SMU-210 Study guide

SohagUniversity

Prepared by

Departments of:

–Human Anatomy & Embryology.

–Medical physiology & Medical biochemistry.

–Histology & cell biology, Pathology.

–Microbiology & Immunology.

–Pharmacology.

- Medical Parasitology.

Under supervision of

Medical Education Centre

Facultyof Medicine

Sohag University

2024-2025

Contents

Basic Information about the Block

- **Program on which the course is given** Bachelor of Medicine and Surgery (M.B.B.Ch.).
- **Elements (major or minor) of the program:** Undergraduate
- **Departments offering the course:**

-Department of Anatomy &Embryology. -Department of Physiology.

-Department of Pathology. –Department of Histology.

-Department of medical biochemistry

-Department of Microbiology Immunology.

-Department of Pharmacology.

-Department of Medical Parasitology.

Academic. Year/level:

2ndyear,1stsemester.

Date of specification approval:

2024-2025

Θ **Title:** Skin & Musculo- skeletal system

Θ **Code:** SMU-210

Θ **Credit points:**7.5

Weeks: 5 weeks

Θ**Lectures:**40hours

Θ**Practicals:**42 hours

Θ**Student learning activities SDL:** 113 hours.

formative assessment**:22 hours.** 9 hrs. for cases,

Θ**Total:**226 hours

Θ**Total marks**: 113

Block Map

Block	Departments involved	Code	Points	days/ week	learning activities		
					contact hours/points	format -vie assessment/ feedback k	assignments and other home and self-learning (Portfolio based evidence)
Skin &Musculoskeletal system	All department of basic sciences	**SMU -210**	7.5	5 weeks	91 3.03points	0.73 point	3.74point

NARS competencies covered by the block

NARS areas covered by the block

The competency areas of the NARS- Medicine competency framework are

1- The graduate as a health care provider.

2- The graduate as a health promoter.

3- The graduate as a professional.

4- The graduate as a scholar and scientist.

5- The graduate as a member of the health team and a part of the health care system.

6- The graduate as a lifelong learner and researcher.

Sub competencies

Upon completion of this course students should be able to:

1.1 Take and record a structured, patient centered history.

1.2 Adopt an empathic and holistic approach to the patients and their problems.

1.3 Assess the mental state of the patient.

1.4 Perform appropriately-timed full physical examination of patients, appropriate to the age, gender, and clinical presentation of the patient while being culturally sensitive.

1.5 Prioritize issues to be addressed in a patient encounter.

1.6 Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors.

1.7 Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice.

1.8. Apply knowledge of the clinical and biomedical sciences relevant to the clinical problem at hand.

1.9. Retrieve, analyze, and evaluate relevant and current data from literature, using information technologies and library resources, in order to help solve a clinical problem based on evidence (EBM).

1.10. Integrate the results of history, physical examination and laboratory test findings into a meaningful diagnostic formulation

2.1 Identify the basic determinants of health and principles of health improvement.
2.2 Recognize the economic, psychological, social, and cultural factors that interfere with wellbeing.
2.3 Discuss the role of nutrition and physical activity in health.
2.4 Identify the major health risks in his/her community, including demographic, occupational and environmental risks; endemic diseases, and prevalent chronic diseases.
3.1 Exhibit appropriate professional behaviors and relationships in all aspects of practice, demonstrating honesty, integrity, commitment, compassion, and respect.

3.2 Adhere to the professional standards and laws governing the practice, and abide by the national code of ethics issued by the Egyptian Medical Syndicate.

3.3 Respect the different cultural beliefs and values in the community they serve.

3.4 Treat all patients equally, and avoid stigmatizing any category regardless of their social, cultural or ethnic backgrounds, or their disabilities.

4.1 Describe the normal structure of the body and its major organ systems and explain their functions.

4.2 Explain the molecular, biochemical, and cellular mechanisms that are important in maintaining the body's homeostasis.

4.3 Recognize and describe main developmental changes in humans and the effect of growth, development and aging on the individual and his family.

4.5. Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic) of illness/disease and explain the ways in which they operate on the body (pathogenesis).

4.6 Describe altered structure and function of the body and its major organ systems that are seen in various diseases and conditions.

4.7.Describe drug actions: therapeutics and pharmacokinetics; side effects and interactions, including multiple treatments, long term conditions and non-prescribed medication; and effects on the population.

5.6. Evaluate his / her work and that of others using constructive feedback.

5.7. Recognize own personal and professional limits, and seek help from colleagues and supervisors when necessary.

6.1 Regularly reflect on and assess his / her performance using various performance indicators and information sources.

6.2 Develop, implement, monitor, and revise a personal learning plan to enhance professional practice.

6.3 Identify opportunities and use various resources for learning.

6.4 Engage in inter-professional activities and collaborative learning to continuously improve personal practice and contribute to collective improvements in practice.

6.5 Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters, and generate focused questions that address them.

6.6 Effectively manage learning time and resources and set priorities.

6.7 Demonstrate an understanding of the scientific principles of research including its ethical aspects and scholarly inquiry and Contribute to the work of a research study.

6.8 Critically appraise research studies and scientific papers in terms of integrity, reliability, and applicability.

6.9 Analyze and use numerical data including the use of basic statistical methods.

6.10 Summarize and present to professional and lay audiences the findings of relevant research and scholarly inquiry**.**

Professional Information
Block Aims

Overall aims

This block aims to provide students with foundations of structures (macroscopic and microscopic), functions, diseases (pathology of diseases, biochemical, bacterial immunological, & parasitic aspects diseases) and pharmacological aspects of diseases of the skin and Myo skeletal system

intended Learning Outcomes of the Block:

A-Knowledge and understanding

Upon completion of the course students should be able to:

A1-Identifyand describe the features of the bones of the pectoral and pelvic girdles, upper and lower limbs, vertebral column the skeleton.

A2-Outline the general structural and functional features of joints (particularly synovial joint) articular and periarticular structures.

A3-Know the major muscle groups of the, back, shoulder, elbow, hand, gluteal region, thigh, lowerlegandextrinsicandintrinsicmusclesofthefootandtheirmovments.

A4-Describeandlocatethemajornervesofthebrachial, lumbar plexuses, their distribution and consequences of injury to them.

A5-Describetheprinciplearteriesandveinsoftheupperandlowerlimbs.

A6—Describe lymphatic drainage of upper limb, lower limb and back

A7-DescribeImportantanatomicalfeaturesoftheupperlimb, lower limb, and back

A8-Describethe general anatomy of the vertebral column.

A9- Study limb and vertebral column development as a basis to understand the positional changes of its constituent structures (e.g. muscles, neurovascular elements, dermatomes) during pregnancy.

.A2- List the molecular functions of the contractile proteins

A3-Identify types of muscle (slow muscle versus fast muscle).

A4-Describethemolecularbasis of muscle contraction and identify sliding theory

A5- Understand the transmission of impulse from nerve to the skeletal muscle fiber

Understand the excitation contraction coupling and mechanism of relaxation

A6-Describetheneuromuscularjunction.

A7-Differinate between isometric and isotonic contraction.

A8-Understandthelengthdurationrelationship.

A9-Explaintherelationbetweenloadandvelocityofcontraction

A10- Describe the electrical and mechanical, excitability and thermal changes.

A11-Explainmuscle fatigue, metabolic changes and mechanical efficiency.

A12-Understandthemotorunit

A13-Descibetheeffectofexerciseandhormones on skeletal muscle.

A14-Identifythe effect of aging on skeletal muscle.

A15- List the types of smooth muscle and differentiate between them Ulti-unit smooth muscle and unitary (or single-unit) smooth muscle.

A16- Understandthemechanismofsmoothmusclecontractionanddifferentiateitfrom That of skeletal muscle.

A1- Describe the general characteristic histological features of skeletal muscle LM and EM. Classify muscular tissue (striated and non-striated muscles).

A2-Describethegeneralcharacteristichistologicalfeaturesofsmoothmuscle LMandEM

A3-IdentifyHistologyofskintypes (thick& thin skin). NARS4.1,5.6

A4-Describethestructureofskinappendages (hair, sebaceous gland, sweat glands (LM, EM).

A1- Identify types of Osteomyelitis (pathogenesis, pathologic features and complications).

A2-Mentionthe features of Potts disease& describe healing of bone fracture.

A3-DefineOsteodystrophiesandmentionitspathologicalfeatures.

A4- Identify Osteoarthritis and mention its types, pathogenesis& pathological features.

A5-IdentificationofSkindiseases and tumors

A1-Define calcium balance and bone remodeling.

A2-Describe the normal distribution and metabolism of calcium and phosphorus inside the body.

A3-. Enumerate Hormones and Vitamins regulate calcium metabolism and bone remodeling.

A4-Define extra cellular matrix (connective tissue) and list its major biomolecules.

A5-Describe the biochemical structure of collagen &its synthesis and Name different types of collagens.

A6-Describe the biochemical structure of elastin .List its differences from collagen.

A7-Define proteoglycans and glycosaminoglycans & describe their structure and function.

A8-List the main biochemical components of muscle fibers

A9-List main contractile proteins and accessory proteins involved in muscles contraction and functions.

A10—Describe the biochemical events that occur during one cycle of muscle contraction relaxation.

A1- List some autoimmune disorders of skin and joints

A2- List Factors controlling the skin microbial load

A3- State the sources, types and etiologies of skin and wound infections

A4-Memorize the major virulence factors of the etiologic agents of common bacterial skin infections (Cellulitis, impetigo, leprosy, syphilis and Pseudomonas burn infection).

A5-Identify the etiologic agents of some soft tissue infections (gas gangrene, necrotizing fasciitis, Actinomycosis, Madura foot and sporotrichosis).

A6-Memorize the major virulence factors of the etiologic agents of common bacterial skin infections

A7-Identify the etiologic agents of some soft tissue infections (gas gangrene, necrotizing fasciitis, Actinomycosis, Madura foot and sporotrichosis).

A8- State the source septic arthritis and osteomyelitis

A-9 List the pathogens causing septic arthritis and osteomyelitis

A1-Identify centrally acting skeletal muscle relaxants and their therapeutic merits.

A2- Classify neuromuscular (NM) blocker according to the mechanism of action.

A3-List the hazards of NM blockers and identify the antidote of their toxicity.

A4- List the major adverse effects of NSAIDs.

A5-Name drugs used for treatment of dermatophytes related infections and identify their mechanisms of action.

A6- List the antibacterial drugs used in treatment of leprosy.

A7- Identify the mechanism of action and adverse effects of drugs used in treatment of leprosy.

A8- Name topical and systemic drugs used in treatment of scabies and identify them mechanisms of action.

A1-List Parasites which infect the skin and muscle

A2-Mention the host and habitat of different parasite affecting muscle and skin.

A3-Recall and differentiate the infective and diagnostic stages.

A4-Identify mode of infection of each parasite.

B-Intellectual skills

By the end of the course, students should be able to:

B1-Compare the range of movements of the different joints of the upper & lower limbs on anatomical bases.

B2-Categorize the muscle groups of the upper & lower limbs on cadaver and plastinated specimens and correlate their actions with the points of skeletal attachments.

B3-Correlate the actions of different muscle groups with their points of attachment skeleton.

B4-Determine the effect of injury of different nerves of the upper & lower limbs.

B5-Recognize the dermatomes of the upper & lower limbs and discriminate between dermatome and coetaneous nerve.

B6-Explain the deformities occurring due to various nerve injuries.

B7-Demonstrate sites of intravenous and intramuscular injections in the upper & lower limbs.

B8-Correlate anatomical facts with cases about fractures of the vertebral column Interpret cases of abnormal curves of the vertebra.

B9-Correlate anatomical facts about the spinal cord and its meninges on the lumber puncture and caudal anesthesia.

B1- B1-Understand the effect of AChE inhibitor at the neuromuscular Junction.

B2-Know the effect of extracellular [Ca2] on the synaptic transmission at the neuromuscular junction.

B3-Understand the ionic mechanism that underlies the endplate potential (EPP) produced by acetylcholine (ACh)release.

B4-Understand the steps of neuromuscular transmission.

B5-Understand the description of neuromuscular transmission.

B6-Understandthemolecularstructureofskeletalmuscle.

B7-Study the function of the sarcoplasmic reticulum (SR).

B8-Know the molecular basis for skeletal muscle contraction.

B9-Explain the causes of muscle weakness (e.g., ocular, jaw).

B10-Identify the mechanism by which the serum K+ causes skeletal muscle weakness.

B11.understand the effect of muscular exercise on skeletal muscle

B12.Measure the mechanical efficiency and understand the O_2debt.

B13.understandtypes of smooth muscle

B14.identify the molecular basis for contraction in a smooth muscle

B1-Gathering & interpretation of information from available resources.

B2-Make presentations, videos or reports about different types of muscles

B3- Correlation between clinical cases and histological defects

B1-Understand pathological fracture

B2-Compare osteoarthritis and rheumatoid arthritis

B3-Compare and contrast squamous cell carcinoma and basal cell carcinoma

B1-Enumerate the diseases of the connective tissue

B2-know the biochemical basis of connective tissue diseases

B3-List the different sources of energy for muscle contraction under different conditions.

B4-know the biochemical basis of muscular dystrophy

B1-Explain the immune pathogenesis of common joint autoimmune disorders (Rheumatic fever, Rheumatoid arthritis and SLE)

B2-Demonstrate the immunopathogenesis common skin autoimmune disorders (systemic lupus erythematosus)

B3-Demonstratelaboratorydiagnosisofetiologicagentsofcommonbacterialskininfections

B4- Explain the pathogenesis of Acne vulgaris

B5- Explain the pathogenesis of etiologic agents of common fungal infections (Tinea by Dermatophytes, Candida and Malassezia furfur) and viral skin infections(Herpes, measles, rubella, chicken pox, fifth disease, hand foot and mouth disease and viral warts)

B6-Demonstrate the laboratory diagnosis of etiologic agents of common fungal and viral skin infections

B7- Explain the pathogenesis of soft tissue infection.

B8- Demonstrate the laboratory diagnosis of soft tissue infections.

B9-Differentiate between septic and non-septic arthritis

B10-Explain the laboratory diagnosis of important etiologic agents of septic arthritis and Osteomyelitis

B.1-Compare between the non-selective and selective cyclooxygenase inhibitor drugs.

B.2-Recognize the major therapeutic uses of NSAIDs.

B3-Discuss the possible toxic effects of anti-scabies drugs in the lights of their mechanisms of action.

B1- Demonstrate the pathological lesions in the skin and muscle caused by each parasite.

B2-Explain host-parasite relationships (pathogenesis and main symptoms of each parasite).

C-Psychomotor skills

By the end of the course, students should be able to:

C1-Display the structures of various upper & lower limbs bones, cartilage and joint

C2-Use plastic models and plastinated specimens to differentiate various muscle groups of the shoulder, arm forearm and the hand and gluteal region, thigh, leg & foot.

C3-Display general structures of the muscles, nerves and blood vessels of the upper & lower limbs.

C4- Draw diagrams for distribution of the important nerves of the upper & lower limbs.C5- Identify the branches of the arteries of the upper& lower limbs on unlabeled diagrams.

C6-Use plastic models to demonstrate sites of injections of the upper & lower limbs.

C7-Identify the characters of the vertebra in the different regions.

C8-Identify the beginning, end and blood supply of the spinal cord and its meninges.

C9-Identification of the different muscles of the back and their nerve supply

C1-know the effect of multiple successive stimuli on S.M.T

C2-Define clonus and tetanus

C3-Understand their causes

C4-Identify fatigue and underset its causes.

C5-Understand the effect of hot and cold saline on clonus

C6. Describe the

mechanism, uses and clinical application of the E.M.G

C7. Interpret its results

C1- Identify Slides/labeled diagrams of skeletal & smooth muscles **(LM, EM)**

C2-Use the microscope and power point and diagrams to differentiate between skeletal, cardiac and smooth muscular tissues (LM, EM)

C3-Draw H&E-stained sections and special stained sections for L.S and T.S sections of different muscles**.**

C-5-Slides/labeled diagrams of skeletal & smooth muscles

C6-Use the microscope and power point to differentiate between skeletal, cardiac smooth muscle tissue

C7-Draw H&E-stained sections and special stained sections for L.S and T.S sections of different muscles

C8-Identify slides/labeled diagrams of different types of skin (LM, EM)

C9- Recognize different types of epidermal & dermal components slides/labeled diagrams of skin type

C10- Interpretation different components of skin sections Using microscope & power point and diagrams (LM, EM)

C11-Draw sections and label diagrams of thin and thick skin (LM, EM)

C12-Identify slides/labeled diagrams of different types of skin appendages (LM, EM)

C13- Recognize different components of skin sections Using microscope & power point and diagrams (LM, EM)

C14-Draw sections and label diagrams of thin and thick skin appendages (LM, EM)

C1-Identify gross features of benign and malignant bone tumors (Osteoma,chondroma,Osteosarcoma,chondrosarcoma,Giantcelltumor)

C2-Identify microscopic features of benign and malignant bone tumors

C3-Identify gross and microscopic features of skin tumor

C1- Define normal values of calcium, phosphorus, vitamin D, Parathyroid hormones.

C2-Explain the principle of measurement of serum calcium & phosphate and their diagnostic importance. (4.8)4.8

C.3-Describe the function of alkaline phosphatase in bone structure & the diagnostic importance and the principle of its estimation in serum.

C4-Differentiate between different causes of hypercalcemia and hypocalcemia.

C5- Enumerate Biochemical Markers of Bone Formation and Bone Resorption.

C6-Analyse patient report.

C1- Identify the method of specimen collection including the transportation of specimens, storage and microbiological processing.

C2. Identify the microscopic features of causative bacterial and fungal pathogens.

C3. Manipulate the media and the biochemical reactions used for bacterial and fungal identification

C4. Identify the laboratory techniques for diagnosis of causative viral pathogens

C1-Recognize the actions of acetylcholine on the NM receptors at the motor end plate And to list toxins and drugs which affect the normal function of the motor end plat.

C2-Name competitive and Depolarizing NM blockers and identify their actions.

C3-Explain the reversibility of actions of each NM blocker.

C4-Demonstrate the actions of competitive and Depolarizing NM blockers on the isolated rectus abdominus of the frog.

C5-Define succinyl choline apnea, malignant hyperthermia and curare poisoning.

C6-To classify local anesthetics and identify their actions on both peripheral and central nervous systems.

C7-To mention the techniques of local anesthesia.

C8- To explain why vasoconstrictors are added to local anesthetics in certain conditions and to mention when this combination could be hazardous.

C9-To demonstrate the effects of lidocaine on the corneal reflex in a rabbit.

C10-To list adverse effects of local anesthesia.

C1-Identify the diagnostic stages of the parasites under microscope

C-2. Demonstrate the macroscopic and microscopic diagnostic features of causative parasitic infections.

D-General and transferable skills

D1- Practice the skill of self-learning.

D2-Demonstrate personal responsibility.

D3- Practice the skill of respect colleagues.

D4-Adherethe value of teamwork by acting in small group.

D5-Qualify adequate cooperation with his/her colleagues.

D6-Justify the efforts required to accomplish the tasks in specified time.

D7-Set the use of sources of biomedical information to remain current with advances in knowledge and practice.

D8-Display freely, keep in genetical behavior

D9-Share in the work efficiently with the instruments and equipment's of the department in a responsible manner keeping the mint act and clean.

D10-Modify his capability to describe, discuss and solve problems.

D11-Reflect on and assess his/her performance using various performance indicators and information sources.

Structure of the block

	Lectures	Practical	SDL	Small group discussions	Formative assessment	Total
Contact Hours	40hours	42hours	113 hours	9 hours	22hours	226
Credit	**1.33**	**1.4**	**2.7**	**0.3**	**Formative assessment (0.73** **Total points= 7.5 points**	

Learning Methods

1- Lectures for knowledge and intellectual skill outcomes.

2- Practical sessions to gain practical skills aided with the practical book.

3- Self-directed learning (SDL) for the topics studied in lectures or related topics, including libraries, E learning (practical photographs and questions of different topics available online for student's assessments) and consulting professors for gathering information.

4- Group discussions (Case–based).

Methods of Student Assessment

1. Formative:

This is used to monitor student's learning to provide ongoing feedback that can be used by instructors to improve their teaching and by students to improve their learning.

It's given at least once in the form of quizzes that is made available for the students at the E-learning site at the end of the block.

Answers are presented instantly after the attempts and discussed on the students groups or in person with the teaching staff

Questions should be consistent with the level of the final exam. The student's attendance is a condition for entering the summative exams. The electronic or paper achievement file must be used to follow up on the students' evaluation, and its completion is a condition for entering the final exams

2. Summative

It is used to evaluate student's achievements at the end of an instructional unit. The grade stell whether the student achieved the learning goal or not.

The student's performance will be assessed according to the following:

Assessment task	Type of assessment	Proportion of total assessment	
		%	Marks
Mid-block exam	MCQ	20%	23 marks
Portfolio		10%	11 marks
Final written exam	50% MCQ (best answer)50%questions unlabeled diagrams, matching Questions + structured short assay	40%	45 marks
OSPE Final		30%	34 marks
Total		**100%**	**113 marks**

Block evaluation

- Students ‘results
- Students' feedback
- Tutors ‘feedback

Block Contents

Lecture Topics and Their Intended Learning Outcomes

No.	ILOs	Lectures Titles	Week No.	Contact Hours
1.	A.1	1- Bones & joints of the upper limb **(Anatomy).** ***Oxford handbook of medicalsciencepages278-285),***	1st	1hr
2.	A1, A.2, A.3, B2	2- Bone Remodeling and calcium Balance **(biochemistry).** ***Lippincott illustrated reviewsintegratedsystem Page:106-108***	1st	1hr
3.		3- Inflammatory diseases of the bone, healing of bone fractures (**Pathology)** ***Lippincott illustrated reviewsintegratedsystem Page:106-108***		1hr
4.	A1,A.3, B2	4- Bone Tumors **(Pathology)** ***Lippincott illustrated reviewsintegratedsystem Page:106-108***	1st	1hr
5.,6	A1, A4,B 2	5, 6- Muscles of the upper limb **(Anatomy)** ***Oxford handbook of medicalscience pages 286--296),Musculoskeletal System basicscience and clinical conditions2ndeditionpage 22***	1st	2hr
7	A1,A.8	7-Histologyof skeletal muscle **(histology)** ***Integrated Systems Lippincottillustratedreview,p. 122***	1st	1hr

8	A14,A17,A18 B8,B9	8-Histology of smooth muscle ***Histologyofmuscles(Skeletal,cardiac,smooth)p129-135***		1hr
9,10	A1,A5	9, 10- Nerves of the upper limb + Axilla **(Anatomy)** ***Oxford handbook of medicalsciencepages 296-300***	1st	2hr
11		11- Biochemistry and Metabolism of Skeletal muscles ***Lippincottillustrated reviewsintegratedsystem Page:98-101***	2nd	1hr
12	A9, A10, B7	12- Histology of skin types (thick &thin skin) Histology of skin appendages **(Histology)** ***Integrated Systems Lippincottillustrated review Skinand skinappendagesp.138-139***	2nd	1hr
13		13- Autoimmune disorders of the joints and the skin (**microbiology)** Lippincott's illustrated reviews,100,101,112,113,133 Integrated Medicinal Sciences. The Essentials165-168	**2nd**	1hr
14	A13,A14 ,A15, B 9	**14- Functional structure of the muscle, Types of muscle (slow muscle versus fast muscle).** ***SystemsofThe BodyThe MusculoskeletalSystempage110:112 2-Elsevier Integrated Physiology Page113:118.***	2nd	1hr

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15, 16	A1	**15, 16 -Cross bridge cycling Neuromuscular junction and the excitation-contraction coupling mechanism. (Physiology)** *1-* ***Systems Of The BodyTheMusculoskeletalSystemPage112:122.*** ***2-Elsevier Integrated hysiologyPage118:131.*** ***3-LippincottIntegratedystemsPage123:124*** ***4-Human body in health anddisease***	2nd	2hr
17,18	A13,A14,A15, B 9	17,18- Vessels of the upper limb + Cubital fossa + Anatomical snuff box + Retinaculum of the upper limb **(Anatomy)** ***Oxford handbook of medicalsciencepages306-319),*** -	2nd	2hr
19	A1,A.8	19- Bones & joints of the lower limb **(Anatomy)*****Oxford handbook of medicalsciencepages320***	2nd	1hr
20	A1,A.8	20- Muscles of the lower limb (**Anatomy**) ***Oxfordhandbook of medical sciencepages320***	3rd	1hr
21	A1,A8	21-Osteodystrophies**(pathology)*****Elsevier integrated Pathology:p156-158***	3rd	1hr

22,23	A1,A8	22- Skeletal muscle relaxants **(pharmacology)** *-Elseviers Integrated ReviewPharmacology E-Book (2). chapter13Page 205-206* - *LippincottIllustratedReviews:Integrated Systems (RichardHarvy).Page 124* 23- Non-steroidal anti-inflammatory drugs(NSAIDs) **(pharmacology)** *-Elseviers Integrated ReviewPharmacology E-Book (2). chapter10page 164-168* - *LippincottIllustratedReviews:Integrated Systems (RichardHarvy).Page 112*	3rd 3rd	1hr 1hr
24. 25	A14,A18 ,A17,B8, B9	24,25- Nerves of the lower limb **(Anatomy)** *Oxfordhandbookofmedicalscience pages324-327),*	3rd	2hr
26	A1,A8	26- Biochemistry of connective tissue. **(Biochemistry** *Lippincottillustrated reviewsintegratedsystem page138*	3rd	1hr
27	A1,A.8	**27-The muscle mechanics: Muscle fatigue and metabolic changes. Control of muscle functions (motor unit) (Physiology)** 1*-Systems Of The BodyTheMusculoskeletal Systempage 112.2-Elsevier Integrated PhysiologyPage 118. 3-LippincottIntegratedSystems ,126:128&252*	3rd	1hr

28	A1,A8	**28-Adaptation to exercise. The aging& skeletal muscle. The contractile process of smooth muscle (1hr) (physiology)** 1- ***SystemsofThe BodyThe MusculoskeletalSystemPage 112:122.*** 2- ***Elsevier Integrated PhysiologyPage131:135.***	3rd	1hr
29	A1,A.8	29- Diseases of joints. **(pathology)** ***Elsevier integrated Pathology:p153-154***	3rd	1hr

30		30 - Soft tissue infections, osteomyelitis and septic arthritis **(microbiology)** ***Lippincott'sillustratedreviews,136-138*** ***Elsevier's Integrated Review:Immunology & Microbiology108,111,112,144***	3rd	1 hr
31, 32	A1,A8	31, 32 - Vessels of the lower limb + Lymph nodes + Femoral triangle + Popliteal fossa + Adductor canal + Saphenous opening (Anatomy).***Oxford handbook of medicalsciencepages327-333)***	4th	2hr
33	A9, A10, B7	33-Skin diseases and tumors **(Pathology)** ***Elsevier integrated Pathology:p144-151***	4tn	1hr
34,35	A9, A10, B7	34,35-Skin infections (bacterial, Fungal& viral skin infections)**(microbiology)*****Lippincott's illustrated reviews,132-136*** ***Elsevier's Integrated Review:Immunology & Microbiology 105-108,112,116,117,119,120*** ***Lippincott'sillustratedreviews, 136-138*** ***Elsevier's Integrated Review:Immunology & Microbiology131-135143,145***	4th	2 hrs
36, 37	A14, A17, A18, B8, B9	36, 37- Parasites causing infection of skin and muscle **(Parasitology)** ***Garcia, Lynne Shore, and David A. Bruckner. Diagnostic Medical Parasitology. New York: Elsevier, 2016***	4th	2hr

38	A9, A10, B7	38-Drugs used in treatment of fungal (skin infections, leprosy and scabies. **(pharmacology)** **Elseviers*IntegratedReviewPharmacology E-Book (2). chapter4 page 65-70 LippincottIllustratedReviews:IntegratedSystems(RichardHarvy).Page 136-138***	4th	1hr
39.40		39,40- Retinacula around ankle joint + Foot arches + Back + Development **Anatomy**	4th	2hr
		Total		**40hrs**
		Exams	**5thwk**	

Practical Topics and Their Intended Learning Outcomes

No.	ILOs	Practical Topic	wks	hrs
1		1- Bones & joints of the upper limb (**Anatomy**)	**1st**	2hrs
2		2- Muscles of the upper limb (**Anatomy**)	1st	2hrs
3		3- Nerves of the upper limb + Axilla (**Anatomy**)	1st	2hrs
4	C1,C2	2- Biochemical Features in Common Disorders of Calcium and Bone Metabolism (**Biochemistry**)	1st	2hrs
5	C1,C2	3-Identify gross features of benign and malignant bone tumors (**pathology**)	1st	2hrs
6	C2,C3	6-Identify microscopic features of benign and malignant bone tumors (**pathology**)	1st	2hrs

7	C1,C7,	7-Histology of skeletal & smooth muscles (**Histology**)	1st	2hrs
8		4- Vessels of the upper limb (**Anatomy**)	2nd	2hrs
9		5- Bones & joints of the lower limb (**Anatomy**)	2nd	2hrs
10		6- Muscles of the lower limb (**Anatomy**)	3rd	2 hrs
11		7- Nerves of the lower limb (**Anatomy**)	3rd	2 hrs
12.	C1, 2, 3	1-Simple Muscle Twitch (SMT) and Effect of multiple stimuli (**Physiology**)	3rd	2hrs
13	C2,C3,C4,C5	2- Neuromuscular (NM) blockers (**pharmacology)**	3rd	2hrs
14	C4, 5	4- Effect of temperature and fatigue on clonus (**Physiology**)	3rd	2hrs
15	C6-C10	5-Local anesthesia (**pharmacology)**	3rd	2hrs
16		8- Vessels of the lower limb Femoral triangle + Popliteal fossa (**Anatomy**)	4th	2hrs
17	C7-14	1-Identify histology of skin & its appendages (**Histology**)	4th	2hrs
18	C6, 7	2- Electromyography (EMG) (**physiology**)	4th	2hrs
19	C3	2-Identify gross and microscopic features of skin tumors (**pathology**)	4th	2hrs

20	C1,C2,C 3,C4	3-Lab Diagnosis of the infections of the wounds (**Microbiology**)	4th	2 hrs
21	C1,C2	4—Parasites of skin & muscle **(Parasitology)**	4th	2 hrs

		Total		**42 Hours**
		Exam	**5thwk**	

Self-Directed Learning and Group Discussion (cases)Topic

department	Topics	Week	Hours
physiology	**2- Mytheniagravis**	**2 nd**	**1 h**
physiology	**8- Myopathy & Muscular exercise, smooth muscle contraction deficit. Muscle Dystrophy**	**3 rd**	**1 h**
Medical Parasitology	**11. Cases on Parasites affecting skin and muscle**	**4th**	**1 hour**
Medical Microbiology	5-Auto immune disease &soft tissue infection (Microbiology)	3rd	1 hr
Medical biochemistry	.Calciumdisorders 1-Rickets 2-ostemalacia	2 nd	1 hr
Medical biochemistry	Muscle&connective tissue diseases: Muscular dystrophy (Duchene) -Glycogen storage disease -Mitochondrial Encephalomyopathy	2 nd	1 hr
Anatomy	Muscles of upper limb	1st	2
	Nerves of upper limb	2nd	2
	Joints of lower limb	3rd	2
	Vessels of lower limb	4th	2
Histology	--Cases about histology of the muscles	2nd	1 h
	-cases of skin histology	4th	1 h
Pathology	Pathological fracture &Compare osteoarthritis and rheumatoid arthritis (pathology) **(1 hr)**	3rd	**1 hr**
	Cases to Compare and contrast squamous cell carcinoma and basal cell carcinoma (1hr)	4th	**1 hr**

Formative assessment

This is used to monitor student's learning to provide ongoing feedback that can be used by instructors to improve their teaching and by students to improve their learning.

It's given at least once in the form of quizzes that is made available for the students at the E-learning site at the end of the block.

Answers are presented instantly after the attempts and discussed on the students groups or in person with the teaching staff

Questions should be consistent with the level of the final exam. The student's attendance is a condition for entering the summative exams. The electronic or paper achievement file must be used to follow up on the students' evaluation, and its completion is a condition for entering the final exams

Blueprint of the block

department	lecture	week	hours	Mid-block marks	Final block Marks	Total marks
physiology	**15- Functional structure of the muscle, Types of muscle (slow muscle versus fast muscle).**	**2 nd**	**1 h**	**1**	**1**	**2**
physiology	**16, 17- Cross bridge cycling Neuromuscular junction and the excitation-contraction coupling mechanism.**	**2 nd**	**2 hs**	**1**	**2**	**3**
physiology	**27- Muscle mechanics: Muscle fatigue and metabolic changes. Control of muscle functions (motor unit)**	**3 rd**	**1 h**	**1**	**1**	**2**
physiology	**28- Adaptation to exercise. The aging& skeletal muscle. The contractile process of smooth muscle**	**3 rd**	**1 h**	**-**	**1**	**1**
pharmacology	22-Skeletal muscle relaxants	**3 rd**	1 hour	-	2	2
pharmacology	23-Non-steroidal anti-inflammatory drugs(NSAIDs)	**3 rd**	1 hour	1	1	2
pharmacology	35-Drugs used in treatment of fungal (skin infections, leprosy and scabies.	**4 th**	1 hour	-	1	1
Medical Parasitology	**34.** Parasites causing infection of skin and muscle	**4th**	**2 hours**	---------	**4 Marks**	**4 marks**
Medical Microbiology and immunology	14- Autoimmune disorders of the joints and the skin (microbiology)Lippincott's illustrated reviews,100,101,112,113,133 Integrated Medicinal Sciences. TheEssentials165-168	**2nd**	1hr	1		1
	. 30 - Soft tissue infections, osteomyelitis and septic arthritis **(microbiology)**	**3rd**	1 hr	1	1	2
	34-Skin infections (bacterial, Fungal & viral skin infections)**(microbiology)**	**4th**	2hrs	--------- ---	3 Marks	3
Medical biochemistry	2- Bone Remodeling and calcium Balance	**1 st**	1 hr	1	1	2

	13-Biochemistry and Metabolism of Skeletal muscles	**2 nd**	1 hr	1	1	2
	21-Biochemistry of connective tissue	**3 rd**	1 hr	-------	1	1
Anatomy	1- Bones & joints of the upper limb	**1st**	1	1	1	2
	2- Muscles of the upper limb	**1st**	2	1	2	3
	3- Nerves of the upper limb + Axilla	**1st**	2	1	3	4
	4- Vessels of the upper limb + Cubital fossa + Anatomical snuff box + Retincula of the upper limb	**2nd**	2	2	2	4
	5- Bones & joints of the lower limb	**2nd**	1	1		1
	6- Muscles of the lower limb	**3rd**	1	1	1	2
	7- Nerves of the lower limb	**3rd**	2	2	2	4
	8- Vessels of the lower limb + Lymph nodes + Femoral triangle + Popliteal fossa + Adductor canal + Saphenous opening	**4th**	2	1	2	3
	9- Retinacula around ankle joint + Foot arches + Back + Development	**4th**	2	1	2	3

Histology	Histology of skeletal muscle Histology of smooth muscle Histology of the skin	1st 1st 2nd	1 1 1	1 1 0	1 0 2	
Pathology	1) Inflammatory diseases of the bone,healing of bone fractures	1st	1hr	2	----	2
	2) Bone Tumors	1st	1hr	--------	2	2
	3) Osteodystrophies	3rd	1hr	----	2	2
	4) Diseases of joints.	3rd	1hr	----	2	2
	5) Skin diseases and tumors	4th	1hr	----	1	1

Topics of practical

department	Topics	week	hours	marks
physiology	**13- Simple Muscle Twitch (SMT) and Effect of multiple stimuli**	**3 rd**	**2 hs**	**2**
physiology	**16- Effect of temperature and fatigue on clonus**	**3 rd**	**2 hs**	**2**
physiology	**20 - Electromyography (EMG)**	**4 th**	**2 hs**	**1**
pharmacology	2- Neuromuscular (NM) blockers **(pharmacology)**	3rd	2hrs	2
pharmacology	5-Local anesthesia **(pharmacology)**	3rd	2hrs	2
Medical Parasitology	**23. Parasites causing infection of skin and muscle**	**4th**	**2 hours**	**1**
Medical microbiology	20- Lab Diagnosis of the infections of the wounds	4th	2 hrs	2
Medical biochemistry	- Biochemical Features in Common Disorders of Calcium and Bone Metabolism	1 st	2 hrs	1
Anatomy	1- Bones & joints of the upper limb	1st	2	2
	2- Muscles of the upper limb	1st	2	2
	3- Nerves of the upper limb + Axilla	1st	2	2
	4- Vessels of the upper limb	2nd	2	2
	5- Bones & joints of the lower limb	2nd	2	1
	6- Muscles of the lower limb	3rd	2	1

	7- Nerves of the lower limb	3rd	2	2
	8- Vessels of the lower limb Femoral triangle + Popliteal fossa	4th	2	1
Histology	Histology of skeletal muscle And smooth muscle Histology of the skin	1st 4th	2 2	2 2
Pathology	Identify gross features of benign and malignant bone tumors	1st	2	1.5
	Identify microscopic features of benign and malignant bone tumors	1st	2	1.5
	Identify gross and microscopic features of skin tumors	4th	2	1

Lecture Outlines

Lecture (1)
Bones and joints of the upper limb

Objectives:

By the end of the lecture the student will be able to:

1- Recognize the general features of the upper limb bones.
2- label the special features of the upper limb bones.
3- Display the structures of various upper limb joints.
4- Describe the movements of the important joints of the upper limb
5- List factors maintaining stability of the upper limb joints.
6- Compare the range of movement of the different joints of the upper limb on an anatomical basis.

Contents:

Important general features of the upper limb bones (scapula. Clavicle, humerus, radius, ulna and hand bones).
Joints of the upper limb; shoulder, elbow, wrist and joints of the hand (type, articular surfaces, ligaments and movements).

Lectures (2)
The Biochemistry and metabolism of Bone (bone Remodeling)

By the end of the lecture the student will be able to:

1- Define calcium balance and bone remodeling.
2- Describe the normal distribution and metabolism of calcium and phosphorus in the body.
3- Enumerate hormones and vitamins regulate calcium metabolism and bone remodeling.
4- Enumerate and describe the biochemical changes in bone remodeling disorders

- **Contents of the lecture:**

1- The process of bone remodeling.
2- Calcium & Phosphorus metabolism.
3- Role of parathyroid and estrogen hormones, Vitamin D, and calcitonin in bone remodeling.
4- Disorders of bone and joint

Lectures (3)
Inflammatory diseases of the bone, healing of bone fractures

By the end of the lecture students will be able to:

-Define Osteomyelitis, mention its types

- Describe Acute hematogenous osteomyelitis pathogenesis, pathologic features and complications).
- Mention the features of Potts disease
- Describe healing of bone fracture

Lectures (4)

Bone Tumors

Objectives& contents

By the end of the lecture students will be able to:

-Classify bone tumors

- Mention the gross and microscopic features of Osteoma and chondroma, exostosis examples of benign tumors

- Describethegrossandmicroscopic features of Osteoclastoma,Osteosarcoma, Chondrosarcoma, Ewingssarcoma and Plasma celltumor

Lectures (5,6,7)

Anatomy of muscles & movements of the upper limb

By the end of the lecture students will be able to:

Learning objectives

After this lecture, students should be able to:

1- Understand the classification of the muscles of the different regions of the upper limb.
2- Correlate their actions with the points of skeletal attachments.

Content of the lecture

1- Muscles of the shoulder region (their action & nerve supply)
2- Muscles of the arm (their action & nerve supply)
3- Muscles of the forearm (their action & nerve supply)
4- Muscles of the hand (their action & nerve supply)

Lectures (8)

Histology of muscular tissue

By the end of the lecture students will be able to:

1- Know the general characteristics of muscle tissue.
2- Discriminate major contractile proteins.
3- List different types of filaments.
4- Describe the microscopic structure of skeletal muscle.
5- 5-Define the sarcomere.

6- Describe the ultrastructure of sarcomere and different bands.
7- Identify regulation of sarcoplasmic contraction and its deficiency as Duchenne's Muscular Dystrophy

Contents of the lecture:

1- General characters of different muscle types.
2- Types of major contractile proteins.
3- Types of filaments.
4- Microscopic structure of skeletal muscle.
5- Ultrastructure of sarcomere.
6- Regulation of muscular contraction

Lectures (9)
Histology of muscle tissue (Cardiac muscle)

By the end of the lecture the student will be able to:

1- Know the structure of cardiac muscle.
2- Identify the contractile properties of cardiac myocytes.
3- Discriminate sarcoplasmic reticulumorganizationindifferenttypesofmuscles.4- Describe smooth muscle structure.
5- Know contraction of smooth muscle and its regulation.
6- Compare the different types of muscles (skeletal, cardiac and smooth).

Contents of the lecture:

1- Microscopic structure of cardiac muscle.
2- Cardiac muscle contraction.
3- Organization of sarcoplasmic reticulum in different types of muscles.
4- Structure of smooth muscle.
5- Comparison between different types of muscles

Lecture (10)
Functional structure of the muscle

Objectives &contents:

By the end of the lecture students will be able to:

A1-Identifythe general functional structure of skeletal muscle.
A2-List the molecular functions of the contractile proteins.
A3-Identify types of muscle (slow muscle versus fast muscle).

Lecture (11)
Upper limb innervation

Objectives:

By the end of the lecture students will be able to:

1- Draw diagrams for distribution of the important nerves of the upper limb.
2- Memorize branches of the bringers of the brachial plexus.
3- Determine the effect of injury of different nerves of the upper limb.
4- Explain the deformities occurring due to various nerve injuries.

Contents:
1-Brachialplexus

- Definition
- Mode of formation
- Big branches and their distribution
- Effects of whole plexus and individual nerve injuries.

Lecture (12)
Upper limb blood and lymphatic vessels

Objectives:
1- Name the main branches of the arteries of the upper limb.
2- Identify the branches of the arteries of the upper limb on unlabeled diagrams.
3- Use plastic models to demonstrate sites of intravenous injections of the upper limb.

Contents:
1- Arteries of the upper limb; axillary, brachial, radial and ulnar arteries (beginning, termination and important branches).
2- Venous system of the upper limb (superficial and deep veins).

Lecture (13)
Biochemistry and Metabolism of Skeletal muscles

Learning Objectives
-List main contractile proteins and accessory proteins involved in muscle contraction and their functions.
-List the different sources of energy for muscle contraction.
-Know the biochemical bases of muscle diseases.

Contents of lecture
-Proteins of myofibril, sarcomere, intermediate filament, and microtubules
-Accessory muscle proteins help in muscle contraction
-Energy sources during muscle contraction
-Difference between sprint and marathon
-Diseases of muscle
-Muscle dystrophy
-Mitochondrial encephalomyopathy

Lectures (14)
Histology of Integumentary System

By the end of the lecture students will be able to:

1-Know the function and general properties of integument.
2-Identify the layers of skin.
3-Describe the structure and ultrastructure of skin cell layers.
4-Define &layers of epidermis
5-Describe the structure of skin appendages (sebaceous gland, sweat gland, hair)
6-Compare skin types.
7-Evaluate the relation between different types of epidermal cells.
8-Know the innervations of the integument.
9-Adapte cell structure and function and some skin problems.

Contents of the lecture:
1- Functions of the integument
2- General properties of the integument
a-Thickness (thick & thin skin) b-Hair
3- Layersofthe skin and cells (histological structure)
a-Epidermis b-Dermis and Hypodermis
4-Glandsoftheintegument (histological structure)
a-Sweat glands b-Sebaceous glands
5-Hair (histological structure)
6-Innervation of the integument

Lecture (15)

Overview of bones and joints of the lower limb

By the end of the lecture the student will be able to:
1-Identify the regions of the lower limb
2-Know general feature of the skeleton of the lower limb.
3-Know the anatomical aspects of the bones and cartilages of the lower limb.
4-Describe the structure and function of different types of joints of the lower limb.
• **Contents:**
1- Regions of the lower limb.
2- Bones of the lower limb and pelvic girdle
3- Anatomy of the hip joint, Knee joint, Tibiofibular joints, ankle joint (bones, ligaments, stability, capsular attachments, movements and its related bursa).
4- The Anatomy of the Joints of the foot

Lectures (16-17)
Crossbridge cycling Neuromuscular

Objectives & contents:
By the end of the lecture students will be able to:
A1-Describe the molecular basis muscle contraction and identify sliding theory
A2-Describe the neuromuscular junction. Understand the transmission of impulse from nerve to the skeletal muscle fiber.
A3-Understand the excitation contraction coupling and mechanism of relaxation

Lectures (18,19,21)
Anatomy of muscles & movements of the lower limb

By the end of the lecture the student will be able to:
Learning objectives
After this lecture, students should be able to:
1- Understand the classification of the muscles of the different regions of the lower limb.
2- Correlate their actions with the points of skeletal attachments.
Content of the lecture
1- Musclesoftheglutealregion (their action& nerve supply)
2-Musclesofthe thigh (their action & nerve supply)
3-Muscles of the leg (their action & nerve supply)
4-Muscles of the foot (their action & nerve supply)

Lecture (20)
The muscle mechanics

By the end of the lecture the student will be able to: Objectives & contents:
A1. Difference between isometric and isotonic contraction).
A2-Understandthelengthdurationrelationship.
A3- Explain the relation between load and velocity of contraction
A4- Describe the electrical and mechanical, excitability and thermal changes.
A5-Explainmuscle fatigue, metabolic changes and the mechanical efficiency.
A6-Understandthe motor unit

Lecture (22)
The Biochemistry and metabolism of connective tissue

Learning Objectives
- List the major biomolecules connective tissue.
Describe the biochemical structure of collagen & its synthesis. -
-Describe the biochemical structure of elastin. List its differences from collagen.
Describe the structure and functions of proteoglycans and glycosaminoglycans. -
-List the diseases of the connective tissue and know its biochemical bases.
Contents of lecture
-Biochemical composition of the connective tissue.
-Fibers of the connective tissue.
-Structure and types of collagen fiber.
-Important enzymes and coenzymes enter in collagen synthesis.
-Structure of elastin fiber.
-Difference between elastin and collagen fiber.
- Components of amorphous ground substance of the connective tissue
-Proteoglycan and glycosaminoglycan enter in connective tissue.
-Collagen fiber related diseases.

Lecture (23)
OSTEODYSTROPHIES

Objectives contents:

By the end of the lecture the student will be able to:
A1-DefineOsteodystrophies
A2- Mention the pathological features of Fibrous dysplasia, Rickets, osteoporosis and Osteitis fibrocystic

Lecture (24)
Diseases of Joints

Objectives & contents:

By the end of the lecture students will be able to:
A1-Definearthritisandmentionits types
A2-Identify Rheumatoid arthritis and mention pathogenesis, pathological features and effects.
A3- Identify Osteoarthritis and mention pathogenesis, pathological features and effects.

Lecture (25)
Skeletal muscle relaxants

By the end of the lecture, the student will be able to:
1-Identify centrally & peripherally acting skeletal muscle relaxants.
2-Classification and mechanism of action of NM blockers.
3-List toxic effects of NM blockers.

Lecture (26)
Soft tissue infections, osteomyelitis and septic arthritis

By the end of the lecture, the student will be able to:
-Identify the etiologic agents of some soft tissue infections (gas gangrene, necrotizing fasciitis, Actinomycosis, Madura foot and sporotrichosis).
-Explain the pathogenesis of some soft tissue infections.
- Demonstrate the laboratory diagnosis of some soft tissue infection.
-Differentiate between septic and non-septic arthritis.
-State the sources septic arthritis and osteomyelitis
- List the pathogens causing septic arthritis and osteomyelitis
-Explain the laboratory diagnosis of important etiologic agents of septic arthritis and osteomyelitis

Lecture (27)

innervation of the lower limb.

By the end of the lecture students will be able to:

1-Describe the innervation of the different regions of the lower limb.
2-Know the distribution of the great nerves.
3-Knowthe site of injection to the gluteal region.

Contents of the lecture:

1-Recognize the formation and branches of the lumbosacral plexus.
2-Outline distribution of the femoral nerve
3-Outline distribution of the obturator nerve
4-Outline distribution of the sciatic nerve
5-Recognize sites of intramuscular injection the gluteal region

Lectures (28)

Lower limb blood and lymphatic vessels

By the end of the lecture students will be able to:

1-Describe the arterial supply of the lower limb (main arteries & their distribution).
2-List the veins of the lower limb.
3-Know the distribution of the lymphatic vessels & lymph nodes of the lower limbs.
4-Enumerate the retinaculum of the lower limb.

Contents of the lecture:

1- Distribution of the arterial supply of the lower limb
2- Venous system of the lower limb
3- *Lymphatic drainage* of the lower limb
4- The retinacula of the lower limb

Lecture (29)

-Adaptation to exercise the aging &skeletal muscle.

Objectives & contents:

By the end of the lecture students will be able to:

A1-Descibe the effect of exercise and hormones on skeletal muscle
A2-Identifythe effects of aging skeletal muscle
A3- List the types of smooth muscle and differentiate between them Ulti-unit smooth muscle and unitary (or single-unit) smooth muscle.
A4-Understand the mechanism of smooth muscle contraction and differentiate it from . that of skeletal muscle

Lecture(30)

Non-steroidalanti-inflammatorydrugs(NSAIDs)

Objectives & contents:
By the end of the lecture the student will be able to:
1- List the pharmacological actions of NSAIDs
2- Identify the mechanism of action of NSAIDs
3- Compare between the non-selective and selective cyclooxygenase inhibitor drugs.
4- Recognize the major therapeutic uses of NSAIDs.
5- List the major adverse effects of NSAIDs

Lectures (31)

Important anatomical features of the upper & lower limb

Objectives:

By the end of the lecture students will be able to:

1- Demonstrate boundaries and contents of the axilla, cubital fossa, carpal tunnel and anatomical snuffbox.
2- Identify boundaries and contents of the femoral triangle, adductor canal, popliteal fossa.

Contents of the lecture:
1-Outline boundaries and contents of axilla, cubital fossa, carpal tunnel and anatomical snuffbox.
1-Outline Boundaries and contents of the femoral triangle, the adductor canal & popliteal fossa.

Lectures (32)

SKIN DISEASES AND TUMORS

By the end of the lecture students will be able to:

- Mention Classification of skin tumors.
- Describe the predisposing factors, gross and microscopic features of Squamous cell carcinoma and Basal cell carcinoma.
- Classify melanocytic lesions.
- Mention pathologic features of Melano cystic nevi.
- Describe the pathological features of malignant melanoma.

Lecture (33)
Skin infections (Bacterial, Fungal, &Viral skin Infection)

Objectives:

By the end of the lecture the student will be able to:

A-1 List Factors controlling the skin's microbial load
A-2 State the sources, types and etiologies of skin and wound infections
A-3 Memorize the major virulence factors of the etiologic agents of common bacterial skin infections (Cellulitis, impetigo, leprosy, syphilis and *Pseudomonas* burn infection)

B-4 Demonstrate laboratory diagnosis of etiologic agents of common bacterial skin infections
B-5 Explain the pathogenesis of Acne vulgaris
B-6 Explain the pathogenesis of etiologic agents of common fungal infections (Tinea Dermatophytes, Candida and Malassezia furfur) and viral skin infection (Herpes, measles, rubella, chicken pox, fifth disease, hand foot and mouth disease and viral warts)
B-7 Demonstrate the laboratory diagnosis of etiologic agents of common fungal and Viral skin infection

Lecture (34)
Parasites causing infection of skin and muscle

Objectives:

By the end of the lecture the student will be able to:

A-1Mention the host and habitat of different parasite affecting muscle and skin
A-2 Recall and differentiate the infective and diagnostic stages.
A-3 Identify mode of infection of each parasite
B-1 Demonstrate the pathological lesions in the skin and muscle caused by each parasite.
B-2 Explain host-parasite relationships (pathogenesis and main symptoms of each parasite).

Lecture (35)
Drugs used in treatment of fungal skin infections, leprosy and scabies

Objectives & contents:

By the end of the lecture the students will be able to: A1-Identify drugs used for treatment of fungal infections of skinA2-Determine systemic agents: Azoles, griseofulvin and terbinafine.
A3-Identify topical agents: nystatin, amphotericin B, azole sand allylamines.
A4-List drugs used for treatment of leprosy
A5-List drugs used for treatment of scabies

Lecture (36)

Autoimmune disorders of the joints and the skin

Objectives & contents:

By the end of the lecture students will be able to:

A1-Lists of autoimmune disorders of skin and joints
B1-Explaint he immune pathogenesis of common joint autoimmune disorders (Rheumatic fever, Rheumatoid arthritis and SLE)
B2-Demonstratetheimmune pathogenesis of common skin autoimmune disorders (systemic lupus

Lecture (37)
Structure of the vertebral column. -Anatomy of the spinal cord & meninges

Objectives:

By the end of the lecture the student will be able to:

A1-Describe the structure of the different regions of the vertebral column.
A-2Describe the various types of joints and ligaments connecting the vertebra
A-3Describe the normal curves of the vertebral column
A4-Describe the structure and blood supply of the spinal cord and its meninges.

Contents:

1- Recognize general characteristics of the vertebra, regional differences & intervertebral disc.
2- Recognize joints & ligaments of the vertebral column.
3- 3-Normal & abnormal curves of the vertebral column
4- Outline general anatomy of the spinal cord and its covering meninges.
5- Blood supply of the spinal cord (arterial & venous)

Lecture (38)

Muscles of the back

By the end of the lecture students will be able to:
Describe muscles of the back, their blood supply, nerve supply and action.
Describe the movements of the vertebral column and the muscles doing it.
Contents of the lecture:
1- Recognize layers of muscles of the back (Superficial grout, Intermediate group & deep group of muscles
2- List Nerves of the back
3- Outline blood supply (arteries & veins) of the back.
4- 4-Thoracolumber fascia
5- Recognise movements of the vertebral column

Lecture (39)

Development of the skin & muscular system

Objectives & contents

By the end of the lecture students will be able to:

Describe the development of the skeletal muscles of the trunk and the extremities
Describe the development of the smooth muscles
Describe the different stages of skin development.
Identify the congenital anomalies related to muscular system.
Identify the congenital anomalies related to skin and its appendages.

Lecture (40)
Development of the skeletal system

Objectives & contents

By the end of the lecture students will be able to:
A1-Describedevelopmentofcartilage
A2-development of bones (endochondral and intramembranous ossification)
A3-Identify development of the vertebral column
A4-Describe development of the appendicular skeleton and joints
A5-List congenital anomalies of the skeletal system

Outlines of topics for self-directed learning and group discussions

Topic (1)
Calcium Disorders

B1- Describe the biochemical changes in bone metabolism disorders.
B2-Knowthe causes of vit D deficiency
B3-Know the biochemical changes of rickets

Topic (2)

Myasthenia Gravis

B1-Understand the effect of AChE inhibitor at the neuromuscular Junction.
B2-Know the effect of extracellular [Ca2] on the synaptic transmission at the neuromuscular junction.
B3-Understandthe ionic mechanism that underlies the end plate potential (EPP)produced by acetylcholine (ACh) release.
B4-Understand the steps & description of neuromuscular transmission.
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Topic (3)

Cases about histology of the muscles and bone ossification.

B1-Differentiate processes of regional ossification
B2- Analyze process of muscle

Topic (4)

Muscle & connective tissue diseases

B1-know the biochemical basis of connective tissue diseases
B2-Explain the basis of glycogen storage disease.
B3-Know the affected type of collagen fiber in osteogenesis imperfecta.
B4-Explain the cause of collagen fiber defect.

Topic (5)

Autoimmune disease & soft tissue infection

B1-Explain the immune pathogenesis of common joint autoimmune disorders
B2-Demonstrate the immune pathogenesis of common skin autoimmune disorders
B3-Demonstrate laboratory diagnosis of etiologic agents of common bacterial skin infections

Topic (6)

Pathological fracture, osteoarthritis & rheumatoid arthritis

B1-Explain healing of bone fracture
B2-Analyse pathogenesis of osteoarthritis & rheumatoid arthritis

Topic (7)

Cases of nerve injury of upper & lower limbs

B1-Analyse the defects caused by injury of the brachial plexus & lumbo-sacral plexus
B2–Identify cutaneous & motor deficits and their distribution.

Topic (8)

Myopathy & Muscular exercise, smooth muscle contraction deficit.

B1-Understand the molecular structure of skeletal muscle.
B2-Study the function of the sarcoplasmic reticulum (SR).
B3-Know the molecular basis for skeletal muscle contraction.
B5-Explain the causes of muscle weakness (e.g., ocular, jaw).
B6-Identify them

Blue print

	Anatomy	physiology	biochemistry	histology	pathology	pharmacology	parasitology	microbiology	Total
Lecture (hours)	**15**	**5**	**3**	**3**	**5**	**3**	**2**	**4**	**40**
Total marks	**26**	**8**	**5**	**5**	**9**	**5**	**4**	**6**	**68**
Mid marks	**11**	**3**	2	2	2	**1**	----------	**2**	23
Final mcq	**--**	**5**	3	3	7	**4**	--	--	**45**
Final written	**15**	**--**	--	--	--	**--**	4	**4**	
الدور الثاني									
Final mcq	**2**	**8**	5	5	9	**5**	-	-	34
Final written	**24**	**-**	-	-	-	**-**	4	**6**	34
Practical									
الدور الأول 30%									
	Anatomy	**physiology**	**bio**	**histo**	**patho**	**pharma**	**para**	**micro**	**Total**
Practical hours	**16**	**6**	**2**	**4**	**6**	**4**	**2**	**2**	**42**
Prac/ marks	**13**	**5P**	**1**	**4**	**4**	**4**	**1**	**2**	**34**
الدور الثاني 40 %									
	Anatomy	**physiology**	**bio**	**histo**	**path o**	**pharma**	**para**	**micr o**	**Total**
Practical hours	16	6	2	4	6	4	2	2	42
Prac/ marks	**17**	**7**	**2**	**4**	**7**	**4**	**2**	**2**	**45**