

# WAH MEDICAL COLLEGE

2022-2026

A photograph of the Wah Medical College building, a large, modern structure with a brown facade. The words "Wah Medical College" are printed in white on the building's exterior. A flagpole with a blue flag stands in front of the building. The image is partially obscured by a large blue diagonal graphic element.

Wah  
Medical  
College

Department of Medical Education

STUDY GUIDE  
2nd YEAR MBBS  
Y2BVI

2022-2026

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## **VISION**

National University of Medical Sciences envisions a world with a better quality of life for all by enhancing our contribution to healthcare, education, innovation and research.



## **MISSION**

“To produce competent medical professional graduates equipped with sound knowledge & research capabilities based on scientific principles, imbued with ethics and moral values primed to serve the community through the profession and pursue research & advanced training in any branch of medicine”.

## 1. Outcomes of WMC MBBS Program:

At the end of our five-year MBBS program, the graduates should be able to:

1. Independently manage common, non-critical clinical problems.
2. Assist in the management of critically ill patients & demonstrate competency in life saving procedures.
3. Exhibit the attributes of an ethical professional.
4. Conduct research which brings relevance to health care practices.
5. Act as an efficient community health promoter.
6. Exhibit scientific knowledge in all professional activities.
7. Demonstrate clear and efficient written & verbal communication skills.
8. Exhibit the habits of a lifelong learner.

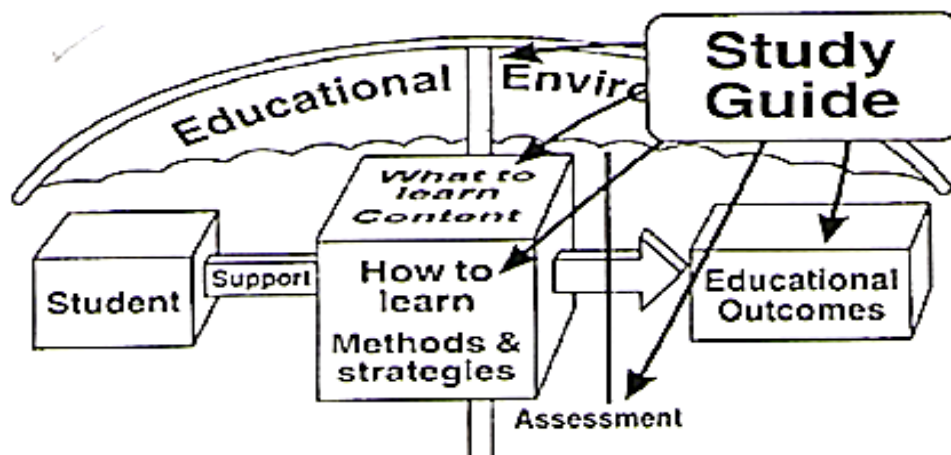
## 2. Introduction to the Study Guide:

### i. Objectives of the Study Guide

Dear Students,

We, at the Department of Medical Education, Wah Medical College, have developed this study guide especially for you. This study guide aims to:

- Inform you about the organization of learning programs in this block which will help you to contact the right person in case of any difficulty.
- Help you in organizing and managing your studies throughout the block
- Guide you on assessment methods, rules, and regulations.
- Define the outcomes which are expected to be achieved at the end of the block.
- Identify the learning strategies that will be implemented to achieve the block outcomes such as lectures, small group discussions, clinical skills, demonstration, tutorial, and case-based learning
- Provide a list of learning resources such as books, and journals for students to consult to maximize their learning.




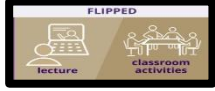








**Figure1: Objectives of the study Guide(HARDEN, J.M. LAIDLAW, E.A. HESKETH, 1999)**

## ii. Commonly used abbreviations & Logos in the study guide

### Learning Outcomes:

Learning outcomes are statements that define the expected goal of your course, lesson, or activity in terms of demonstrable skills or knowledge that will be acquired by you as a result of instruction. In simple words, these are the things that you must be able to tell or do with the required attitude after learning a particular topic.

**1. Educational Strategies:** These are the methodologies through which you will be taught by your instructors. These include:

Abbreviation	Logos
LGIS: Large Group interactive session/Lecture	
Flipped Classroom	
CBL: Case based learning.	
Practicals	
Demonstrations	
SGD: Small group discussions	
BST: BedSide Teaching	
Skill Lab	
Clinical Teaching (OPD/ OT/ IPD)	
Gamification	

## **Large Group Interactive Sessions**

In a large group, the lecturer introduces a topic or common clinical condition and explains the underlying phenomena through questions, pictures, videos of patient's interviews, exercises, etc. Students are actively involved in the learning process.

## **Flipped classroom**

A pedagogical approach in which the conventional notion of classroom-based learning is inverted: students are introduced to the learning material before class with classroom time then being used to deepen understanding through discussion with peers and problem-solving activities facilitated by teachers.

## **Small Group Discussion**

This format helps students to clarify concepts, acquired skills or attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews, or discussion topics. Students exchange opinions and apply knowledge gained from lectures, tutorials, and self-study. The facilitator's role is to ask probing questions, summarize, or rephrase to help clarify concepts.

## **Case-Based Learning**

This is a small group discussion format where learning is focused around a series of questions based on a clinical scenario. Specifically designed case scenarios and the learning outcomes to be achieved are shared with the student before the session. Students prepare for the CBL and during class they discuss and answer the questions applying relevant knowledge gained in clinical and basic health sciences during the block. Faculty members are present as a guide and an assessor.

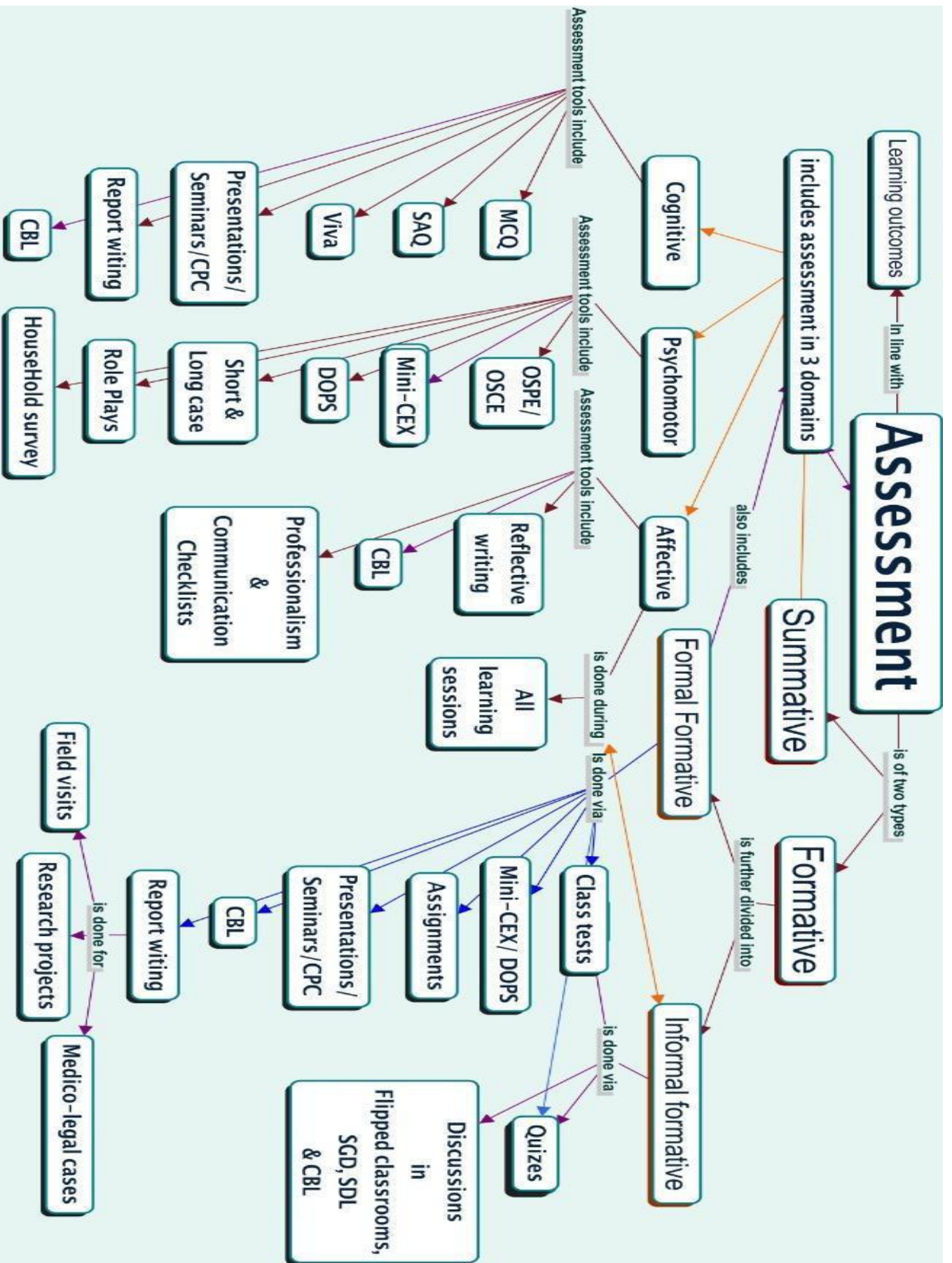
## **Self-Directed Study**

Students assume responsibilities of their own learning through individual study, sharing and discussing with peers, seeking information from the Learning Resource Center, teachers, and resource persons within and outside the college. Students can utilize the time within the college schedule hours for self-study under supervision.

## **Gamification:**

The educators apply game design elements to an educational setting. The goal is usually to make learning more engaging.

### 3. Assessment Map, Policies & Strategies:





#### 4. Assessment Strategies:

During the block, you shall be continually formatively assessed in all three learning domains i.e., Cognitive, Psychomotor & Affective.

- The weighting of internal assessment shall be 20% in 1<sup>st</sup> professional MBBS Examination.
- There shall be three EBE and one pre-annual examination. To be eligible to sit in the Pre-annual exam a student must pass at least 50% of all the formal formative & summative assessments conducted during the year. The final decision of eligibility to sit in the pre-annual exam for the students failing to meet the requirements will be taken by the respective HODs & the dBOS. This decision will be on a case to case basis depending upon the student's performance in all 3 learning domains throughout the year.
- The scores of class tests, each EBE & pre-annual examination shall be used for calculation of the internal assessment according to NUMS curriculum.

<b>Internal Assessment Structure for theory</b>	
<b>Weighting 20%</b>	
<b>Component</b>	<b>Weightings</b>
1. Attendance in theory learning sessions a. >90%=10 b. 80-89% = 7 c. 75-79% = 5	10%
EBE/ ECE (Theory)	45%
Continuous formal formative assessments- Average score in all the class tests or quizzes during the academic year	20%
Pre-Annual Exam	25%
Total	100%
<b>Internal Assessment Structure for Practical</b>	
<b>Weighting 20%</b>	
<b>Component</b>	<b>Weighting</b>
1. Attendance in practical learning sessions a. >90%=10 b. 80-89% = 7 c. 75-79% = 5	10%
2. OSPE/ OSCE conducted in EBE/ ECE	45%
3. Continuous formal formative assessments- Average score in all the skill tests during the academic year	20%
Pre-Annual Exam	25%
Total	100%

### **End Block and Pre-Annual Examination:**

- There will be three-EBE, one at the end of each block & one pre-annual examination at the end of the academic year.
- The structure of the paper of all the end block examination and pre-annual will be the same as that for the annual examination though syllabus will be different.
- The syllabus for EBE will be announced by the department at least 02 weeks prior to examination.
- Pre-annual examination will be from the whole syllabus.
- The date sheet for EBE and pre-annual examinations will be prepared by coordinators of 1st & 2nd year while the examinations will be conducted by the respective departments.
- The result will be utilized for calculation of internal assessment which will be submitted to NUMS examination branch at least two weeks prior to the annual exam.

### **Annual Professional Examination:**

- The university shall take the 1<sup>st</sup> professional Examination as per PMC guidelines at the end of the academic year.
- Annual theory and practical Examination shall be of 200 marks each in Anatomy, Physiology and Biochemistry.
- The pass score shall be 50% in theory and practical separately.

## 5. Block Development Committee

<b>Chairperson</b>		<b>Prof. Dr. Syed Touqeer Abbas</b>
<b>Block In-charge</b>	Dr. Zahid Mehmood	
<b>Members/ Resource persons</b>	Anatomy Physiology Biochemistry Medicine Surgery Pediatrics Behavioral Sciences EBM & RM P-CMILE	Dr. Kaukab Anjum Dr. Sumair Iqbal Dr. Zahid Mehmood Dr. Ayesha Rani Dr. Sadia Farhan Dr. Sobia Noor Mr. Hassan Ali Dr. Khola Waheed Khan Dr. Ambreen Ansar
<b>Study guide developed by</b>	Department of Medical Education Wah Medical College under Supervision of Prof. Dr. Musarat Ramzan	
<b>Resource person for Study Guide</b>	Dr. Ambreen Ansar	

## 6. Structured Summary of Y2BVI- MXI Maxillofacial & Special Senses

Block Code	Y2BVI- MXI Maxillofacial & Special Senses
Prerequisite	Passing the first professional MBBS examination.
Duration	06 weeks
<b>Rationale</b>	This module of the block aims to form the basis of knowledge and skills related to the Anatomy, Physiology and Biochemical aspect of the gastrointestinal system. This module of 5 weeks duration, focuses on histo-morphological and embryological structure as well as physiological and biochemical functioning of the digestive system. It is part of the second-year integrated curriculum at WMC.
<b>Anatomy</b>	<p><b>Gross Anatomy</b></p> <ul style="list-style-type: none"> <li>● Head (including face)</li> </ul> <p><b>Embryology</b></p> <ul style="list-style-type: none"> <li>● Development of Head (including face), Eye, Ear</li> </ul> <p><b>Histology</b></p> <ul style="list-style-type: none"> <li>● Lip and tongue, Salivary glands, Eye, Ear</li> </ul>
<b>Physiology</b>	Special Senses
<b>Biochemistry</b>	Cancer and tumor markers Aging & free radicals Metabolism of Xenobiotics

## 7. Course content

### Anatomy

#### Subject Learning outcomes:

After studying two years in anatomy department, the student should be able to:

1. Correlate the histomorphological features of tissues and organs of human body with their functions (PLO 4,6, 7, 8)
2. Correlate the developmental events of human body with common congenital anomalies. (PLO 1,6, 7, 8)
3. Interpret the topographic and radiographic anatomy of human body and its presentations in common clinical conditions (PLO 1,2,3,4,5,6, 7, 8)

#### Block Learning outcomes:

By the end of this block, the students should be able to:

1. Demonstrate the topographic anatomy of maxillofacial structures, endocrine organs and organs of the special senses and interpret the related common clinical problems. (PLO 1,2,3,4,5,6, 7, 8) and (SLO 3)
2. Identify the Maxillofacial structures, organs of special senses and endocrine organs and their neurovasculature in the prosected specimens and models. (PLO 1,2,3,4,5,6, 7, 8) and (SLO 3)
3. Recognize the bones of the facial skeleton and cranium on radiographs (PLO 1,2,3,4,5,6, 7, 8) and (SLO 3)
4. Demonstrate professionalism, ethics, effective communication skills while performing surface marking of viscera, major vessels & nerves of face, head & neck and endocrine organs on the given subject (PLO 3) and (SLO 3)
5. Corelate the developmental events of the Head and neck, organs of the special senses, endocrine organs and integumentary system with the clinical presentation of the related common congenital anomalies. (PLO 1,6,7,8) and (SLO 2)
6. Identify the developmental events of the organs of special senses and endocrine system in the relevant diagrams (PLO 1,6,7,8) and (SLO 2)
7. Explain the microscopic features of different components of the organs of the special senses, integumentary system and endocrine organs with reference to their functions and associated disorders (PLO 4,6,7,8) and (SLO 1)
8. Identify various slides of the organs of special senses, integumentary system and endocrine organs by focusing them under the microscope (PLOs 4,6,7,8) and (SLO 1)- Practical (PLOs 4,6,7,8) and (SLO 1)

#### Maxillofacial structures and special sense organs Y2BVI-MXI

##### Gross Anatomy

Sr. No.	Topics	Educational Strategies	Name of instructor	Importance (Must Know Should Know Nice to Know)

1.	Mandible	SGD	Dr Fauzia, Dr Bushra, Dr Maryum, Dr Fatima	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>● Identify parts of the mandible with respect to its bony features and attachments.</li> <li>● Enlist structures that are in direct contact with mandible BLO1,2,3</li> </ul>				
2	Skull	SGD	Dr Fauzia, Dr Bushra, Dr Maryum, Dr Fatima	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>● Explain and demonstrate the anatomical position of skull with special emphasis on planes of anatomical position.</li> <li>● Describe and demonstrate the boundaries and gross features of cranial fossae</li> <li>● Enlist and demonstrate foramina along with structures passing through them in anterior, middle and posterior cranial fossae.</li> <li>● Recognize and demonstrate the important sutures, fontanelle and impressions on the interior of cranial vault. BLO1,2,3</li> </ul>				
3	Scalp	SGD	Dr Maryum, Dr Fatima	Must Know
<b>Learning Objective:</b> <ul style="list-style-type: none"> <li>● Correlate the structure and neurovascular supply of scalp with anatomical basis of relevant clinical conditions.</li> </ul>				
4.	Gross Anatomy of Face	SGD	Dr Maryum, Dr Fatima	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>● Elucidate the cutaneous innervation of face</li> <li>● Group facial muscles according to the orifices they are guarding</li> <li>● Describe the nerve supply of muscles of facial expressions.</li> <li>● Describe the course of arteries, veins, lymphatics and nerves of the face with the help of a model.</li> <li>● Correlate gross features of face with anatomical basis of</li> <li>● Danger Area,</li> <li>● Trigeminal Neuralgia,</li> <li>● Bell's Palsy</li> <li>● Identify muscles and neurovascular structures of face on models and prosected specimens.</li> <li>● Illustrate the cutaneous innervation of face BLO1,2</li> </ul>				
5.	Gross Anatomy of the parotid region	SGD	Dr Fauzia, Dr Bushra, Dr Maryum	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>● List contents of parotid region</li> <li>● Elucidate the surfaces, borders, shape, location, parts, relations, and drainage of parotid gland</li> <li>● Trace the pathway of autonomic supply of the parotid gland.</li> </ul>				

- Enumerate structures embedded in parotid gland in a sequential order.
- Analyze anatomical basis of clinical presentation of mumps.
- Correlate the extracranial course of Facial nerve with Bell's Palsy
- Discuss benign and malignant conditions of the parotid gland with special emphasis on involvement of the facial nerve. BLO1,2

6	Gross Anatomy TMJ	SGD	Dr Maryum, Dr Fatima	Must Know
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**Learning Outcomes:**

- Outline the type, articular surfaces, capsule, ligaments, supporting factors and nerve supply of TMJ.
- Describe movements of TMJ with reference to axes and muscles producing them
- Correlate a case of dislocation and reduction of TMJ with anatomical knowledge of TMJ. BLO1,2

7.	Gross Anatomy of temporal and infra temporal fossa	SGD	Dr Fauzia, Dr Bushra, Dr Maryum	Must Know
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**Learning Outcomes:**

- Identify the location, boundaries, contents, and communications of temporal and infratemporal fossa on a given model and skull.
- Describe the course and distribution of mandibular nerves from origin to distribution.
- Tabulate the attachments, actions, and nerve supply of muscles of mastication.
- Trace location, various routes, and distribution of otic ganglion
- Justify the role of lateral pterygoid as a peripheral heart on the anatomical basis of pterygoid venous plexus
- Elucidate importance of pterygoid venous plexus in case of intracranial spread of infection to cavernous sinus.
- Trace origin and distribution of superficial temporal and first & second parts of maxillary artery
- Trace origin and distribution of Chorda tympani from origin till it joins the lingual nerve. BLO1,2

8.	Gross Anatomy of Pterygopalatine fossa	SGD	Dr Fauzia, Dr Bushra, Dr Maryum	Must Know
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**Learning Outcomes:**

- Identify the location of pterygopalatine fossa on skull
- List bones forming walls of pterygopalatine fossa
- Enumerate the contents and communications
- Describe the distribution of third part of maxillary artery, nerve and Pterygopalatine ganglion.
- Justify the role of pterygopalatine ganglion in hay fever/allergy. BLO1,2,3

9.	Gross Anatomy of Oral Cavity and Tongue.	SGD	Dr Maryum, Dr Fatima	Must Know
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**Learning Outcomes:**

- Outline the floor, roof, lateral walls and vestibule of oral cavity.
- Describe topographic features of tongue.
- Tabulate the actions and nerve supply of muscles (intrinsic and extrinsic) of tongue

- Differentiate a case of UMN and LMN lesion of hypoglossal nerve
- Correlate Lymphatic drainage of different parts of tongue with spread of malignancy and infection of tongue.
- Tabulate the attachments, nerve supply and actions of muscles of soft palate.
- Elucidate the surfaces, borders, shape, location, parts, relations, and drainage of sublingual gland

10.	Gross Anatomy of External Ear	SGD	Dr Fauzia, Dr Bushra, Dr Maryum, Dr Fatima	Must Know
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**Learning Outcomes:**

- Describe the gross anatomical features of auricle, external auditory meatus, and tympanic membrane.
- Correlate nerve supply of external ear and tympanic membrane with clinical significance (perforation of tympanic membrane)
- Justify the anatomical basis of otoscopy in infants and adults. BLO1,2

11.	Gross Anatomy of Middle Ear	SGD	Dr Fauzia, Dr Bushra, Dr Maryum, Dr Fatima	Must Know
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**Learning Outcomes:**

- Describe the gross anatomical features, boundaries, structures, and contents of the middle ear cavity.
- Describe the structures forming the walls of the middle ear cavity on the given model.
- Highlight the importance of infection in the middle ear cavity in relation to its communications. BLO1,2

12.	Gross Anatomy of Inner Ear	SGD	Dr Fauzia, Dr Bushra, Dr Maryum, Dr Fatima	Must Know
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**Learning Outcomes:**

- Identify the components of the bony and membranous parts of the inner ear on model. BLO1,2

13.	Gross Features of Orbit	SGD	Dr Fauzia, Dr Bushra, Dr Maryum, Dr Fatima	Must Know
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**Learning Outcomes:**

- Describe the skeletal framework of bony orbit and its communications
- List the contents of the orbit
- Identify the parts of eyeball on the model
- Tabulate the attachments, nerve supply and actions of extraocular muscles.
- Justify the movements of extraocular muscles based on their attachment.
- Trace the course and distribution of cranial nerves III, IV and VI.
- Justify the peculiar position of eyeball in case of lesion of third and fourth cranial nerves
- Trace the route and distribution of ciliary ganglion.
- Describe the course and distribution of ophthalmic nerve
- Name different components of lacrimal apparatus
- Describe the nerve supply of the Lacrimal gland. BLO1,2,3

14.	Gross Anatomy of Nose and Paranasal sinuses	SGD	Dr Fauzia, Dr Bushra, Dr Maryum	Must Know
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**Learning Outcomes:**

- Describe the skeletal framework of different walls of nose
- Describe the features, vascular supply, nerve supply and openings in lateral wall of nose
- Describe the features, vascular supply, nerve supply of medial wall of nose
- Highlight the significance of little's area in a case of Epistaxis.
- Trace the extracranial course of the Olfactory nerve.
- Trace the location and drainage of paranasal air sinuses on skull and on radiographs. BLO1,2,3

**EMBRYOLOGY**

15.	Development of Head and Neck	LGIS	Prof Dr Zubia Athar	Must know
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**Learning Outcomes:**

- List embryological sources of head and neck structures
- List components of pharyngeal apparatus.
- Tabulate the nerve supply and derivatives of each of the arches, pouches, clefts, and membranes
- Describe the embryological basis of first arch syndrome and its relation to cardiac anomalies.
- Correlate the normal development of tongue with its congenital anomalies.
- Correlate the normal development and descent of thyroid gland with its associated anomalies.
- Justify the relative anatomical location of the parathyroid gland.
- Outline the development of nose and paranasal sinuses
- Enumerate and identify the prominences of facial development on the given model.
- Elucidate the embryological phenomenon of development of face and palate
- Correlate various facial and palatal clefts with normal development BLO5,6

16.	Development of Eye	LGIS	Dr Kaukab Anjum	Must know
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**Learning Outcomes:**

- Describe the development of the optic cup
- Relate the differentiation of wall of optic cup with definitive structures
- Describe the differentiation of Mesenchyme in chambers of eye
- Correlate the common congenital anomalies of the eye with normal development.
- Describe the development of various layers of eyeball. BLO5,6

17.	Development of Ear	LGIS	Dr Kaukab Anjum	Must know
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**Learning Outcomes:**

- Revisit the role of first and second pharyngeal apparatus in development of the ear.
- Describe the differentiation of otic capsule into inner ear
- Correlate the anomalies of the external ear with neural crest cells.

**HISTOLOGY**

18	Histology of lip and tongue	LGIS	Dr Nomana Mahmood	Must know
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**Learning Outcomes:**

- Describe the histological features of lip with emphasis on transition in structure from cutaneous to vermillion to mucosal zone.
- Explain the histological features of dorsal and ventral surfaces of tongue, with particular focus on tongue papillae, their shape, location, keratinization, number, and presence of absence of taste buds. BLO7

19	Histology of salivary glands	LGIS	Dr Fatima, Dr Maryum	Must know
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**Learning Outcomes:**

- Describe the classification of salivary glands based on morphology and nature of secretion.
- Explain the histomorphological features of salivary glands with regards to their secretory and ductal systems. BLO7

20.	Histology of eye	LGIS	Dr Nomana Mahmood	Must know
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**Learning Outcomes:**

- Describe the detailed structure and function of sclera and cornea, with special emphasis on corneal transparency and its fusion with sclera at corneoscleral junction.
- Describe the light and ultramicroscopic structure of uveal tract, different layers of retina correlating the arrangement of neuronal cells and processes with their function.
- Describe and correlate the gross anatomical structure of the eyelid with its histological structure. BLO7

21.	Histology of ear	LGIS	Dr Nomana Mahmood	Must know
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**Learning Outcomes:**

- Identify the histological structure of different parts of the ear, particularly the external and internal ear.
- Describe the histological structure of sensory receptor areas of internal ear like Organ of Corti, maculae acoustical and crista ampullaris.
- Identify the cells and spaces in cochlea. BLO7

**Learning Resources:**

**1. Online resources**

- E books
- Online lectures
- Google classroom

**2. Library resources**

- Text and reference books
- Handouts of lectures and CBLs

**Teaching faculty**

Name	Email address
Prof Dr Zubia Athar	<a href="mailto:zubiaathar@hotmail.com">zubiaathar@hotmail.com</a>
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**Assessment formats**

Assessment Strategies (Formative)	Assessment Strategies (Summative)
<ul style="list-style-type: none"> <li>● Assignments</li> <li>● Presentations</li> <li>● Low Stake Quizzes</li> <li>● Discussions in flipped classroom, SGD, SDL &amp; CBL</li> <li>● Reflective writing</li> </ul>	<ul style="list-style-type: none"> <li>● Block Tests</li> <li>● (MCQs, SEQs, Viva voce)</li> <li>● OSPE/ Observed spotting on models &amp; prosected specimens during viva voce</li> <li>● Logbook (long slide, CBLs, surface marking)</li> </ul>

# Physiology

## Departmental/Subject learning Outcomes:

1. Explain various physiological processes involved in the normal functioning of the body (PLOs 1,6,8)
2. Relate the interconnections of various organ systems in maintenance of homeostasis (PLOs 1,6,8)
3. Interpret the effects of alternations in Physiological mechanisms in common clinical disorders.
4. Demonstrate common clinical and laboratory procedures to interpret their results. (PLOs 1,2,8)

## Block learning Outcomes:

By the end of the session, students will be able to

1. Explain the physiology of eye and the visual pathway and appraise the pathophysiological basis of abnormalities related to eye. (SLO1,2,3)
2. Explain the physiology of ear and the auditory pathway and the abnormalities related to ear. (SLO1,2,3)
3. Explain the physiology of taste sensation and its pathway. (SLO1,2)
4. Explain the physiology of olfaction and its pathway. (SLO1,2)
5. Appraise the basic principles of endocrinology along with the functions and related abnormalities of various endocrine glands. (SLO1,2,3)

Sr. No.	Topics	Educational Strategies	Name of instructor	Importance (Must Know Should Know Nice to Know)
1	Explain the physiology of eye and the visual pathway and appraise the pathophysiological basis of abnormalities related to eye.	LGIS, SGD, CBL	Dr. Sumera Gul, Dr. Sumaira Iqbal & Dr. Rabia Noor	Must know

## Learning Outcomes:

- Explain refraction and concept of convergence and divergence. (MLO1)
- Define focal length, focal point and power of lens. (MLO1)
- Differentiate between emmetropia, myopia, hyperopia, astigmatism, presbyopia and describe their treatment. (MLO1)
- Discuss the concept of reduced eye and depth perception. (MLO1)
- Explain the process of its formation, circulation, and regulation of aqueous humor. (MLO1)
- Describe intraocular pressure and pathophysiology of glaucoma. (MLO1)
- Describe accommodation reflex, light reflex, and their pathway. (MLO1)
- Describe physiological anatomy of the retina. (MLO1)
- Explain rhodopsin visual cycle and role of vitamin A in night blindness. (MLO1)
- Describe phototransduction in photoreceptors (MLO1)
- Explain the mechanism of regulation of retinal sensitivity (light and dark adaptation).

	(MLO1)			
	<ul style="list-style-type: none"> <li>● Discuss and draw the visual pathway and its lesions. (MLO1)</li> <li>● Explain the visual cortex and its functional units. (MLO1)</li> <li>● Describe the mechanism of different types of eye movements. (MLO1)</li> <li>● Discuss pathophysiology of strabismus, Horner’s syndrome, and Argyll Robertson pupil. (MLO1)</li> <li>● Discuss the effects of sympathetic and parasympathetic innervation of the eye. (MLO1)</li> </ul>			
2	Explain the physiology of ear and the auditory pathway and the abnormalities related to ear.	LGIS, SGD, CBL	Dr. Sumaira Iqbal	Must know

**Learning Outcomes:**

- Explain the mechanism of conduction of sound waves through the ear to the cochlea. (MLO2)
- Describe “Impedance Matching” and its importance. (MLO2)
- Describe the process of attenuation of sounds. (MLO2)
- Explain the Place Principle. (MLO2)
- Describe the functions of Organ of Corti.(MLO2)
- Explain the mechanism of determination of loudness.(MLO2)
- Recall the auditory pathway.(MLO2)
- Recognize the function of the cerebral cortex in hearing.(MLO2)
- Explain the process of determination of direction from which sound is coming.(MLO2)
- Describe various hearing Abnormalities.(MLO2)

3	Explain the physiology of taste sensation and its pathway	LGIS, SGD, CBL		Must know
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**Learning Outcomes:**

- Describe the primary sensations of taste. (MLO3)
- Describe the mechanism of stimulation of taste buds and the transmission of signals to CNS. (MLO3).

4.	Explain the physiology of olfaction and its pathway.	LGIS, SGD, CBL	Dr. Hina Umair	Must know
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**Learning Outcomes:**

- Explain the physiological anatomy of the olfactory membrane. (MLO4)
- Explain the mechanism of stimulation of olfactory cells. (MLO4)
- Identify the primary sensations of smell. (MLO4)
- Describe the transmission of signals of olfaction into the central nervous system. (MLO4)

## LIST OF PRACTICALS

Sr. No.	Topics	Educational Strategies	Name of instructor	Importance (Must Know Should Know Nice to Know)
1	Sense of smell	SGD	Dr. Samia	Must know

**Learning Outcomes:**

- Explain the Olfactory pathway.

<ul style="list-style-type: none"> <li>● Demonstrate the procedure to determine the sense of smell.</li> </ul>				
2	Sense of Taste	SGD	Dr. Samia	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>● Enlist different types of taste receptors.</li> <li>● Trace the pathway for Taste.</li> <li>● Explain the procedure to determine the sense of taste.</li> </ul>				
3	Reflexes of the Eye (Light Reflex & Accommodation Reflex)	SGD	Dr. Rabia Noor	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>● Define Light reflex.</li> <li>● Explain the mechanism of Light reflex.</li> <li>● Differentiate between Direct and Consensual light reflex.</li> <li>● Define accommodation.</li> <li>● Explain the mechanism of accommodation.</li> <li>● Explain Near response.</li> <li>● Demonstrate the accommodation reflex on a given subject.</li> </ul>				
4	Hearing Tests	SGD	Dr. Umaima	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>● Explain the characteristics of sound waves.</li> <li>● Trace the pathway for hearing.</li> <li>● Demonstrate various hearing tests.</li> </ul>				
5	Field of Vision	SGD	Dr. Khalid Jamil	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>● Define the field of vision.</li> <li>● Determine the field of vision in a subject.</li> <li>● Trace the visual pathway and name the effects of lesions at different places</li> </ul>				
6	Color Vision	SGD	Dr. Attayab	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>●</li> </ul>				

## CBLs

### CBL – 1: NIGHT BLINDNESS

A 55-year-old male presented with a complaint of gradual onset, progressive night blindness over the past six months. He had given up driving because he Nice to not see the lane markers on the road. All forms of artificial light seemed dim; however, daytime vision seemed perfectly normal. Prior to the onset of these symptoms, he had never had any ocular problems. He had no difficulty distinguishing colors. His past medical history revealed mesenteric vein thrombosis 4 years prior to presentation. He underwent surgical resection of about 3 feet of his small intestine, ascending, and transverse colon.

On general physical examination vital signs were normal. On ophthalmological examination his visual acuity in Right eye (OD): 20/20 and Left eye (OS): 20/20. He had undergone a funduscopy which appeared normal.

In the setting of bowel resection, vitamin A deficiency was considered as a possible etiology; therefore, a vitamin A level was drawn. Vitamin A levels normally range between 0.30-1.20 mg/L, but the patient's vitamin A level measured only 0.12 mg/L. He was started on oral vitamin A 10,000 international units (IU), twice a day.

## **Learning Outcomes:**

- Discuss the given case scenario.
- Explain the physiological anatomy of the retina.
- Differentiate between rods and cones.
- Explain accommodation reflex and its pathway.
- Explain rhodopsin visual cycle.
- Comment on the role of vitamin A in night blindness.
- Summarize phototransduction in photoreceptors.
- Explain the mechanism of regulation of retinal sensitivity (light and dark adaptation).

### **CBL –2: DEAFNESS**

Mr. Hamid, 54 years old presented with gradual loss of hearing over the past three years. His wife explained that he has a difficulty in listening and understanding the volume of voice he used to hear a few years back. The hearing loss was more in my left ear. He complained of trouble hearing sounds when there's background noise and has more difficulty in understanding particularly children's and female voices. His occupation history revealed that he had been working in a sawmill for 20 years. For him sounds appear muffled. He has difficulty in hearing high pitched sounds. He also complained of tinnitus. On examination a pure-tone hearing test. It confirmed a significant hearing change in the left ear and stable hearing in the right ear. A tuning fork test indicated the hearing loss was sensorineural in the left ear. An otoscopic evaluation revealed normal eardrums (tympanic membranes) and no impacted wax. He was diagnosed to have " Sensorineural Hearing Loss in left ear".

## **Learning Outcomes:**

1. Discuss the given case scenario.
2. Explain the structure of the tympanic membrane.
3. Relate the impedance matching and attenuation reflex with the above case.
4. Comment on place principle.
5. Summarize the functions of hair cells in the organ of corti.
6. Explain endocochlear potential.

## **Teaching faculty contact:**

**Email address:** [physiologywmc@gmail.com](mailto:physiologywmc@gmail.com)

## **1.Learning Resources:**

- Human Physiology 9th Edition by Sherwood
- Ganong's Review of Medical Physiology, 25th Edition
- BRS Physiology ,5th edition by Linda S.Costanzo
- A textbook of practical physiology,8th edition by CL Ghai

- Guyton and hall review ,3rd edition

## **2.Online resources**

- Google classroom
- Understandingphysiology.wordpress.com

## **3.Library resources:**

- Guyton and Hall Textbook of Medical Physiology (14th Edition)
- Human Physiology 9th Edition by Sherwood
- Ganong's Review of Medical Physiology, 25th Edition
- BRS Physiology ,5th edition by Linda S.Costanzo 50
- A textbook of practical physiology,8th edition by CL Ghai
- Guyton and hall review ,3rd edition

## Assessment formats

Assessment Strategies (Formative)	Assessment Strategies (Summative)
CBL Case Discussion	MCQs
CBL Quiz	SEQs
Class Discussion	OSPE
Flipped Class Format	VIVA
Reflective writing	



# Biochemistry

## Subject Learning Outcomes

**SLO1** - Apply knowledge of Biochemistry regarding metabolic changes leading to common clinical diseases and disorders in the Human Body

**SLO2** - Demonstrate Estimation of clinically important metabolites and enzymes in body fluids and co-relate their clinical importance in Diagnosis of Diseases, Disorders, Acid Base, Electrolyte and Hormonal Imbalance

## Block learning Outcomes (SLO 1 and 2):

- Correlate tumor markers in different malignancies Outline the genetic basis of cancer
- Outline the essential feature of aging and genetic factors of aging → Co-relate the effect of reactive oxygen species with cell injury and aging → Mechanism of mitigation of ROS by human body
- Elaborate the role of reactive oxygen species and xenobiotics

Sr. No.	Topic	Educational Strategies	Name of instructor	Importance (Must Know Should Know Nice to Know)
1	Cancer and tumor markers	LGIS/CBL/SGD/SDL	Dr. Anas Khalil	Must Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>● Comprehend genetic basis of cancer</li> <li>● Discuss different tumor markers</li> </ul>				
2	Aging & free radicals	LGIS/CBL/SGD/SDL	Dr. Anas Khalil	Must Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>● Comprehend Different reactive oxygen species (ROS) produced by the human body</li> <li>● Discuss Mechanism of production of reactive oxygen species (ROS)</li> <li>● Elaborate Effect of ROS on health and disease</li> <li>● Describe Mechanism of Scavenging of ROS</li> </ul>				
3	Xenobiotics	LGIS/CBL/SGD/SDL	Prof. Dr. S.T. Abbas	Must Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>● Describe xenobiotics</li> <li>● Outline phase 1 and phase 2 reactions</li> <li>● Discuss the properties of Cytochrome P450, its functions and clinical importance</li> </ul>				

## Reference Books:

- Harper's Biochemistry
- Medical Biochemistry by Chatter Jea
- Hashmi's Textbook of Medical Biochemistry by Mukhtar Ahmed Hashmi
- Mark's Biochemistry

## Practicals

Sr. No.	Topics	Educational Strategies	Name of instructor	Importance (Must Know Should Know Nice to Know)
1	ELISA	Demonstration/ Practical	Dr. Sehrish Baber	Know

**Learning Outcomes:**

- **C**omprehend the biochemical mechanism and principal of ELISA

# Surgery

Sr. No.	Topics	Educational Strategies	Name of instructor	Importance (Must Know Should Know Nice to Know)
1	Role of Radiology in Maxillofacial	Lectures/ SGD/ CBL/PBL	Dr. Sadia Farhan	Nice to Know
<ul style="list-style-type: none"> <li>• Identify and describe the radiological anatomy of the following structures on all relevant imaging modalities:</li> <li>• Cranial vault including bones               <ul style="list-style-type: none"> <li>• Anterior, middle and posterior cranial fossae, skull base, foramina and contents</li> <li>• Facial bones, sutures and foramina</li> <li>• Temporal bone and surrounding</li> </ul> </li> <li>• structures               <ul style="list-style-type: none"> <li>• Orbit including</li> </ul> </li> <li>• boundaries and</li> <li>• compartments.               <ul style="list-style-type: none"> <li>• Nasal cavity and</li> </ul> </li> <li>• paranasal sinuses including bones and foramina/canals</li> <li>• Mandible and temporomandibular joint</li> </ul>				

## 8. Structured Summary of Y2BVI- MXII Endocrinology

Block Code	Y2BVI- MXII Endocrinology
Prerequisite	
Duration	05 Weeks
Rationale	This module aims to form the basis of knowledge and skills related to the Anatomy, Physiology and Biochemical aspect of the genitourinary system. It is of 7 weeks duration and focuses on histo-morphological and embryological structure as well as physiological and biochemical functioning of the genitourinary system. It is part of the second-year integrated curriculum at WMC.
Anatomy	<p><b>Gross Anatomy</b></p> <ul style="list-style-type: none"> <li>● Neck</li> </ul> <p><b>Embryology</b></p> <ul style="list-style-type: none"> <li>● Development of neck, endocrine organs and integumentary system</li> </ul> <p><b>Histology</b></p> <ul style="list-style-type: none"> <li>● Endocrine organs and integumentary system</li> </ul>
Physiology	Endocrinology
Biochemistry	Endocrinology
Surgery & Radiology	Diabetic foot, Thyroid and Parathyroid glands, Parathyroid anomalies, Imaging of thyroid gland
Medicine	Pituitary abnormalities, Thyroid gland, Calcium disorders, Adrenal Disorders, Diabetes Mellitus
Research Methodology	Data collection method, Descriptive and inferential data analyses

## 9. Course content

### Anatomy

#### ENDOCRINOLOGY Y2BVI-MXII

#### GROSS

1.	Hyoid bone	SGD	Dr Fauzia, Dr Bushra, Dr Maryum	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Distinguish the features and outline the attachments on the hyoid bone BLOs 1,2,3</li> </ul>				
2.	Cervical Vertebrae	SGD	Dr Fauzia, Dr Bushra, Dr Maryum	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Distinguish the features and outline the ligamentous attachments on cervical vertebrae.</li> <li>Enumerate structures passing through foramina associated with cervical vertebrae</li> <li>Identify type and movements of atlanto-axial and atlanto-occipital joints.</li> </ul> BLO1,2,3				
3.	Gross Anatomy of Neck	SGD	Dr Fauzia, Dr Bushra, Dr Maryum	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Outline contents of superficial fascia of neck (platysma, external jugular vein)</li> <li>Illustrate cutaneous innervation of neck</li> <li>Enumerate the layers of deep cervical fascia.</li> <li>Trace the attachments of investing, pre-tracheal, carotid sheath and prevertebral layers of fascia.</li> <li>Identify various modifications and neck spaces formed by fascial attachments.</li> <li>Comprehend the clinical importance of neck spaces in spread of infection</li> </ul> BLO1,2				
4.	Gross Anatomy of Triangles of Neck	SGD	Dr Fauzia, Dr Bushra, Dr Maryum	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Tabulate the attachments, nerve supply, actions of superficial and deep muscles of the neck (sternocleidomastoid, suprahyoid, infrahyoid, sub occipital, prevertebral muscles,).</li> <li>Identify boundaries and contents of triangles of neck on model/specimens.</li> <li>Describe the origin, course and distribution of vessels and nerves of neck (cervical plexus, Ansa cervicalis, Common carotid artery, Internal jugular vein, and subclavian vessels)</li> <li>Analyze a case of lesions of the glossopharyngeal, vagus and accessory nerves</li> <li>Describe the etiology and clinical features of Torticollis. BLO1,2</li> </ul>				

5.	Gross Anatomy of Submandibular Region	SGD	Dr Fauzia, Dr Bushra, Dr Maryum	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>● Revisit boundaries of Submandibular Triangle</li> <li>● Describe the parts, relations and neurovasculature of submandibular gland</li> <li>● Trace the roots of Submandibular ganglion.</li> <li>● Describe the distribution of submandibular ganglion</li> <li>● Correlate the anatomy of submandibular facial space with Ludwig’s angina</li> <li>● Discuss submandibular duct stone and its surgical removal. BLO1,2</li> </ul>				
6.	Gross Anatomy of Pharynx.	SGD	Dr Fauzia, Dr Bushra, Dr Maryum	Must know Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>● Differentiate extent, anatomical features, vascular supply, nerve supply of three parts of pharynx on anatomical basis</li> <li>● List muscles of pharynx with nerve supply and actions.</li> <li>● Name structures passing through the spaces between muscles of pharynx</li> <li>● Trace origin of pharyngobasilar fascia on base of skull.</li> <li>● Correlate anatomical knowledge of pharyngo basilar fascia with patency of nasopharynx.</li> <li>● Justify role of Eustachian tube in equalizing middle ear pressure and age-related obliquity</li> <li>● Describe anatomical route of spread of infections from nasopharynx to middle ear.</li> <li>● Relate boundaries of tonsillar fossa and tonsillar bed with significant structures that must be protected during tonsillectomy.</li> <li>● Define Kilian’s dehiscence BLO1,2</li> </ul>				
7.	Gross Anatomy of Larynx	SGD	Dr Fauzia, Dr Bushra, Dr Maryum	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>● Describe laryngeal wall in detail with emphasis on cartilages, ligaments, muscles, vascular supply, and nerve supply.</li> <li>● Analyze mechanism of abduction and adduction of vocal cords</li> <li>● Distinguish clinical presentations of injury to external, internal, and recurrent laryngeal nerves.</li> <li>● Recognize Clinical significance of piriform fossa BLO1,2</li> </ul>				
8.	Thyroid and Parathyroid Glands	SGD	Dr Fauzia, Dr Bushra, Dr Maryum	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>● Identify gross features of thyroid and parathyroid glands on models/prosected specimens.</li> <li>● Describe capsule, relations, and blood supply of thyroid and parathyroid gland</li> <li>● Justify anatomical basis of movement of thyroid gland during deglutition</li> </ul>				

<ul style="list-style-type: none"> <li>Discuss surgical precautions in thyroid surgery while ligating vessels and enucleation. BLO1,2</li> </ul>				
9.	Lymphatic Drainage of Head and Neck	SGD	Dr Fauzia, Dr Bushra, Dr Maryum, Dr Fatima	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Describe the clinical importance of the lymphatic drainage of head and neck BLO1,2</li> </ul>				
10.	Cranial Nerves	SGD	Dr Fauzia, Dr Bushra, Dr Maryum, Dr Fatima	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Revisit the course and distribution of all cranial nerves. BLO1,2 .</li> </ul>				
11.	Radiology	SGD	Dr Fauzia, Dr Bushra, Dr Maryum	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Identify the important bony landmarks of cervical vertebrae, paranasal sinuses, and skull on x rays. BLO1,2</li> </ul>				
12.	Surface Marking	SGD	Dr Fauzia, Dr Bushra, Dr Maryum	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Mark the following structures on subject: <ul style="list-style-type: none"> <li>Thyroid</li> <li>Parotid Gland and duct</li> <li>Common Carotid Artery</li> <li>External Carotid Artery</li> <li>Facial artery</li> <li>Vagus nerve</li> <li>Accessory nerve</li> <li>Hypoglossal nerve</li> <li>External jugular vein</li> <li>Internal jugular vein BLOs 1,4</li> </ul> </li> </ul>				
<b>EMBRYOLOGY</b>				
13.	Development of integumentary system	LGIS	Dr Kaukab Anjum	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Describe the development of skin, hair, and nail.</li> <li>Describe the embryological basis of relevant congenital anomalies (vitiligo, ichthyoses, hemangiomas and dermatoglyphics) BLOs 5,6</li> </ul>				
14.	Development of the endocrine system	LGIS	Dr Zubia Athar	Must know
<b>Learning Outcomes:</b>				

- Describe the development of neck and its relation with cervical sinus.
- Correlate the normal development and descent of thyroid gland with its associated anomalies.
- Justify the relative anatomical location of the parathyroid gland. BLOs 5,6

### HISTOLOGY

<b>15.</b>	Histology of Endocrine glands	LGIS	Dr Nomana Mahmood	Must know
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#### **Learning Outcomes:**

- Describe the various parts of the pituitary gland.
- Identify and describe the cells forming the parenchyma of different parts of adenohypophysis, their staining characteristics, cellular features and the hormones produced by them.
- Describe the histological differences between adenohypophysis and neurohypophysis based on embryological origin and explain the concept of Herring bodies and the hormones contained within them.
- Describe the histological structure of thyroid gland as an endocrine gland, with special focus on structure of thyroid follicles, their lining epithelium, changes in the epithelium in different phases of activity of thyroid gland.
- Describe the parafollicular/C cells in thyroid gland.
- Describe the histological structure of adrenal gland with focus on arrangement of cells, their staining characteristics, secretion, and the effects of its secretions on body.
- Describe the histological structure of pineal gland with focus on arrangement of cells, their staining characteristics, secretion and the effects of its secretions on body.
- Describe the histological structure of parathyroid gland with focus on arrangement of cells, their staining characteristics, secretion, and the relationship between the effect of Parathyroid hormone and calcitonin on blood calcium levels. BLO7

<b>16.</b>	Histology of integumentary system	LGIS	Dr Nomana Mahmood	Must know
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#### **Learning Outcomes:**

- Describe the components of skin, its epithelium (including the various cells of epidermis along with their functions), nail, hair
- Tabulate the histological differences between thick and thin skin.
- Describe the various appendages of skin.
- Describe the histological basis of: psoriasis, vitiligo, albinism, blister disorders and cancers of skin. BLO7

### **Practical**

#### **Maxillofacial structures and special sense organs Y2BVI-MXI**

#### **Learning outcomes:**

1. Identify H&E-stained slides of lip, tongue and salivary glands and appreciate their characteristic histological features to distinguish them from common pathological conditions in future.
2. Identify H&E-stained slides of different components of the endocrine system and appreciate their characteristic histological features to distinguish them from common pathological conditions in future.



3. Differentiate between H&E-stained slides of eye, ear and skin and appreciate their characteristic histological features to predict functional outcomes that result from their altered structure and function. BLO7,9

Sr. No.	Topics	Educational Strategies	Name of instructor	Importance (Must Know Should Know Nice to Know)
1	Lip, tongue and salivary glands.	Practical	Dr Bushra	Must know
<b>Learning Outcomes: (K)</b>				
<ul style="list-style-type: none"> <li>Recognize the slide of lip by focusing it under the light microscope and illustrate it highlighting its points of identification.</li> <li>Recognize the slide of tongue by focusing it under the light microscope and illustrate it highlighting its points of identification.</li> <li>Recognize the slides of salivary glands by focusing under the light microscope and illustrate those highlighting points of identification. BLO 7,8</li> </ul>				
2	Eye	Practical	Dr Maryum	Must know
<b>Learning Outcomes: (K)</b>				
<ul style="list-style-type: none"> <li>Recognize the slides of the following by focusing them under the light microscope and illustrate them highlighting their points of identification.</li> <li>Cornea</li> <li>Retina BLO 7,8</li> </ul>				
3	Ear	Practical	Dr Fatima	Must know
<b>Learning Outcomes: (K)</b>				
<ul style="list-style-type: none"> <li>Recognize the slide of pinna by focusing it under the light microscope and illustrate it highlighting the points of identification. BLO 7,8</li> </ul>				
<b>ENDOCRINOLOGY Y2BVI-MXII</b>				
4	Endocrine system	Practical	Dr Fauzia	Must know
<b>Learning Outcomes: (K)</b>				
<ul style="list-style-type: none"> <li>Recognize the slides of the following by focusing them under the light microscope and illustrate them highlighting their points of identification.</li> <li>Pituitary gland</li> <li>Thyroid</li> <li>Parathyroid gland</li> <li>Adrenal gland BLO 7,8</li> </ul>				
5	Integumentary system	Practical	Dr Bushra	Must know
<b>Learning Outcomes: (K)</b>				
<ul style="list-style-type: none"> <li>Recognize the slide of thick and thin skin by focusing under the light microscope and illustrate it highlighting the points of identification. BLO 7,8</li> </ul>				

### ANATOMY CBLs:

#### CBL No.1: A case of earache:

An eight-year-old boy presents to his physician with a chief complaint of an earache, fever and some degree of hearing loss. The patient's case history indicates a recent viral upper respiratory tract infection. During the physical exam, the physician examines the patient with an otoscope and notes an inflamed tympanic membrane that is bulging and opacified. Pneumatic otoscopy confirms the presence of fluid in the middle ear. The patient is diagnosed with acute otitis

media, an infection of the mucoperiosteal lining of the middle ear which has a relatively sudden onset and short duration.

### Learning Objectives

- A major factor in the pathogenesis of otitis media is dysfunction of the auditory (Eustachian) tubes. Justify
- What surgical procedures may be used to treat the fluid build-up in the middle ear?
- What would an infection of the external ear be called and what are its possible complications?
- What anatomical features/structures protect the ear from injury?
- Describe the walls of the middle ear cavity and enumerate contents of the middle ear.
- Describe the structure and actions of the tympanic membrane, the auditory ossicles, and the muscles of the middle ear.

### Suggested articles/Literature

- Graham Worrall, Mb Bs Msc Fcgp  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3173423/>
- Earache <https://medlineplus.gov/ency/article/003046.htm> Knowledge And Care Seeking Practices For Ear Infections Among Parents Of Under Five Children In Kigali, Rwanda: A Cross-Sectional Study Kaitesi Batamuliza Mukara, Peter Waiswa, Richard
- Lilford  
<https://bmcearthroatdisord.biomedcentral.com/articles/10.1186/s12901-017-0040-1>
- Acute Otitis Media-Caroline R. Paul, Md1; Megan A Moreno, Md, Msed, Mph1 <https://jamanetwork.com/journals/jamapediatrics/fullarticle/2759422>

#### **CBL No.2: A case of hoarseness of voice:**

A 40-year-old female presented to the OPD with complaint of a painless swelling in front of her neck near Adam`s `apple that had increased in size over the past 4 months, hoarseness of voice and difficulty breathing. On examination the doctor observed that the swelling moved on swallowing. Ultrasonography of the thyroid and lateral neck showed a large mass of the left thyroid lobe, but no right or left neck lymphadenopathy. Fine needle aspiration (FNA) of neck mass was performed and diagnosed as papillary carcinoma of thyroid. The surgeon planned to admit the patient for total thyroidectomy with postoperative radiotherapy.

### Learning Objectives

- Describe the thyroid gland with reference to its vertebral level, surrounding fascia, capsule and blood supply.
- Why did the swelling move on swallowing in this case?
- Where do you prefer to ligate the superior and inferior thyroid artery during the surgical removal of thyroid gland (thyroidectomy)? Justify.
- What are the most common complications of thyroidectomy?
- What do you understand by the term near total thyroidectomy?
- Summarize the results of inadvertent surgical removal of the parathyroid glands.

### Suggested literature

- Hoarseness—Causes And Treatments Rudolf Reiter, Prof.,\*,1 Thomas Karl Hoffmann,

Prof.,<sup>2</sup> Anja Pickhard, Priv.-Doz. Dr.,<sup>3</sup> And Sibylle Brosch,

Prof.<sup>1</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4458789/>

- A Radiologic Review Of Hoarse Voice From Anatomic And Neurologic Perspectives. Simone Montoya, Anthony Portanova & Alok A. Bhatt-  
<https://insightsimaging.springeropen.com/articles/10.1186/s13244-019-0786-7>
- Voice Hoarseness In A Patient With Underlying Eisenmenger's Syndrome: A Case Report [Palak Suryavanshi](#), [Sreejit Parameswaran](#), [Nishant Sharma](#), [Russell A. Murphy](#) & [Anil R. Sharma](#) <https://journalotohns.biomedcentral.com/articles/10.1186/s40463-019-0358-3>

### **CBL No.3: A case of trigeminal neuralgia**

A 55-year-old woman has suffered attacks of sharp excruciating pain on the right side of her nose and cheek and the right upper lip for more than 3 months. These paroxysms of pain last only a few seconds but are extremely searing and stabbing. This unilateral facial pain is triggered by chewing, smiling, speaking, brushing or by touching affected areas on the face. Clinical examination revealed loss of sensation on the skin anterior to the right auricle and skin on right cheek. MRI revealed aberrant blood vessels pressing on the root of CN-V. Microvascular decompression was recommended by the surgeon.

### **Learning Objectives**

- Correlate gross features of face to describe the anatomical basis of this condition?
- Describe the origin, course and distribution of the trigeminal nerve.
- How do you test the sensory function of CN -V?
- Summarize the medical and surgical treatments used to alleviate this pain?
- Elucidate and illustrate the cutaneous innervation of face
- Describe the nerve supply of muscles of facial expressions with embryological justification.

### **Suggested literature**

- Trigeminal Neuralgia [Yad Ram Yadav](#), [Yadav Nishtha](#),<sup>1</sup> [Pande Sonjjay](#),<sup>2</sup> [Parihar Vijay](#), [Ratre Shailendra](#), And [Khare Yatin](#)-  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5652082/>
- Trigeminal Neuralgia: A Practical Guide-[Giorgio Lambru](#)<sup>1</sup>, [Joanna Zakrzewska](#)<sup>2,3</sup>,  
<https://pn.bmj.com/content/21/5/392>
- Trigeminal Neuralgia: An Overview From Pathophysiology To Pharmacological Treatments [Eder Gambeta](#), [Juliana G. Chichorro](#), [Gerald W. Zampo](#) <https://journals.sagepub.com/doi/full/10.1177/1744806920901890>
- Burden Of Illness of Trigeminal Neuralgia Among Patients Managed in A Specialist Center In England  
<https://thejournalofheadacheandpain.biomedcentral.com/articles/10.1186/s10194020-01198-z>

### **Reading References for CBLs:**

- Clinical Anatomy by regions, Richard S. Snell ● Moore Clinically Oriented Anatomy, Keith L. Moore

- Last's Anatomy.
- The Developing Human Clinically Oriented Embryology, Keith L Moore

#### **CBL No.4:A case of facial nerve palsy**

A 58-year-old woman woke up one morning finding the right side of her face feeling “peculiar and heavy.” On looking in the mirror, she saw that the corner of her mouth on the right side was drooping and her right lower eyelid seemed to be lower than her left. When she attempted to smile, the right side of her face remained immobile and masklike. While eating her breakfast, she noticed that her food tended to stick on the inside of her right cheek and liquid dribbled out the corner of her mouth. On taking her dog for a walk, she found to her amazement that she Nice to not whistle for his return to her side; her lips just would not pucker.

Upon examination, the woman's primary care physician found paralysis of the muscles of the entire right side of the face. Also, this patient talked with a slightly slurred speech and her blood pressure was very high. To make the diagnosis, the physician had to have knowledge of the facial muscles, the laryngeal muscles, and their nerve supply.

This patient had paralysis of the muscles of the entire right side of the face. Only a lesion of the right facial nerve, which supplies the muscles, Nice to cause this. Fortunately, this patient was suffering from Bell palsy, the prognosis was excellent, and she had a complete recovery.

#### **Learning Objectives**

- Explain the gross anatomy of face and its musculature
- Explain the blood supply and lymphatic drainage of face.
- Corelate the clinical presentation of facial nerve palsy with its anatomy.
- Explain the danger area of face and corelate it with the infection in cavernous sinus.
- How will you differentiate between upper and lower motor neuron lesion of the facial nerve?
- Cerebral hemorrhage is not the most likely diagnosis in this patient. Why?

#### **Learning Resources:**

##### **1. Textbooks**

- Clinical anatomy by regions. Richard S Snell
- Basic Histology Text and Atlas by Luiz Carlos and Junqueiras (14th edition)
- Basic Histology by Laiq Hussain Siddiqui (5th Revised edition)
- Medical Embryology by Langman's (14th edition).

##### **2. Reference Books**

- Gray's Anatomy for students
- Sinnatamby, C.S Last Anatomy
- The Developing Human by Keith Moore (10th edition).
- Clinically oriented anatomy by KLM

#### **.Learning Resources:**

1. Online resources

- E books
  - Online lectures
  - Google classroom
2. Library resources
- Text and reference books
  - Handouts of lectures and CBLs

### Teaching faculty

Name	Email address
Prof Dr Zubia Athar	<a href="mailto:zubiaathar@hotmail.com">zubiaathar@hotmail.com</a>
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### Assessment formats

Assessment Strategies (Formative)	Assessment Strategies (Summative)
<ul style="list-style-type: none"> <li>● Assignments</li> <li>● Presentations</li> <li>● Low Stake Quizzes</li> <li>● Discussions in flipped classroom, SGD, SDL &amp; CBL</li> <li>● Reflective writing</li> </ul>	<ul style="list-style-type: none"> <li>● Block Tests</li> <li>● (MCQs, SEQs, Viva voce)</li> <li>● OSPE/ Observed spotting on models &amp; prosected specimens during viva voce</li> <li>● Logbook (long slide, CBLs, surface marking)</li> </ul>

# Physiology

## Departmental/Subject learning Outcomes:

1. Explain various physiological processes involved in the normal functioning of the body (PLOs 1,6,8)
2. Relate the interconnections of various organ systems in maintenance of homeostasis (PLOs 1,6,8)
3. Interpret the effects of alternations in Physiological mechanisms in common clinical disorders.
4. Demonstrate common clinical and laboratory procedures to interpret their results. (PLOs 1,2,8)

## Block learning Outcomes:

By the end of the session, students will be able to

1. Appraise the basic principles of endocrinology along with the functions and related abnormalities of various endocrine glands. (SLO1,2,3)

Sr. No.	Topics	Educational Strategies	Name of instructor	Importance (Must Know Should Know Nice to Know)
1	<b>Appraise the basic principles of endocrinology.</b>	LGIS, SGD, CBL, SDL	Dr. Sumera Gul	Must Know

### Learning Outcomes:

#### Basics of Endocrinology

- Explain the role of chemical messengers in coordination of body functions (MLO1)
- Recall the chemical structure and synthesis of hormones. (MLO1)
- Explain the hormone secretion, transport, and clearance from the blood. (MLO1)
- Describe the feedback control of hormone secretion. (MLO1)
- Explain the transport of hormones in the blood and “clearance” of hormones from the blood. (MLO1)

#### Mechanism of action of hormones

- Identify the various hormone receptors and their activation. (MLO1)
- Explain the mechanism of intracellular signaling after hormone receptor activation. (MLO1)
- Explain the second messenger mechanisms for mediating intracellular hormonal functions. (MLO1)
- Identify the hormones that act mainly on the genetic machinery of the cell. (MLO1)

2	<b>Hormones of hypothalamus and Pituitary gland</b>	LGIS, SGD, CBL, SDL	Dr. Sumaira Iqbal	Must Know
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### Learning Outcomes:

- Explain the pituitary gland and its relation to the hypothalamus. (MLO1)
- Summarize the hypothalamic- hypophyseal portal blood vessels of the anterior pituitary gland and its significance. (MLO1)
- Recall the functions and regulation of growth hormone. (MLO1)
- Differentiate between hypopituitarism and hyperpituitarism and its pathophysiological basis. (MLO1)

	<ul style="list-style-type: none"> <li>● Explain the posterior pituitary gland and its relation to the hypothalamus. (MLO1)</li> <li>● Describe the physiological functions of ADH and oxytocin Hormone. (MLO1)</li> <li>● Explain the pathophysiology of diseases of pituitary gland.( MLO1)</li> </ul>			
3	<b>Thyroid Hormone</b>	LGIS, SGD, CBL, SDL	Dr. Sumera Gul	Must Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>● Recall the synthesis and secretion of the thyroid hormone. (MLO1)</li> <li>● Explain the functions of the thyroid hormone. (MLO1)</li> <li>● Summarize the regulation of thyroid hormone secretion. (MLO1)</li> <li>● Identify the disorders of the Thyroid gland and their pathophysiological basis. (MLO1)</li> </ul>				
4	<b>Calcium regulating hormones</b>	LGIS, SGD, CBL, SDL	Dr. Hina Umair	Must Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>● Explain the regulation of calcium and phosphate in the extracellular fluid and plasma. (MLO1)</li> <li>● Enlist the actions of vitamin D. (MLO1)</li> <li>● Explain the effect of parathyroid hormone on calcium and phosphate concentrations in the extracellular fluid. (MLO1)</li> <li>● Summarize the control of parathyroid secretion by calcium ion concentration. (MLO1)</li> <li>● Describe the actions of calcitonin. (MLO1)</li> <li>● Explain the pathophysiology of parathyroid hormone, vitamin D, and bone diseases. (MLO1)</li> </ul>				
5	<b>Hormones of Adrenal Cortex</b>	LGIS, SGD, CBL, SDL	Dr. Sumaira Iqbal	Must Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>● Explain synthesis and secretion of adrenocortical hormones. (MLO1)</li> <li>● Enlist the functions of aldosterone. (MLO1)</li> <li>● Enlist functions of the glucocorticoids. (MLO1)</li> <li>● Describe the disorders of adrenocortical secretion and their pathophysiological basis. (MLO1)</li> </ul>				
6	<b>Hormones of Pancreas</b>	LGIS, SGD, CBL, SDL	Dr. Somia Iqbal	Must Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>● Summarize the metabolic effects of insulin. (MLO1)</li> <li>● Explain the mechanisms of insulin secretion. (MLO1)</li> <li>● Explain the control of insulin secretion. (MLO1)</li> <li>● Describe functions of Glucagon. (MLO1)</li> <li>● Summarize the regulation of glucagon secretion. (MLO1)</li> <li>● Describe the types and pathophysiology of diabetes mellitus. (MLO1)</li> </ul>				

## LIST OF PRACTICALS

Sr. No.	Topics	Educational Strategies	Name of instructor	Importance (Must Know Should Know Nice to Know)
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1	<b>Color vision</b>	SGD	Dr. Atayyab Shaukat	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>● Name and describe the receptors of color vision. (K)</li> <li>● Explain the mechanism of color vision. (K)</li> <li>● Explain the significance of color vision. (K)</li> <li>● Demonstrate the procedure to test the color vision of the subject. (SH)</li> </ul>				
2	Fundoscopy	SGD	Dr. Rabia Noor	Must know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>● Define funduscopy. (K)</li> <li>● Enlist types of funduscopy. (K)</li> <li>● Demonstrate the procedure of funduscopy on a given subject.(SH)</li> </ul>				

## CBLs

### CBL-1:Short Stature

A 6 years 3 months old boy presented with short stature. He had poor growth for 1 year old but remained active and well otherwise. He had normal bowel and urinary habits. He has 2 elder sisters, aged 10 years and 8 years. Both parents are non – consanguineous and are of normal height. He was not dysmorphic and had primary dentition. His body was proportionate with no skeletal deformity. His weight and height were below percentile, while head circumference was at 10<sup>th</sup> percentile. Height was 9cm below the third percentile(-2.9SDs), weight was at third percentile and body mass index at the 25<sup>th</sup> percentile. Upper: lower segment ratio, arm span, vital signs, optic fundi and visual field were normal. Systemic examination was normal. examination revealed a non-dysmorphic , proportionate child who appeared much younger than her chronological age . Growth hormone levels and Insulin like growth factor were markedly reduced but had normal thyroid profile. He was diagnosed with DWARFISM.

#### Learning Outcomes:

By the end of the session students should be able to:

1. Discuss the case scenario.
2. Identify the manifestations of dwarfism which are normal or abnormal in this patient.
3. Understand the neuronal and vascular connections between hypothalamus and pituitary gland.
4. Elucidate the action of growth hormone and role of somatomedins in bone growth.
5. Comprehend feedback control of growth hormone secretion.
6. Differentiate between gigantism, acromegaly and dwarfism.
7. Differentiate between cretinism and dwarfism.

### CBL-2: HYPOTHYROIDISM

A 53-year-old woman presents to her primary care provider with complaints of fatigue, weight gain, and constipation. She states that her weight has gradually increased over the last year despite no change in her activity level or eating habits. She works roughly 8 hours a day as a nutritionist, but she falls asleep as soon as she gets home in the afternoon.

She lacks motivation to do anything during the weekend and notes that she doesn't feel like herself. Upon questioning, the patient reports the following changes: thinning of her scalp hair, brittle nails, dry skin, and cold intolerance. Physical examination confirms dry skin, brittle nails, coarse and dry hair, and abdominal distension. The only medication she takes is a multivitamin daily. She has a positive family history for autoimmune disorders and stroke.



**Physical examination:** Vital signs include a temperature 96.8°F, pulse 58/minute and regular, BP 110/60. She is moderately obese and speaks slowly and has a puffy face, with pale, cool, dry, and thick skin. The thyroid gland is not palpable. The deep tendon reflex time is delayed.

**Laboratory studies:** CBC and differential WBC are normal. The serum T4 concentration is 3.8 ug/dl (N=4.5-12.5), the serum TSH is 5 uU/ml (N=0.2-3.5), and the serum cholesterol is 255 mg/dl (N<200).

She was diagnosed to have **HYPOTHYROIDISM.**

### **Learning Outcomes:**

By the end of the session students should be able to:

- Discuss the given case scenario.
- Explain the functional anatomy of the thyroid gland.
- Comment on the regulation of thyroid hormone secretion.
- Outline the mechanism of action of thyroid hormone.
- Summarize the physiological actions of the thyroid hormone.
- Outline the investigations of hypothyroidism.
- Outline the treatment choices of hypothyroidism.

### **CBL-3: DIABETES MELLITUS**

A 10-year-old Asif presented in pediatric OPD with complaints of significant weight loss in the last six months despite having a voracious appetite. He was constantly thirsty and was urinating every 30-40 min. He also had episodes of bed wetting.

On physical examination:

Height was 5 ft 1 inch, Weight was 95 lb which was 106 lb 2 months back. BP 90/55 mm Hg in supine and 75/45 mm Hg in standing position.

Laboratory findings revealed the following:

<b>Test</b>	<b>Patient's value</b>	<b>Normal Range</b>
Fasting plasma glucose	320mg/dl	70-110 mg/dl
Plasma ketones	+1	Nil
Urinary glucose	+4	Nil
Urinary ketones	+2	Nil

Based on these findings a diagnosis of type 1 diabetes was made. Injectable insulin was immediately started, and he was counseled on blood glucose monitoring with a finger stick. He was advised regular check-ups for monitoring of renal function.

She was diagnosed to have **TYPE I DIABETES MELLITUS.**

### **Learning Outcomes:**

At the end of the session, the students should be able to:

- Discuss the given case scenario.
- Enlist the hormones of pancreas and their functions.
- Explain the effects of insulin on carbohydrate, protein and fat metabolism.
- Explicate the mechanism of action of insulin.
- Elucidate the role of insulin in controlling blood sugar level in postprandial and fasting states.
- Discuss the causes and importance of the appearance of ketones in blood and urine.
- Explain the importance of monitoring blood sugar level and renal functions.
- Describe the causes, age of onset, diagnostic criteria, complications and treatment options of different types of diabetes mellitus.

## **CBL-4: CUSHING'S SYNDROME**

A 35-year-old woman comes to her physician's office with the complaint of recent rapid weight gain and excessive sweating. What initiated her visit was a recent panic attack that frightened her. Her face looks swollen compared with the rest of her body. She complains of recent weakness, backaches, and headaches, and her periods have lately been irregular. Over the past month, she has noticed frequent bruising with slow healing. She is not on any birth control or using any medication except for acetaminophen for the headaches.

### **PHYSICAL EXAMINATION**

Vital Signs: Temp: 37°C, Pulse 68/min, Resp rate 14/min, BP 130/86 mm Hg, BMI 33.

Physical Examination: The patient's face is round and her trunk is swollen, but her arms and legs are thin. She sounds depressed. She has supraclavicular fat pads.

### **LABORATORY STUDIES**

Pregnancy test (HCG): Negative

Glucose tolerance: Abnormal, consistent with insulin resistance.

Plasma cortisol levels: 4 pm: 25 µg/dL (normal: 3-15µg/dL). Dexamethasone is given orally at 11 pm. At around 8 am the next morning, cortisol levels are 35 µg/dL (normal: < 5 µg/dL).

24-Hour urine collection for free cortisol: Abnormally high

Plasma ACTH: 7 pg/mL (normal: > 20 pg/mL)

MRI of the pituitary: Normal

CT of abdomen and chest: Adrenal tumor

DIAGNOSIS: Cushing's syndrome (primary hypercortisolism from adrenal tumor)

### **Learning Outcomes:**

By the end of the session students should be able to:

- Discuss the given case scenario.
- Enumerate hormones of adrenal gland and comment on their contribution to whole body homeostatic mechanisms.
- Explain the effects of cortisol on carbohydrate, protein, and fat metabolism.
- Explicate the mechanism of action of adrenal hormones.
- Discuss the pathophysiology of above-mentioned symptoms.
- Differentiate between Cushing's disease and Cushing syndrome.
- Comment on dexamethasone suppression test.

### **Teaching faculty contact:**

Email address : [physiologywmc@gmail.com](mailto:physiologywmc@gmail.com)

### **Learning Resources:**

- Human Physiology 9th Edition by Sherwood
- Ganong's Review of Medical Physiology, 25th Edition
- BRS Physiology ,5th edition by Linda S.Costanzo
- A text book of practical physiology,8th edition by CL Ghai
- Guyton and hall review ,3rd edition

### **2. Online resources**

- Google class room
- Understandingphysiology.wordpress.com

### **3. Library resources:**

- Guyton and Hall Textbook of Medical Physiology (14th Edition)
- Human Physiology 9th Edition by Sherwood
- Ganong's Review of Medical Physiology, 25th Edition
- BRS Physiology ,5th edition by Linda S.Costanzo 50

- A text book of practical physiology,8th edition by CL Ghai
- Guyton and hall review ,3rd edition

**Assessment formats**

Assessment Strategies (Formative)	Assessment Strategies (Summative)
CBL Case Discussion	MCQs
CBL Quiz	SEQs
Class Discussion	OSPE
Flipped Class Format	VIVA
Reflective writing	

# Biochemistry

## Block Learning Outcomes (SLO 1 & 2):

- Appraise the basic principles of endocrinology along with the biochemical basis and related abnormalities

Sr. No.	Topic	Educational Strategies	Name of instructor	Importance (Must Know Should Know Nice to Know)
1	Basis Endocrine System	LGIS/ CBL/SGD/SD L/Practical	Prof.S.T. Abbas	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Describe the general principles of endocrine system</li> <li>Classify the hormones according to their chemical nature &amp; Mechanism of Action</li> <li>Explain Cell surface receptors with special emphasis on G protein coupled receptor</li> <li>Discuss Intracellular second messenger signaling cascade</li> <li>Describe the Intracellular ligand receptors</li> </ul>				
2	Growth Hormone	LGIS/ CBL/SGD/SD L	Prof.S.T. Abbas	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Explain the Site of synthesis, stimulus for secretion, mechanism of action, receptors, intracellular effects, target cells, tissues and biochemical role &amp; hypo/hyper secretion of Growth Hormone</li> </ul>				
3	Thyroid hormone	LGIS/ CBL/SGD/SD L/Practical	Prof.S.T. Abbas	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Explain the Site of synthesis, stimulus for secretion, mechanism of action, receptors, intracellular effects, target cells, tissues and biochemical role &amp; hypo/hyper secretion of Thyroid hormone</li> </ul>				
4	Adrenal hormones	LGIS/ CBL/SGD/SD L	Prof.S.T. Abbas	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Explain the Site of synthesis, stimulus for secretion, mechanism of action, receptors, intracellular effects, target cells, tissues and biochemical role &amp; hypo/hyper secretion adrenal hormones</li> </ul>				
5	Pancreatic hormones	LGIS/ CBL/SGD/SD L/Practical	Prof.S.T. Abbas	Must Know
<b>Learning Outcomes:</b>				

- Describe the Site of synthesis, stimulus for secretion, mechanism of action, receptors, intracellular effects, target cells, tissues and biochemical role & hypo/hyper secretion pancreatic hormones

6	Parathyroid hormone	LGIS/ CBL/SGD/ SDL	Prof.S.T. Abbas	Must Know
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**Learning Outcomes:**

- Explain the Site of synthesis, stimulus for secretion, mechanism of action, receptors, intracellular effects, target cells, tissues and biochemical role & hypo/hyper secretion of parathyroid hormone

**Reference Books:**

- Harper’s Biochemistry
- Principles of Biochemistry by Mushtaq Ahmed
- Medical Biochemistry by Chatter Jea
- Hashmi’s Textbook of Medical Biochemistry by Mukhtar Ahmed Hashmi

**CBLs**

**CBL 01:Topic: Thyroid Gland**

History: A 50-year-old housewife complains of progressive weight gain of 20 pounds in 1 year, fatigue, postural dizziness, loss of memory, slow speech, deepening of her voice, dry skin, constipation, and cold intolerance.

Physical examination: Vital signs include a temperature 96.8oF, pulse 58/minute and regular, BP 110/60. She is moderately obese and speaks slowly and has a puffy face, with pale, cool, dry, and thick skin. The thyroid gland is not palpable. The deep tendon reflex time is delayed.

Laboratory studies: CBC and differential WBC are normal. The serum T4 concentration is 3.8 ug/dl (N=4.5-12.5), the serum TSH is 1 uU/ml (N=0.2-3.5), and the serum cholesterol is 255 mg/dl (N<200).

1. What is the likely diagnosis?
2. What are the symptoms that made you consider that diagnosis?
3. What physical findings supported the diagnosis?
4. Which lab data supported the diagnosis?
5. Explain-Hypothalamic-Pituitary-Thyroid axis and interrelationship.
6. What are the most likely causes?
7. What additional aspects of the history and physical examination Nice to provide relevant information to help in the diagnosis?
8. What additional tests would help confirm the diagnosis?
9. What are the treatment options?

**Learning Outcomes:**

**After attending the session students should be able to:**

1. Explain the Site of synthesis, stimulus for secretion, mechanism of action, receptors, intracellular effects, target cells, tissues, and biochemical role & hypo/hyper secretion of Thyroid & parathyroid hormone

**REFERENCE BOOKS:**

1. Harper's textbook of Biochemistry
2. Hashmi's Textbook of Medical Biochemistry
3. Medical Biochemistry by Chatter Jea
4. Mushtaq's Biochemistry Volume II

### **CBL 02: Topic: Pituitary Gland**

A 37-year-old male presented with the primary complaint of decreased visual acuity (VA) in both eyes and visual field defects. Visual field examination revealed bitemporal hemianopia. Magnetic resonance imaging (MRI) showed a pituitary tumor of approximately 4 cm in diameter extending from the intrasellar region to the sphenoid sinus and the suprasellar region. Transnasal transsphenoidal surgery was performed. Immunostaining of tumor tissue collected intraoperatively showed ACTH-positive cells, thus leading to the diagnosis of ACTH-producing pituitary adenoma. Postoperatively, the patient reportedly developed a mental disorder that possibly interfered with scheduled appointments or continuous follow-up visits for many years, so we had no postoperative data about the vision/visual field. Seven years later, he presented with markedly decreased VA (i.e., no light perception) in both eyes. Fundus examination showed bilateral marked optic disc atrophy. MRI showed a larger than 8-cm diameter giant recurrent pituitary adenoma in the suprasellar region, for which craniotomy was performed for partial tumor resection. Preoperatively, his blood cortisol level was low, and the lesion was deemed a nonfunctioning pituitary adenoma.

#### **Learning Outcomes:**

#### **After attending the session students should be able to:**

1. Explain the biochemistry, secretions and functioning of Pituitary Gland
2. Explain the abnormalities and clinical outcomes of functioning of Pituitary gland.

#### **REFERENCE BOOKS:**

1. Harper's textbook of Biochemistry
2. Hashmi's Textbook of Medical Biochemistry
3. Medical Biochemistry by Chatter Jea
4. Mushtaq's Biochemistry Volume II

### **CBL 03: Topic: Adrenal Gland**

A 71-year-old white woman became aware of "fainting spells" which included dizziness, feeling of warmth and headaches. These spells occurred suddenly without warning several times each day. She had no family history of endocrine problems. Physical examination revealed moderate hypertension. A 24-hour urine collection showed marked accumulation of normetanephrine with a level of 12,751 units (normal less than 350 units), and a moderate elevation in metanephrine with a level of 578 units (normal less than 350 units). Her epinephrine, norepinephrine and dopamine levels, and stimulated cortisol and aldosterone levels were within normal limits. A 24-hour free cortisol was not performed. A CT scan and an MRI of the abdomen revealed a 4 cm mass in the region of the left adrenal gland. A fine needle biopsy of the mass showed adrenal medullary tissue staining focally positive for chromogranin. The patient underwent a left adrenalectomy with complete removal of the mass. Her blood pressure returned to normal after the operation and her symptoms disappeared.

#### **Learning Outcomes:**

#### **After attending the session students should be able to:**

1. Explain the biochemistry, secretions and functioning of Adrenal Gland
2. Explain the abnormalities and clinical outcomes of functioning of the Adrenal gland.

#### **REFERENCE BOOKS:**

1. Harper's textbook of Biochemistry
2. Hashmi's Textbook of Medical Biochemistry
3. Medical Biochemistry by Chatter Jea
4. Mushtaq's Biochemistry Volume II

#### **CBL 04Topic: Diabetes Mellitus:**

A 19-year-old marine was brought to the infirmary after passing out during basic training. He had repeatedly complained of severe weakness, dizziness, and sleepiness during the preceding 4 weeks of boot camp. In a previous episode 3 week earlier, he had drowsiness and generalized tiredness, and was brought to the infirmary, where after IV administration of saline, he was returned to duty with the diagnosis of dehydration. Upon questioning, he reported unquenchable thirst, and the repeated need to urinate. Although he ate all of his rations as well as whatever he Nice to get from his fellow trainees, he had lost 19 pounds. (Baseline body weight was 150 pounds, height 5'8"). On the last day, he complained of vague abdominal pain, which was worse on the morning of admission. He had vomited once. During examination, he was oriented but tachypneic. He appeared pale, dehydrated with dry mucous membranes, and poor skin turgor. His respiratory rate was 36/minute with deep, laborious breathing; his heart rate was 138/minute regular, and his blood pressure was 90/60. His chest was clear, heart tones were normal. There was an ill-defined generalized abdominal tenderness, which was otherwise soft to palpation and showed no rebound. There was a generalized muscular hypotonia; his deep tendon reflexes were present but very weak. Laboratory, on admission, showed glucose of 560 mg/dl, sodium 154, potassium 6.5, pH 7.25, bicarbonate 10 mM/liter, chloride 90, BUN 38 mg/dl, creatinine 2.5 mg/dl. (Normal values: glucose, 70-114 mg/dl; Na = 136-146; K, 3.5-5.3; Cl, 98-108; CO<sub>2</sub>, 20-32 [all in mM/l]; BUN, 7-22mg/dl; creatinine, 0.7-1.5 mg/dl). A urine sample was 4+ for glucose and had "large" acetone. HbA<sub>1c</sub> was 14% (n=4-6.2%). Serum acetone was 4+ undiluted, and still positive at the 4th dilution. Beta-Hydroxybutyrate level was 20 millimoles/liter (normal=0.0-0.3 mM/l).

He was treated with insulin and saline I.V. By the 4th hour of treatment, potassium chloride was added to the IV at a rate of 15 mEq/hour. Sixteen hours later, he was active, alert, well hydrated and cheerful, indicating he felt extremely well. He requested that his IV be discontinued. His physician decided to switch his insulin to subcutaneous injections and to start a liquid diet. He was later put on a diabetes maintenance diet and treated with one injection of Human Lente insulin in the morning. Although his blood sugars the next morning were 100-140 mg/dl, he had frequent episodes of hypoglycemia during the day, and his HbA<sub>1c</sub> was 9%. Eventually, he was put on 3 injections of regular insulin/day, and a bedtime intermediate duration (Lente) insulin.

#### **Questions**

1. Why did the patient improve after being given IV saline in his first admission?
2. Why was dyspnea his presenting symptom?
3. He was hyperkalemic on admission, and yet, why was potassium later added to the IV infusion?
4. What is the possible reason of failure of a single injection of insulin in the morning to control his diabetes without causing hypoglycemia?

#### **Learning Outcomes:**

**After attending the session students should be able to:**

- Describe the Diabetes Mellitus, its Laboratory findings, Diagnosis and biochemical complications.

### REFERENCE BOOKS:

1. Harper's textbook of Biochemistry
2. Hashmi's Textbook of Medical Biochemistry
3. Medical Biochemistry by Chatter Je
4. Mushtaq's Biochemistry Volume II

## Practicals

Sr. No.	Topics	Educational Strategies	Name of instructor	Importance (Must Know Should Know Nice to Know)
1	Thyroid profile	Demonstration/Practical	Dr. Sehrish Baber, Dr. Kinza Tallat, Dr. Ahsan Ali	Must Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>• Interpret the results of given Laboratory findings of Thyroid Profile and its clinical relevance. (KH)</li> </ul>				
2	OGTT	Demonstration/Practical	Dr. Sehrish Baber, Dr. Kinza Tallat, Dr. Ahsan Ali	Must Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>• Perform Oral Glucose Tolerance Test and Interpret the results of OGTT and its clinical significance regarding Diagnosis of Diabetes (SH).</li> </ul>				
3	Interpretation of Sex hormones	Demonstration/Practical	Dr. Sehrish Baber, Dr. Kinza Tallat, Dr. Ahsan Ali	Must Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>• Interpret the results of different sex hormones and their clinical relevance (KH).</li> </ul>				



## Learning Resources:

### 1. Reference Books:

- Cancer and Tumor Markers- Harper's Biochemistry, Hashmi's Textbook of Medical Biochemistry
- Aging and Free Radicals- Harper's Biochemistry, Hashmi's Textbook of Medical Biochemistry
- Metabolism of Xenobiotics- Harper's Biochemistry, Hashmi's Textbook of Medical Biochemistry
- Endocrinology - Hashmi's Textbook of Medical Biochemistry, Medical Biochemistry by Chatter Je, Mushtaq's Biochemistry Volume II

### 2. Online resources

### 3. Library resources:

- Mark's Biochemistry
- Hashmi's biochemistry
- Biochemistry By Lehninger

## Teaching faculty

Name	Email address
Mrs. RabbiahManzoor Malik	<a href="mailto:rabbiahmanzoor@gmail.com">rabbiahmanzoor@gmail.com</a>
Dr. ZahidMehmood	<a href="mailto:zm30017@gmail.com">zm30017@gmail.com</a>
Dr. Anas Khalil	<a href="mailto:anaskhalil@hotmail.com">anaskhalil@hotmail.com</a>
Dr. Sehrish Baber	<a href="mailto:sehrishbaber1@gmail.com">sehrishbaber1@gmail.com</a>
Dr. KinzaTalat	<a href="mailto:kanzatallat@gmail.com">kanzatallat@gmail.com</a>

## Assessment formats:

Assessment Strategies (Formative)	Assessment Strategies (Summative)
CBLs, SGDs, Quizzes, Viva	Class Tests End of Block Exams

# Medicine

## Gastro Rotation

S.No.	Topic/Theme	Educational Strategies	Name of instructor	Importance (Must know Should know Nice to know)
1.	<b>Brown Sequard Syndrome (Neurosurgery)</b>	Video clips / Lectures/ SGD/ CBL/PBL	Dr. Ayesha Rani	<b>Nice to know</b>
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Correlate the relevant basic knowledge with clinical presentations</li> </ul>				
2.	<b>Upper and Lower motor neuron lesions</b>	Video clips / Lectures/ SGD/ CBL/PBL	Dr. Ayesha Rani	<b>Nice to know</b>
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>. Differentiate between clinical features of upper and Lower motor neuron lesions</li> </ul>				
3.	<b>Pituitary abnormalities</b>	Video clips / Lectures/ SGD/ CBL/PBL	Dr. Ayesha Rani	<b>Nice to know</b>
<b>Learning Outcomes:</b> Identify clinical presentations of hyper and hypopituitarism				
4.	<b>Thyroid Gland</b>	Video clips / Lectures/ SGD/ CBL/PBL	Dr. Ayesha Rani	<b>Nice to know</b>
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Identify clinical presentations of hyper and hypothyroidism</li> </ul>				
5.	<b>Calcium disorders</b>	Video clips / Lectures/ SGD/ CBL/PBL	Dr. Ayesha Rani	<b>Nice to know</b>
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Identify clinical presentations of hyper and hypocalcemia</li> </ul>				
6.	<b>Adrenal Disorders</b>	Video clips / Lectures/ SGD/ CBL/PBL	Dr. Ayesha Rani	<b>Nice to know</b>
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Identify clinical presentations of Cushing's syndrome and Addison's disease</li> </ul>				
7.	<b>Diabetes Mellitus</b>	Video clips / Lectures/ SGD/ CBL/PBL	Dr. Ayesha Rani	<b>Nice to know</b>

**Learning Outcomes:**

- Identify clinical presentations of type II DM

**Learning Resources:**

- Davidson's Principles and Practice of Medicine 23rd Edition

**Assessment formats**

Assessment Strategies (Formative)	Assessment Strategies (Summative)
Class Discussion	MCQs
CBL Case Discussion	SEQs
CBL Quiz	

# Surgery

## Learning Outcomes:

- Correlate the relevant basic knowledge with clinical presentations of the following diseases/disorders/injuries:

S.No	Topics	Educational Strategies	Name of Instructor	Importance (Must Know Should Know Nice to Know)
1.	Spinal trauma and injuries Spinal trauma and injuries Comminuted frontal complex skull fracture Neural tube defects Brain tumors Vascular lesions and hemorrhages Spinal nerve compressions Developmental anomalies of brain Comminuted frontal complex skull fracture Neural tube defects Brain tumors Vascular lesions and hemorrhages Spinal nerve compressions Developmental anomalies of brain	Video clips / Lectures/ SGD/ CBL/PBL	Dr. Sadia Farhan	Nice to Know
2.	Diabetic foot	Video clips / Lectures/ SGD/ CBL/PBL	Dr. Sadia Farhan	Nice to Know

## Learning Outcomes:

- Relate the basic knowledge of diabetes to identify its complication of diabetic foot

3.	Parathyroid anomalies	Video clips / Lectures/ SGD/ CBL/PBL	Dr. Sadia Farhan	Nice to Know
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## Learning Outcomes:

- Describe presentation and complications of hypercalcemia with relation to Parathyroid anomalies

4.	Thyroid & Parathyroid glands	Video clips / Lectures/ SGD/ CBL/PBL	Dr. Sadia Farhan	NK
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**Learning Outcomes:**

- Identify disorders of Thyroid gland presenting as Goitre
- Identify presentation and causes of hyper-and hypo- thyroidism
- Correlate clinical condition of Thyroid and Parathyroid gland with their gross anatomy

**Assessment formats**

Assessment Strategies (Formative)	Assessment Strategies (Summative)
Integrated CBL	Integrated CBL

# Pediatrics

S.No	Topics	Educational Strategies	Name of Instructor	Importance (Must Know Should Know Nice to Know)
1	Common genetic disorders	LGIS	Dr. Rakshanda Umer	Must Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>Outline principals of genetic counseling</li> <li>Identify clinical manifestations of down syndrome, turner syndrome.</li> </ul>				
2	Pedigree	LGIS	Dr. Kiran Shah	Must Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>Identify pedigree and give examples.</li> </ul>				
3	Inborn errors of metabolism	LGIS	Dr. Sobia Noor	Could Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>Enumerate category of inborn errors of metabolism.</li> <li>Identify clinical features associated with common inborn errors of metabolism.</li> </ul>				

# Research Methodology

## Block Learning Outcomes:

By the end of 3<sup>rd</sup> Block the 2<sup>nd</sup> Year MBBS students will be able to:

- Apply relevant statistics to conduct a household survey

Sr no.	Topic	Educational Strategies	Name of instructor	Importance
1.	HouseHold Survey (Data Collection Tool)	LGIS	Dr. Khola Waheed Khan	Must know
<b>Class Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>● Collect data independently maintaining confidentiality and exhibiting good communication skills.</li> </ul>				
2.	HouseHold Survey (Data Collection Tool)	LGIS	Dr. Khola Waheed Khan	Must know
<b>Class Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>● Collect data independently maintaining confidentiality and exhibiting good communication skills.</li> </ul>				
3.	HouseHold Survey Q # 1	LGIS	Dr. Saleh Ahmad	Must know
<b>Class Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>● Categorize the variables</li> </ul>				
4.	HouseHold Survey Q # 2	LGIS	Dr. Sadia Nadeem	Must know
<b>Class Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>● Present data in appropriate graphs</li> </ul>				
5.	HouseHold Survey Q # 3	LGIS	Dr. Saleh Ahmad	Must know
<b>Class Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>● Present data in frequency distribution table</li> </ul>				

## Learning Resources:

### 1. Text Books

- Park's Textbook of Preventive and Social Medicine
- Public Health and Community Medicine (Shah, Ilyas, Ansari, Irfan's)

### 2. Reference Books/ Library resources

- Basic Statistics for the Health Sciences (Jan W. Kuzma)
- Basic Methods of Medical Research (Indrayan)
- New qualitative Methodologies in Health and Social Care Research (Frances Rapport)
- Handouts/SDL prepared by faculty

### 3. Online resources

[Data 1](#)

**Teaching faculty & contact address:**

Name	Email address
Dr. Kholi Waheed Khan	<a href="mailto:kholawaheed@wahmedicalcollege.edu.pk">kholawaheed@wahmedicalcollege.edu.pk</a>
Dr. Sadia Nadeem	<a href="mailto:sadianaddem4@gmail.com">sadianaddem4@gmail.com</a>
Dr. Saleh Ahmad	<a href="mailto:salehahmed@gmail.com">salehahmed@gmail.com</a>

**Assessment formats:**

Assessment Strategies (Formative)	Assessment Strategies (Summative)
MCQs, SEQs, Group Activity and Assignments	MCQs and SEQs



# Behavioral Sciences

## Subject Class Learning Outcomes:

1. Develop an understanding of influence and potential implications of culture and community on health behaviors, perceptions and beliefs.
2. A physician will be able to integrate this knowledge into patient care
3. Take detailed, accurate and relevant patient history by taking into account self-awareness and reflective writing using social and behavioral sciences approach
4. Provide patient centered behavioral guidance and interventions
5. Comprehend how social determinants of health influence health outcomes and how physician can use this knowledge in patient care
6. Practice professionalism and leadership qualities
7. Integrate their knowledge and skills gained throughout five years into clinical practice

## Learning outcomes:

1. Equip medical students with the required skills to cope with critical psycho-social issues in exceptional hospital settings (SLO 1, 4, 5)
2. Identify sources of stress and its management towards patients, self and other staff members (SLO 6)
3. Understand the impact of terrorism on mental health and its management for mental well being (SLO 1)
4. identify the correlation of aging with life span, psychological factors and sociological factors. (SLO 1, 4, 5)

Sr. No.	Topics	Educational Strategies	Name of instructor	Importance (Must Know Should Know Nice to Know)
1.	Psycho-social Issues in Special Hospital Settings	LGIS/ Seminar	Hassan Ali	Must Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>• Equip medical students with the required skills to cope with critical psycho-social issues in exceptional hospital settings</li> </ul>				
2.	Reproductive Health	LGIS	Hassan Ali	Must Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>• Equip medical students with the required skills to cope with critical psycho-social issues in exceptional hospital settings</li> </ul>				
3.	Psycho-social Aspects of Organ Transplantation	SDL	All Faculty	Must Know
<b>Learning Outcomes:</b>				

<ul style="list-style-type: none"> <li>Equip medical students with the required skills to cope with critical psycho-social issues in exceptional hospital settings</li> </ul>				
4.	Psycho-social Issues Pediatrics Ward Oncology Operating Theater	SDL	All Faculty	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Equip medical students with the required skills to cope with critical psycho-social issues in exceptional hospital settings</li> </ul>				
5.	Psycho-social Issues Pediatrics Ward Oncology Operating Theater	SDL	All Faculty	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Equip medical students with the required skills to cope with critical psycho-social issues in exceptional hospital settings</li> </ul>				
6.	Psycho-social Issues in The Dialysis Unit & The Emergency Department	SDL	All Faculty	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Equip medical students with the required skills to cope with critical psycho-social issues in exceptional hospital settings</li> </ul>				
7.	Demonstrate knowledge, and necessary skills for Psychosocial Assessment	LGIS	Zunaira Naveed	Should Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Critically analyze the patient to provide the best care possible and help the individual obtain optimal health.</li> </ul>				
8.	Demonstrate knowledge, and necessary skills for Psychosocial Assessment	LGIS	Zunaira Naveed	Should Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Critically analyze the patient to provide the best care possible and help the individual obtain optimal health.</li> </ul>				
9.	Stress and its Management	LGIS	Zunaira Naveed	Should Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Identify sources of stress and its management towards patients, self and other staff members</li> </ul>				
10.	Job-related Stress & Burnout	LGIS	Zunaira Naveed	Must Know
<b>Learning Outcomes:</b>				

<ul style="list-style-type: none"> <li>Identify sources of stress and its management towards patients, self and other staff members</li> </ul>				
11.	Response to stress	LGIS	Zunaira Naveed	Should Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>identify sources of stress and its management towards patients, self and other staff members</li> </ul>				
12.	Understanding Psychotrauma	LGIS	Zunaira Naveed	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Equip medical students with knowledge and skills in order to respond to psycho-traumatic cases in hospital settings.</li> </ul>				
13.	Psycho-social issues in Hospital settings	Students' Presentation	All Faculty	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Equip medical students with the required skills to cope with critical psycho-social issues in exceptional hospital settings</li> </ul>				
14.	Psycho-social issues in Hospital settings	Students' Presentation	All Faculty	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Equip medical students with the required skills to cope with critical psycho-social issues in exceptional hospital settings</li> </ul>				
15.	Psycho-social issues in Hospital settings	Students' Presentation	All Faculty	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Equip medical students with the required skills to cope with critical psycho-social issues in exceptional hospital settings</li> </ul>				
16.	Psycho-social issues in Hospital settings	Students' Presentation	All Faculty	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Equip medical students with the required skills to cope with critical psycho-social issues in exceptional hospital settings</li> </ul>				
17.	Psycho-social issues in Hospital settings	Students' Presentation	All Faculty	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Equip medical students with the required skills to cope with critical psycho-social issues in exceptional hospital settings</li> </ul>				
18.	Psycho-social issues in Hospital settings	Students' Presentation	All Faculty	Must Know
<b>Learning Outcomes:</b>				

<ul style="list-style-type: none"> <li>Equip medical students with the required skills to cope with critical psycho-social issues in exceptional hospital settings</li> </ul>				
19.	Psycho-social Aspects of Death and Dying	LGIS	Hassan Ali	Should Know
<b>Learning Outcomes:</b> Prepare doctors to deal with challenges of terminal and bereavement care in clinical practice within their boundaries.				
20.	Psycho-social Aspects of Death and Dying	Role Play/ Class Discussions/ Case Study/ Videos	Hassan Ali	Should Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Prepare doctors to deal with challenges of terminal and bereavement care in clinical practice within their boundaries.</li> </ul>				
21.	Psycho-social Aspects of Terrorism	LGIS	Sara Rubab	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Discuss the impact of terrorism on mental health and its management for mental well being</li> </ul>				
22.	Psycho-social Aspects of Terrorism	LGIS	Sara Rubab	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Discuss the impact of terrorism on mental health and its management for mental well being</li> </ul>				
23.	Psycho-social Aspects of Aging	LGIS	Sara Rubab	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Identify the correlation of aging with life span, psychological factors and sociological factors.</li> </ul>				
24.	Psycho-social Aspects of Aging	LGIS	Sara Rubab	Must Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Identify the correlation of aging with life span, psychological factors and sociological factors.</li> </ul>				
25.	Class Test	Quiz	All Faculty	Should Know
<b>Learning Outcomes:</b> <ul style="list-style-type: none"> <li>Assess the students' own knowledge and learning</li> </ul>				
26.	Discussion on Class Test	Class Discussion	All Faculty	Must Know

<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>Assess the students' own knowledge and learning</li> </ul>				
27.	Interplay of Brain and Behaviour. (Emotions)	LGIS	Zunaira Naveed	Should Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>Explain the complex interplay of Brain and Behaviour.</li> </ul>				
28.	Interplay of Brain and Behaviour Motivation/ need/ drive	LGIS	Zunaira Naveed	Should Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>Describe Neurobiological and Psychological Basis of Behaviour</li> </ul>				
29.	Individual human differences (Personality Development)	LGIS	Zunaira Naveed	Must Know
<b>Learning Outcomes:</b>				
<ul style="list-style-type: none"> <li>Assess types of human personality and phases of personality development along with intelligence.</li> </ul>				
30.	Revision	LGIS/ Class Discussion	All Faculty	Must Know
31.	Revision	LGIS/ Class Discussion	All Faculty	Must Know
32.	Revision	LGIS/ Class Discussion	All Faculty	Must Know

### Learning Resources:

- Handouts prepared by faculty
- Online resources
- Lecture notes

### Teaching Faculty:

Name	Email address
Zunaira Naveed	<a href="mailto:naveedzunie@gmail.com">naveedzunie@gmail.com</a>
Hassan Ali	<a href="mailto:ha55an.qau5@gmail.com">ha55an.qau5@gmail.com</a>
Sara Rubab	<a href="mailto:sararubab753@gmail.com">sararubab753@gmail.com</a>

### Assessment formats:

Assessment Strategies (Formative)	Assessment Strategies (Summative)
<ul style="list-style-type: none"> <li>Directly observed behaviors,</li> <li>Small group discussions,</li> <li>Reflective writing Portfolios</li> <li>MCQs, Home assignments, SAQs/SEQs</li> </ul>	<ul style="list-style-type: none"> <li>Assignments,</li> <li>Case studies,</li> <li>Quiz, Presentations</li> <li>MCQs, SAQs/SEQs, OSPE, Viva</li> </ul>

## **10. Rules & regulations:**

### **i. Student's code of conduct**

The Student Code of Conduct sets out the standards of conduct expected of students. It holds individuals and groups responsible for the consequences of their actions. Failure to fulfill these responsibilities may result in the withdrawal of privileges or the imposition of sanctions.

Wah Medical College is a community of students, faculty and staff involved in learning, teaching, research and other activities. All members of the WMC community are expected to conduct themselves in a manner that contributes positively to an environment in which respect, civility, diversity, opportunity and inclusiveness are valued, so as to assure the success of both the individual and the community. The Student Code of Conduct reflects a concern for these values and tries to ensure that members of the WMC can make use of and enjoy the activities, facilities and benefits of WMC without undue interference from others.

#### **WMC STUDENT CODE OF CONDUCT**

- Discipline
- Decent dress
- Good Manners
- Smart Turn Out
- Healthy Activities
- No smoking
- No Abusive Language
- Cooperative Attitude
- Respect for All

## **ii. Attendance policy**

- a. Students are required to mark attendance for every class.
- b. The attendance is compiled by the respective department and submitted to student affairs by the 10<sup>th</sup> of each month.
- c. The Students Affairs Department will compile the absent report and a fine of Rs. 500/- for a lecture or for the whole day will be imposed on absent students. It is pertinent to mention here that a fine is imposed on students to compel them to attend classes regularly and not to generate the funds.
- d. A compiled attendance state of all students along with those having attendance less than 75% duly highlighted will be submitted to the Students Affairs Department on monthly as well as quarterly basis by the concerned departments.
- e. At the end of the academic year, a consolidated state of attendance of students will be submitted to the Students Affairs Department.
- f. Departments will submit the list of those students having attendance less than 75% at the end of academic year.
- g. Admission forms of students having attendance less than 75% will NOT be submitted to NUMS for appearing in Annual University Exams.

# 11. Study Tips

Dear Students,

Becoming a doctor is a tough job, but you can make it easier for yourself by adopting some time-tested techniques or habits. It's never too early – or too late – to develop good study habits. The sooner you get into a good self-study pattern, the easier everything will be and the more your chances of getting good marks will improve. Here are our top tips for getting the most out of your self-directed study time. And remember **Perseverance is the Key to Success!**



Review the material regularly, create a study schedule

Write it down



Test yourself

Find an effective learning environment with limited distractions and some fresh



Improve memorization with Mnemonics

Incorporate auditory methods; use online podcasts



Use visuals, images, concept maps & illustration charts

Consider forming a study group or find an accountability buddy



Take strategic breaks



## 12. Feedback on the study guide

We value your feedback and will use it for improvement of this Study guide. Kindly provide feedback for this study guide. At the email:

[dme@wahmedicalcollege.edu.pk](mailto:dme@wahmedicalcollege.edu.pk)

[dmewahmedicalcollege@gmail.com](mailto:dmewahmedicalcollege@gmail.com)

## 13. References:

HARDEN, J.M. LAIDLAW, E.A. HESKETH, R. M. (1999). AMEE Medical Education Guide No 16: Study guides-their use and preparation. *Medical Teacher*, 21(3), 248–265.

<https://doi.org/10.1080/01421599979491>

# 14. Time table Template

Wab Medical College Batch -19th 2nd Year MBBS 2023 Time Table Form				Academic Activities Medical Theory				As Per Rotation Map			
Day	8:00-8:55	8:55-9:50	9:50-10:40	10:40-11:00	11:00-12:00	12:00-01:00	01:00-01:20	01:20-02:10	02:10-03:00	03:00-04:00	
Monday	Anatomy LGIS	Anatomy LGIS	Anatomy LGIS	Break	Biochemistry LGIS	Biochemistry LGIS	Prayer Break	Diagnosis A	Diagnosis A	Diagnosis A	
	LM II	Group B: Dr. ... LM II, YR I	LM II, YR I		LM II	LM II		Diagnosis B	Diagnosis B	Diagnosis B	
								Diagnosis C	Diagnosis C	Diagnosis C	
								Diagnosis D	Diagnosis D	Diagnosis D	
								Diagnosis E	Diagnosis E	Diagnosis E	
								Diagnosis F	Diagnosis F	Diagnosis F	
Tuesday	Physiology SDL	Physiology LGIS	Anatomy GBL	Break	Anatomy GBL	Biochemistry LGIS	Prayer Break	Diagnosis A	Diagnosis A	Diagnosis A	
	LM II, YR I	LM II, YR I	LM II, YR I		LM II	LM II		Diagnosis B	Diagnosis B	Diagnosis B	
								Diagnosis C	Diagnosis C	Diagnosis C	
								Diagnosis D	Diagnosis D	Diagnosis D	
								Diagnosis E	Diagnosis E	Diagnosis E	
								Diagnosis F	Diagnosis F	Diagnosis F	
Wednesday	Physiology	Flipped classroom	Anatomy SDL	Break	Anatomy SDL	Research	Prayer Break	Clinical Rotation Ward F	Clinical Rotation Ward F	Clinical Rotation Ward F	
	LM II	LM II, YR III, YR IV, Physiol. Lab	LM II, YR I		LM II, YR I	LM II, YR I		Clinical Rotation Ward A	Clinical Rotation Ward A	Clinical Rotation Ward A	
								Clinical Rotation Ward B	Clinical Rotation Ward B	Clinical Rotation Ward B	
								Clinical Rotation Ward C	Clinical Rotation Ward C	Clinical Rotation Ward C	
								Clinical Rotation Ward D	Clinical Rotation Ward D	Clinical Rotation Ward D	
								Clinical Rotation Ward E	Clinical Rotation Ward E	Clinical Rotation Ward E	
Thursday	8:00-8:50	8:50-9:40	9:40-10:25	Break	10:25-10:35	10:35-11:20	Prayer Break	11:20-12:10	12:10-01:00	02:00-03:00	
Friday	Physiology of Anatomy & Biochemistry	Integrated Session	Autelation	Break	10:25-10:35	BSP LGIS	Prayer Break	BSP LGIS	Physiol 47 SDL	Physiol 47 LGIS	

Dr. Nomanul Hossain  
Block Incharge Y3B4  
Anatomy Department

Prof. Dr. Sumon Gul  
Coordinator 2nd Year  
Wab Medical College

Professor Dr. Muzibur Razzan  
Dean  
Wab Medical College