

# DISEASES OF THE LOCOMOTOR APPARATUS

Total credits:

**11.5**

Theory credits:

**2.5**

Practical credits:

**9**

## GENERAL OBJECTIVES

During the training period students are expected to acquire the theoretical knowledge and clinical skills that will allow them to identify the principal disorders of the locomotor apparatus. Students will study in detail the etiopathogeny, clinical evolution and therapeutic orientation of the locomotor apparatus using physical, medical and surgical methods of its congenital, trauma, inflammatory, degenerative and tumor pathology.

## SPECIFIC OBJECTIVES

At the end of the training process, students should:

*A. Be able to identify the main **problems** of the locomotor apparatus, specifically in:*

1. Trauma.
2. Degenerative, inflammatory and metabolic lesions.
3. Congenital and developmental disorders.
4. Tumor lesions.
5. Infections.

During the course students will also be expected to acquire clinical knowledge and skills that should be complemented and completed with the corresponding training in Paediatrics, Surgery, Anaesthesia, Urology and Oncology: This will allow them to identify the correct diagnosis and treatment of **mixed problems** such as congenital and developmental disorders, neoplasia of the locomotor apparatus and polytraumatized patients.

*B. Know the theoretical bases of the **diagnostic methods** used in pathology of the locomotor apparatus, specifically in:*

1. General clinical examination.
2. Clinical examination of the spinal column.
3. Clinical exploration of the upper limbs.
4. Clinical exploration of the lower limbs.
5. Complementary tests (X-ray, CAT, resonance, densitometry, gammagraphy, ecography, biochemical, hormonal, immunological, sinovial fluid).

*C. Know the diagnosis and medical-surgical therapeutics of the **principal diseases** of the locomotor apparatus, specifically in:*

1. Trauma
2. Degenerative diseases
3. Inflammatory diseases
4. Metabolic bone diseases
5. Microcrystalline diseases
6. Infectious diseases
7. Affections of the spine and pelvis
8. Affections of the haunch
9. Affections of the knee
10. Affections of the ankle and foot

11. Affections of the shoulder
12. Affections of the elbow
13. Affections of the wrist
14. Affections of the hand

*D. Have acquired the following **skills**:*

- Obtain a correct anamnesis that includes interview and interpretation of the principal symptoms. Students should be able to establish an adequate doctor-patient relationship and recognize the symptoms through the most commonly used patient expressions.
- Examine the most important signs of pathology of the locomotor apparatus and use them to identify the physiopathological changes that they determine.
- Clinical examination of the spinal column. Cervical cord: pain points, neurological examination, mobility.
- Clinical examination of the upper limb. Shoulder: pain points, passive and active mobility. Elbow, wrist and hand: joint, tendinomuscular and neurological examination.
- Clinical examination of the lower limbs: dysmetria, misalignments, neurological examination. Examination of the haunch: pain points and mobility. Examination of the knee: ligamentous, meniscal, patello-femoral. Examination of the ankle and foot: pain points, misalignments.
- Use complementary methods to diagnose congenital, traumatic, inflammatory, tumor, metabolic and degenerative osteoarticular lesions.
- Emergency immobilization of extremities.
- Common bandages and casts.
- Treatment of simple injuries.
- Multidisciplinary relationship in orthopaedic patients (pathological anatomy, oncology, infectology, rehabilitation).
- Control of the clinical course of patients with diseases of the locomotor apparatus.
- Operation theatre in orthopaedics: conduct, cleaning, dress and sepsis. Knowledge of instruments and principal surgical procedures.

## PROGRAMME

### Theory

#### 1. Introduction to surgery of the locomotor apparatus

Biomechanics, bioengineering and the locomotor apparatus.

Radiodiagnosis in diseases of the locomotor apparatus.

Nuclear medicine in diseases of the locomotor apparatus.

Analgesic pharmacology.

Antialgic pharmacology.

#### 2. General surgery of trauma of the locomotor apparatus

Traumatology in adults.

Infant traumatology.

Traumatology in the elderly.

Traumatic lesions of the joints.

Traumatic lesions of the muscles and tendons.

Reflex sympathetic dystrophy as a complication of trauma of the locomotor apparatus.

Stress fractures.

#### 3. General orthopaedic surgery of the locomotor apparatus.

Infections of the bones and joints: acute and chronic.

Osteoarticular tuberculosis.  
Microbiology of osteoarticular infection.  
Osteonecrosis.  
Arthrosis.  
Capsular-ligamentous, tendinous and para-articular cavity pathologies.  
Compartmental syndromes.  
Syndromes due to compression of the peripheral nerves.  
Orthopaedic surgery in neurological affections.  
Basic technical options in surgery of the locomotor apparatus.

#### **4. General orthopaedic surgery of the locomotor apparatus**

General principles for the diagnosis, assessment of the state of evolution and treatment of neoplasia of the locomotor apparatus.  
Objectives of surgical intervention, planning and technical options.  
Adjuvant therapies in the treatment of malignant tumors of the locomotor apparatus.  
Pathological anatomy of bone tumors.  
Osteogenic tumors considered to be benign.  
Chondrogenic tumors considered to be benign.  
Other benign bone tumors.  
Giant cell tumor.  
Malignant osteogenic tumors.  
Malignant chondrogenic tumors.  
Malignant myogenic tumors.  
Other primary malignant bone tumors.  
Sarcomas of the soft parts.  
Metastasis or secondary bone tumors.

#### **5. Shoulder surgery**

Fractures of the clavicle and capsular-ligamentous lesions of clavicular joints.  
Fractures of the proximal extremity of the humerus.  
Fractures of the shoulder blade and capsular-ligamentous lesions of the glenohumeral joint.  
Fractures of the humeral diaphysis.  
Localization in the shoulder region of general orthopaedic pathology.  
Pain syndromes of the shoulder.

#### **6. Elbow surgery.**

Fractures of the distal humerus.  
Fractures of the proximal extremity of the radius in adults.  
Fractures of the proximal extremity of the ulna.  
Fractures of the forearm associated with Monteggia and Galeazzi variant dislocations.  
Fractures of the forearm not associated with dislocations.  
Fractures of the forearm in children.  
Trauma of growth cartilage in the elbow joint.  
Capsular-ligamentous lesions and dislocations of the elbow joint in adults.  
Tennis elbow and other enthesopathies.

#### **7. Hand surgery**

General principles for the treatment of hand trauma.  
Fractures of the coccyx.  
Fractures of the 2nd and 5th metacarpals.  
Fractures of the first metacarpal.  
Fractures of the phalanges of the 2nd, 3rd, 4th and 5th fingers.  
Fractures of the thumb phalanges.  
Capsular-ligamentous lesions of the wrist: dislocations and instability of the coccyx.

Capsular-ligamentous lesions of the finger joints.  
Acute traumatic lesions of the flexor tendons of the hand.  
Acute traumatic lesions of the extensor tendons of the hand.  
Aseptic tenosynovitis of the wrist and hand.  
Acute and chronic infections of the hand.  
Dupuytren's disease.  
Tumors in the soft parts of the wrist and hand.  
Bones tumors of the hand.  
Congenital anomalies of the hand.  
Fractures of the inferior extremity of the radius.

## **8. Pelvic and hip surgery.**

Fractures of the pelvis.  
Fractures of the acetabulum.  
Fractures of the proximal extremity of the femur.  
Dislocations of the hip.  
Avascular necrosis of the femoral head.  
Legg-Calvé-Perthes disease.  
Transitory synovitis of the coxofemoral joint in children.  
Arthrosis of the hip joint.  
Congenital dislocation of the hip: dysplasia.  
Slipped upper femoral epiphysis  
Fractures of the femoral diaphysis.

## **9. Knee surgery.**

Capsular-ligamentous lesions of the knee joint.  
Meniscal injury in the knee.  
Syndromes of the patello-femoral compartment.  
Injuries of the knee extensor apparatus: fractures of the kneecap.  
Osgood-Schlatter disease.  
Fractures of the distal femur.  
Fractures of the proximal extremity of the tibia.  
Arthrosis of the knee joint.  
Osteochondritis dissecans of the knee  
Popliteal cysts.  
Diaphyseal fractures of the tibia and fibula

## **10. Foot surgery**

Fractures of the ankle joint.  
Capsular-ligamentous injuries of the ankle joint.  
Fractures of the heel.  
Fractures of the talus.  
Traumatic injuries of the middle part of the foot, around the midtarsal joint.  
Traumatic injuries of the tarsometatarsal joint.  
Fractures of the metatarsals and phalanges.  
Structural fatigue fractures in the bones of the foot.  
Metatarsalgia, hallux valgus, hallux rigidus, hallux varus.  
Deformities of the toes.  
Osteochondrosis of the foot.  
Deformities of the foot as a structural unit.  
Pathology of the tendons and serous bursae in the ankle and foot.

## **11. Surgery of the spinal column**

Trauma of the spinal column with and without neurological lesions.

Deformities of the spinal column: scoliosis.  
Lumbago.  
Cervical pain.  
Spina bifida and associated anomalies.  
Other congenital anomalies of the spinal column.  
Infections of the spinal column.  
Tumors of the spinal column.

## **12. Peripheral nerve surgery**

Peripheral nerve trauma.  
Neuroma in peripheral nerve surgery.  
Tumors of the peripheral nerve apparatus.

## **13. Maxillofacial surgery.**

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# **TEACHING STRUCTURE**

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## **THEORY CLASSES**

Radiodiagnosis in diseases of the locomotor apparatus. Dr. Bianchi (2)  
Nuclear medicine in diseases of the locomotor apparatus. Dra. Pons (1)  
Analgesic pharmacology. Dra Caballero (1)  
Antialgic pharmacology. Dr. Rodríguez (1)  
Traumatology in adults. Dr. Ramon (1)  
Traumatology in the elderly. Dr. Ramon (1)  
Paediatric traumatology. Dr. Suso (1)  
Arthrosis. Dr. Ramon (1)  
Acute osteoarticular infections. Dr. Ramon (1)  
Chronic osteoarticular infections. Dr. Ramon (1)  
Microbiology of osteoarticular infection. Dr. Vila (1)  
Benign osteogenic bone tumors. Dr. Suso (1)  
Benign chondrogenic bone tumors. Dr. Suso (1)  
Malignant bone tumors. Dr. Suso (1)  
Pathological anatomy of bone tumors. Dra. Mallofré (2)  
Paediatric orthopaedics: Dysplasia of the haunch. Dr. Suso (1)  
Paediatric orthopaedics: Legg-Calvé-Perthes disease. Dr. Suso (1)  
Cervical pain. Dr. Ramon (1)  
Lumbago. Dr. Ramon (1)  
Scoliosis. Dr. Suso (1)  
Maxillofacial pathology. Dr. Pifarré (3)

## **SEMINARS**

Traumatology. Dr. Gallart (5)

- Shoulder girdle
- Elbow, forearm and hand
- Pelvis and haunch
- Knee and leg
- Ankle and foot

Rehabilitation of the locomotor apparatus. Dra. Sañudo (1)

Pathology of the shoulder. Dr. Vilalta (1)

Pathology of the elbow and hand. Dr. Vilalta (1)

Pathology of the hip. Dr. Vilalta (1)

Pathology of the knee. Dr. Vilalta (2)

- Semiology of the knee.
- Gonarthrosis

Vertebral fractures. Dr. Fuster (1)

Discal hernia. Dr. Fuster (1)

Spondylolisthesis. Dr. Fuster (1)

Pathology of the elbow and hand. Dr. Fuster (2)

- Structural deformities of the foot
- Metatarsalgias

## **PRACTICAL CLINICAL PROGRAMME**

### **Seminars**

1. Osteoarticular examination
2. Study of articular fluid
3. Diagnosis of bone tumors
4. Examination of metabolism
5. The laboratory in pathology of the locomotor apparatus
6. Diagnosis of infections
7. Examination of peripheral nerve injuries
8. Immobilization of joints
9. Treatment of musculotendinous sprains
10. Physiotherapy of the spinal column
11. Anti-inflammatory treatments in osteoarticular pathology
12. CAT and MR in osteoarticular pathology
13. Non-invasive treatments and arthroscopy
14. Immobilization of fractures
15. Internal osteosynthesis
16. Osteotaxis
17. Bone grafts
18. Osteotomies
19. Arthrolysis and arthrodia
20. Arthroplasties
21. Articular reactions
22. Amputations and prosthetics
23. Orthosis
24. Functional recovery

