
to properly interpret clinical findings of probing depth reduction, attachment and bone gain
- to describe possible adverse effects of periodontal surgical and non-surgical therapy and make reasonable suggestions how to deal with them in a clinical setting
- to describe when and why severe periodontal disease may lead to the extraction of the affected teeth and why irrational treatments should be avoided.

Reading assignment:

10. Periodontitis as risk factor for systemic disease (1 h)

Learning goals:
After having attended the lecture, students should be able
- to explain the current paradigm of systemic inflammation and its role in the pathogenesis of cardiovascular and cerebrovascular diseases
- to describe possible pathways how inflammatory periodontal diseases may contribute to overall systemic inflammation
- to put into perspective the results of recent meta-analyses which considered confounding factors and rather indicated a low to moderate risk of periodontitis for CVD and other chronic complex diseases
- to describe the possible causal association between periodontitis and low birth weight
- to describe the two-way relationship between periodontitis and diabetes mellitus

Reading assignment:

11. Diagnosis, etiology, and epidemiology of furcation involvement (1 h)

Learning goals:
After having attended the lecture, students should be able
- to describe the morphology of the root complex of single- and multi-rooted teeth
- to recognize the root cone as basic element of any root and describe certain consequences as regards root grooves, root separation, and root canals
• to give examples of how separation degree and root divergence may have consequences as regards treatment of periodontal lesions in multi-rooted teeth
• to list different enamel structures on root cementum and explain their origin
• to describe where cellular mixed stratified cementum is mainly found and why it may cause problems if bacterially colonized
• to describe the common classification system for furcation involvement after Hamp et al. (1975)

Reading assignment:
Mueller HP. Periodontology – The Essentials, 2nd ed., New York: Thieme; 2015, chapters 1, 5, 6

12. Conventional and resective treatment of furcation-involved teeth (1 h)

Learning goals:
After having attended the lecture, students should be able
• to explain why conventional non-surgical and surgical treatments of furcation-involved teeth usually lead to only transient improvements
• to realize considerable access problems for root debridement in case of advanced furcation involvement
• to list endodontic and iatrogenic indications for root resection
• to outline why root resection/hemisection may be able to solve the problem of advanced furcation involvement
• to differentiate, based on tooth type, when root resection and when hemisection may be indicated
• to outline possible indications for a tunnel preparation and describe the treatment goal
• to describe contraindications for tunnel preparation
• to describe, step-by-step, how resective measures are done in a clinical setting

Reading assignment:

Seminar (1 h)

Reading assignment:
Müller HP. Handbook of periodontal surgery, IKO, UiT

Flap management and suturing in sheep mandibles
Learning goals:
After having attended the seminar, students should be able

- to explain the sheep’s dentition and certain peculiarities as regards masticatory and lining mucosa in sheep mandibles
- to understand some basic principles of periodontal flap management

Practical session (3 h)
Students are conducting various simple periodontal surgical methods on sheep mandibles, for instance different access flaps, the apically repositioned flap, coronally repositioned flap after periosteal dissection, gingivectomy, mucogingival surgery etc. Different sutures are exercised as well, for instance circular sutures, continuous sutures, periosteal sutures (vertical mattress suture), horizontal mattress sutures.

Learning goal:
After having completed the practical sessions in the Anatomy Institute, students should be able

- to explain the different surgical instruments in the periodontal surgical tray
- to explain the information printed on a suture package
- to get a feeling of how mucoperiosteal flaps can be raised in order to get access to bacterially colonized root surfaces
- to do small area gingivectomy
- to do circular, periosteal, mattress, and continuous sutures
Semester 9 (8 h lectures, 1 h seminar, 5 h practical sessions)

Lectures

1. Periodontal regeneration (2 h)

Learning goals:
After having attended the lecture, students should be able
- to outline differences between wound healing outcomes repair and regeneration
- to list prerequisites for contemporary tissue engineering
- to differentiate between periodontal re-attachment, new attachment and clinical attachment
- to recognize that different periodontal tissues have largely different proliferation rates after setting a periodontal wound and give respective examples
- to explain functional properties of membranes in periodontal regeneration
- to name still largely limited indications for guided tissue regeneration and give examples for its many contraindications
- to name possible future developments including enamel matrix derivatives
- to realize that application of either guided tissue regeneration or enamel matrix derivatives provide only moderate evidence for possible but rather limited additional gains of clinical attachment

Reading assignment:

2. Diagnosis, etiology, and epidemiology of gingival recession (1 h)

Learning goals:
After having attended the lecture, students should be able
- to distinguish between primary causes and predisposing factors of gingival recession
- to describe various degrees of gingival recession by employing the classification after Miller (1985)
- to list the different features of the periodontal phenotype and explain why they might be of importance in the development and treatment of recession

Reading assignment:
3. Mucogingival surgery (2 h)

*Learning goals:*
After having attended the lecture, students should be able
- to describe various possible indications for surgical widening of the zone of keratinized tissues around teeth and implants
- to describe the procedures when placing a free gingival graft
- to describe wound healing phases after a free gingival graft is placed
- to list indications for surgical root coverage and describe various approaches in detail
- to differentiate various zones of the hard palate as regards a possibility to harvest a connective tissue graft

*Reading assignment:*

4. Trauma from occlusion (1 h)

*Learning goals:*
After having attended the lecture, students should be able
- to define certain conditions under which trauma from occlusion may occur
- to list tissues which might be affected by trauma from occlusion
- to differentiate between primary occlusal trauma from secondary occlusal trauma
- to outline tissue responses in the periodontal ligament and alveolar bone proper to occlusal trauma in case of periodontal health without and with bone loss and severe periodontal disease
- to put into perspective results from animal experimentation as compared to clinical studies and to realize that the former do not provide high level evidence for an important role of occlusal trauma in periodontal disease

*Reading assignment:*

5. Occlusal therapy (1 h)

*Learning goals:*

19
After having attended the lecture, students should be able
- to make a differential diagnosis as regards suspected occlusal trauma and identify conditions which might need occlusal therapy
- to put into perspective tooth mobility and explain, when teeth should be splinted
- to outline different means by which deleterious occlusal forces might be avoided or distributed among teeth

Reading assignment:

6. Periodontitis as manifestation of systemic disease (1 h)

Learning goals:
After having attended the lecture, students should be able
- to differentiate between chronic and aggressive periodontitis and to explain why it makes sense to differentiate a category Periodontitis as Manifestation of Systemic Disease
- to recognize that certain hematological and genetic disorders may lead to severe periodontitis, sometimes even in childhood
- to list a few genetic disorders which are associated with severe periodontitis in the primary dentition
- to list acquired systemic diseases which increase the susceptibility for periodontitis drastically
- to describe major periodontal alterations in the course of certain cases of leukemia
- to explain how certain defects of the first and second line of defense may have deleterious effects on the periodontium

Reading assignment:

Seminar (1 h)

Reading assignment:
Discussion of student cases scheduled for periodontal surgery

Learning goals:
After having attended the seminar, students should be able
- to explain the different scheduled procedures in their own patients
- to understand that careful postoperative care is required in order to achieve an optimal treatment result

Practical session I (3 h)

Students are conducting more advanced periodontal surgical methods on sheep mandibles, for instance membrane placement for guided tissue regeneration in infrabony and furcation defects; connective tissue grafts, free gingival grafts etc. Different sutures are exercised as well, for instance sling sutures, continuous sutures, periosteal sutures (vertical mattress suture), horizontal mattress sutures.

Learning goal:
After having completed the practical sessions in the Anatomy Institute, students should be able
- to trim commercially available membranes for guided tissue regeneration
- to secure membranes and connective tissue grafts with sling sutures
- to get an idea of how mucoperiosteal flaps can be raised in order to cover synthetic membranes or connective tissue grafts
- to differentiate free gingival grafts from connective tissue grafts and place the former in artificially created wound bed for increasing vestibular depth

Practical session II (2 h)

After having observed/assisted in various periodontal surgical operations by clinical instructors, students are eventually supposed to conduct simple periodontal surgical measures including careful postoperative care.

Learning goals:
After having completed the practical sessions, students should be able
- to conduct small area gingivectomy procedures
- to raise periodontal flaps in order to gain access to bacterially colonized root surfaces
- to apply circular and, if indicated, vertical and horizontal mattress sutures
• to accomplish, if indicated, resective furcation therapy such as tunnel preparation, and hemisection and root amputation
Semester 10 (7 h lectures)

Lectures

1. Host modulation in periodontal therapy (1 h)

*Learning goals:*
After having attended the lecture, students should be able
- to recall that the host response to the bacterial challenge is mainly responsible for periodontal tissue destruction which may offer novel treatment strategies
- to identify possible areas of interest where modulation of host response might have an effect on inflammation/bone metabolism
- to exemplify triclosan as an antimicrobial in toothpaste which also reduces gingival inflammation and to explain the possible mechanism
- to identify the inhibitory effect of tetracycline and its derivatives on tissue matrix metalloproteases as possible pharmaceutical action in the treatment of periodontal diseases
- to realize that bisphosphonates may increase the risk of osteonecrosis after oral surgery
- to name certain vitamins which may be useful as supplements in order to reduce gingival inflammation

*Reading assignment:*

2. Periimplant diseases (1 h)

*Learning goals:*
After having attended the lecture, students should be able
- to differentiate between and list characteristics of peri-implant diseases affecting peri-implant mucosa and those affecting the supportive bone, and their correlates as regards teeth
- to realize that peri-implant diseases are widespread among patients provided with oral implants
- to outline treatment strategies based on clinical and radiographic findings for peri-implant diseases
• to recognize certain conditions which comprise relative and absolute contraindications for dental implants
• to explain why careful maintenance is important in patients with dental implants and how a recall hour is preferably arranged

Reading assignment:


3. Medical information transfer into practice (2 h)

Learning goals:
After having attended the lecture, students should be able
• to explain what is meant by the evidence pyramid
• to define evidence-based medicine (EBM)
• to explain how EBM can be implemented in daily practice for decision making
• to recognize that analogy thinking disregarding strong evidence from clinical studies is usually misleading in decision making
• to entertain how a common problem (consider, for instance, a patient’s question about periodontitis and its effect on heart disease) is dealt with by using medical data bases

Reading assignment:


4. Antibiotic policy in periodontal therapy (2 h)

Learning goals:
After having attended the lecture, students should be able
• to explain why topical antibiotics play only a minor role in periodontal treatment due to the wide presence of periodontal pathogens in the oral cavity
• to explain when and by which means adjunct topical or systemic antibiotics are prescribed in cases of chronic and aggressive periodontitis
• to outline which antibiotics are excreted into saliva in relation to achievable serum levels so that extraoral habitats are affected as well
• to explain why treatment of peri-implantitis might require the adjunct application of both topical and systemic antibiotics

Reading assignment:

5. Periodontal therapy in general dental practice (1 h)

Learning goals:
After having attended the lecture, students should be able
• to define the problem of, based on current trends in epidemiology, probably underdiagnosed and undertreated periodontal disease in Northern Norway
• to explain why dental hygienists, general dental practitioners and specialized periodontists need to cooperate in order to provide periodontal treatment according to patients’ needs
• to outline the different treatment phases of a comprehensive treatment plan of a complex case and explain when and how periodontal treatment is implemented
• to recognize the importance of supportive periodontal therapy for maintaining function and esthetics of the dentition
• to recall and explain aims and means of a periodontal recall session

Reading assignment:
Mueller HP. Periodontology – The Essentials, 2nd ed., New York: Thieme; 2015, chapters 6, 7, 10, 11, 12

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