

Academic Department of Physiotherapy,

School of Medicine

MSc in Advanced Physiotherapy (Neuromusculoskeletal)

The MSc programme at King's College London aims to provide Chartered Physiotherapists with an opportunity to gain the breadth and depth of knowledge and skills required for working as advanced practitioners in neuromusculoskeletal physiotherapy within the broad spectrum of Health and Society. Modules include clinical science subjects (anatomy, biomechanics, pain physiology and muscle and exercise physiology) as well as those focussing on physiotherapy practice. The programme emphasises and facilitates the integration of evidence from a wide variety of sources using research focussed lectures, seminars, practical workshops and reflective learning tasks. The sessions are facilitated by experts from various fields. This informs the clinical reasoning of the students and facilitates the development of advanced skills and expertise. The transference of knowledge into clinical practice is facilitated during practical sessions in College and on clinical placement.

Course Structure

MSc module titles	Level 7 credits awarded
Physiotherapy practice in the lower quadrant (7MPTM004)	15
Physiotherapy practice in the upper quadrant (7MPTM006)	15
Clinical Education in neuromusculoskeletal physiotherapy (7MPTM005)	30
Muscle & exercise physiology (7MPTM002)	15
Neuroscience, pain & rehabilitation (7MPTM003)	30
Research processes and practice applied to tissues in health & disease (7MPTM001)	15
Research Project (7MPTM007)	60
MSc in Advanced Physiotherapy (Neuromusculoskeletal)	180

Mode of study

Students can choose to complete the MSc full-time over one year or part-time over two years.

MSc fulltime students:

Students attend university 3 days a week usually for 12 weeks in term 1 (September - December) and in term 2 students usually attend university 4 days a week (February - April) for 9 weeks. Students go on placement, typically for 2 blocks of 3 weeks during April to August and spend the remaining time on their research project. Outside these scheduled sessions students need to spend additional time consolidating the information covered at university, doing supplementary reading, working on assignments, getting involved in peer discussion sessions and practising their physiotherapy skills.

MSc part-time:

In year one, students attend university usually one day a week for 12 weeks in term 1 (September-December) and usually two days a week for 9 weeks in term 2 (February - April). Students are expected to work on their research project from April – September. In term 1 there is only one day's teaching per week but students should have two days study leave per week in term 1 to allow them time to work on the assignments that they will be given.

In year two, students attend university two days a week for 10-11 weeks in term 1 (September - Dec) and for 9 weeks in term 2 (February - April), then students go on clinical placement in April - June time. Students are expected to continue work on their research project in year II.

Stand-alone module students:

Students attend university on the days that teaching for the particular module is scheduled. Typically modules run over a term with an assessment to complete by the end of the same term or beginning of the next term. All modules with the exception of clinical education can be taken as stand-alone modules.

Individual MSc module aims and learning outcomes:

Physiotherapy practice in the lower quadrant (7MPTM004)

Physiotherapy practice in the upper quadrant (7MPTM006)

Module aims:

To develop advanced physiotherapy skills in the field of neuromusculoskeletal assessment and management of lower / upper quadrant problems by integrating theoretical concepts and the evolving body of knowledge of the related life sciences, in addition to using advanced clinical reasoning models and critically evaluating the evidence-base.

Learning outcomes:

On completion of this module the students should be able to:

1. Debate and critically evaluate both established and contemporary concepts of physiotherapy practice for lower / upper quadrant problems in the context of the supporting evidence.
2. Analyse, reflect and evaluate their own clinical practice in order to develop their ability to plan optimum assessment and management strategies for lower / upper quadrant problems.
3. Demonstrate advanced skills of clinical reasoning and apply these in the assessment and management of lower / upper quadrant problems incorporating a patient-centred biopsychosocial approach.
4. Discuss the principles of selection of management strategies for lower / upper quadrant problems based on an advanced understanding of anatomy, physiology, pain, pathology and behavioural sciences.
5. Demonstrate expertise in physiotherapy skills with an emphasis on evidence-based manual / manipulative therapy and rehabilitation, in addition to good communication skills.

Clinical Education in Neuromusculoskeletal Physiotherapy (7MPTM005)

Module aims:

This module develops the integration of theoretical concepts, clinical reasoning, justification of intervention, analysis of outcome and the development of advances in physiotherapy skills for the holistic rehabilitation of people with dysfunction arising principally from the neuromusculoskeletal systems within the clinical setting and on reflection of the experience.

Learning objectives:

On completion of this module the students should be able to:

1. Utilise advanced skills of examination and assessment in interpreting patient's neuromusculoskeletal problems, incorporating a patient centred biopsychosocial approach and drawing on past experience, reflective practice and research evidence
2. Demonstrate the advanced skills of clinical reasoning required of a specialist practitioner and needed to work in extended roles within health care delivery by:
 - a) assessing examination findings in order to plan optimum interventions
 - b) selecting from, justifying and applying a broad repertoire of advanced technical skills
 - c) demonstrating expertise in advanced physiotherapy skills with an emphasis on evidence-based manual or manipulative therapy, re-education of movement and communication with patients
 - d) critically measuring and evaluating all outcomes of interventions
3. Critically evaluate both established and contemporary concepts of physiotherapy practice in the context of the supporting evidence.

4. Reflect upon and critically analyse the management of neuromusculoskeletal patients including their own role in this.

Muscle and Exercise Physiology (7MPTM002)

Module aims:

To provide scientific knowledge of skeletal muscle structure and function in particular relation to exercise and training and of the response of the respiratory and cardiovascular systems to exercise.

Learning objectives:

At the end of this module students should be able to:

1. Analyse and assess how whole muscles work as biological machines in the context of their structure.
2. Evaluate the different types of skeletal muscle fibres in terms of molecular composition and contractile properties.
3. Evaluate the basic mechanisms underlying muscle contraction
4. Appraise the different methods of measuring muscle function.
5. Evaluate the physiological responses and adaptations of muscle to exercise and training.
6. Evaluate the mechanisms by which a muscle might fatigue and adapt to changes in usage
7. Evaluate how muscle interacts with the cardiovascular and respiratory systems during whole body exercise.
8. Appraise the key studies that have contributed to this knowledge.

Neuroscience, pain and rehabilitation (7MPTM003)

Module aims:

1. Advance students' understanding of the current concepts of the neurobiology of pain, in particular in relation to the effect of pain on movement.
2. Develop students' understanding of pain science in a clinical context and empower the students to be able to justify, critically appraise the evidence, systematically analyse and reflect on their own clinical practice and learning.
3. Develop students understanding of motor neuroscience, neuroplasticity and motor learning as a basis for prescribing and evaluating the response to rehabilitation.

Learning outcomes:

At the end of this module students should be able to:

1. Discuss and appraise the current theories of the anatomical, physiological and psychological basis of pain and its relief.
2. Compare how variables such as stress, anxiety, fear, and fatigue contribute to the processing and response to pain and how this understanding may affect the management of pain.
3. Recognise and reflect on the changing nature of knowledge and underlying pain mechanisms and the importance of ongoing pain education.
4. Understand how the central nervous system plans, organises and controls movement and assess how pain affects the control of movement.
5. Discuss and appraise the current theories of rehabilitation with reference to both the underlying neurophysiological principles and in particular the psychosocial theories underpinning rehabilitation practice
6. Discuss and appraise communication and management strategies used to enhance rehabilitation and self-management

7. Develop student reflection to consider how their understanding of the principles of rehabilitation may influence practice including the planning and implementation of cost-effective rehabilitation programmes for physiotherapy clients.

Research processes and practice applied to tissues in health and disease (7MPTM001)

Module aims:

To integrate the fundamental principles of research methods to the study of the structure and function of human tissues, joints, limbs and body segments of healthy individuals and those with neuromusculoskeletal disorders.

Learning outcomes:

At the end of this module students should be able to, in relation to the structure, function and biomechanical principles of healthy, aged, diseased and injured human tissues:

1. Catalogue the structure and function of healthy, aged, diseased and injured human tissues
2. Extract robust evidence from the literature in the field linking dynamic and static tissue loading to injury and recovery
3. Discern between and appropriately apply the quantitative and qualitative methods to given diagnostic or research data collection situations and evaluate the associated ethical considerations in physiotherapy, anatomy and biomechanics
4. Interpret and disseminate physiotherapy, anatomy and biomechanics data and results accurately
5. Identify and critique the biomechanical and anatomical literature that leads to: a) successful preventative and therapeutic approaches used in clinical physiotherapy practice, and b) the generation of new and relevant research questions.

Research Project (7MPTM007)

Module aims:

This module will provide students with an opportunity to undertake a research project either independently or in an active laboratory. The student will, in conjunction with their research supervisor, plan and carry out experiments to test a hypothesis and learn and develop laboratory and research skills.

Learning objectives:

At end of this module students should be able to:

1. Perform research activity independently
2. Formulate hypotheses and or research questions
3. Define good research design and plan investigations
4. Generate and analyse data
5. Perform literature searches, analysis and interpretation
6. Prepare and present new data for oral and written presentation.
7. Apply principles and practice of statistical analysis
8. Write detailed research reports
9. Propose further investigations as a logical extension to the project