

PHYSIOTHERAPY IN ORTHOPEDIC CONDITIONS

Examination at the end of: III year

Instruction Hours: 110

Theory: 100 marks (80 + 20IA)

Practical and viva: 100 marks (Practical 60 + viva 20 + IA 20)

COURSE DESCRIPTION:

This course serves to integrate the knowledge gained by the students in clinical orthopedics with skills gained in exercise therapy, electrotherapy and massage, thus enabling them to apply these in clinical situations of dysfunction due to musculoskeletal pathology.

COURSE OBJECTIVES:

The objectives of this course are that after 110 hours of lectures demonstration, practicals and clinics the student will be able to identify disability due to musculoskeletal dysfunction, assess, evaluate, diagnose, set treatment goals and apply their skills in exercise therapy, electrotherapy and massage in clinical situations to restore musculoskeletal function.

(A) Physiotherapy Assessment of Patient with Orthopedic conditions (Peripheral & vertebral) with relevant special tests.

Describe briefly the general and PT assessment of the vertebral column: Subjective examination history:- occupation, symptoms, major problems;

Objective Examination

1. Observation of body type, musculature, deformity & gait.
2. Palpation – Temperature, swelling, bony prominences, local tenderness.
3. Postural evaluation using a plumb line.
4. Active movements of the vertebral column – flexion, extension, lateral flexion and rotation.

Specific tests: straight leg raising, prone knee bend, passive neck flexion, Kernigs sign.

5. Proximal joints of pelvic and shoulder girdles.
6. Neurological tests for muscle strength, sensation and reflexes.

(B) Principles of interpretation of Physiotherapy orthopedic Examination finding & selection of appropriate physiotherapy techniques.

(C) Principles of Physiotherapy Management in Fractures.

Guidelines of treatment of fracture during immobilization period and mobilization period. Review the mechanism of injury, clinical features, treatment and complications and describe the PT management and home programme for the following injuries:

1. Fracture clavicle, upper 1/3 of humerus, shaft of humerus, supra and inter condylar fractures of the humerus.
2. Fracture head of radius, olecranon process, shafts of radius and ulna, Colls.
3. Fracture scaphoid, Bennetts and metacarpal, neck
4. Fracture pelvis, neck, trochanter and shaft of femur, supracondylar fracture and injuries of the knee joint & patella.
5. Fracture proximal tibia, both bones of leg, Potts and Dupuytren's, calcaneum and metatarsal.
6. Dislocation of (a) Hip: congenital, traumatic, posterior & central (b) \ Shoulder: anterior & recurrent (c) Patella.

(D) Specific fractures and dislocations

Physiotherapy assessment & management of upper limb fractures and dislocations, lower limb fractures and dislocations including pelvis and spinal fractures.

(E) Deformities

Review of clinical presentation, investigations, medical & surgical management, Physiotherapy assessment & management for the following conditions.

- (1) CTEV
- (2) CDH
- (3) Torticollis
- (4) Scoliosis
- (5) Kyphosis
- (6) Lordosis
- (7) Coxavara
- (8) Genu varum
- (9) Genu valgum

(10) Genu recurvatum

(11) Pesplanus

(12) Pescavus

(F) Degenerative and inflammatory conditions

Review of clinical presentation, investigations, medical & surgical management, Physiotherapy assessment & management of the following.

(1) Osteoarthritis of knee

(2) Osteoarthritis of hip

(3) Osteoarthritis of hand

(4) Rheumatoid arthritis

(5) Ankylosing spondylitis

(6) Gout

(7) Perthes disease

(8) Osteoporosis

(9) Hemophilia

(G) Infective conditions –

Review of clinical presentation, investigations, medical & surgical management, Physiotherapy assessment & management for the following.

(1) Osteomyelitis – acute & chronic

(2) Septic arthritis

(3) Pyogenic arthritis

(4) TB spine

(5) TB knee

(6) TB hip

(H) Spinal conditions

Review of clinical presentation, investigations, medical & surgical management, Physiotherapy assessment & management and home program for the following

- (1) Cervical spondylosis
- (2) Lumbar spondylosis
- (3) Spondylolisthesis
- (4) Spinal canal stenosis
- (5) Spondylosis
- (6) IVDP
- (7) Coccydynia
- (8) Sacro-iliac joint dysfunction
- (9) Sacralisation
- (10) Lumbarisation

(I) Introduction to Bioengineering –

- a. Classification of orthotics & prosthetics.
- b. Biomechanical principles of orthotics & prosthetic appliances.
- c. Designing of upper extremity & lower extremity prosthesis
- d. Indications & contraindications
- e. Advantages & disadvantages of orthosis& prosthesis.
- f. Checkout of orthosis& prosthesis.
- g. Footwear prescription & modifications.

(J) Amputations-

- (1) Definition
- (2) Types
- (3) Levels
- (4) Indications

- (5) Physiotherapy assessment
- (6) Aims
- (7) Management: pre & post operative
- (8) Physiotherapy with emphasis on stump care & bandaging
- (9) Ideal stump
- (10) Pre & post prosthetic training
- (11) Prosthetic checkout
- (12) Pylon
- (13) Complications of amputation & their management

(K) Cerebral palsy

Review of clinical presentation, investigations, medical & surgical management, physiotherapy orthopaedic assessment & management for surgically and conservatively managed cases.

(L) Poliomyelitis

Review of clinical presentation, investigations, medical & surgical management, physiotherapy orthopaedic assessment & management prior to and after surgical interventions, reconstructive surgeries with emphasis on tendon transfers. Role of orthotics, floor reaction orthosis (FRO), post polio syndrome.

(M) Leprosy

Review of clinical presentation, investigations, medical & surgical management, physiotherapy orthopaedic assessment & management prior to and after surgical interventions (tendon transfers). Risks of anaesthetic limb and outline its care to prevent complications.

(N) Orthopaedic surgeries

Brief overview of surgical procedure and technique of the following common orthopaedic surgeries such as – open reduction and internal fixation (ORIF), arthroplasty-types, osteotomy, reconstructive surgeries, tendon transplants with emphasis on hand injuries, soft tissue release-types, soft tissue repair, arthrodesis, arthroscopy, synovectomy, spinal decompression, spinal stabilization, reattachment of limbs, external fixators. Pre and postoperative PT assessment, goals, precautions and PT management of above mentioned surgeries. Pre and postoperative PT management of common

surgeries of shoulder, elbow, forearm, wrist, hand, hip, knee, ankle and foot with emphasis on TKR, THR, and ACL reconstruction surgery protocols.

(O) Sports physiotherapy and soft tissue conditions

Types of injuries to soft tissue (ligaments, muscles, tendons, nerves, capsule, meniscus, bursa etc;), stages of soft tissue healing, treatment guidelines for soft tissue injuries in acute, sub acute and chronic stages. Prevention and rehabilitation of soft tissue injuries. Peri arthritis of shoulder, supraspinatus tendinitis, rotator cuff tendinitis and tear, biceps tendonitis, sub acromion bursitis, lateral epicondylitis, medial epicondylitis, olecranon bursitis, carpal tunnel syndrome, Dupuytren's contracture, de quervains disease, trigger finger, wry neck, piriformis syndrome, iliotibial tract syndrome, knee- ligament and meniscal injuries, quadriceps, hamstring and calf strain, chondromalacia patella, patellar tendinitis, pre patellar bursitis, ankle sprain, tendo Achilles tendinitis, plantar fasciitis, metatarsalgia, Mortons neuralgia.

Role of physiotherapy in prevention and treatment of sports injuries.

Applied yoga in orthopaedic conditions. Brief outline about epiphyseal injuries.

Practicals

Practicals shall be conducted for all the relevant topics discussed in theory in the following forms.

1. Lab sessions consisting of demonstration and practice of components of orthopaedic physiotherapy assessment and special tests on student models.
2. Lab sessions consisting of demonstration and practice of orthopaedic physiotherapy treatment techniques.
3. Bed side case presentations and case discussions.

References:-

- (1) Cash Text book of orthopedics and rheumatology
- (2) Tidys physiotherapy
- (3) Text book of orthopedics for physiotherapist – Jayant Joshi.
- (4) Sports Medicine – C.S.Jayaprakash.
- (5) Text Book of Sports Medicine – Das.
- (6) Therapeutic exercise – Kisner
- (7) Orthopaedic physical assessment – Magee.
- (8) Clinical Orthopedic Rehabilitation – Brent & Brotzman.