COURSE FORM

1. **Course Title:** Applied Neurodynamics in Manual Therapy: A Neuroscience-Informed Approach to Pain. India Edition.
2. **Course Structure:** Single module.
3. **Target Audience:** Physiotherapists, osteopaths, manual medicine practitioners, and students of these disciplines.
4. **Maximum Number of Learners:** 30. From 20 onwards, we may consider including an additional instructor for the practical component, thereby optimizing student learning.
5. **Duration:** 25hours (3 days course).
6. **Instructor:** Enrique Gilsanz Cáceres, Eur Ost D.O mROE Osteopath, Physiotherapist, Nurse, Official Master's Degree in Biomechanics. Professor at the osteopathy schools FBEO-UFV (Spain, Mexico, Brazil), AIFROMM (Italy), Still Academy (Poland), and in the physiotherapy degree program at the European University of Madrid. Co-founder and scientific director of the clinical dissection training: www.dissezionecadaverica.it. He has developed his clinical practice in his private clinic in Madrid for over 18 years. Speaker at several international congresses. Member of the Parietal Group Research of OsEAN.
7. **Introduction to the Topic:** Both the nervous system and individual nerves are fundamental to the correct global functioning of the body, making the adequate transmission of nerve signals essential. Crucially, persistent pain states often involve sensitization of the nervous system, both peripherally and centrally. Understanding these neurophysiological mechanisms is key to effectively managing pain presentations. This course will bridge the gap between biomechanical nerve dysfunction and the complex processing of pain within the nervous system.

A continuity exists between the central, peripheral, and autonomic nervous systems, which represents a foundational concept in neurodynamics. The nervous system is responsible not only for the transmission of sensation and motor commands but also for key aspects such as tissue nutrition. For their proper function, nerves require mobility in relation to adjacent tissues and joints, as well as adequate vascular and lymphatic supply.

During daily, sporting, and work activities, etc., nerves are subjected to traction, compression, and micro- or macrotrauma that can injure them. Likewise, the presence of articular or myofascial dysfunctions, hematomas, or scars can impair their correct functionality. These alterations can present with local or referred symptoms and may be related to musculoskeletal pathologies such as sciatica, neck pain, lumbopelvic pain, or tendinopathies.

Therefore, it is essential for the manual therapist to develop a clinical assessment of the health status and mobility of the nerves. During this course, you will learn an objective assessment system, and we will provide you with the appropriate manual techniques for the treatment of nerves through neurodynamics, as well as the tissues that constitute the interfaces of the nervous system, enabling you to perform causal treatment that improves your clinical outcomes."

8. Detailed Programme:

Nerve Anatomy and Physiology: Structure, function, and properties of peripheral nerves.
Mechanical Characteristics: Viscoelasticity, tensile strength, and response to mechanical stress.
Axonal Transport System: Mechanisms and clinical implications of impaired transport.
Innervation: Sensory and motor distribution of peripheral nerves.
Pathophysiology: Mechanisms of nerve injury and dysfunction (e.g., compression, traction, ischemia).
Neurophysiology of Pain:

- **Nociception vs. Pain:** Understanding the difference and clinical relevance.
- **Peripheral Sensitization:** Mechanisms and impact on manual therapy assessment and treatment.
- **Central Sensitization:** Implications for chronic pain and neurodynamic interventions.
- **Neuropathic Pain Mechanisms:** Understanding the underlying processes and their presentation.
- **The Role of the Dorsal Horn:** Modulation of pain signals and manual therapy considerations.

Contraindications and Indications for Neurodynamics.
Principles of Nerve Manipulation.
Palpatory Anatomy:

- Nerves of the upper limb (brachial plexus): radial, ulnar, median, axillary.
- Nerves of the lower limb: sciatic, tibial, peroneal, sural, plantar; femoral, saphenous, lateral femoral cutaneous, obturator.

Patient History and Osteo-Articular Clinical Examination.
How to differentiate between a musculoskeletal dysfunction and a neurogenic dysfunction? Including the role of pain referral patterns and neurological signs.
Neurodynamic tests of nerves and their influence on different clinical conditions (carpal tunnel syndrome, sciatica, tendinopathies, muscle contracture, paresthesia, spinal dysfunctions, articular mobility deficits). Understanding how pain mechanisms contribute to these conditions and influence test outcomes.
Treatment of the neural component: Gliding and tension techniques for the nerves described in palpatory anatomy, considering their impact on pain pathways.
Development of the main precepts of neurodynamics, applied to practice: Sensitization components, order of movements, tension points, structural differentiation, gliding techniques, tension techniques – with a focus on how these techniques can modulate pain processing.
Treatment of dysfunctions of mechanical interfaces and innervated tissues using articular, fascial, muscular, and myofascial techniques: Understanding how these techniques can influence nociceptive input and peripheral sensitization.

9. General and Specific Objectives:

General Objectives:

- To understand the anatomy, histology, and neurophysiology of the peripheral nervous system.
- To develop a diagnostic methodology and clinical reasoning that allows for the identification of priority areas of dysfunction in the peripheral nervous system and related tissues.
- To apply specific neurodynamic treatment, integrating it with the treatment of mechanical interfaces and innervated tissues.
- To comprehend the fundamental principles of pain neurophysiology and how they relate to the clinical presentation and management of neuromusculoskeletal conditions.

- **Specific Objectives:**
- To enhance manual dexterity in detecting alterations in nerve mobility and mechanosensitivity.
- To develop the skills to interpret data from the patient history and clinical examination, performing clinical reasoning that includes the nervous system.
- To improve the manual therapist's repertoire of techniques, including neurodynamics and the treatment of related tissues.

11. **Reasons for Students to Take This Course:**

    - The nervous system is fundamental to the correct functionality of the musculoskeletal system, with both being interconnected. Numerous pathologies and dysfunctions present with musculoskeletal symptoms but have a significant neurogenic component. During this course, we will show you how to identify and treat them.
    - We offer you a system of patient history taking, palpatory and dynamic examination of the peripheral nervous system, based on scientific evidence, which will allow you to objectively identify alterations of the PNS, improving your clinical diagnosis.
    - We will expand your repertoire of manual therapeutic tools, adding neuromeningeal mobilization techniques, as well as those for related tissues. If you want to improve your patient outcomes, this is your course!

12. **Is There an Assessment? If so, How?** Student attendance throughout the course qualifies them for the accreditation diploma.

Enrique Gilsanz Cáceres
Osteopath Eur Ost D.O. mROE
Fisioterapist nº col. 3655, MSc
Lecturer at FBEO (Spain, Mexico), Univ. Comillas, AIFROMM (Italy),
Still Academy (Poland), Director Arroyos Salud