

**COURSE DATA****Data Subject**

Code	34483
Name	Pathology of the locomotor system
Cycle	Grade
ECTS Credits	6.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
1204 - Degree in Medicine	Faculty of Medicine and Odontology	4	Second term

Subject-matter

Degree	Subject-matter	Character
1204 - Degree in Medicine	14 - Human clinical training III	Obligatory

Coordination

Name	Department
ARTERO MORA, ARTURO	260 - Medicine
SILVESTRE MUÑOZ, ANTONIO	40 - Surgery

SUMMARY

In Traumatology and Orthopedic Surgery, the professor will expose the content, the methods and the techniques for the development of the knowledge and skills that students must acquire. In the practical lessons of Traumatology and Orthopedic Surgery and of Locomotor System Medicine, discussions seminars, clinical cases, diagnostic and therapeutic protocols, clinical studies, etc. will be made.

Among the formative activities, practices about basic therapeutic technique will be included.

Thus, practices to develop work and communication capacity with the new technologies of information and communication and of bibliographical search will be included.



PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

OUTCOMES

1204 - Degree in Medicine

- Obtain and elaborate a clinical history with relevant information.
- Perform a physical examination and a mental health assessment.
- Have the capacity to make an initial diagnosis and establish a reasonable strategy of diagnosis.
- Establish the diagnosis, prognosis and treatment, applying principles based on the best information available and on conditions of clinical safety.
- Indicate the most accurate therapy in acute and chronic processes prevailing, as well as for terminally ill patients.
- Plan and propose appropriate preventive measures for each clinical situation.
- Acquire proper clinical experience in hospitals, health care centres and other health institutions, under supervision, as well as basic knowledge of clinical management focused on the patient and the correct use of tests, medicines and other resources available in the health care system.
- Know how to use the sources of clinical and biomedical information available, and value them critically in order to obtain, organise, interpret and communicate scientific and sanitary information.
- Know how to use IT in clinical, therapeutic and preventive activities, and those of research.
- Proper organisation and planning of the workload and timing in professional activities.
- Team-working skills and engaging with other people in the same line of work or different.
- Criticism and self-criticism skills.
- Capacity for communicating with professional circles from other domains.
- Acknowledge diversity and multiculturality.
- Consideration of ethics as a fundamental value in the professional practise.
- Working capacity to function in an international context.
- Is aware of tumour disease, its diagnose and management.
- Recognises, diagnoses, and guides the management of the main pathologies affecting the locomotor system.



- Recognises, diagnoses, and guides the management of the main infectious pathologies affecting various organs and systems.
- Recognises, diagnoses, and guides the management of the main pathologies affecting the immune system.
- Recognises, diagnoses and guides the management of the main paediatric pathologies.
- Is aware of the characteristics of prevalent pathologies in the case of elders.
- Recognises, diagnoses, and guides the management of vital risk situations.
- Knows how to perform a complete anamnesis, focused on the patient and orientated to various pathologies, interpreting its meaning.
- Knows how to evaluate modifications in clinical parameters at different ages.

LEARNING OUTCOMES

1. Knowledge of the causes for the pathology of the locomotor system and development of the capacity to trigger preventive measures. Knowledge of the clinical manifestations in each of the pathologies.
2. Capacity for the clinical and diagnostic evaluation of the pathology of the locomotor system.
3. Capacity to guide the treatment of the main diseases of the locomotor system in order to act in emergency cases and the capacity to manage the information sources, appropriated for their formative degree, within the general objectives of the medicine teaching.

DESCRIPTION OF CONTENTS

1. Theoretical lessons in Traumatology

1. Muscle traumatismes. Injury, contusion and muscular rupture. Compartment syndrome: physiopathology, diagnosis and treatment.
2. Tendon structure and its slipping apparatus. Tendon injuries, tendon cicatrization and treatment principles of the tendon injuries. Inflammatory and degenerative pathology. Acute and chronic tenosynovitis and tenocellulitis. Tendinosis. Tendon rupture. Bursitis and ganglions: physiopathology, diagnosis and treatment principles.
3. Structure and function of the joints. Methods of joint evaluation: inspection, active and passive mobility, stability evaluation, and principles of their radiographic interpretation. Magnetic resonance and arthroscopy. Production mechanisms, clinical evaluation and treatment principles of the joint traumatismes: sprain, luxation and joint injuries.
4. Fractures: concept, production mechanisms. Classification of the fractures and clinical interest. Immediate and late, local, area and general complications. Main sequels of the fractures: malunions, stiffness, joint degeneration and osteonecrosis.



5. Fracture healing: consolidation process and its variants according the kind of bone and immobilization method used. Factors that influence the consolidation. General principles of the fracture treatment. Failure in the consolidation: etiology, diagnosis and treatment principles.

6. Fracture treatment. Emergency treatment. Treatment principles and methods of fractures: functional treatment, plaster immobilization, indications and principles of the surgical treatment, external fixation and fracture treatment by arthroplasty.

2. Theoretical lessons in Traumatology (continous)

7. Osteoarticular infections: generalities. Acute, sub-acute and chronic osteomyelitis: etiopathogenesis, diagnosis and treatment. Pyogenic arthritis: etiopathogenesis, diagnosis and treatment. Granulomatous infections. Osteonecrosis: generalities.

8. Bone tumours. Clinical characteristics of the bone tumours. Staging. Radiological criteria of malignancy and benignity. Principles of the oncological treatment. Study of the most frequent tumours in the clinic.

9. Child traumatology and orthopedics I: fractures in the child. Traumatic epiphysiolysis. Osteonecrosis and osteochondrosis.

10. Child traumatology and orthopedics II: congenital malformations and disorders in the foot growth. Hip growth. Axial deformities of lower limbs.

11. Hip painful pathology. Descriptive scheme of the most significant pathologies. Clinical exploration, diagnosis and treatment.

12. Knee painful pathology. Descriptive scheme of the most significant pathologies. Clinical exploration, diagnosis and treatment.

13. Foot non-traumatic pathology. Descriptive scheme of the most significant pathologies. Clinical exploration, diagnosis and treatment.

14. Intervertebral disc. Cervicalgia. Cervical herniated disc. Syndromes of nervous entrapment of the upper limbs.

15. Shoulder and elbow non-traumatic pathology. Descriptive scheme of the most significant pathologies. Clinical exploration, diagnosis and treatment.

16. Wrist and hand non-traumatic pathology. Descriptive scheme of the most significant pathologies. Clinical exploration, diagnosis and treatment.

17. Lumbago and degenerative pathology of the lumbar rachis. Spinal deformities.



3. Theoretical lessons in Medicine of the Locomotor System.

1. Autoimmune and systemic arthritis.
2. Systemic lupus erythematosus.
3. Vasculitis, concept and classification and integrated diseases.
4. Specific vasculitis. Temporal or of giant cells arteritis.
5. Bone pathology of metabolic origin: osteoporosis, osteomalacia and Paget.

4. Seminar practices of Traumatology

S1. Treatment methods in traumatology and othopedic surgery. Joint interventions. Fracture intern fixation. Other methods of osteoarticular reconstruction.

S2. Pelvis, hip and femur traumatisms. Pelvis parcelling fractures. Pelvic ring fractures. Cotilo fracture. Femur proximal limb fracture: femoral neck fractures, pertrochanteric fractures, greater and lesser trochanter fractures, subtrochanteric fractures. Femur diaphyseal fractures. Femur proximal limb fractures and femoral diaphysis in the child.

S3. Knee traumatisms. Muscle lesions of the extensor apparatus. Quadriceps and patellar tendon rupture. Tibia spine avulsion. Patella fractures. Tibia proximal limb fracture. Femur distal limb fracture. Acute ligament lesions.

S4. Tibia, ankle and foot traumatisms. Tibia fractures. Ankle sprain. Malleolar fractures. Calcaneous fractures. Talus bone fractures. Midtarsal fractures. Metatarsal fractures. Toes fractures.

5. Seminar practices of Traumatology (continous)

S5. Traumatism of the rachis: general principles of diagnosis and treatment. Fractures, sprains, dislocations of the cervical rachis. Fractures of dorsal rachis. Fractures of the cervical rachis. Fractures of the lumbar rachis. Rachis infections.

S6. Shoulder girdle fractures: collarbone fractures, lesions in the acromioclavicular and sternoclavicular, scapula fractures. Shoulder luxations. Humerus proximal limb fractures. Humerus diaphysis fractures.

S7. Elbow fractures in child: supracondylar, condylar, epitrochlear, olecranon and radius head. Elbow fractures in adult: Humerus head, radius head, coronoid and olecranon fractures. Elbow luxation and fracture-luxation. Forearm fractures. Radius distal limb fractures.

S8. Carpus bones fractures: scaphoid fracture, rest of the bone fractures. Acute instabilities and carpus luxations: semilunate and perilunate luxations. Carpus chronic instabilities. Hand injuries. Hand flexor tendons injuries. Hand extensor apparatus injuries and ruptures. Metacarpal fractures and luxations. Phalanges fractures and luxations.

**6. Clinical cases of Traumatology**

1. Clinical cases of fractures and treatment.
2. Diagnosis and treatment of the osteoarticular infections and bone necrosis.
3. Diagnosis and treatment of the lower limb growth disorders. Disorders in the child's motion. Foot statics disorders.
4. Clinical cases of knee traumatism. Exploration and treatment.

7. Seminar Practices in Medicine of the Locomotor System.

1. Patient with joint pathology approach.
2. Differential diagnosis of the inflammatory diseases.
3. Differential diagnosis of the autoimmune systemic diseases.
4. Rheumatic diseases treatment.

8. Clinical practices

They will be done in state approved Hospitals.

WORKLOAD

ACTIVITY	Hours	% To be attended
Seminars	26,00	100
Theory classes	26,00	100
Clinical practice	23,01	100
Study and independent work	35,00	0
Readings supplementary material	25,00	0
Preparing lectures	10,00	0
Preparation of practical classes and problem	5,00	0
TOTAL	150,01	

TEACHING METHODOLOGY

The theoretical attending hours will be developed with the exposition by the teacher of the most important concepts and of the answers that the students ask about their study and preparation of the established units, with the delivered teaching material. In the seminars, the students' participation will be encouraged with the acquired knowledge of the delivered teaching material, stimulating the students' participation in the discussion.



In the practical lessons, the corresponding skills to the clinical activity performed by the teacher will be taught.

Regarding the autonomous work, the teaching material and the corresponding instructions will be uploaded to Aula Virtual to allow the students to prepare both the theoretical and the practical lessons and to participate in the discussions.

EVALUATION

The subject developed by each of the departments, medicine and surgery, will be assessed independently, with the criteria established by each department and with a proportional weighting to the developed subject. 66,6% of the surgical content and 33.3% of the medical content.

Students must pass both parts of the subject, the surgical and the medical, in order to pass the subject as a whole and be able to obtain a final score. If only one of the parts is passed, the corresponding score will be saved for later exam calls.

Surgical part (traumatology and orthopaedic surgery): the theoretical evaluation will be 50% of the score (only for this section), and the practical evaluation corresponds to the other 50%. It will be done through a written test with 36 multiple choice questions, 2 clinical cases with 5 questions and 4 images. Short-answer questions will have 4 possible answers, and each valid one will be worth 2 points, whereas wrong answers will penalise 0.666 points (subtracted). Clinical case studies will be evaluated out of 10 each. Images: 2 points each. Pass: 50.

Medical part (rheumatology): a final written exam with multiple choice questions on the content of the subject (50%), and another one (50%) regarding the practical content. There will be 60 multiple choice questions in the exam. Correct answers are worth 1 point, and wrong ones will lead to a subtraction of 0.333 points. Non-answered ones are 0 points. A score of 50% will be required in order to pass.

Students [with a grade of 9:00 or more who wish to qualify for the Honors Enrollment will need to take an oral exam.](#)

In order to access to an advance on the call of this subject, it is a requirement that the student has coursed all his/her practices.

Attendance to practical sessions is mandatory. Unjustified non-attendance to more than 20% of the sessions will make it impossible to pass the course.

Students are reminded of the importance of carrying out evaluation surveys on all the teaching staff of the degree subjects.



REFERENCES

Basic

- Graham Apley. Ortopedia y tratamiento de las fracturas. Ed. Masson
- Green Walter B. Ortopedia. Ed. Masson
- L. Ferrández Portal y cols. Lecciones de cirugía ortopédica y traumatología. Ed. Acción médica
- M. Sánchez Martín. Traumatología y ortopedia. Universidad de Valladolid. Secretariado de publicaciones e intercambio.
- Recursos-e Salut: ClinicalKey Student. Elsevier (Scopus, ScienceDirect):
uv-es.libguides.com/RecursosSalut/BibliotecaSalut