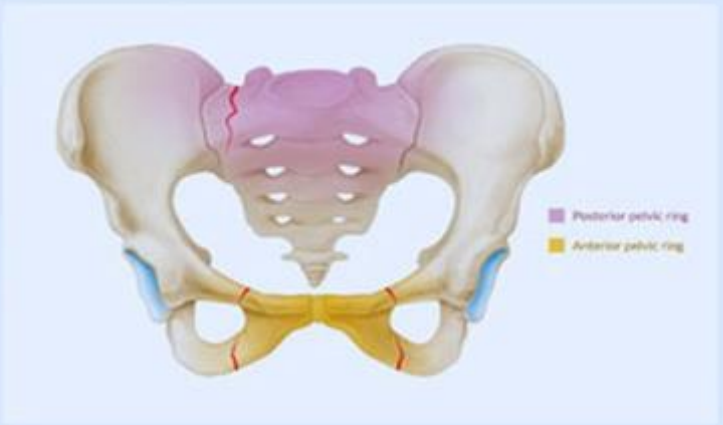
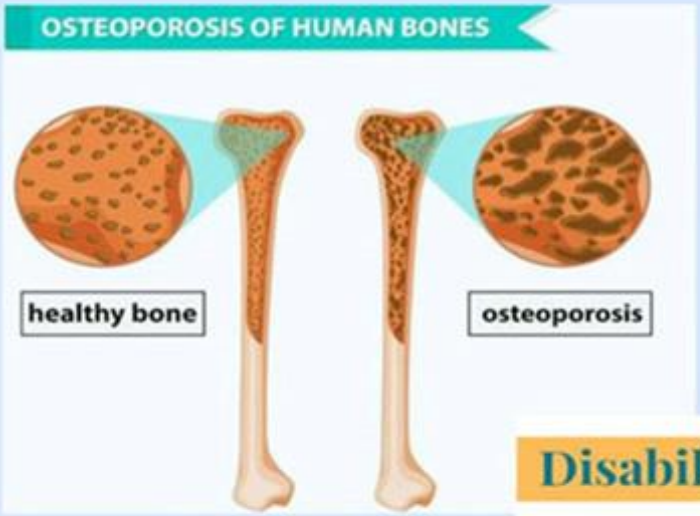
STUDY GUIDE-FOURTH YEAR MBBS

ORTHOPEDICS & REHABILITATION MODULE

25th September – 17th October 2025
Duration: 4 Weeks





LIAQUAT NATIONAL HOSPITAL AND MEDICAL COLLEGE
Institute for Postgraduate Medical Studies & Health Science

STUDY GUIDE FOR ORTHOPAEDICS & REHABILITATION MODULE

Module name: **Orthopedics and Rehabilitation** *Year:* ***Four*** *Duration:* ***4 weeks (25th Sept. – 17th Oct 2025)***
Timetable hours: **Interactive Lectures, Case-Based Learning (CBL), Clinical Rotations, Tutorials, Skills, Self-Directed Learning**

MODULE INTEGRATION COMMITTEE

MODULE COORDINATOR	Dr. Nasir Ahmed (**Orthopedics**)
CO-COORDINATORS	Dr. Afifa Tabassum **(DHPE)**

DEPARTMENTS AND RESOURCE PERSONS FACILITATING LEARNING

BASIC HEALTH SCIENCES

COMMUNITY MEDICINE
Dr. Saima Zainab

CLINICAL AND ANCILLARY DEPARTMENTS

PHYSIOTHERAPY Mr. Syed Hasan Abbas Rizvi	***ORTHOPAEDICS*** Professor Syed Shahid Noor
CARDIOLOGY Dr. Hafeez Ahmed	***MAXILLOFACIAL*** Dr. Tauqir-ul-Islam
RADIOLOGY Professor Muhammad Ayub Mansoor	***RHEUMATOLOGY*** Dr. Tahira Perveen Umer
NEURO-SURGERY Professor Salman Yousuf Sharif	***RESEARCH & SKILLS DEVELOPMENT CENTER*** Dr. Kahkashan Tahir

DEPARTMENT of HEALTH PROFESSIONS EDUCATION

- Professor Nighat Huda
- Professor Sobia Ali
- Dr. Afifa Tabassum
- Dr. Yusra Nasir
- Dr. Syed Asad Sibtain
- Dr. Asra Zia

LNH&MC MANAGEMENT

- Professor KU Makki, Principal, LNH&MC
- Dr. Shaheena Akbani, Director A.A & R.T LNH&MC

STUDY GUIDE COMPILED BY: Department of Health Professions Education

INTRODUCTION

WHAT IS A STUDY GUIDE?

It is an aid to:

- Inform students how the student learning program of the module has been organized
- Help students organize and manage their studies throughout the module
- Guide students on assessment methods, rules and regulations

THE STUDY GUIDE:

- Communicates information on the organization and management of the module. This will help the student to contact the right person in case of any difficulty.
- Defines the objectives which are expected to be achieved at the end of the module.
- Identifies the learning strategies such as lectures, small group teachings, clinical skills, demonstration, tutorial, and case-based learning that will be implemented to achieve the module objectives.
- Provides a list of learning resources such as books, computer-assisted learning programs, web- links, and journals, for students to consult to maximize their learning.
- Highlights information on continuous and modular examinations' contribution to the student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's achievement of objectives.
- Focuses on information about examination policy, rules, and regulations.

INTEGRATED CURRICULUM comprises system-based modules such as Orthopedics which links basic science knowledge to clinical problems. Integrated teaching means that subjects are presented as a meaningful whole. Students will be able to have a better understanding of basic sciences when they repeatedly learn about clinical examples.

LEARNING EXPERIENCES: Case-based integrated discussions, Task oriented learning followed by task presentation, simulation based learning, computer-based assignments, and learning experiences in clinics, and wards.

MODULE: ORTHOPAEDICS AND REHABILITATION

INTRODUCTION TO THE ORTHOPAEDICS AND REHABILITATION MODULE

Orthopedics is a medical specialty that focuses on diagnosing, correcting, preventing, and treating patients with skeletal deformities - disorders of the bones, joints, muscles, ligaments, tendons, nerves, and skin.

An analysis of Global Burden of Disease (GBD) data in 2019 showed that globally approximately 1.71 billion people have musculoskeletal problems.

Rehabilitation Medicine deals with the use of all means aimed at reducing the impact of disabling and handicapped conditions and enabling disabled people to achieve optimal social integration.

This module will assist learners in learning the basics of knowledge related to the diagnosis, treatment & prevention of musculoskeletal diseases & injuries while also allowing them to explore rehabilitation for a variety of conditions

LEARNING METHODOLOGIES

The following teaching/learning methods are used to promote better understanding:

- Interactive Lectures
- Small Group Discussion
- Case- Based Discussion(CBD)
- Clinical Experiences
  - Clinical Rotations
- simulation based learning
- Self-Directed Learning

INTERACTIVE LECTURES

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

SMALL GROUP SESSION: This format helps students to clarify concepts, and acquire skills or desired attitudes. Sessions are structured with the help of specific exercises such as patient cases, interviews, or discussion topics. Students exchange opinions and apply knowledge gained from lectures, tutorials, and self-study. The facilitator asks probing questions, summarizes, or rephrases to help clarify concepts.

CASE-BASED DISCUSSION (CBD): A small group discussion format where learning is focused on a series of questions based on a clinical scenario. Students discuss and answer the questions by applying relevant knowledge gained previously in clinical and basic health sciences during the module and construct new knowledge.

CLINICAL LEARNING EXPERIENCES: In small groups, students observe patients with signs and symptoms in hospital wards, clinics, and outreach centers. This helps students to relate knowledge of basic and clinical sciences of the module and prepare for future practice.

- **CLINICAL ROTATIONS:** In small groups, students rotate in different LNH wards like Medicine, Pediatrics, Surgery, Obs Gynae, ENT, Orthopedics, Family Medicine clinics and outreach centers, and related community Medicine experiences are included as well. Here students observe patients, take histories, and perform supervised clinical examinations in outpatient and inpatient settings. They also get an opportunity to observe medical personnel working as a team. These rotations help students relate basic medical and clinical knowledge in diverse clinical areas.

Simulation based learning: Skills relevant to the respective module are observed and practiced where applicable in RSDC.

SELF-DIRECTED LEARNING: Students assume responsibilities for their learning through individual study, sharing and discussing with peers, and seeking information from the Learning Resource Center, teachers, and resource persons within and outside the college. Students can utilize the time within the college's scheduled hours of self-study

COURSE OBJECTIVES AND STRATEGIES

By the end of the Orthopedics and Rehabilitation module, students should be able to:

COMMUNITY MEDICINE

OBJECTIVES	LEARNING STRATEGY
1. Medical Anthropology	Tutorial
• Describe the key concepts and theories in medical anthropology	
• Explain the historical development of medical anthropology and its relationship to other fields	
• Identify the role of medical anthropology in Pakistan	
• Compare social marketing & anthropology	
2. Geriatric Health	Lecture
• Differentiate Between Geriatrics and Gerontology	
• Describe physiological & pathological aging	
• Identify common age-related diseases and their risk factors	
• Promote healthy ageing and independence in older adults.	
• Discuss the ethical considerations in end-of-life care.	
3. Health program in Pakistan	Tutorial
• Differentiate between Program& Project	
• Discuss the horizontal & vertical health Program in Pakistan	
• Describe the Program Evaluation	
4. Leadership- Health Planning	Tutorial
• Describe the Planning Cycle	
• Discuss the health planning process in Pakistan	
• Explain the types of health planning.	
• Compare social marketing & anthropology	
5. Planning cycle	
• Identify the various stages of the planning cycle in a particular scenario	
• Recognize common planning tools and techniques	
• Develop the ability to apply planning principles to real-world scenarios.	

PHYSIOTHERAPY

OBJECTIVES	LEARNING STRATEGY
1. Rehabilitation medicine: Introduction	Lecture
• Define concepts of primary, secondary and tertiary prevention in the context of rehabilitation medicine	
• Describe the potentially disabling consequences of disease, disorders and injury	

2. Community-based rehabilitation	Lecture
• Define community-based rehabilitation	
• Describe the strategies for incorporating rehabilitation in the community	
• List the benefits of community-based rehabilitation	
3. Impairment and disability and handicap	Tutorial
• Explain the purpose of rehabilitation	
• Describe the phases of rehabilitation after amputation.	
• Discuss concepts of impairment, disability, activity limitation and participation restriction	
• Describe the epidemiology, pathophysiology, clinical features and complications of diseases disorders and injuries that may lead to impairment and disability	
4. Assessment of disabilities	Lecture
• Describe the potential role and benefit of specific medical and rehabilitation therapies in the assessment and management of disability	
• Interpret relevant diagnostic investigations, including radiological and electro-diagnostic tests.	
5. Rehabilitative management of common musculoskeletal disorders	Lecture
• Describe the rehabilitation protocols for the following disorders Cervical spondylitis, Sciatica, Low back Pain, Adhesive capsulitis, Impingement, Epicondylitis, Carpal tunnel syndrome, DeQuervain's synovitis, Groin region pain, ligament tear, meniscal tear, Plantar Fasciitis & Ankle Sprain.	
• Formulate differential diagnosis and therapeutic interventions for musculoskeletal conditions	
6. Management of Arthritis	Lecture
• Diagnose patient presenting with complications of arthritis	
• Discuss rehabilitation interventions to improve joint range of movement (ROM), muscular strength, pain relief, balance and coordination	
7. Rehabilitative Management of Osteoporosis	Tutorial
• Discuss Rehabilitative Management of Osteoporosis	
• Justify a rehabilitation management plan for osteoporosis	
8. Management of Fractures	Lecture
• Summarize rehabilitation methods following surgical intervention for fractures	
9. Pediatric Rehabilitation	Lecture
• Summarize the theories of development and normal developmental milestones	
• Describe assessment methods and rehab interventions for pediatric patients (Cerebral Palsy, Talipes Equino Varus, Duchene muscular dystrophy, Myopathies, Spina Bifida)	
10. Rehabilitative management of common neurological disorders	Tutorial
• Discuss Common neurological conditions including Spinal cord injuries, Traumatic brain injuries, and Parkinson's disease	
• Describe a comprehensive assessment plan for a patient presenting with a neurological disease	
• Formulate differential diagnosis and therapeutic interventions for neurological conditions	
• Justify a rehabilitation management plan that specifies appropriate modalities of assessment and treatment	
11. Rehabilitative Management of Stroke	Lecture
• Explain the process of assessment and management of rehabilitation of a patient with cerebrovascular disease	
• Summarize rehabilitation management of stroke deficit	
12. Prosthesis of Upper and lower Limbs	Lecture

• Describe components, types, characteristics, and indications of the limb prosthesis	
• Explain relevant postoperative patient management	
• Justify the prescription of appropriate temporary and definitive prostheses	
13. Rehabilitation of Amputee	Tutorial
• Describe the epidemiology of major limb loss including etiology, incidence, morbidity, and mortality	
• Summarize surgical principles of limb amputation and levels of amputation including digit(s), thumb, partial hand, trans-carpal and trans-radial wrist disarticulation, elbow disarticulation, etc.	

OCCUPATIONAL THERAPY

OBJECTIVES	LEARNING STRATEGY
1. Rehabilitation evaluation	Tutorial
• Describe current tools and systems for the measurement of impairment, disability, and activity limitation or participation restriction	

CARDIOLOGY

OBJECTIVES	LEARNING STRATEGY
1. Rehabilitative management of common cardiac conditions	Lecture/SDL
• Describe the method of comprehensive assessment of a patient presenting with common cardiac conditions, and evaluation for rehabilitation	
• Formulate differential diagnosis for common cardiac conditions	
• Justify a rehabilitation management plan that specifies appropriate modalities of assessment and treatment	

ORTHOPEDICS

OBJECTIVES	LEARNING STRATEGY
1. Presenting problems and investigations of Musculoskeletal diseases	Lecture
• Describe the presenting problems and investigations of Musculoskeletal diseases	
2. Fractures	Lecture/SDL
• Classify the different types of fractures	
• Describe the specific types of fractures (hip, Colles', and pelvic fractures)	
• Discuss the general principles of management of fractures	
• Describe the therapeutic measures for different fractures, the principles of fracture treatment in children, and common complications of fractures	
• Discuss the principles of fracture fixation	
• Describe the principles of non-operative and operative management of fractures in adults	
• Discuss clinical features and management of fractures in Children	
3. Back pain	Lecture
• Identify the most common conditions causing back pain	
• Develop a plan for diagnosis and management of nontraumatic neck and back problems	

4. Septic Arthritis	Lecture/SDL
• Discuss the etiology, clinical features and investigations for the condition	
• Describe the plan of treatment and complications relevant to the condition	
5. Intro to musculoskeletal infections	Lecture
• Name the major pathogenic organisms causing bone and joint infections	
• Describe the pathophysiology, clinical features, elements of prevention, and management of bone and joint infections	
• Outline the main clinical features and laboratory tests to diagnose bone and joint infections (Septic, Viral, Tuberculous arthritis)	
Emergency Management of Trauma	
• Describe principles of emergency management of trauma	Lecture
Introduction to musculoskeletal oncology	Lecture
• Correlate the pathological findings of common bone tumors with their clinical presentation	
• Justify the diagnosis, investigations, and treatment plans for primary bone tumors	

RADIOLOGY

OBJECTIVES	LEARNING STRATEGY
1. Imaging of musculoskeletal system	Tutorial
• Explain the role of radiologic imaging in musculoskeletal system diseases	
• Describe the principles of MRI, isotope bone scans, DEXA scans, and CT scans	
2. Imaging of bone tumors	
• List the techniques involved in the diagnosis of bone tumors	
• Identify common skeletal injuries on radiographic films (e.g. fractures and dislocations)	

MAXILLOFACIAL SURGERY

OBJECTIVES	LEARNING STRATEGY
1. Maxillo-facial injuries	Lecture
• Maxillofacial surgery and trauma	
• Describe the mechanism, assessment, and management of maxillofacial injuries	

NEUROSURGERY

OBJECTIVES	LEARNING STRATEGY
1. Non-Traumatic back pain	Lecture/SDL
• Identify the most common conditions causing back pain	
• Develop a plan for diagnosis and management of non-traumatic neck and back problems	

RHEUMATOLOGY

OBJECTIVES	LEARNING STRATEGY
1. Osteoarthritis	SDL
• Describe the prevalence, pathogenesis, morphological, and clinical features of osteoarthritis	
• Diagnose osteoarthritis based on clinical features, laboratory tests, and imaging results	
2. Introduction to Arthritis	Lecture
• Classify arthritis	
• outline a treatment plan for arthritis	
3. Rickets and Osteomalacia	Lecture/SDL
• Identify the common causes of rickets and osteomalacia	
• Recognize the typical clinical features of rickets and osteomalacia.	
• Outline the basic investigations used to diagnose these conditions.	
• State the general principles of management and prevention	
4. Osteoporosis	Lecture/SDL
• List the common risk factors for osteoporosis.	
• Recognize the typical clinical features and complications of osteoporosis.	
• Outline the basic investigations used for diagnosis	
• State the general principles of management and prevention	

RSDC

OBJECTIVES	LEARNING STRATEGY
1. Intra-articular injections	Simulation based learning
• Give Intra-articular injections in a manikin	
2. Management of fractures	
• Apply Plaster cast correctly on a manikin	

BIOETHICS

OBJECTIVES	LEARNING STRATEGY
1. Medical Ethics	Lecture
• Describe Ethics with its various branches	
• Discuss the historical events of ethical evolution	
• Explain the principles of Medical Ethics	
• Determine the guidelines by PMDC	

LEADERSHIP

OBJECTIVES	LEARNING STRATEGY
1. Leadership in health	E-learning
• Describe leadership	
• Explain different theories of Leadership	
• Identify the different styles of Leadership	
• Differentiate between Leadership & management roles	

Apart from attending daily scheduled sessions, students too should engage in self-study to ensure that all the objectives are covered

LEARNING RESOURCES

<table>
<tr><th>SUBJECT</th><th colspan="2">RESOURCES</th></tr>
<tr><td rowspan="2">GENERAL SURGERY, ORTHOPAEDIC, NEUROSURGERY</td><td colspan="2"><u>TEXTBOOK</u>
1. Bailey & Love's Short Practice of Surgery, 26th Edition</td></tr>
<tr><td colspan="2"><u>WEBSITES (ORTHOPAEDICS):</u>
www.orthobullets.com</td></tr>
<tr><td>NEUROLOGY, RHEUMATOLOGY</td><td colspan="2">REFERENCE BOOKS:
1. Hutchison's Clinical Methods, 23rdEdition
2. MacLeod's clinical examination 13thedition
3. Davidson's Principles and Practice of Medicine
4. Kumar and Clark's Clinical Medicine
5. HCAI guidelines CDC</td></tr>
<tr><td rowspan="9">PHYSICAL MEDICINE</td><td>TOPIC</td><td>REFERENCE BOOKS</td></tr>
<tr><td>Orthopedic Physical Assessment</td><td>Quick reference by David J. Maggee</td></tr>
<tr><td>Physical Rehabilitation</td><td>Quick reference by Susan B. O'Sullivan</td></tr>
<tr><td>Therapeutic Exercise</td><td>Foundations and Techniques Seventh Edition
Carolyn Kisner PT</td></tr>
<tr><td>Physiotherapy</td><td>Impairment, disability, and handicap</td></tr>
<tr><td>Basis of Pediatrics</td><td>Quick reference by Pervaiz akber.</td></tr>
<tr><td>Pediatric Rehabilitation</td><td>Principles and Practice by Alexander</td></tr>
<tr><td>Atlas of Limb Prosthetics</td><td>Surgical and Prosthetic Principles by the American Academy of Orthopaedic Surgeons (AAOS)</td></tr>
<tr><td>Atlas of Orthoses and Assistive Devices</td><td>Quick reference by AAOS</td></tr>
<tr><td>COMMUNITY MEDICINE</td><td colspan="2"><u>TEXTBOOKS</u>
1. Preventive and Social Medicine by K Park
2. Community Medicine by M. llyas
3. Basic Statistics for the Health Sciences by Jan W Kuzma</td></tr>
</table>

ASSESSMENT METHODS:

- **Best Choice Questions(BCQs)** also known as MCQs (Multiple Choice Questions)
- **Objective Structured Clinical Examination (OSCE)**

Internal Evaluation

- Students will be assessed comprehensively through multiple methods.
- 20% marks of internal evaluation will be added to the JSMU final exam. That 20% may include class tests, assignments, practical, and the internal exam which will all have specific marks allocation.

Formative Assessment

Individual departments may hold quizzes or short answer questions to help students assess their learning. The marks obtained are not included in the internal evaluation

For the JSMU Examination Policy, please consult the JSMU website!

More than 75% attendance is needed to sit for the internal and final examinations

LNH&MC EXAMINATION RULES & REGULATIONS

- Student must report to examination hall/venue, 30minutes before the exam.
- **Exam will begin sharply at the given time.**
- No student will be allowed to enter the examination hall after 15 minutes of scheduled examination time.
- Students must sit according to their roll numbers mentioned on the seats.
- **Cell phones are strictly not allowed in the examination hall.**
- If any student is found with a cell phone in any mode (silent, switched off, or on) he/she will not be allowed to continue their exam.
- No students will be allowed to sit in an exam without a University Admit Card, LNMC College ID Card, and Lab Coat
- Students must bring the following stationary items for the exam: Pen, Pencil, Eraser, and Sharpener.
- In discipline in the exam hall/venue is not acceptable. Students must not possess any written material or communicate with their fellow students.

SCHEDULE:

WEEKS	4TH YEAR	MONTH
4 WEEKS	ORTHOPEDIC & REHABILITATION MODULE	25th September, 2025
		17th October 2025
	PRE-PROFESSIONAL EXAM	

Final dates will be announced later.