

Neuromusculoskeletal diagnosis and treatment – from theory to practice

The aim of this module is to enable students to develop a problem-solving approach to neuromusculoskeletal diagnosis. It allows students to develop knowledge about differential diagnosis of neuromusculoskeletal disorders and to look critically at approaches to treatment and management of neuromusculoskeletal conditions. This knowledge will be used in the critical evaluation of assessment, treatment and management strategies in neuromusculoskeletal physiotherapy, therefore enabling students to critically evaluate clinical practice on the basis of current evidence. Students will also acquire advanced skills in the assessment and treatment of neuro-musculoskeletal conditions. Clinical reasoning, problem-solving and reflection skills will be employed in patient assessment and problem identification. Adequate practice will be given for the acquisition of the required practical assessment and treatment skills.

School – Healthcare Studies

Module Code HCT027

External Subject Code

Number of Credits 30

Level

Module Leader – Philippa

Coales

Module offered on a free-
standing basis?

Yes

Any restrictions to free-
standing basis?

Students must possess a first degree or UK diploma in Physiotherapy and have at least two years post registration experience with evidence of continuing development. They must also be currently working in the field of musculoskeletal physiotherapy.

Maximum Number on Module
- 12

Language of module delivery

English

On completion of the module a student will be able to demonstrate an advanced understanding of:

1. The structure and function of the neuromuscular system together with current theories of neuromuscular control and skill acquisition show their interrelationship with neuromusculoskeletal performance
2. Current scientific evidence of the physiology, psychology and pharmacology of pain related to the management of patients with neuromusculoskeletal pain including pathologies of the spine and periphery
3. The use of advanced clinical reasoning skills as part of a problem-solving approach to assess patients with neuro-musculoskeletal

dysfunction and identify the presenting problems and their underlying causes in relation to anatomy, biomechanics, physiology, pathophysiology and psychology

4. Demonstrate advanced clinical reasoning skills, as part of the problem-solving process, when determining approaches to treatment and management of patients with neuro-musculoskeletal dysfunction and pathologies
5. Demonstrate advanced skills in a variety of assessment techniques and treatment interventions for the management of neuro-musculoskeletal dysfunction and pathologies
6. Evaluation of treatment outcomes in the management of patients with neuro-musculoskeletal dysfunction and pathologies, using a variety of methods
7. Critical evaluation of the assessment and management of neuro musculoskeletal dysfunction and pathologies based upon contemporary literature and evidence
8. Analysis of the clinical reasoning that forms the basis of management of neuromusculoskeletal disorders and apply this reasoning in the diagnosis and management of these disorders

How the module will be delivered

Each student will receive 150 contact hours with the tutors, external lecturers and the course leader in respect of this module. These contact hours will be in the form of some key note lectures, but mostly small group tutorials, presentations/tutorials led by the students themselves and practical classes. Much of the small group work will involve critical evaluation of published literature the student led sessions will require prior self-directed learning to have taken place.

Up to another 150 hours of self study will be necessary directed by the bibliography. Some group tutorials will be follow up sessions to self study.

Skills that will be practised and developed

As there is a large practical element to this module practice of acquired psychomotor skills will also be a requirement of self study and will include clinical practice in the field of neuro-musculoskeletal therapy.

How the module will be assessed

1. One 30 minute presentation of a critique of a research paper chosen by the student

Learning outcomes tested: No's 1, 2, 6, 7

2. A 1 hour "techniques" examination to include 15 techniques and 5 patient scenarios. The students will have 10 minutes preparatory

period prior to the examination in which to study the examination questions

Learning outcomes tested: No 3, 4, 5

- An essay (maximum 2500 words) evaluating a specific management approach used in the neuromusculoskeletal field. This essay requires the student to show the application of the approach to specific situations as well as exploring the underlying rationale and evidence for its effectiveness

Learning outcomes tested: No 1, 2 and 7

Type of assessment	% Contribution	Title	Duration (if applicable)	Approx. date of Assessment
Written essay	50	A critical evaluation of a specific management approach used in the neuromusculoskeletal field		April
Presentation	50	A critique of a research paper chosen by the student	30 minutes	June
Practical examination	P/F	Practical examination	1 hour + 10 minutes preparation	June

The potential for reassessment in this module

The student will normally be offered the opportunity for reassessment subject to the approval of the examination board for each assessment component. The written essay would be re-submitted during the summer on an agreed date. The presentation and practical examination will be reassessed during the summer at a date mutually agreed by the examiners and the student.

Syllabus content

All module indicative content is compulsory.

Structure and function of the neuromuscular system

Neural control of movement and skill acquisition

Theories of muscular plasticity

Physiology and psychology of pain

Developmental and acquired pathologies and their functional consequences

- diagnosis

- measurement and evaluation

- treatment and management

Review of different approaches to treatment and management

Eg. manual therapy, electrotherapy, exercise therapy.

- theoretical basis

- practical aspects - practical skill

- evidence of efficacy

Measurement in the management of musculo-skeletal disorders

Investigations in the management of musculo-skeletal disorders

Pharmacology in the management of musculo-skeletal disorders

Promoting research findings and instituting change.

Principles of assessment and evaluation: Subjective and objective /differential testing /Communication skills

Interpretation of findings from assessment and evaluation: Based upon knowledge of anatomy, biomechanics, physiology, pathophysiology, psychology, behavioural science and clinical reasoning

Principles of management: : A range of joint, muscle, neural, and exercise approaches

Principles of evaluation: Appropriate choice of a range of outcome measures

Critical analysis of contemporary literature and evidence: Assessment, treatment, management and evaluation Supporting background knowledge

Clinical reasoning

Areas to be covered: All of the above will be applied to:

Lumbar spine /Pelvis/Cervical spine / Thoracic spine /Upper limb /Lower limb

Indicative Reading and Resource List:

Beeton K (2003) Manual Therapy Master classes The Peripheral Joints. Oxford Elsevier

Beeton K (2003) Manual Therapy Master classes The Vertebral Column Oxford Elsevier

Bogduk N (2005) Clinical Anatomy of the Lumbar Spine and Sacrum. 4th edition. New York: Churchill Livingstone

Chaitow L (2002) Positional Release Techniques 3rd Edition Churchill Livingstone

Chaitow L (2001) Muscle Energy Techniques 2nd Edition Churchill Livingstone

D'Ambrogio KJ, Roth GB (1997) Positional Release Therapy. St Louis: Mosby.

Gifford L (ed) (1998) Topical issues in pain. Whiplash: Science and management; fear avoidance, beliefs and behaviour. Falmouth:NOI Press.

Gifford L (ed) (2000) Topical issues in Pain 2 Biopsychosocial assessment and management, relationships and pain Falmouth CNS Press.

Gifford L (ed) (2002) Topical issues in Pain 3 Sympathetic nervous system and pain, pain management, clinical effectiveness. Falmouth CNS Press.

Gifford L (ed) (2002) Topical issues in Pain 4 Placebo and nocebo pain management, muscles and pain. Falmouth CNS Press.

Gifford L (ed) (2006) Topical issues in Pain 5 Treatment communication return to work cognitive behavioural pathophysiology. Falmouth CNS Press.

Greenman PE (1996) Principles of Manual Medicine. 3rd edition. Baltimore: Williams and Wilkins.

Jull G Boyling J (eds) (2004) Grievess Modern Manual Therapy: The Vertebral Column 3rd Edition

Kaltenborn F (1989) Manual Mobilisation of the extremity joints. Basic examination and treatment techniques Oslo.

Lederman E (1997) Fundamentals of Manual Therapy. New York:Churchill Livingstone.

Lee D (2004): Pelvic Girdle: An approach to the examination and treatment of the lumbo pelvic region. Churchill Livingstone.

Hengeveld E, Banks M, English K (eds) (2005) Maitland's Vertebral Manipulation 7th Edition Oxford Elsevier

Hengeveld E (2005) Maitland's Peripheral Manipulation 4th Edition Oxford Elsevier

Petty N (2006) Neuromuscular examination and assessment: a handbook for therapists 3rd Edition. Oxford Elsevier.

Richardson C, Hodges P. Hides J (2004) Therapeutic exercise for spinal segmental stabilisation in low back pain. A motor control approach for the treatment and prevention of Low Back Pain Edinburgh:Churchill Livingstone

Vleeming A, Mooney V, Snijders C. Dorman T, Stoeckart R (Ed) (1997) Movement, stability and low back pain: the essential role of the pelvis. New York:Churchill Livingstone.