

ORTHOPEDICS & SPORTS PHYSIOTHERAPY

Subject Description

The subject serves to integrate the knowledge gained by the students in orthopedics and traumatology with skills to apply these in clinical situations of dysfunction and musculoskeletal pathology. The objective of the course is that after the specified hours of lectures and demonstrations the student will be able to identify disabilities due to musculoskeletal dysfunction, plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore musculoskeletal function.

Subject Title	: ORTHOPEDICS AND SPORTS PHYSIOTHERAPY
Duration	: 25 – 36 Months
Total Hours	: 150
Theory	: 90 Hours
Practical	: 60 Hours
Total Hours / Week	: 5 Hrs
Lecture	: 3 Hours / Week
Practicals	: 2 Hours / Week
Method of Assessment	: Written, Oral, Practical

1. PT assessment for Orthopedic conditions - SOAP format. Subjective - history taking, informed consent, personal, past, medical and socioeconomic history, chief complaints, history of present illness. Pain assessment- intensity, character, aggravating and relieving factors, site and location. Objective- on observation - body built swelling, muscle atrophy, deformities, posture and gait. On palpation- tenderness-grades, muscle spasm, swelling- methods of swelling assessment, bony prominences, soft tissue texture and integrity, warmth and vasomotor disturbances. On examination – ROM – active and passive, resisted isometric tests, limb length-apparent, true and segmental , girth measurement, muscle length testing-tightness, contracture and flexibility, manual muscle testing, peripheral neurological examinationdermatomes, myotomes and reflexes, special tests and functional tests. Prescription of home program. Documentation of case records, and follow up. [5 Hours]
2. Fractures - types, classification, signs and symptoms, complications. Fracture healing - factors affecting fracture healing. Principles of fracture management - reduction - open and closed, immobilization - sling, cast, brace, slab, traction - manual, mechanical, skin, skeletal, lumbar and Cervical traction, external fixation, functional cast bracing. PT management in complications - early and late - shock, compartment syndrome, VIC, fat embolism, delayed and mal union, RSD, myositis ossificans, AVN, pressure sores etc. Physiotherapy assessment in fracture cases. Aims of PT management in fracture cases - short and long term goals. Principles of PT management in fractures - Guidelines for fracture treatment during period of immobilization and guidelines for treatment after immobilization period. [9 Hours]

3. Specific fractures and dislocations : PT assessment and management of upper limb fractures and dislocations. PT assessment and management of lower limb fractures and dislocations including pelvis. PT assessment and management spinal fractures. [6 Hours]
4. Selection and application of physiotherapeutic techniques, maneuver's, modalities for preventive, curative and rehabilitative means in all conditions. [2 Hours]
5. Principles of various schools of thought in manual therapy. (Briefly Maitland and Mc kenzie). [3 Hours]
6. Degenerative and Inflammatory conditions: Definition, signs and symptoms, clinical features, path physiology, radiological features, deformities, medical, surgical management. Describe the PT assessment and management and home program for the following conditions – Osteoarthritis - emphasis mainly on knee, hip and hand, Rheumatoid Arthritis, Ankylosing spondylitis, Gout, Perthes disease, Periarthritic shoulder. [3 Hours]
7. Infective conditions: Definition, signs and symptoms, clinical features, pathophysiology, radiological features, medical, surgical management. Describe PT assessment and management for following conditions – Osteomyelitis – acute and chronic, Septic arthritis, Pyogenic arthritis, TB spine and major joints - knee and hip. [2 Hours]
8. Define, review the postural abnormalities of spinal column, clinical features, deformities, medical and surgical management. Describe PT assessment and management and home program. [3 Hours]
9. Deformities: Review in detail the causes, signs and symptoms, radiological features, medical and surgical management. Describe the PT. assessment and management of the following conditions : Congenital : CTEV, CDH, Torticollis, pes planus, pes cavus and other common deformities. Acquired: scoliosis, kyphosis, coxa vara, genu varum, valgum and recurvatum. [3 Hours]
10. Cerebral palsy: Definition, etiology, classification, clinical features, complications, deformities, medical and surgical management and home program with special emphasis on carrying techniques. PT management after surgical corrections. [2 Hours]
11. Poliomyelitis: Definition, etiology, types, pathophysiology, clinical features, deformities, medical and surgical management. PT. assessment and management after surgical corrections and reconstructive surgeries - emphasis on tendon transfer and home program. [2 Hours]
12. Leprosy: Definition, cause, clinical features, medical and surgical management. PT assessment, aims, and management after surgical procedures such as tendon transfer both pre and post operatively. [2 Hours]
13. Amputations: Definition, levels, indications, types, PT assessment, aims, management pre and post operatively. PT management with emphasis on stump care and bandaging. Pre and post prosthetic training, checking out prosthesis, complications of amputations and its management. [3 Hours]

14. Spinal conditions: Review the causes, signs and symptoms, investigations, radiological features, neurological signs, PT assessment, aims, and management and home program of the following conditions: Cervical spondylosis, Lumbar spondylosis, Spondylolisthesis, Spinal canal stenosis, Spondylolysis, Sacro-iliac joint dysfunction, Sacralisation, Lumbarisation, Intervertebral disc prolapse, Coccydynia, Spina bifida occulta. [5 Hours]
15. Effects of spinal traction, types of traction, modes of application, indications for spinal traction, contraindications, precautions, limitations of traction. [2 Hours]
16. Osteoporosis- causes, predisposing factors, investigations and treatment. [1 Hour]
17. Orthopedic surgeries: Pre and post operative PT assessment, goals, precautions and PT management of following surgeries such as : Arthrodesis, Osteotomy, Arthroplasty-partial and total - Excision arthroplasty, excision arthroplasty with implant, interpositional arthroplasty and total replacement; Tendon transplant, Soft tissue release- tenotomy, myotomy, lengthening; Arthroscopy, Spinal stabilization, Re-attachment of limbs, External fixators, Synovectomy. [4 Hours]
18. Shoulder joint : Shoulder instabilities, TOS, RSD, Impingement syndrome - conservative and Post operative PT management. Total shoulder replacement and Hemi replacement. - Post operative PT management. AC joint injuries - rehabilitation. Rotator cuff tears- conservative and surgical repair. Subacromial decompression - Post operative PT management. [3 Hours]
19. Elbow and forearm: Excision of radial head - Post operative PT management. Total elbow arthroplasty- Post operative PT management. [2 Hours]
20. Wrist and Hand: Total wrist arthroplasty. Repair of ruptured extensor tendons. Carpal tunnel syndrome. Flexor and extensor tendon lacerations - Post operative PT management. [3 Hours]
21. Hip: Joint surgeries - hemi and total hip replacement - Post operative PT management Tendonitis and bursitis. - management. [2 Hours]
22. Knee: Lateral retinacular release, chondroplasty- Post operative management. Realignment of extensor mechanism. ACL and PCL reconstruction surgeries - Post operative rehabilitation. Meniscectomy and meniscal repair - Post operative management. Plica syndrome, patellar dysfunction and Hoffa's syndrome- conservative management. TKR- rehabilitation protocol. Patellar tendon ruptures and Patellectomy- rehabilitation. [5 Hours]
23. Ankle and foot: Ankle instability. Ligamentous tears- Post operative management. [1 Hour]
24. Introduction to Bio-Engineering; Classification of Orthoses and prostheses; Biomechanical principles of orthotic and prosthetic application; Designing of upper extremity, lower extremity and spinal orthosis, indications and check out; Designing of upper extremity and lower extremity prostheses, indications and check out; Psychological aspects of orthotic and prosthetic application; prescription and designing of footwear and modifications; Designing and construction of adaptive devices. [9 Hours]

25. Sports Physiotherapy : Physical fitness. Stages of soft tissue healing. Treatment guidelines for soft tissue injuries- Acute, Sub acute and chronic stages. Repair of soft tissues- rupture of muscle, tendon and Ligamentous tears. Soft tissue injuries- prevention and rehabilitation of, Lateral ligament sprain of ankle. Rotator cuff injuries. Collateral and Cruciate injuries of knee. Meniscal injuries of knee. Supraspinatus and Bicipital tendonitis . Pre patellar and Subacromial bursitis. Tennis and Golfer's elbow. Hamstring strains, Quadriceps contusion, TA rupture. Dequervain's tenosynovitis. Trigger and Mallet finger. Plantar fasciitis. Wrist sprains. [5 Hours]

26. Applied Yoga in orthopedic conditions [3 Hours]

Practical: 60 Hours

Practical shall be conducted for all the relevant topics discussed in theory in the following forms:

1. Bedside case presentations and case discussions
2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.

Recommended books:

1. Tidy's physiotherapy.
2. Textbook of orthopedics- Cash.
3. Clinical orthopedic rehabilitation- Brotzman.
4. Orthopedic physiotherapy - Jayant Joshi.
5. Physical Rehabilitation Assessment and Treatment – O'Sullivan Schmitz 6. Sports physiotherapy- Maria Zuluaga