

ORTHOPEDICS & TRAUMATOLOGY

Subject Description

This subject follows the basic science subjects to provide the knowledge about Orthopedic conditions the therapist would encounter in their practice. The objective of this course is that after 60 hrs of lectures and discussion the student will be able to demonstrate an understanding of orthopedic conditions causing disability, list the etiology, clinical features and methods of investigations and management.

Subject Title	: ORTHOPEDICS & TRAUMATOLOGY
Duration	: 25 – 36 Months :
Total Hours	60
Theory / Lecture	: 2 Hours / Week
Method of Assessment	: Written

1. Introduction [3 Hours]

Introduction to orthopaedics. Clinical examination in an Orthopedic patient. Common investigative procedures. Radiological and Imaging techniques in Orthopaedics. Inflammation and repair, Soft tissue healing.

2. Traumatology [3 Hours]

Fracture: definition, types, signs and symptoms. Fracture healing. Complications of fractures. Conservative and surgical approaches. Principles of management – reduction (open/closed, immobilization etc). Subluxation/ dislocations – definition, signs and symptoms, management (conservative and operative).

3. Fractures and Dislocations of Upper Limb [6 Hours]

Fractures of Upper Limb - causes, clinical features, mechanism of injury, complications, conservative and surgical management of the following fractures:

Fractures of clavicle and scapula. Fractures of greater tuberosity and neck of humerus. Fracture shaft of humerus. Supracondylar fracture of humerus. Fractures of capitulum, radial head, olecranon, coronoid, and epicondyles. Side swipe injury of elbow. Both bone fractures of ulna and radius. Fracture of forearm – Monteggia, Galeazzi fracture – dislocation. Chauffeur's fracture. Colle's fracture. Smith's fracture. Scaphoid fracture. Fracture of the metacarpals. Bennett's fracture. Fracture of the phalanges. (Proximal and middle.)

Dislocations of Upper Limb - Anterior dislocation of shoulder – mechanism of injury, clinical feature, complications, conservative management (Kocher's and Hippocrates maneuver), surgical management (Putti-Platt, Bankart's) etc. Recurrent dislocation of shoulder. Posterior dislocation of shoulder – mechanism of injury, clinical features and management. Posterior dislocation of elbow – mechanism of injury, clinical feature, complications & management.

4. Fracture of Spine [4 Hours]

Fracture of Cervical Spine - Mechanism of injury, clinical feature, complications (quadriplegia); Management- immobilization (collar, cast, brace, traction); Management for stabilization, management of complication (bladder and bowel, quadriplegia). Clay shoveller's fracture. Hangman's fracture. Fracture odontoid. Fracture of atlas.

Fracture of Thoracic and Lumbar Regions - Mechanism of injury, clinical features, management—conservative and surgical of common fractures around thoracic and lumbar regions. Fracture of coccyx.

Fracture of Rib Cage - Mechanism of injury, clinical features, management for Fracture Ribs, Fracture of sternum.

5. Fractures and Dislocations of Lower Limb [5 Hours]

Fracture of Pelvis and Lower Limb - causes, clinical features, mechanism of injury, complications, conservative and surgical management of the following fractures:

Fracture of pelvis. Fracture neck of femur – classification, clinical features, complications, management - conservative and surgical. Fractures of trochanters. Fracture shaft femur—clinical features, mechanism of injury, complications, management-conservative and surgical. Supracondylar fracture of femur. Fractures of the condyles of femur. Fracture patella. Fractures of tibial condyles. Both bones fracture of tibia and fibula. Dupuytren's fracture Maisonneuve's fracture. Pott's fracture – mechanism of injury, management. Bimalleolar fracture Trimalleolar fracture Fracture calcaneum – mechanism of injury, complications and management. Fracture of talus. Fracture of metatarsals—stress fractures Jones's fracture. Fracture of phalanges.

Dislocations of Lower Limb - mechanism of injury, clinical features, complications, management of the following dislocations of lower limb.

Anterior dislocation of hip. Posterior dislocation of hip. Central dislocation of hip. Dislocation of patella. Recurrent dislocation of patella.

6. Soft Tissue Injuries [3 Hours] - Define terms such as sprains, strains, contusion, tendinitis, rupture, tenosynovitis, tendinosis, bursitis.

Mechanism of injury of each, clinical features, managements- conservative and surgical of the following soft tissue injuries: Meniscal injuries of knee. Cruciate injuries of knee. Medial and lateral collateral injuries of knee. Lateral ligament of ankle. Wrist sprains. Strains- quadriceps, hamstrings, calf, biceps, triceps etc. Contusions- quadriceps, gluteal, calf, deltoid etc. Tendon ruptures-Achilles, rotator cuff muscles, biceps, pectorals etc.

7. Hand Injuries [2 Hours]- mechanism of injury, clinical features, and management of the following - Crush injuries. Flexor and extensor injuries. Burn injuries of hand.

8. Amputations [2 Hours] - Definition, levels of amputation of both lower and upper limbs, indications, complications.

9. Traumatic Spinal Cord Injuries [2 Hours] - Clinical features, complications, medical and surgical management of Paraplegia and Quadriplegia.

10. Deformities [6 Hours] - clinical features, complications, medical and surgical management of the following Congenital and Acquired deformities.

✓
Congenital Deformities - CTEV. CDH. Torticollis. Scoliosis. Flat foot. Vertical talus. Hand anomalies- syndactyly, polydactyly and ectrodacty. Arthrogryposis multiplex congenita (amyoplasia congenita). Limb deficiencies- Amelia and Phocomelia. Klippel feil syndrome. Osteogenesis imperfecta (fragile ossium). Cervical rib.

Acquired Deformities - Acquired Torticollis. Scoliosis. Kyphosis. Lordosis. Genu varum. Genu valgum. Genu recurvatum Coxa vara. Pes cavus. Hallux rigidus. Hallux valgus. Hammer toe. Metatarsalgia.

11. Disease of Bones and Joints [4 Hours]: Causes, Clinical features, Complications, Management- medical and surgical of the following conditions :

- Infective conditions: Osteomyelitis (Acute / chronic). Brodie's abscess. TB spine and major joints like shoulder, hip, knee, ankle, elbow etc.
- Arthritic conditions: Pyogenic arthritis. Septic arthritis. Syphilitic infection of joints.
- Bone Tumors: classification, clinical features, management - medical and surgical of the following tumors : Osteoma. Osteosarcoma, Osteochondroma. Enchondroma. Ewing's sarcoma. Giant cell tumor. Multiple myeloma. Metastatic tumors.
- Perthes disease, Slipped Capital Femoral Epiphysis and Avascular Necrosis.
- Metabolic Bone Diseases: Rickets. Osteomalacia, Osteopenia. Osteoporosis.

12. Inflammatory and Degenerative Conditions [4 Hours]: causes, clinical feature, complications, deformities, radiological features, management- conservative and surgical for the following conditions :

Osteoarthritis. Rheumatoid arthritis. Ankylosing spondylitis Gouty arthritis. Psoriatic arthritis. Hemophilic arthritis. Still's disease (juvenile rheumatoid arthritis). Charcot's joints. Connective Tissue Disorders- Systemic Lupus Erythematosus, Scleroderma, Dermatomyositis, Poliomyelitis, Mixed connective tissue Disease (MCTD)

13. Syndromes [3 Hours]: Causes, Clinical features, complications, management- conservative and surgical of the following :

Cervico brachial syndrome. Thoracic outlet syndrome. Vertebro- basilar syndrome. Scalenus syndrome. Costo clavicular syndrome. Levator scapulae syndrome. Piriformis syndrome.

14. Neuromuscular Disorders [3 hours]: Definition, causes, clinical feature, complications, management. (Multidisciplinary approach) medical and surgical of the following conditions : Cerebral palsy. Poliomyelitis. Spinal Dysraphism. Leprosy.

15. Cervical and Lumbar Pathology [3 Hours]: Causes, clinical feature, patho-physiology, investigations, management-Medical and surgical for the following :

Prolapsed intervertebral disc (PID), Spinal Canal Stenosis. Spondylosis (cervical and lumbar) Spondylolysis. Spondylolisthesis. Lumbago/ Lumbosacral strain. Sacralisation. Lumbarisation. Coccydynia. Hemivertebra.

16. Orthopedic Surgeries [3 Hours]: Indications, Classification, Types, Principles of management of the following Surgeries :

Arthrodesis. Arthroplasty (partial and total replacement). Osteotomy, External fixators. Spinal stabilization surgeries (Harrington's, Luque's, Steffi plating) etc, Limb re-attachments.

17. Regional Conditions [4 Hours]: Definition, Clinical features and management of the following regional conditions

- Shoulder: Periarthritic shoulder (adhesive capsulitis). Rotator cuff tendinitis. Supraspinatus Tendinitis. Infraspinatus Tendinitis. Bicipital Tendinitis. Subacromial Bursitis.
- Elbow: Tennis Elbow. Golfer's Elbow. Olecranon Bursitis (student's elbow). Triceps Tendinitis.
- Wrist and Hand: De Quervain's Tenosynovitis. Ganglion. Trigger Finger/ Thumb. Mallet Finger, Carpal Tunnel Syndrome, Dupuytren's Contracture.
- Pelvis and Hip : IT Band Syndrome. Piriformis Syndrome. Trochanteric Bursitis.
- Knee: Osteochondritis Dissecans. Prepatellar and Suprapatellar Bursitis. Popliteal Tendinitis. Patellar Tendinitis. Chondromalacia Patella. Plica Syndrome. Fat Pad Syndrome (Hoffa's syndrome).
- Ankle and Foot: Ankle Sprains. Plantar Fasciitis / Calcaneal Spur. Tarsal Tunnel Syndrome. Achilles Tendinitis. Metatarsalgia. Morton's Neuroma.

Books Recommended:

1. Outline of Fractures—John Crawford Adams.
2. Outline of Orthopedics.— John Crawford Adams.
3. Text book of Orthopedics.—Maheswari.
4. Apley's Orthopedics.
5. Textbook of Orthopedics and Traumatology— M.N.Natarajan