# COA/OCC Musculoskeletal Objectives

Contributors:

MSK Undergraduate Education Committee

*Approved by the COA Board of Directors on June 11, 2025*

Version 3 – 05 November 2022

# COA/OCC Musculoskeletal Objectives

These objectives have been developed from the pre-clinical and clinical (clerkship) curricula and course objectives of several Canadian universities, drawing on the previous work of Dr Geoff Jarvie, Dr Jeff Nacht, and the COSMEC organising committee, among others. We gratefully acknowledge their contributions.

The variety and scope of musculoskeletal presentations make establishing a set of objectives that are comprehensive without being unwieldy a formidable task. In an effort to achieve this balance, we have first enumerated a set of general **principles** with which medical students (and by extension, primary care providers) should be familiar. For further objectives we have employed two categories: **presentations** to which medical students should have an approach, and **diagnoses** the diagnosis and management principles of which, by virtue of their severity, urgency, or incidence, form fundamental musculoskeletal knowledge. Both types of objectives are grouped together into categories for ease of reference. Within each category, entries in *italic type* are felt to be important, but not core objectives.

It must be explicitly stated that one fundamental principle underlies every one of these objectives. Knowledge of the relevant muscular, osseous, and neurovascular anatomy is indispensable to the adequate understanding of musculoskeletal pathology. Without this foundational knowledge, learners are unable to truly comprehend the implications of trauma or disease, or to apply first principles to the understanding of unfamiliar presentations. Orthopaedics, rheumatology, and rehabilitation medicine cannot be taught in the absence of musculoskeletal anatomy knowledge.

## 1. General

- Principles of musculoskeletal evaluation (history and physical examination)
- Principles and practices of musculoskeletal injury prevention
    - Burden of MSK disease
    - Exercise as medicine
- Principles of musculoskeletal management
    - Pharmacological
    - Conservative
    - Surgical
- Principles of musculoskeletal imaging
- Principles of fracture diagnosis and management
    - Fracture healing
    - Primary (temporising) and non-operative fracture management
    - Complications
- Considerations in diagnosis and management of fragility fractures
    - Osteoporosis
- Principles of management of orthopaedic emergencies:
    - Open fractures
    - Dislocations
    - Compartment syndrome

    - Necrotizing fasciitis

- Principles of soft tissue injury diagnosis and management
    - Tendinopathies
    - Ligamentous injury
    - Focal peripheral nerve pathology
- Principles of primary and metastatic bone disease
- Principles of soft tissue masses
- Principles of musculoskeletal infection:
    - Osteomyelitis
    - Septic arthritis
- Principles of arthropathy diagnosis and management
    - Osteoarthritis
    - Crystal arthropathies
    - Inflammatory arthropathies

## 2. Paediatrics

- Principles of normal growth & paediatric MSK physiology
- Principles of physeal injuries and growth disturbance
- Approach to the limping child
    - Slipped Capital Femoral Epiphysis
    - Legg-Calve-Perthes disease
    - Developmental Dysplasia of the Hip
    - Juvenile inflammatory arthropathies
- Principles of paediatric MSK infection
    - Osteomyelitis
    - Septic Arthritis/Transient Synovitis
- Supracondylar fractures
- *Principles of lower limb assessment*
    - *Clubfoot*
    - *Congenital abnormalities*
- *Principles of scoliosis diagnosis and management*
- *Common overuse syndromes and injuries*
    - *Apophysitis (Osgoode-Schlatter disease, Severs disease, Sinding-Larsen disease)*
    - *Radial head subluxation*

## 3. Spine

- Approach to neck/back pain
    - Yellow/Red flags & diagnoses
    - Disc herniation, including focal radiculopathy/myelopathy
    - Spinal stenosis, including neurogenic claudication
    - Degenerative disease including spondylolysis/listhesis
    - Mechanical
    - Non-specific
- Cauda Equina Syndrome
- *Spinal Trauma*
    - *Whiplash*
    - *Vertebral compression fractures*
    - *Other fractures*

## 4. Shoulder & Elbow

- Approach to non-acute shoulder pain
    - Subacromial impingement
    - Rotator cuff tear
- Adhesive capsulitis
- Approach to traumatic shoulder injuries
    - Glenohumeral dislocation
    - Clavicle/humerus fracture
    - Acromioclavicular separation
- Shoulder arthritis
- *Medial & lateral epicondylitis*
- *Proximal & distal biceps rupture*

## 5. Hand & Wrist

- Approach to traumatic hand & wrist injuries
    - Distal radius fractures
    - Scaphoid fractures
    - Metacarpal & phalanx injuries
- Carpal tunnel syndrome
- DeQuervain's tenosynovitis

## 6. Hip

- Principles of hip fracture management

- Principles of arthritis management
- *Greater trochanteric bursitis/iliotibial band pathology*
- *Hip impingement/labral pathology*
  *Avascular necrosis*

## 7. Knee

- Approach to soft tissue injuries
    - Meniscal
    - Ligamentous
    - Tendon rupture
- Principles of arthritis management
- *Approach to patellofemoral pathology*
- *Approach to painful total joint replacement*

## 8. Foot & Ankle

- Approach to acute foot & ankle injuries
    - Ligamentous injuries
    - Ankle fractures
    - Lisfranc injuries & metatarsal fractures
    - Achilles' tendon rupture
- Principles of diabetic foot management
- *Charcot arthropathy*
- *Approach to chronic foot pain*
    - *Degenerative disease*
    - *Plantar fasciitis*