Physiotherapy of the Locomotor System: 
diagnosis, manual therapy and therapeutic exercise

Rationale
The functionality and physical and mental well-being’s support for our society is based on the ability for free movement and being able to live as a person without any pain.

These health care aspects generate an opportunity for physiotherapy to apply their knowledge and skills for the common good. The ability to offer an adjusted diagnosis for acute injuries or chronicity from altered movement and the understanding of perceived pain create the possibility of responding to the patient’s expectations and sustain their quality of life through their own techniques such as manual therapy and therapeutic exercise based on an adjusted clinical reasoning and a constant re-evaluation of our professional intervention.

This postgraduate course’s success is based on guaranteeing that the physiotherapist develops intelligent hands in order to employ the service of a reasoned knowledge and an adept diagnostic and therapeutic assistance as an expert professional of health sciences.

General Objective
Provide the Physiotherapist with the most current diagnostic and therapeutic capacity with regards to prevalent locomotor system disorders.

Specific Objectives
- Collect, analyze and critically interpret relevant information related to the patient’s needs.
- Plan, implement and adjust a physiotherapy assessment which is relevant and goal-oriented.
- Make a diagnosis of physiotherapy based on the analysis and critical interpretation of the information collected and the assessment related to physiotherapy.
- Interpret and apply the specific tools of clinical reasoning in physiotherapy to solve the clinical case’s simplicity or complexity.
- Correctly apply the most appropriate manual therapy techniques according to the established therapeutic objectives.
- Correctly apply therapeutic exercise techniques and their progressions according to the established therapeutic objectives.
- Reevaluate the Physiotherapy intervention as a guarantee of professional effectiveness.

Teaching team

Rafel Donat, academic coordinator of the postgraduate course. Doctor in educational technology e-learning and knowledge management and professor at UVic-UCC.

Carles Munné, physiotherapist and full professor at UVic-UCC.

Francesc Rubí, physiotherapist, coordinator and professor of the degree of physiotherapy at UDL.

Jordi Ribelles, physiotherapist and nurse. Postgraduate in myofascial therapies with prof. Mr. Andrej Pilat and specialization in Tension Relief with prof. Mr. Gilles Peninou.

Luis del Pino, physiotherapist, osteopath and professor in the master’s degree in osteopathy at the UAB.

María Palacios, physiotherapist and osteopath. Professor at Rey Juan Carlos University of Madrid. Expertise in Orthopedic Manual Therapy and Trigger Point Dry Needling.

Marta Tejedo, physiotherapist and professor at UVic-UCC.

Toni Román, physiotherapist and osteopath specialized in diagnosis and treatment of TMJ and craniomandibular dysfunction.

Xavier Vericat, physiotherapist and professor at Blanquerna and at UVic-UCC. IMTA Certificate of competence in Maitland® Concept.
## MODULE 1: Diagnosis of physiotherapy in locomotor system alterations

- Verification and extension of learning in the diagnostic capacity in neuromusculoskeletal system conditions.
- Review and strengthen the understanding and integration of observational diagnostic systems, the rules of clinical prediction and palpatory discrimination.
- Different regions’ palpatory anatomy: location of anatomical references of interest.
- Orthopedic tests based on evidence.
- Functional assessment scales which are most used in each region by prevalent syndromes or pathologies.
- The differential diagnosis for treatment or referral.
- Useful analysis based on available scientific evidence.
- Clinical approach and simulation of complex clinical cases.
- Debate and approach to treatment and resolution of clinical cases in small groups.
- Expected results and therapeutic re-evaluation.

## MODULE 2: Neurodynamics in the assessment and treatment of the neuromusculoskeletal disorder

- Neurodynamic concept.
- Palpation of the peripheral nervous system.
- Neurological Examination.
- Neurodynamic tests of upper extremity, spine and lower extremity.
- Neurodynamic techniques applied to the upper quadrant.
- Neurodynamic techniques applied to the spine.
- Neurodynamic techniques applied to the lower quadrant.
- From acute phase to chronicity. How to adapt the therapy.
- Neurodynamic clinical reasoning.
- Integration of contents and clinical cases.

## MODULE 3: Assessment and treatment of TMJ: craniomandibular dysfunction

- TMJ Anatomy.
- The occlusion and its relationship with TMJ:
  - Biomechanical axes of joint mobility
  - Biomechanics of mandibular mobility
- Orofacial Pain.
- Pathological characteristics of TMJ.
- Articular examination of TMJ.
- Manual therapy and treatment in TMJ dysfunction:
  - Articular Pathology
  - Muscular Pathology
  - Neurological Pathology
  - TMJ Muscular Exam.
- TMJ in chronicity and clinical complexity.
- Integration of contents and clinical cases.

## MODULE 4: Assessment, manual therapy and therapeutic exercise of the cervical and dorsal region

- Palpatory anatomy and functional diagnosis in the cervical and dorsal injury.
- Manual therapy and treatment in dysfunction, pain and cervical instability:
  - Mobilization techniques and treatment in high and medium-low cervical spine through physiological movements.
  - Mobilization in bending, extension, rotation, lateral inclination.
  - Mobilization techniques and treatment in high and medium-low cervical spine through accessory movements.
  - Proposal for approach and therapeutic exercise.
- Manipulative techniques of the dorsal column in dorsal conditions:
  - Manipulations of the upper, middle and lower spine. Therapeutic correlation in cervical musculoskeletal pathology, scapular and abdomino-lumbar girdle.
- Integration of contents and clinical cases.

## MODULE 5: Assessment, manual therapy and therapeutic exercise of the shoulder-joint complex

- Palpatory anatomy, pain and functional diagnosis of the pathology of the shoulder-joint complex:
  - Anatomical review of the shoulder’s joint complex with clinical involvement. The rotator cuff's role in glenohumeral stabilization.
  - Risk factors (anatomical and structural) for shoulder pain. Prognostic factors.
  - Clinical presentations of higher prevalence of the shoulder joint complex.
- Manual therapy and therapeutic exercise in the subacromial impingement syndrome.
- Manual therapy and therapeutic exercise in scapular dyskinesia and tendinopathies of the rotator cuff.
- Functional diagnosis and manual therapy in shoulder instability.
- Motor control and therapeutic exercise in shoulder instability.
- Integration of contents and clinical cases.
MODULE 6: Assessment, manual therapy and therapeutic exercise of elbow, wrist and hand

- Palpatory anatomy, pain and functional diagnosis of traumatic alterations of the hand, wrist and elbow.
- Manual therapy, motor control and therapeutic exercise in traumatic hand injury (fracture and instability):
  - Rigid hand and TERT, manual therapy in the injuries of the fingers, motor control and exercise in the traumatic injuries of the hand, functional bandage of the fingers, basic splinting.
- Diagnosis and treatment of musculoskeletal disorders of the wrist (carpal tunnel syndrome and overuse tenosynovitis):
  - Carpal Tunnel Syndrome (CTS), tenosynovitis, 'overuse syndromes' or RSI, update, sputum.
- Diagnosis and treatment of elbow musculoskeletal disorders:
  - Epicondylalgia. Previous models and integrative model. Differential diagnosis of tennis elbow versus the radial nerve's neuropathy. Other peripheral neuropathies of the forearm. Management considerations.
- Integration of contents and clinical cases.

MODULE 7: Assessment, manual therapy and therapeutic exercise of the lower back and pelvis

- Palpatory anatomy and functional diagnosis in lumbar injury.
- Muscle therapy and therapeutic exercise in lumbar muscle dysfunction:
  - Instability and lumbar muscle dysfunction       • Evaluation and treatment of passive muscle dysfunction
  - Therapeutic exercise in acute low back pain versus chronic low back pain.
- Manual assessment and diagnosis of lumbar articular dysfunction:
  - Mobility test and orthopedic lumbo-pelvic tests in acute low back pain
  - Mobility test and lumbo-pelvic orthopedic tests in chronic low back pain
- Articular manual therapy in low back pain:
  - Articular manual therapy of acute lumbopelvic pain
  - Articular manual therapy of chronic lumbopelvic pain
- Integration of contents and clinical cases.

MODULE 8: Assessment, manual therapy and therapeutic exercise of the hip, foot and ankle

- Palpatory anatomy, pain and functional diagnosis in hip injury.
- Manual therapy and therapeutic exercise in dynamic osteopathy of the pubis and impingement femoroacetabular:
  - Functional diagnosis and femoroacetabular impingement treatment
  - Functional diagnosis and treatment for the pubis's dynamic osteopathy
- Palpatory anatomy, pain and functional diagnosis in foot and ankle injury.
- Manual therapy, containment and therapeutic exercise in the foot and ankle injury:
  - Functional diagnosis and treatment of acute and chronic ankle instability
  - Functional diagnosis and treatment of Achilles tendinopathy
- Integration of contents and clinical cases.

MODULE 9: Assessment, manual therapy and therapeutic exercise of the knee’s joint system

- Palpatory anatomy, pain and functional diagnosis in hip injury.
- Manual therapy, containment and exercise therapy in femoropatellar syndrome (PFS) and meniscopathies:
  - Orthopedic and functional tests       • Articular manual therapy of patella correction according to femoropatellar alteration
  - Specific functional bandages as complementary therapy to patellofemoral dysfunction
  - Manual therapy and treatment progression approach in non-surgical meniscopathy
  - Manual therapy and treatment progression approach in post-surgery meniscopathy
  - Therapeutic exercise of the knee’s intrinsic musculature
  - Global therapeutic exercise of the lower extremity. Integration, development and progression for loading and jumping
- Therapeutic exercise and clinical progression in ACL injuries:
  - Orthopedic and functional diagnostic tests of the ACLs elongation or rupture
  - Manual therapy and treatment progression approach in the immediate postoperative phase according to the graft and clinical complexity
  - Therapeutic exercise and motor control in the postoperative phase
- Integration of contents and clinical cases.

MODULE 10: Visceral manual therapy and its clinical relationship with the locomotor system

- Palpatory anatomy, pain and functional diagnosis of the visceral relationship with the abdominal locomotor system’s clinic:
  - Introduction to visceral osteopathy. Generalities       • Pathology of visceral movements.
  - Visceral manual therapy in the hypochondriacal, epigastric and abdominal monogastric quadrants:
    - Visceral and clinical relationship of the related locomotor system
    - Neurovegetative system       • Jarricot examination
  - Visceral manual therapy in the lateral, inguinal and hypogastric abdominal quadrants:
    - Visceral and clinical relationship of the related locomotor system
    - Neurovegetative system       • Jarricot examination
- Integration of contents and clinical cases.