ALTAMASH INSTITUTE OF DENTAL MEDICINE
(JINNAH SINDH MEDICAL UNIVERSITY)

BDS Third Year
Periodontology
Study Guide

Introduction:

Periodontology is the specialty of dentistry that encompasses the prevention, diagnosis and treatment of diseases of the supporting and surrounding tissues of the teeth or their substitutes and the maintenance of the health, function and aesthetics of these structures and tissues. Periodontitis (gum disease) is considered one of the most common inflammatory diseases worldwide. In order to prepare our students for the challenges they will face during their practice as dentists, it is of utmost importance to give them an all-round and comprehensive knowledge of periodontology so that they can perform their professional duties to a high standard, as the subject is intended to provide a sound and intensive knowledge about the basic principles of the etiology, progression and pathology of periodontal tissue as well as the diagnosis and management of periodontal disease. Learning Periodontology provides dental students the opportunity to help patients and, potentially, positively impact wider health status of our society, since emerging evidence links periodontitis to other chronic health conditions.

Outcome:

After this course, the students will be able to perform periodontal screening of patients, reach a definitive diagnosis, and perform basic as well as advanced management of periodontal diseases.

Teaching and learning:

- Flipped Classroom (FC)
- Interactive lectures (IL)
- OPD Demonstrations (OPD Demo)
- Tutorials
    a. Cased Based Learning (CBL)
    b. Small Group Discussion and Demonstrations (SGD & SG Demo)

Assessment tools:

1. Multiple Choice Questions: (MCQs)
    - One Correct Type
    - One Best Type
2. Mini Clinical Examination (MiniCEx)
3. Logbook scoring

4. Observed Structured Clinical Examination (OSCE)

s.no.	Topic	Course Objectives: By the end of the course, 3rd year students will be able to:	Teaching method	Assessment Tool
1.	External Anatomic Features of Oral Cavity	• Discuss external anatomic features related to the periodontium. • Describe types of oral mucosa and their characteristics.	IL SGD	MCQS
2.	Gingiva	• Discuss the macroscopic and microscopic features of gingiva (epithelium and connective tissues). • Discuss the development of gingiva. • Describe the blood supply, nerve supply and lymphatics of gingiva.	SGD	MCQS
3.	Periodontal Ligament	• Describe structure, cellular composition and extracellular components of PDL. • Discuss the development of principal fibers of PDL. • Describe the blood supply, nerve supply and lymphatics of the PDL. • Describe the various functions of PDL. • Describe the changes in the PDL space in different clinical	IL SGD	MCQS

		conditions.		
4.	Cementum	• Classify different types of cementum. • Describe composition, functions, vascularization, innervation and characteristics of cementum. • Describe the structures involved in cemento-enamel and cemento-dentinal junction. • Describe the phenomena of cemental resorption and repair.	IL SGD	MCQS
5.	Alveolar Bone	• Discuss the various parts and composition of alveolar bone. • Differentiate between fenestration and dehiscence. • Differentiate between the periosteum and endosteum. • Discuss the process of remodeling and resorption of alveolar bone. • Describe the blood supply, nerve supply and lymphatics of alveolar bone.	IL SGD	MCQS
6.	Periodontal Changes with Aging	• Describe the general age changes and those in the periodontium. • Discuss the effects of aging on progression of periodontal diseases.	IL SGD	MCQS

		• Discuss the effects of treatment on aging individual.		
7.	Classification System of Periodontal Diseases	• Describe the rationale to classify periodontal diseases • Classify periodontal diseases according to the current classifications (1999 - 2017). • Describe the characteristic features of gingival and periodontal diseases.	CBL	MCQS
8.	Epidemiology of Gingival and Periodontal Disease	• Define epidemiology and index. • Classify different types of epidemiologic research. • Describe the purpose and use of an index. • Discuss the characteristics of an ideal index. • Discuss the various indices used to assess periodontal diseases.	IL	MCQS
9.	Periodontal Microbiology (Dental Plaque)	• Define a biofilm. • Discuss dental plaque, its formation and clinical significance • List the microorganisms associated with various periodontal diseases.	IL SGD	MCQS
10.	Calculus and other Etiological Factors	• Define calculus. • Differentiate between different types of calculi, with regard to their compositions and	IL	MCQS

		formation. • Describe calculus as a pathogenic potential in periodontal disease. • Describe various etiological factors contributing to gingival and periodontal diseases. • Discuss features of various extrinsic and intrinsic stains seen on tooth surfaces.		
11.	Host Response: Basic Concepts	• Discuss the role of saliva, gingival epithelium and gingival crevicular fluid in the host defense mechanism. • Discuss the process of inflammatory cell response and immunologic response in the host defense mechanism.	IL	MCQS
12.	Trauma From Occlusion	• Describe the physiologic adaptive capacity of periodontium to occlusal force. • Discuss the various types of trauma from occlusion. • Describe the histologic changes from trauma due to occlusion. • Describe the pathologic tooth migration phenomena.	IL CBL	MCQS
13.	Role of Systemic Diseases	• Describe the dietary and nutritional aspect of periodontal disease.	CBL	MCQS

		• Discuss the effects of hematologic, metabolic and endocrine disorders on periodontium. • Describe the effect of cardiovascular diseases on periodontium. • Describe the effects of antibody deficiency disorders on periodontium.		
14.	Oral Malodor	• Classify halitosis. • Discuss the etiology of halitosis. • Diagnose halitosis based on history, clinical examination and relevant investigations. • Manage patients presenting to the dental clinic with oral malodor.	IL SGD	MCQS
15.	Pathogenesis of Periodontal Diseases	• Describe the role of bacterial invasion, exotoxins, cellular constituents and enzymes in causing periodontal disease. • Describe the evasion of host response in causing periodontal disease. • List the host derived bone resorbing agents.	CBL	MCQS
16.	Periodontal Medicine	• Describe the era of focal infection.	CBL	MCQS

		• Discuss the association between periodontal disease and the following disorders/conditions: o CHD o Atherosclerosis o IHD o Thrombogenesis o Stroke o Diabetes mellitus; o Pregnancy; o COPD; o Acute respiratory infection. • Discuss the role of periodontal medicine in clinical practice.		
17.	Smoking and Peroiodontal Diseases	• Describe the effects of smoking on prevalence, severity, etiology and pathogenesis of periodontal diseases and periodontal therapy	CBL	MCQS
18.	Defense Mechanisms	• List the various defense mechanisms of the gingiva. • Describe the structure of the gingival crevice. • Discuss the significance of the gingival sulcus and vasculature • Discuss the composition and clinical significance of, and the effects of drugs on crevicular fluid. • Describe the methods of	CBL	MCQS

		collection of sulcular fluid. • Discuss gingival fluid with regard to periodontal therapy		
19.	Clinical Features of Gingivitis	• Describe salient features of the initial, early, established and advanced lesions of gingivitis. • Classify different types of gingivitis. • Discuss the clinical features of different types of gingivitis. • Discuss gingival bleeding on probing. • Describe the changes in position of gingiva in gingivitis.	IL CBL	MCQS
20.	Gingival Enlargements	• Classify gingival enlargement. • Discuss the various inflammatory and non-inflammatory enlargements of gingiva and those associated with systemic diseases/conditions. • List different neoplastic conditions of gingival enlargement. • Describe the false enlargement of gingiva.	CBL	MCQS
21.	Acute Gingival Infections	• Classify various acute gingival lesions. • Discuss acute necrotizing ulcerative gingivitis, acute	IL CBL	MCQS

		herpetic gingivostomatitis and pericoronitis.		
22.	Periodontal Disease in Children and Young Adolescents	• Classify periodontal diseases in children. • Describe histopathology and microbiology of periodontal disease in children. • Discuss candidiasis, Prepubertal and juvenile periodontitis and those associated with syndromes.	SGD	MCQS
23.	Desquamative Gingivitis	• Discuss the diagnosis of desquamative gingivitis. • Describe the clinical features and histopathology of various forms of desquamative gingivitis. • Describe the therapy of desquamative gingivitis. • Describe diseases clinically presenting as desquamative gingivitis.	IL SGD	MCQS
24.	Periodontal Pocket	• Classify different types of periodontal pockets. • Discuss clinical features, pathogenesis, histopathology and treatment of periodontal pocket. • Describe features of a periodontal cyst.	FC	MCQS

		• Measure pocket depth in patients presenting with periodontal complaints in the dental OPD.		
25.	Bone Loss Patterns and Bone Destruction	• Discuss the structure of alveolar bone. • Discuss the mechanism of alveolar bone formation and destruction. • Describe the factors determining alveolar bone morphology in periodontal disease. • Describe the prevalence and distribution of bone defects.	CBL	MCQS
26.	Chronic Periodontitis	• Discuss chronic periodontitis and its diagnostic criteria. • Compare different types of chronic periodontitis based on disease distribution and severity. • Describe the nature of progression of chronic periodontitis. • Describe the risk factors of chronic periodontitis.	IL SGD	MCQS
27.	Aggressive Periodontitis	• Discuss localized and generalized aggressive periodontitis.	IL SGD	MCQS
28	Necrotizing Ulcerative	• Discuss various types of	SGD	MCQS

.	Periodontitis,Refractory Periodontits	necrotizing ulcerative and refractory periodontitis.		
29.	Periodontitis as a Manifestation of Systemic Diseases and Aids	• Discuss periodontitis as a manifestation of systemic disease. • Classify periodontal diseases associated with HIV infection. • Formulate a plan of management of AIDS and HIV associated periodontitis.	IL SGD	MCQS
30.	Diagnosis of Periodontal Disease	• Discuss the diagnosis of periodontal diseases based on recommended principles. • Maintain records of patients presenting to dental OPD with periodontal complaints. • Discuss the risk factors, markers and indicators of periodontal disease. • Plan the clinical risk assessment for periodontal disease. • Describe various periodontal probes, conventional probes and PSR. • Discuss the following aids used in periodontal diagnosis: o Radiographic (OPG, Xeroradiography, Advanced radiographic techniques- Iodine,	FC	MCQS

		Photo densitometric analysis, Digital radiography o Microbiologic; o Immunological (Immunofluorescence, Latex agglutination, Elisa, Flow Cytometry); o Biochemical o Miscellaneous (BANA test, FSEIA, PCR).		
31.	Determination of Prognosis	• Discuss different types of prognosis. • Discuss the factors responsible for determination of prognosis. • Explain the relationship between diagnosis and prognosis. • Discuss the re-evaluation of prognosis after phase I therapy.	IL SGD	MCQS
32.	Rational For Periodontal Treatment Plan	• List the objectives of periodontal therapy. • List various local and systemic factors which affect healing. • Describe the Healing phenomena after periodontal therapy. • Describe the sequence of therapeutic Procedures. • Describe the preferred sequence	FC	MCQS

		of periodontal therapy through a mind map.		
33.	Periodontal Armamentarium	• Describe the instruments used in periodontology. • Classify Periodontal Instruments.	IL SGD	MCQS
34.	Principles of Periodontal Instrumentations,Scaling and Root Planing	• Describe the clinician and patient positions for various periodontal treatments. • Discuss visibility, illumination and retraction in periodontal procedures. • Describe the importance of maintaining a clean field during periodontal procedures. • Describe the importance of instrument stabilization (instrument grasp, finger rest). • Explain the procedure of instrument activation. • Describe the principles of scaling and root planing. • Describe the working of ultrasonic instruments.	FC	MCQS
35.	Plaque Control	• Discuss the goals and rationale for plaque control. • Describe various basic approaches for plaque control. • Describe mechanical and chemical plaque control	IL SGD	MCQS

		methods.		
36.	Principles of Periodontal Surgery	• Explain the indications, contraindications and general principles for periodontal surgery. • Describe the complications during periodontal procedures and first post-operative week.	CBL	MCQS SAQS
37.	Gingival Curettage	• Classify different types of gingival curettage. • Discuss the rationale, indications and various procedures of gingival curettage. • Discuss the phases of healing after scaling and curettage.	IL CBL	MCQS
38.	Gingivectomy	• Classify gingivectomy • Describe the prerequisites, indications, contraindications and different types of gingivectomy.	CBL	MCQS
39.	Periodontal Flap	• Classify different types of flaps. • List the indications and objectives of flap surgery. • Define a periodontal flap. • Discuss different types of incisions. • Describe different flap techniques for pocket therapy. • Describe the phases of healing	IL CBL	MCQS

		after flap surgery.		
40.	Osseous and Mucogingival Surgery	• Define osseous and mucogingival surgery. • Discuss the rationale and different types of osseous surgery. • List the examination prior to resective surgery. • List the indications and contraindications of resective osseous surgery and mucogingival surgery. • Describe the phases of healing after resective osseous surgery. • Discuss the reconstructive osseous surgery. • Explain the various mucogingival problems. • Describe various techniques to increase width of attached gingiva. • Describe the classification, indications and procedures of root coverage by conventional flaps. • Describe subepithelial connective tissue graft and its modification. • Explain the guided tissue regeneration technique for root	IL CBL	MCQS

		coverage. • Describe the procedure of frenectomy.		
41.	Furcation Involvement and Its Management	• Classify different grades of furcation involvement. • Discuss etiology, clinical features, prognosis and treatment of furcation involvement.	SGD	MCQS
42.	Pulpoperiodontal Problems	• Classify pathways of communication between pulp and periodontium. • Describe the effects of pulp disease on periodontium. • Describe the effects of periodontitis on pulp. • Classify endo-perio lesions. • Describe microbiological findings, diagnosis and treatment of endo-perio lesions.	FC	MCQS
43.	Splints and Role of Orthodontics in Periodontal Therapy	• Differentiate between dental and periodontal splinting. • Classify splints. • Discuss the objectives, principles, indications, contraindications, advantages and disadvantages of splinting. • Discuss the rationale, indications and contraindications of orthodontic	CBL	MCQS

		treatment in periodontal therapy. • Explain the timing of orthodontic procedure in periodontal treatment. • Discuss the iatrogenic effect associated with orthodontic treatment. • Describe the response of periodontal ligament to orthodontic forces.		
44.	Periodontal Restorative Inter-Relationship	• Discuss the relationship of periodontium with the following; o margins of restoration, o crown contour, o hypersensitivity to dental material, o proximal contacts	IL SGD	MCQS
45.	Drugs Used in Periodontal Therapy	• Describe the drugs used in periodontal therapy.	IL SGD	MCQS
46.	Host Modulation	• Discuss the host-modulation therapy. • Describe the drugs (with regimen) used for host-modulation.	SGD	MCQS
47.	Peri-Implant Anatomy,Biology and Function	• Discuss the implant design, characteristics of implant surface and the biology of	CBL	MCQS

		Osseo integration • Describe the interface between implants and soft tissues • Discuss the functional aspects of Osseo integrated dental implants		
48.	Clinical Evaluation of Implant Patient	• Discuss the clinical aspects of dental implant therapy including assessment of possible risk factors and contra indications • Discuss the pre- and post-treatment evaluation of implant patients.	FC	MCQS
49.	Diagnostic Imaging for Implant Patients	• Discuss the advantages and disadvantages of standard intraoral and extra oral projections and complex imaging modalities • Interpret radiographs methodically to maximize their usefulness towards improved outcomes.	CBL	MCQS
50.	Prosthetic Considerations for Implant Treatment	• Discuss the critical aspects of prosthetic implant treatment options proven to minimize long term functional, biologic and aesthetic success.	CBL	MCQS
51.	Basic Implant Surgical Procedures	• Discuss the basic principles of implant surgery as per	FC	MCQS

		recommended guidelines. • Discuss the biological aspects of dental implants including; o Osseointegration o Bone characteristics o Implant - soft tissue interface • Discuss the indications and contraindications of dental implants • Describe the clinical examination and evaluation of dental implant patients • Formulate a treatment plan for the patients requiring dental implants • Discuss 1 step and 2 step end-osseous implant surgery • Discuss the prosthodontic considerations in implant restorations		
52.	Localized Bone Augmentation and Implant Size Development	• Discuss the surgical bone augmentation procedures used to correct or to prevent alveolar ridge deficiencies for the optimal placement of dental implants	IL CBL	MCQS
53.	Aesthetic Management of Difficult Cases	• Discuss the surgical bone augmentation procedures used to correct or to prevent alveolar	IL SGD	MCQS

		ridge deficiencies for the optimal placement of dental implants • Demonstrate methods used for implant site development, post extraction socket preservation for implant placement.		
54.	Digitally Assisted Implant Surgery	• Describe the basic surgical strategies that enhance the aesthetic predictability in implant dentistry	CBL	MCQS SAQS
55.	Localized Bone Augmentation and Implant Size Development	• Discuss methods used for implant site development, post extraction socket preservation for implant placement	CBL	MCQS
56.	Aesthetic Management of Difficult Cases	• Discuss methods used for implant site development, post extraction socket preservation for implant placement.	SGD	MCQS
57.	Implant Related Complications And Failures	• Discuss the common implant related complications. • Discuss the implant failure and surgical complications related to site development and variations in implant placement protocols.	FC	MCQS
	CLINICAL SKILLS **By the end of rotation in periodontology, student should be able to;**		**Teaching method**	**Assessment Tool**
1.	Cross Infection	• Assess patients for risk of	SGD OPD	OSCE

	Protocols	infections based on history and clinical presentation • Practice hand hygiene following the standard protocols • Use personal Protective Equipment (PPE) as per recommended guidelines • Demonstrate safe management of equipment, environment, blood and body fluids • Demonstrate personal safety and exposure as per recommended guidelines		
2.	Instrument Handling	• Recognize instruments used in periodontology based on their features • Handle instruments correctly as per standard protocols • Select the correct instrument for treatment of various clinical scenarios	SGD OPD Demo	OSCE
3.	History Taking	• Obtain clinical history from patients presenting to Periodontology OPD as per standard guidelines	MiniCEx	OSCE
4.	Radiographic Interpretation	• Interpret radiographs of patients presenting to periodontal OPD with a systemic approach	CBL OPD Demo	OSCE
5.	Diagnosis and Treatment Planning	• Identify problems of varying importance and urgency of	MiniCEx	OSCE

		patients presenting to periodontal OPD • Formulate a treatment plan for patients presenting to Periodontal OPD based on their history, clinical findings, and investigations.		
6.	Patient and Operator Positioning	• Demonstrate correct chair position for patients acquiring periodontal treatment as per recommended protocols • Demonstrate correct operator position for various periodontal treatments as per standard protocols	MiniCEx	MCQS
7.	Clinical Examination	• Perform Intra- and extra-oral examination of patients presenting to Periodontal OPD following the standard guidelines. • Palpate lymph nodes and salivary glands as per standard guidelines • Perform examination of head and neck for patients presenting with orofacial pain	MiniCEx	OSCE
8.	Periodontal Charting	• Perform periodontal charting for patients presenting to periodontal OPD including periodontal probing depth,	SG Demo & Feedback	Log book scoring

		clinical attachment loss, bleeding on probing, furcation involvement and tooth mobility		
9.	Manual Scaling, Ultrasonic Scaling and Polishing	• Perform at least 05 manual scaling and polishing patients under supervision. • Perform at least 20 Ultrasonic scaling and polishing patients under supervision	OPD demo	Logbook scoring
10.	Pocket Irrigation and Locally Delivered Antimicrobial Agents	• Perform pocket irrigation procedure for at least 05 patients under supervision	OPD demo	Logbook scoring
11.	Non-Surgical Curettage and Root Planing	• Perform at least 05 non-surgical curettage and 05 root planing procedures under supervision	OPD demo	Logbook scoring
12.	Periodontal Dressing	• Prepare periodontal dressing for surgical patients following the correct mixing technique • Apply periodontal dressing on at least 05 patients/models of periodontal surgical procedures	SG Demo & Feedback	Logbook scoring
13.	Suturing Materials and Techniques	• Select correct suturing materials for various periodontal procedures • Perform simple interrupted, continuous, figure of 8,horizontal mattress and vertical mattress on model	SG Demo & Feedback	OSCE
14	Surgical Curettage	• Observe surgical curettage and	SG	Reflections

.	and Root Planing	root planing procedure on patients presenting to periodontal OPD	Demo	
15.	Flap Techniques	• Observe various flap techniques used for periodontal treatments	SG Demo	Reflections
16.	Gingivectomy/ Gingivoplasty	• Perform gingivectomy/gingivoplasty on at least 01 patient under supervision	SG Demo & Feedback	Reflections

Reading Sources:

Text Books:

Newman and Carranza's Clinical Periodontology- latest Edition.

Internet resources: With easy excess to digital library students will use internet resources with added time flexibility to enrich and update their knowledge and its application.

Library: It provides wealth of resources, space to study alone or in a group. It also provide world of books to discover and borrow.

Assessment Criteria :

Knowledge: MCQs (Multiple Choice Questions) are used to asses objectives covered in each module.

- A MCQ has a statement or clinical scenario followed by four options (likely answer).
- Students after reading the statement/scenario select ONE, the most appropriate response from the given list of options.
- Correct answer carries one mark, and incorrect 'zero mark'. There is no negative marking.
- Students mark their responses on an answer sheet provided by examination department.

Skills:

- OSCE: Objective Structured Clinical Examination:

- Each student will be assessed on the same content and have same time to complete the task.
- Comprise of 12-25 stations.
- Each station may assess a practical tasks include practical skills and application of knowledge
- Stations are observed, interactive, application of knowledge based and rest.
- In Observed and Interactive Stations these will be assessed by internal or external examiners through structured viva or a task.
- Application of knowledge Stations: it will be static stations in which there will be pictures, clinical scenarios with related questions for students to answer on the provided answer copy.
- Rests: It is a station where there is no task given and in this time student can organize his/her thoughts.

AIDM Internal Assessment Policy

Students will be assessed to determine achievement of learning objectives through the following:

- Midterm Examination will be scheduled on completion of half of the course and OPD rotations
- Mock Examination will be scheduled on completion of whole course and OPD rotations
- The method of examination comprises theory exam which includes MCQs, and practical examination by OSCE (Objective Structured Clinical Examination).
- Student's behaviors and attitudes will be observed during all academic activities.

Annual Examination:

- Marks of both internal assessments will constitute 20% weightage as per JSMU policy.
- University Annual examination carries 90% marks. Theory exam will be based on MCQs and Clinical / Professional /communication skills will be assessed by OSCE.

Attempts: There are 2 attempts in the fourth professional examination only. 2nd attempt is the supplementary examination which if not passed student has to repeat the year.

Course Evaluation:

- Pass/fail ratio of continuous and summative assessments will be evaluated.
- 75% attendance is mandatory to be eligible for annual professional examination
- Feedback will be taken
  - Regarding course from students and faculty
  - Student feedback regarding faculty
  - Faculty feedback of students

Teaching Faculty:

Dr. Zaheer Hussain
Assistant Professor
dr.zaheer54@gmail.com

Dr. Laraib Magsi
Demonstrator
Laraib_magsi@hotmail.com

For queries:

Department of Medical Education

Dr. Shaur Sarfaraz
Director & Assistant Professor
shaur.sarfaraz@altamash.pk

Dr. Maria Ghani
Lecturer,
maria.ghani@altamash.pk