



UNIVERSIDAD
DE ALMERÍA

Segmental and Peripheral Percutaneous Neuromodulation

JULY 6 - JULY 24 | 8 ECTS | 60 HOURS



A SEA OF KNOWLEDGE
STUDY ABROAD

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Introduction

Percutaneous neuromodulation is an invasive technique developed by physiotherapists that allows the stimulation of neuro-reactive points in the body to improve pain, neuromotor function, and neuro-musculoskeletal dysfunctions (acute or chronic) through the use of dry needling needles and electrostimulation devices.

Neuromodulation is an effective therapeutic procedure for addressing fascial dysfunctions, ligament injuries, alterations in muscle tone, improving tissue flexibility and tensegrity, neuromuscular function, motor control, proprioception, recruitment patterns, and nerve sensitization due to entrapment (canalicular or thoracic outlet syndromes).

This technique stimulates the dorsal horn of the spinal cord through peripheral nerve trunks or structures. At the muscular level, neuromodulation reduces hypotonia or atrophy, improves muscle control and contraction in athletes—thereby preventing injuries or enabling faster recovery for training—and promotes blood and lymphatic circulation, enhancing oxygenation and the elimination of metabolic by-products such as lactic acid.

At the tendon level, neuromodulation increases vascularization to promote the repair of the injured tendon. Stimulation of the myotendinous junction (where Golgi organs act as receptors of neuro-tendinous stretch) allows modulation of muscle contraction. The neurophysiological basis of this technique lies mainly in its ability to induce an electrobiochemical change in the innervation of the painful or injured area, generating a significant regenerative process mediated primarily by the immune and endocrine systems.

Currently, two research projects funded at the regional and national levels are being developed at the University of Almería to strengthen the scientific evi-

dence supporting neuromodulation in chronic nonspecific cervical and lumbar pain. These studies are being conducted by professionals with extensive expertise in therapeutic intervention. This course on percutaneous neuromodulation is intended for graduates in Physiotherapy, Kinesiology, or equivalent qualifications.

Coordinator

Adelaida María Castro Sánchez

Main goals

- To acquire practical skills in regulating neuromuscular function, motor control, and proprioception.
- To gain knowledge of the modulation of different branches of the nervous system.
- To restore the functionality and adaptability of the neuromusculoskeletal system.
- To acquire practical skills in needling and in the treatment of neuro-reactive points.

Contents

Module A
Introduction: concept, definition, and Neurophysiological foundations
Module B
Basic Fundamentals of Ultrasound
Module C
Autonomic Nervous System (Sympathetic and Parasympathetic). Nociceptive Pain and Neuropathic Pain. Levels of Analgesia
Module D
Percutaneous Neuromodulation of the Upper Limbs: Musculoskeletal structures (capsules, ligaments, myotendinous junctions, neurovascular points) and the peripheral nervous system (Median, Ulnar, Radial, Axillary, Musculocutaneous, and Suprascapular nerves)
Module E
Percutaneous Neuromodulation of the Lower Limbs: Musculoskeletal structures (capsules, ligaments, myotendinous junctions, neurovascular points) and the peripheral nervous system (Peroneal, Tibial, Sciatic, Saphenous, Obturator, and Femoral nerves)
Module F
Segmental Percutaneous Neuromodulation (Foundations of the Therapeutic Approach: Sensory, Motor, Autonomic, Segmental, Visceral, and Trigger Points).



Course methodology

The course will take place from June 29 to July 17, 2026. It has a total duration of 60 hours, of which 5 hours are theoretical, 35 hours are laboratory practice and 20 hours in clinical setting. Classes will be held daily from Monday to Thursday, in the morning from 9:00 a.m. to 2:00 p.m. (20 hours per week). The course will be taught in English.

Teaching will be conducted in person in the Physiotherapy Area laboratories located at the Faculty of Health Sciences. The theoretical component will be delivered through interactive lectures supported by multimedia. In the laboratory sessions, students will carry out the complete therapeutic approach in practical groups of 3-4 students, using the corresponding ultrasound equipment, pointers, needles, etc. The course is clinically oriented, and accordingly, each student will perform and receive the therapeutic approach through percutaneous neuromodulation in the laboratory.

During the course, clinical cases will be discussed related to the spine (Spinal Nerve Protocols), upper limb (Carpal Tunnel Syndrome and Tendinopathies), lower limb (Plantar Fasciitis, Patellofemoral Syndrome, Radiculopathies, etc.), and protocols related to the Autonomic Nervous System.

The final week of the course, from July 13 to 17, students will complete supervised clinical placements providing patient care alongside physiotherapists who are experts in Percutaneous Neuromodulation, at four healthcare centers in Almería, with a daily schedule from 9:00 a.m. to 2:00 p.m.

Requirements



The prerequisite for applicants is to hold a Diploma or Bachelor's degree in Physiotherapy. In the case of applicants from other Spanish-speaking countries, the degree of Kinesiologist or Medical Technologist in Physical Therapy and Rehabilitation will be considered equivalent. A minimum B2 level of Spanish is also recommended.

Academic visits & networking

During the course, several cultural visits organized by the University of Almería will take place (one visit per week).

Assessment

Students must attend at least 80% of the sessions to successfully complete the course. If this requirement cannot be met, they will be required to complete an additional written assignment and undergo a practical assessment.

Lecturers

Adelaida María Castro Sánchez

Full Professor in the Area of Physiotherapy. She holds four six-year research periods (sexenios) (three in research and one in knowledge transfer) and has published 87 articles in journals indexed in the Journal Citation Reports – Science Citation Index. She has participated in 24 research projects, including 8 as Principal Investigator (3 projects funded by AES-ISCI and 5 regional projects), 1 European project, 1 international project with University College Dublin, and 1 international project in Canada. Her work also includes participation in 12 research contracts with industry (6 as Principal Investigator) and 3 patents currently in exploitation with international PCT protection. Her research career focuses on the design and development of randomized clinical trials in Peripheral Arterial Disease, Fibromyalgia, Low Back Pain, and Neck Pain, integrating advanced therapeutic techniques such as dry needling electrotherapy, percutaneous neuromodulation, therapeutic exercise, and digital health technologies.

Manuel Saavedra Hernández

Associate Professor of Physiotherapy at the University of Almería, he holds a PhD in Health Sciences and specializes in invasive techniques, osteopathy, and pain management. With 30 years of clinical experience –including work with elite athletes–he is an expert in neuromotor dysfunction and chronic pain.

An active member of the ATPH research group, his work focuses on clinical trials for neurorehabilitation and digital health. He has a prolific record of JCR-indexed publications and has supervised numerous doctoral theses, offering an exceptional environment for predoctoral training and advanced education.

Inmaculada Carmen Lara Palomo

Associate Professor of Physiotherapy at the University of Almería, she holds a PhD in Health Sciences and degrees in both Physiotherapy and Sport Sciences. As Coordinator of the Bachelor's Degree in Physiotherapy and leader of the ATPH research group, she specializes in advanced rehabilitation, including neuromodulation, virtual reality, and e-health.

Her research focuses on randomized clinical trials for chronic pain and neurorehabilitation, integrating invasive techniques and digital health

technologies. With a consolidated JCR-indexed publication record and experience supervising cum laude doctoral dissertations, she provides an exceptional environment for predoctoral training and clinical research.

Miguel Ángel Muro Lobelles

A Registered Physiotherapist with three Master's degrees (Osteopathy, Invasive Physiotherapy, and Ultrasound-Guided Procedures), he specializes in advanced neurofunctional techniques and sports rehabilitation. His extensive career in elite sports includes staff roles at UD Almería and high-level consultancies for Tottenham Hotspur, Málaga CF, A.S. Roma, and current individual work with Darwin Núñez (Liverpool FC). A recognized leader in invasive physiotherapy, he serves on the board of ASEPI and has been a key lecturer and organizing committee member for international congresses and official Master's programs (San Pablo CEU, Clibersalud) since 2013, focusing on musculoskeletal percutaneous electrolysis and ultrasound-guided interventions.

Daniel Márquez Gibaja

Physiotherapist and Director of the FIX YOU Advanced Physiotherapy and Osteopathy Clinic in Almería, he holds a Master's in Neuromusculoskeletal Dysfunctions and a C.O. in Osteopathy. His clinical expertise is defined by a mastery of invasive techniques and musculoskeletal ultrasound, including functional neuromodulation from McMaster University and percutaneous electrolysis. He utilizes a comprehensive recovery model that integrates myofascial induction, neurodynamics, and the Mulligan Concept to address complex joint pathologies. Specializing in both high-performance sports rehabilitation and orofacial pain, his practice provides a specialized approach to cranio-cervico-mandibular disorders and chronic spinal conditions.

Samuel Bruzón Salado

Bachelor's Degree in Physical Activity and Sport Sciences and Bachelor's Degree in Physiotherapy. Currently enrolled in a Master's Degree in Physiotherapy and Functional Diversity. Additional training in Physical Injury Prevention and Rehabilitation, as well as Invasive Physiotherapy techniques, including dry needling and neuromodulation.

Academic and clinical experience in pain management and functional rehabilitation, along with professional practice as a physiotherapist and physical rehabilitation specialist for high-level athletes in team sports.



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