NDS Neurodynamic Solutions

In-Person Lower Quarter Course

2026

All courses on neurodynamics are based on Michael Shacklock's international best seller physical therapy text book, Clinical Neurodynamics, Elsevier, Oxford, 2005. They also internationally standardised and transferable to other countries.

Course Highlights - General

Fundamentals

Practical to theory - 65:35.

Strong hands-on and discussional and clinical reasoning elements.

Many new manual techniques for the most significant neural problems seen in musculoskeletal practice.

Systematic treatment progressions for:

- thoracic neurodynamics
- lumbar radiculopathy and sciatica
- hip/piriformis
- hamstrings
- ankle pain
- foot pain
- digital nerves.

Advanced

More clinical syndromes, diagnostic categories and advanced clinical reasoning illustrations of Shacklock's Clinical Neurodynamics system.

Detailed hands-on and discussional elements.

Many new techniques for manual diagnosis and integration of the nervous with musculoskeletal practice in advance of the fundamentals:

- multistructural nerve unloading techniques - 1c
- multistructural nerve loading and advanced movement techniques - 3c
- applied to back pain and hip pain and dyskinaesia.

What Attendees Learn

Understand how nerves move.

Painless nerve root mobilisations.

How to exclude neurodynamic disorders.

Differentiate between musculoskeletal and neurodynamic components.

Make a neurodynamic diagnosis.

Technique progressions from low to high functional levels.

How to create, select and perform the best techniques for your patients.

Manual precision of neurodynamic technique.

How to detect contraindications to neurodynamic treatment.

How to apply clinical reasoning priniciples to selection and variations in treatment for patient uniqueness for movement strategies and pain.

Course Objectives

Fundamentals

Improve and develop:

- manual skills, specifically the ability to feel abnormalities in movement related to the nervous system in the upper quarter
- abilities in diagnosis and interpretation of neurodynamic testing and musculoskeletal relationships
- clinician’s repertoire of diagnosis and treatment of techniques safety in relation to neurodynamics
- ability to diagnose functional disorders in neurodynamics.
- ability to select appropriate treatment for specific functional disorders in neurodynamics
- ability to progress treatment from low to high functional levels
- ability to detect contraindications to neurodynamic treatment and when to stop treatment for safety reasons.

Advanced

Advance manual diagnosis and treatment skills to new and more complex areas of neurodynamics.

Learn diagnosis and treatment for more complex neurodynamic dysfunctions.

Expand the clinician's skills in diagnosis and treatment of neurodynamics in relation to the musculoskeletal system, including various dyskinaesias.

Update the research literature (evidence) in relation to neurodynamics: systematic, physical mechanisms, clinicial trials and systematic reviews.

NDS Lower Quarter Course Programme

DAY 1 - 8:30 am - 5.30 pm

8:00-10.30 - Concepts of neurodynamics: general and specific - theory

- linking mechanics and physiology
- convergence, sliding
- tensioning
- neurodynamic sequencing
- neurodynamic tests
- structural differentiation
- contralateral neurodynamic tests.

10-30-10.50 - Morning tea

10.50-12.30 - Nerve palpation - practical

- sciatic nerve
- tibial nerve
- fibular (peroneal) common, superficial and deep
- sural
- superficial fibular (peroneal)
- tibial nerve at ankle.

12.30-1.30 - Lunch

1.30-3.00 - Neurodynamic testing - practical

- straight let raise
- slump test
- tibial neurodynamic test
- fibular neurodynamic test
- peroneal neurodynamic test
- sural neurodynamic test.

3.00-3.20 - Afternoon tea

3.20-5.00 - Diagnosis with neurodynamic tests theory/practical

- normal, abnormal, covert and overt
- what an abnormal neurodynamic test means.

Planning physical examination and treatment

- levels/types 0 contraindicated
- 1, 2, 3a, b, c.

DAY 2 - 8:30 am - 5.30 pm

8:00-10.30 - Diagnostic categories and functional neurodynamic disorders - theory

- interface, reduced closing, reduced opening
- neural tension dysfunction and its causes
- neural sliding dysfunction
- mechanisms of pathophysiology.

10-30-10.50 - Morning tea

10.50-12.30 - Method of treatment - theory

- treatment of pathophysiology
- treatment of pathomechanics
- progression system from neural protective to mobilisation strategies.

12.30-1.30 - Lunch

1.30-3.00 - Treatment - practical

- low back pain and lumbar radiculopathy
- opening and closing dysfunctions
- neural tension dysfunction
- caudal neural sliding dysfunction.

3.00-3.20 - Afternoon tea

3.20-5.00 - Treatment (cont) - practical

- piriformis syndrome/hip pain
- foot/heel pain/tarsal tunnel syndrome
- openers and closers, sliders and tensioners.

DAY 3 - 8:30 am - 5.30 pm

08:00-10:30 - Advanced concepts in neurodynamics - theory

- history and development of neurodynamics
- neurodynamics in perspective
- mechanisms of diagnosis
- diagnostic and therapeutic efficacy
- neural movement and its relationship to symptoms.

10:50-12:30 - Thoracic spine - practical

- neural aspect to thoracic, lumbar and lower limb pain
- differences between nerve root and spinal cord dynamics: relations to diagnosis and progressions
- opening and closing with neural tissues
- central dura, spinal cord techniques
- nerve root techniques.

12.30-1.30 - Lunch

1:30-3:00 - Mid-lumbar disorders (L2-4) - practical

- prone knee bend, detection of neurodynamic aspect
- femoral slump test
- opening and closing with femoral neurodynamic movements.

3.00-3.20 - Afternoon tea

3:20-5:30 - Complex lumbar diagnoses - practical

- neural tension with opening and/or closing
- neural sliding - upward with opening and/or closing
- neural sliding - downward with opening and/or closing.

DAY 4 - 8:30 am - 5.30 pm

08:00-10:30 - Hamstrings disorders - neural aspects - practical

- specific anatomy and neurodynamics
- neural aspect to hamstring tightness and its treatment
- ballistic hamstring training and neurodynamics.

10:50-12:30 - Innervated tissue dysfunctions - theory

- neurogenic inflammation - how nerves regulate inflammation.
- relations of peripheral nerve disorders to inflammation in the innervated tissues.

1:30-3:00 - Thigh and knee - neurodynamic tests and nerve palpation - practical

- femoral nerve
- lateral femoral cutaneous
- saphenous
- genicular branches.
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Treatment progressions

- opening closing, sliders, tensioners
- neuromyofascial techniques.

3.00-3.20 - Afternoon tea

3:20-5:00 - Leg and foot - practical

- fibular nerve influences on lateral knee pain.
- gastrocnemius and tibial nerve
- sural nerve and Achilles tendon
- digital nerves and Morton's neuroma.

Discussion and case examples.

Close - 5:30

Lower Quarter course - Key References

Bueno Gracia E, Pérez-Bellmunt A, Estébanez-de-Miguela E, López-de-Celis C, Shacklock M, Caudevilla-Poloa S, González-Rueda V 2019 Differential movement of the sciatic nerve and hamstrings during the straight leg raise with ankle dorsiflexion: Implications for diagnosis of neural aspect to hamstring disorders. Musculoskeletal Science and Practice 43: 91-95. DOI: 10.1016/j.msksp.2019.07.011

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Pesonen J, Shacklock M, Rantanen P, Mäki J, Karttunen L, Kankaanpää M, Airaksinen O, Rade M 2021 Extending the straight leg raise test for improved clinical evaluation of sciatica: reliability of hip internal rotation or ankle dorsiflexion. BMC Musculoskeletal Disorders (2021) 22:303

Shacklock M, Rade M, Poznic, Marčinko M, Fredericson M, Kröger H, Kankaanpää M, Airaksinen O 2022 Treatment of sciatica and lumbar radiculopathy with an intervertebral foramen opening protocol: pilot study in a hospital emergency and in-patient setting. Physiotherapy Theory and Practice. DOI: 10.1080/09593985.2022.2037797.

Wang Q, Zhang H, Zhang J, Zhang H, Zheng H 2019 The relationship of the shear wave elastography findings of patients with unilateral lumbar disc herniation and clinical characteristics. BMC Musculoskeletal Disorders 20:438: https://doi.org/10.1186/s12891-019-2814-7