

For Candidates

Master of Medicine (Orthopaedic Surgery) Examination

Curriculum/Topics

The list provided is not exhaustive and only meant as a guide.

For Candidates

- 1. Orthopaedic Investigations (Basic Modalities)** – Ability to read, identify salient abnormalities and interpret plain radiographs leading to a diagnosis and management of general conditions. Radiological safety understanding.
 - Imaging modalities in Orthopaedics
 - Basic Imaging of the Spine
 - Imaging in arthropathies
 - Imaging in metabolic and miscellaneous conditions
 - Imaging in orthopaedic trauma
 - Pitfalls in radiological diagnosis
 - Use of fluoroscopy in orthopaedic procedures
 - Safety considerations in imaging
- 2. Orthopaedic Investigations (Advanced Modalities)** – Ability to read, identify salient abnormalities and interpret advanced imaging such as MRI, bone scans, CT scans etc. leading to a diagnosis and management of general conditions. Clinical judgement and indications in ordering advanced imaging for conditions on an urgent/emergency basis and non-urgent elective basis.
 - MRI – The physics and applications
 - Imaging in sports injuries (ultrasound, arthrogram, CT, and MRI)
 - Interventional radiology in orthopaedics
 - Advanced Imaging in Musculoskeletal infections
 - Advanced imaging workup of benign and malignant tumours
 - Interpretation of NCS/ EMG
 - The principles of DEXA scans and how to interpret
 - Indications and decision making for basic/advanced imaging.
 - Pitfalls in radiological diagnosis
- 3. Orthopaedic Pathology (Trauma/Emergent Conditions)** – The diagnosis, knowledge & understanding of pathology and natural history of common Orthopaedic emergent or urgent conditions as may be encountered on call or in the outpatient clinic. Urgent, safe management of these conditions.
- 4. Orthopaedic Pathology (Outpatient/Elective Conditions)** - The diagnosis, knowledge & understanding of pathology and natural history of common Orthopaedic elective or non-urgent conditions as may be encountered in the outpatient clinic. Standard management of these conditions.
- 5. Orthopaedic Biomechanics** – The structure (gross and microscopic) of common tissues/ organs encountered or used in Orthopedics. An understanding of their healing as well as biomechanical properties in relation to the management of Orthopaedic conditions.
- 6. Orthopaedic Biomaterials** – Knowledge of materials commonly implanted in Orthopedics. Understanding of the relevant biological effects, mechanical/material properties of these materials in relation to their use.

Possible sub-topics covered in the above 2 stations: -

- Absorbable and non-absorbable materials
- Composition of prosthesis and related materials used/implanted.
- Properties relevant to their function in implantation
- Role of biomechanics in clinical practice
- Statics (free body diagrams)
- Kinematics

For Candidates

- Dynamics
- Behaviour of composite skeletal structures
- Fracture mechanics and osteosynthesis
- Kinesiology, gait analysis and tribology of joints
- Biomechanics of the Spine

Possible sub-topics covered in the above 2 stations: -

- Cell Injury, inflammation, and repair
- Bone – structure, function, injury, regeneration, and repair
- Cartilage – structure, function, injury, and repair
- Pathophysiology of inflammatory conditions of the joints
- Meniscus – structure, function, injury, and repair
- Intervertebral disc – structure, function, injury, and repair
- Tendon and ligaments – structure, function, injury, and repair
- Nerve and muscle – structure, function, injury, and repair
- Haemodynamic/vascular disorders in orthopaedics
- Congenital and Hereditary Disorders
- Osteoporosis and metabolic disease
- Osteomyelitis and infective arthritis
- Osteoarthritis and inflammatory arthritis
- Bone tumours, benign and malignant
- Muscular atrophy, inflammatory myopathies, muscular dystrophy
- Soft tissue tumours, benign and malignant

- 7. Orthopaedic Surgical Applied Anatomy (Trauma/Emergent Conditions)** – Knowledge of applied anatomy for bones, joints, ligaments, and relevant neurovascular structures. Indications for use of and structures at risk in surgical approaches for urgent/emergent conditions.

Possible sub-topics/regions covered in the above 2 stations: -

- Shoulder and Arm
- Elbow and Forearm
- Wrist and Hand
- Hip and Femur
- Knee and Leg
- Foot and Ankle
- Cervical Spine
- Thoracic Spine
- Lumbosacral Spine
- Pelvis and Acetabulum

- 8. Orthopaedic Surgical Applied Anatomy (Outpatient/Elective Conditions)** – Knowledge of applied anatomy for bones, joints, ligaments, and relevant neurovascular structures. Indications for use of and structures at risk in surgical approaches for elective conditions.

- 9. Orthopaedic Communication** – Counselling a patient with regards to surgical procedures and the ability to obtain informed consent. This includes explaining the procedure, its risks (including patient specific related) and complications, benefits, and alternative procedures for the condition.

- Common elective orthopaedic procedures
- Common urgent/emergency orthopaedic procedures
- Risks and complications in general

For Candidates

- Risks and complications specific to the surgical procedure
- Risks and complications specific to the patient
- Alternative options
- Possible outcomes and benefits

10. Evidence-Based Medicine – To read, understand methodology and interpret results of published articles. Ability to classify the level of evidence and understand how this evidence applies to Orthopaedic practice. This will be a written paper based on a selected article.

- Understanding of the types of study design and their relevance to the aims. Critical appraisal of the clinical relevance of the aims.
- Evaluating and interpreting the appropriateness of methodology and results with respect to the aims and conclusions
- Understanding basic statistical methods and if appropriate methods have been applied.
- An understanding of bias in research and ability to appraise for possible bias in the paper.
- Understanding the strength of recommendations/conclusions of the study and if the recommendations are applicable to/relevant to patient groups encountered in clinical practice.
- Please find [here](#) the guide to Evidence Based Medicine for your perusal.