



Ollscoil na hÉireann, Gaillimh  
*National University of Ireland, Galway*

**Masters in Science in Sports & Exercise Medicine  
&  
Masters in Science in Sports & Exercise Physiotherapy  
in the  
Faculty of Medicine and Health Sciences,  
National University of Ireland, Galway**

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# **1. Background**

## **1.1 Introduction**

The beneficial effects of regular participation in exercise and sport on fitness and sense of well-being is well-established. The physical effects of strengthening muscles, improving mobility and balance, increasing stamina and better weight control are evident from research. In medical terms there is strong evidence that regular physical activity contributes towards preventing cardiovascular disease and delaying the onset of degenerative changes associated with inactivity and aging. Sports and Exercise Medicine has become a rapidly growing medical specialty around the world as it is realized that the practice of Sports and Exercise Medicine requires the application of special skills, sensitivities and knowledge that is multidisciplinary. The proliferation of degree and postgraduate programmes in Ireland and internationally attests to the developing status of this discipline with the increase in the professional organization of sport and with continued growth in participation in sport, exercise and physical activity there is a growing demand for doctors and chartered physiotherapists trained in Sports and Exercise Medicine.

## **1.2 Definition of Sports & Exercise Medicine**

Sport and Exercise Medicine is a discipline, which draws upon basic and applied biomedical, and clinical science for the knowledge to ensure best practice in the prevention, diagnosis and management of Sports and Exercise related clinical problems. This discipline is relevant to the whole population and seeks to promote health, to prevent disease or injury, and to apply optimal treatment and measure outcomes (1).

## **1.3 Prevalence of Sports Injuries**

Studies have demonstrated that between 12 – 18% of patients presenting to the Accident and Emergency department are suffering from a sports injury (2). A recent Australian study suggests that for every sports injury case admitted to hospital there are 22 cases who receive medical attention in another setting (hospital A & E or GP), 41 cases who receive treatment for their injury from another medical practitioner and 145 non-treated injuries (3). This confirms that injuries associated with participation in sport and active recreation activities are a significant public health issue. International studies have shown that between 10% and 12% of primary care consultations are related to musculoskeletal complaints of which a large proportion can be ascribed to sports injuries.

## **1.4 Structures in place in Ireland:**

### **1.4.1 National Coaching & Training Centre (NCTC)**

The National Coaching and Training Centre (NCTC) in Limerick is funded by the Sports Council as a specialized centre dedicated to physiological assessment of athletes, establishing a coach education programme for coaches involved in the 52 main national sports and coordinating a multidisciplinary service to 250 top Irish athletes including Olympic and Paralympic athletes.

The service includes funded athlete access to the expertise of sports physiotherapists, sports medicine physicians, sports psychologists, sports nutritionists and exercise physiologists and sports biomechanists. As part of this service all athletes take part in the annual medical screening programme for laboratory cardiac, pulmonary and musculoskeletal (Physiotherapy) and sports medical (Sports Medicine Physician) testing coordinated by the author.

### **1.4.2 The Irish Sports Medicine (ISMA):**

The Irish Sports Medicine was founded in 1981 and became affiliated with Federation Internationale Medecins Sportif (FIMS) in 1982. It is comprised of over 120 medical doctors and over 90 chartered physiotherapists. It is mainly involved in the ongoing education of its members in recent advances in the field of Sports and Exercise Medicine.

### **1.4.3 The National Register of Doctors in Sport:**

The NCTC along with the ISMA developed a National Register of Doctors in Sport. Three groups of doctors with differing levels of knowledge and expertise have been identified:

1. GPs with an interest and postgraduate qualification in Sports & Exercise Medicine
2. Sports Medicine Physicians: a group of doctors who have acquired specific postgraduate sports and exercise training and qualifications, and who practice full-time in Sports & Exercise Medicine.
3. Hospital Consultants with a special interest in Sports & Exercise Medicine and related areas e.g. Orthopaedic Surgeon, Musculoskeletal Radiologist, Rheumatologist

There are presently 171 doctors on this register. It is envisaged that future Team doctors will require a postgraduate qualification in Sports & Exercise Medicine if they are to work with GAA teams, the IRFU or to become Medical Officers to any of the 52 national governing bodies of sport.

#### **1.4.4 Faculty of Sports & Exercise Medicine RCPI and RCSI:**

In 1997 a group of 10 full-time Sports Medicine Physicians practicing in Ireland met with a view to furthering the education, training and specialty development of Sports & Exercise Medicine. This group drafted plans to establish a Faculty of Sports & Exercise Medicine in Ireland. With support from the Royal College of Surgeons in Ireland (RCSI) and the Royal College of Physicians of Ireland (RCPI) and the Irish Sports Council, the Faculty of Sports and Exercise Medicine RCPI & RCSI was established and officially launched by John O'Donoghue, the Minister for Arts, Sport and Tourism in September 2002. The Faculty conferred over 350 Medical Practitioners including GPs, Hospital Consultants, University Lecturers and Professors with experience or expertise in the area of Sports and Exercise Medicine.

The faculty has plans to develop educational programmes for doctors in the area of Sports & Exercise Medicine. GPs with an interest or commitment in Sports & Exercise Medicine require further postgraduate training and accreditation in Sports and exercise Medicine and MSc programmes meet this need. Doctors who wish to apply for Higher Specialist Training programmes in Sports & exercise Medicine in order to work fulltime in this area will require an MSc in Sports & Exercise Medicine as a criterium for programme entry. Hence there is demand from both GPs and Hospital for the accreditation that an MSc programme can provide.

#### **1.4.5 Intercollegiate Academic Board of Sports & Exercise Medicine (IABSEM):**

In the UK the Intercollegiate Academic Board of Sports and Exercise Medicine was established by the Academy of Medical Royal Colleges (including RCSE & RCGP) and their Faculties in 1998. The remit of IABSEM has been given is to set, maintain and develop standards in Sports & Exercise Medicine in conjunction with a unified postgraduate training programme for Basic and Higher Specialist Training.

The IABSEM Diploma examination has been established for recognition of basic specialty training. The Diploma examination held twice a year, is comprised of Part I and Part II. Part I is a short essay paper in April and September. Candidates can sit this in London, Glasgow or Dublin. Candidates who are successful in Part I can proceed to Part II involving an oral and clinical based on 2 OSCE examinations in June and November of each year, held at a single centre, rotated every 6 months (4)

## 2. Programme Description & Aims

The Masters of Science in Sports and Exercise Medicine and the Masters of Science in Sports Physiotherapy programmes are designed for medical doctors and chartered physiotherapists interested in Sports & Exercise Medicine and Sports & Exercise Physiotherapy respectively. The overall intention of the Masters programme is to produce a successful student with a wide breadth of knowledge across Sports & Exercise Medicine and Sports & Exercise Physiotherapy and the necessary skills to put the theory into practice. It is proposed to teach these programmes on a shared learning educational model providing maximum interaction between the two disciplines of medicine and physiotherapy. Appropriate specialist medical and physiotherapy tuition will be given when required.

### AIMS:

The programme will provide doctors and physiotherapists with:

- ▲ The necessary scientific background knowledge to appreciate the issues arising in the field of Sports & Exercise Medicine and Sports & Exercise Physiotherapy.
- ▲ The necessary skills and knowledge to provide advice on the prevention of sports injuries.
- ▲ Up to date training in modern methods of assessing, diagnosing and treating sports injuries including emergency care.
- ▲ Opportunities to learn about the theory and application of Sports Psychology, Podiatry, Biomechanics, Sports Nutrition, Sports Pharmacology, Exercise Physiology, Fitness Assessment and ethical issues within sport.
- ▲ Opportunity to learn about the medical applications of exercise in maintaining health and in disease
- ▲ An introduction to research appropriate to the field of Sports & Exercise Medicine and Sports & Exercise Physiotherapy.

### **3. Programme Structure and Content**

The MSc Programme is a 2-year part-time programme, modular in structure made up of 2 semesters per year and 2 modules per semester. Four modules will be completed per year and each module will have 30 hours contact time (lectures/labs/clinical teaching) and 90 hours study time (including working with teams). Over the two years students will have accumulated over 300 taught hours.

The programme runs from September to April, and students will complete their thesis/dissertation over both summer breaks. In coming years it will be possible to complete the programme as a full-time student over one year, September to August. It is proposed that the MSc Programme, whether parttime over 2 years or full-time over 1 year will have an allocation of 90 ECTS.

In the part-time two-year modular programme, lectures take place in the evenings for three hours each month for 4 months in each semester, in total giving 12 lecture slots per semester and 48 over the 2 years. Clinical teaching will take place over two residential weeks per year for 2 years. This will involve two separate weeks of contact time per year, normally in October and February of each year.

#### **Clinic Attendance:**

Students will attend clinics, a minimum of 20 attendances per year, and will keep a log of their attendances. These clinics will include Sports Physician Clinic, Physiotherapy Sports Injury Clinic, Orthopaedic Clinic, Rheumatology Clinic, A & E.

#### **Clinical teaching and Laboratories:**

During the two one-week residential each year, students will attend the following laboratories for teaching sessions: Anatomy, Exercise Physiology, Cardiac Rehabilitation, Pulmonary Function, Gait Analysis, Biomechanical Assessment. Radiology Clinic, Cardiac Stress Testing and Cardiac Ambulance Assisting, Strapping and Taping Clinic, EMG Clinic, Isokinetic Testing Clinic

#### **Summary of taught component of 300 hours over 2 years:**

3 lectures per month x 16 months = 48 hours

2 weeks per year x 40 hours per week x 2 years = 160 hours

Clinic attendance minimum 2 hours per clinic x 20 per year x 2 years = 80 hours

Total = 288 hours

#### **Doctors and Physiotherapists**

Doctors and Physiotherapists will cover most areas in common. They will be taught separately for certain subjects more relevant to each of their practices, e.g. doctors will spend more time learning diagnostic imaging and injection techniques and physiotherapists will spend more time on rehabilitative techniques and manipulation of joints.

## Assessment:

Assessment will depend on the module content:

- ▲ **Non-clinical modules** (e.g. Modules 1,3,4,7, &8) will involve a written exam at the end of each module. These exams will take place in December and May with repeat exams in August.
- ▲ **Clinical modules** (Modules 2, 5 & 6) will involve assessment of six clinical cases submitted and formal assessment in four parts:
  - Written
  - Clinic with 2 short cases and Clinic with 1 long case
  - First Aid OSCE
  - Viva
- ▲ Submission of the dissertation will be required on September 1<sup>st</sup> of the 2<sup>nd</sup> year for graduation to take place in November of that year.

## Content of each Module

Year 1:			ECTS
Semester 1:			15
(Sept–Dec)	Module 1	Applied Musculoskeletal Anatomy I / Biomechanics	
	Module 2	Sports Injuries I : Cervical Spine, Upper limb, Thoracic Spine	
Semester 2:			15
(Jan–April)	Module 3	Exercise Physiology (including Environmental Stresses and Exercise Performance (temperature / pressure / travel), Training Methods and Fitness Assessment, Sports Nutrition, Drugs in Sport	
	Module 4	Research I & II: Biostatistics, Epidemiology of Sports Trauma	
(Summer)	Thesis		15
Year 2:			
Semester 1:			15
(Sept–Dec)	Module 5	Applied Musculoskeletal Anatomy II, Cardiopulmonary Resuscitation / Immediate Care	
	Module 6	Sports injuries II: Lumbar spine, SI joint & lower limb	
Semester 2:			15
(Jan–April)	Module 7	Medical Applications of Exercise: The Health Benefits of Exercise, Exercise for Specified Populations, The Female Athlete, The Young Athlete (Child and Adolescent), Pre-Participation Assessment, Infectious Illness and Sport, Medical Conditions and Contemporary Issues	
	Module 8	Sports Psychology, Sport Medicine Administration (The Role of the Team Doctor (Home and Abroad), Medical Aspects of Event Management, Ethics, Medico-legal Aspects), Specific Sports	
(Summer)	Thesis		<u>15</u>
			Total ECTS = 90

#### **4. Intake, Entrance Requirements and Selection Procedure:**

##### **Intake:**

Minimum of 15 students will be required for the MSc Programme to be run. Intake will be limited to 20 student places.

##### **Entrance Requirements:**

###### Medical Doctors:

Applicants must be medical graduates of National University of Ireland or another university as acceptable to the Director of the Programme. Graduates will be expected to have a minimum of 1 years experience after registration.

###### Chartered Physiotherapists:

Applicants must be chartered physiotherapist graduates of National University of Ireland or an other university as acceptable to the director of the Programme. Graduates will be expected to have a minimum of 2 years experience after qualification.

Preference will be given to applicants with a strong sporting background, either personal involvement or recognized service provision.

##### **Selection Procedure:**

Applicants will be selected for interview on the basis of a completed application form accompanied by a 200 word statement on why they feel they should be accepted onto the programme. Short listed applicants may be called to interview and the final selection made at that point.

#### **5. Faculty;**

The Clinical Director of the MSc Programme is Dr Aideen Henry, Sports Medicine Physician and College Lecturer in the Physiology Department, NUI, Galway. The Faculty of Medicine & Health Sciences in particular will contribute to the teaching as well as other faculties.

<b>Department/Subject</b>	<b>Lecturer</b>	<b>Subject</b>
Anaesthetics	Dr Chris Maharaj Dr David O’Gorman	CPR/ Immediate care Pain Management
Anatomy Department	Dr Alex Black Prof Peter Dockery	Anatomy
A & E	Dr John O’Donnell	Trauma/ Immediate care/ Head injury/ Rugby/Ankle-

Cardiology	Dr Jim Crowley	Foot injuries Athletes Heart/Cardiac Rehab
Dermatology	Dr Pauline Marren	
Engineering	Louise McNamara/ Sarah Brody	Biomechanics
General Practice	Dr Brendan Dineen	Research Methods
Genetics	Prof Jim Haughton	
Health Promotion	Dr Margeret Hodgins Geraldine Nolan	
Maths	Dr John Newell Ms Emma Holian	Biostatistics
Medicine	Dr Fiona Stevens Dr Gerard Flaherty	Medical conditions in sport Altitude/Golf/Endocrine
Neurology	Dr Michael Hennessy	Neurology
Obstetrics & Gynaecology	Dr Vimla Sharma	The Female athlete
Orthopaedics	Mr Michael O'Sullivan Mr John McCabe Mr Kenneth Kaar	
Paediatrics	Prof Gerard Loftus	The Young Athlete
Pharmacology	Prof Laurence Egan Dr Dave Finn	Sports Pharmacology Pain
Philosophy	Sorcha Uí Chonnachtaigh	Ethics
Physiology Department	Dr Aideen Henry  Dr Dom Colbert Dr Ailish Hynes	Sports Medicine/Rowing /Diving/Exercise & Age/Blood /Cardiovasc/Resp Travel Medicine/Digestive Immunology
Radiology	Prof Peter McCarthy Dr David O'Keefe	Musculoskeletal Radiology
Respiratory Medicine	Dr JJ Gilmartin	Asthma
Rheumatology	Dr Robert Coughlan	Rheumatology
Surgery	Mr Gerry Fahy Mr Peter Gormley Mr Patrick McCann	Ophthalmic Surgeon ENT Surgeon Maxillofacial Injuries

## External Lecturers:

Chartered Physiotherapy	Mary Walsh Caroline Reynolds Claire Burke Mairead Conneely Sharon Morris	Muscle Length Core Stability Manipulative techniques Team physiotherapist Orthotics
Orthopaedic Medicine	Dr Tom Nolan Mary O'Connor Siobhan Treacy Pierce Moloney Joan Oakes	Kilkee Naas Lucan Dublin Navan
Orthopaedic Surgery	Mr Paul O'Grady Mr Paraic Murray	Mayo General Hospital Galway Clinic
Sports Medicine	Dr Noel McCaffrey	DCU
General Practice/ Drug Abuse in Sport Chronic Fatigue	Dr Aidan ó Colmain  Dr Joe Fitzgibbon	Galway  Galway Clinic/ Hermitage, Dublin
Gaelic Injury/Travel	Prof Tom Reilly	John Moore University, Liverpool
Sports Nutrition	Ms Maria Bowles	Limerick Hospital
Swimming Biomechanics	Brian Sweeney	Templeogue Swim Club, Dublin
Hurling/Camogie	Dr Michael McGloin	Athenry
Obesity & GP exercise prescription	Dr John O'Riordan	Obesity taskforce/ Cork
Gaelic Football	Mícheál Newell	Athlone IT
Weightlifting	Kevin Darcy	Elite Athlete, Headford
Medicolegal issues	Mr Neville Cox	Law dept, TCD
Athletics	Dr Brendan O'Brien	Medical Officer, Wicklow
Overtraining Syndrome	Dr Nick Mahony	Anatomy Dept, TCD
GAA injuries	Dr Pat O'Neill	Sports Physician, Dublin
Wheelchair/Paralympics Medical Event management	Patrice Dockery Dr Mick Molloy	Elite Athlete, Dublin A & E, Dublin
Kayaking	Dr Eadaoin Ní Challaráin	Elite Athlete

Sports Psychology	Dr Alan Ringland Dr Siobhain McArdle	Tralee IT DCU
Isokinetic Testing	Dr Marie-Elaine Grant	Dublin
Exercise Physiology	Dr Stan Grant	Glasgow University
Insulin Sensitivity	Dr Donal O’Gorman	DCU
Cardio Health and Exercise	Prof Niall Moyna	DCU
Work site fitness Alcohol	Dr Ann Hope	NUIG and TCD

### **Clinics/ Laboratories:**

Exercise Physiology	Prof Phil Jakeman	University of Limerick
Sports Physiotherapy Clinics	Gavin Malouf	Connacht Rugby
Sports Physician Clinics	Dr Aideen Henry	Galway Clinic
Gait Analysis Laboratory & Biomechanical Assessment	Dr Drew Harrison	University of Limerick

## **6. Marks & Standards:**

The Masters in Sports & Exercise Medicine and the Masters in Sports & Exercise Physiotherapy consists of written examination, clinical examination, submission of 6 clinical cases and of the thesis. The written examinations are held at the end of each module. Clinical examinations will take place at the end of the clinical modules (Modules 2, 5 & 6) will involve assessment of six clinical cases submitted and formal assessment in four parts:

- Clinic with 2 short cases and Clinic with 1 long case
- First Aid OSCE (module 5 only)
- Viva

Clinical examinations will assess clinical competence on the basis of a student deemed competent or not competent in the clinical examination e.g. pass/fail only.

Repeat examinations will be held as required in the Autumn.

### **PASS STANDARD:**

The pass standard is 50% in each module.

Unless the board of examiners recommends otherwise the maximum mark obtainable on a repeat examination in any session is 50%.

### **COMPENSATION:**

There will be no compensation between modules or semesters.

### CLASS OF AWARD: CALCULATION OF RESULTS:

The result will be calculated on the aggregate of the marks attained in Years 1 and 2.

Standards:

First class honours:	70%
Second class honours:	60%
Pass:	50%

#### YEAR 1:

	Credits/ECTS	Session in which examined
Module 1	7.5	December
Module 2	7.5	December
Module 3	7.5	May
Module 4	7.5	May
Thesis	15	September after year 2

#### CARRYING MARKS FORWARD FROM YEAR 1:

In order to proceed into Year 2 of the programme candidates must pass the first Year examinations. Students must pass Year 1 within two academic years of commencing the programme. All requirements for Year 1 must be passed before progressing to Year 2 of the programme. Honours are not awarded in Year 1 examinations.

#### Year 2:

	Credits/ECTS	Session in which examined
Module 5	7.5	December
Module 6	7.5	December
Module 7	7.5	May
Module 8	7.5	May
Thesis	15	September after Year 2
Total ECTS	= 90	

#### CARRYING MARKS FORWARD FROM YEAR 2:

In the case where a candidate fails the examination as a whole, but has obtained a mark of 50% or more in one or more modules, the board may decide to carry forward these marks to all succeeding examinations. Students are required to successfully complete all modules within twelve months of the specified date of completion