



Department of **Sport and Health Sciences**



TUS

Ollscoil Teicneolaíochta na Sionainne:
Lár Tíre, An tIarthar Láir
Technological University of the Shannon:
Midlands Midwest

www.tus.ie

About Us!

The Department of Sport and Health Sciences was established in 2016 in the Faculty of Science and Health.

Our Department has;

- Over 300 undergraduate students registered across five undergraduate programmes
- 22 full time staff including lecturers, technical and support staff
- 14 PhD students undertaking projects in the SHE Research Group
- Access to state of the art facilities including our Sports Science Lab, High Performance Gym, Rehabilitation Suites, Biomechanics Lab, Nutrition Lab and the TUS International Arena.

Our Programmes

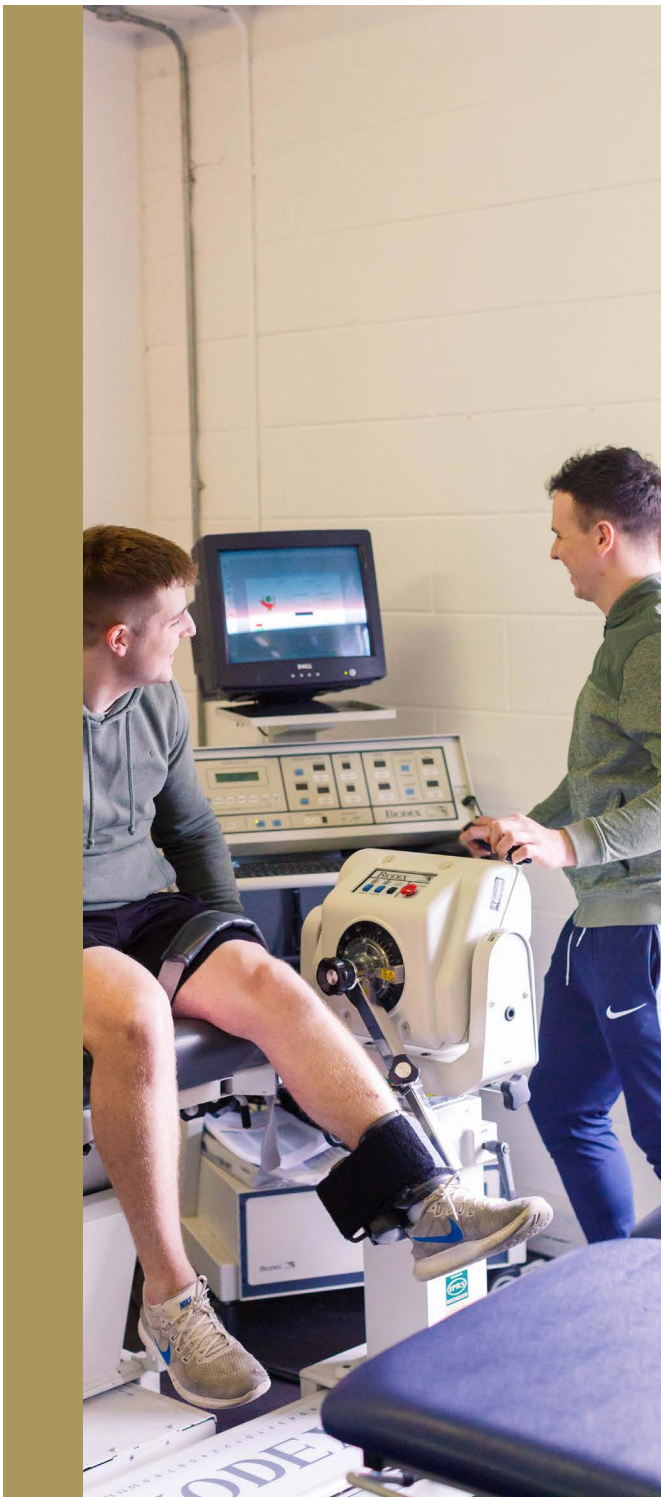
There are five undergraduate programmes in the Department of Sport and Health Sciences; BSc (Hons) in Sports Science with Exercise Physiology, BSc (Hons) in Athletic and Rehabilitation Therapy, BSc (Hons) in Physical Activity and Health Science, BSc (Hons) in Nutrition and Health Science and a BSc in Exercise and Health Science. The latter programme is linked to the BSc (Hons) in Physical Activity and Health Science.

The Sports Science and Athletic and Rehabilitation programmes are focussed on equipping students with the necessary knowledge, skills and critical inquiry to support athletes to maximise their performance. In addition, these programmes consider the health, fitness and performance requirements of the general population.

The Exercise/Physical Activity and Health Science and Nutrition and Health Science programmes prioritise the development of expertise in nutrition and physical activity, and particularly, the skills required to support a multi-disciplinary approach to lifestyle behaviour change among the general population and clinical population groups.

There are some common and stand-out features across all programmes;

- Core science modules are embedded in all programmes, ensuring that discipline specific knowledge in sport and health science is grounded in scientific principles.
- All programmes include a semester long placement where the student gets applied experience in a relevant setting bespoke to their personal and professional interests. Placements are available across Ireland and internationally.
- In Year 4, students carry out a final year research project over the academic year. This is a fully supervised process that takes the student through the complete research process and often includes research ideas identified through industry/community links.





US788

Bachelor of Science in **Exercise and Health Science**

This three-year programme focusses on developing a unique skillset to support a multidisciplinary approach to physical activity and nutrition for public health. No existing course within the Republic of Ireland produces graduates with an in-depth knowledge of both physical activity and nutritional interventions, while bringing together the social, behavioural, biological and biomedical sciences to facilitate the development and improvement of existing interventional techniques. Graduates from the three-year programme can complete an add on year 4 that is linked to the Physical Activity and Health Science programme.

US957

Bachelor of Science (Hons) in **Nutrition and Health Science**

This four-year is a unique interfacial degree with an equal emphasis on both nutrition and health science. The primary aim of the programme is to develop expertise in nutrition and apply this knowledge and related skills to health science and public health. This programme is accredited by the Association for Nutrition, which enables graduates to apply for Registered Associated Nutritionist registration.

US950

Bachelor of Science (Hons) in **Athletic and Rehabilitation Therapy**

This four-year programme prepares students to become skilled in the prevention, assessment, diagnosis, treatment, and rehabilitation of musculoskeletal injuries related to physical activity. Graduates are eligible to apply to become Certified Athletic Therapists through the Association for Rehabilitation Therapy Ireland (ARTI), which supports them to work professionally in Ireland overseas.

US951

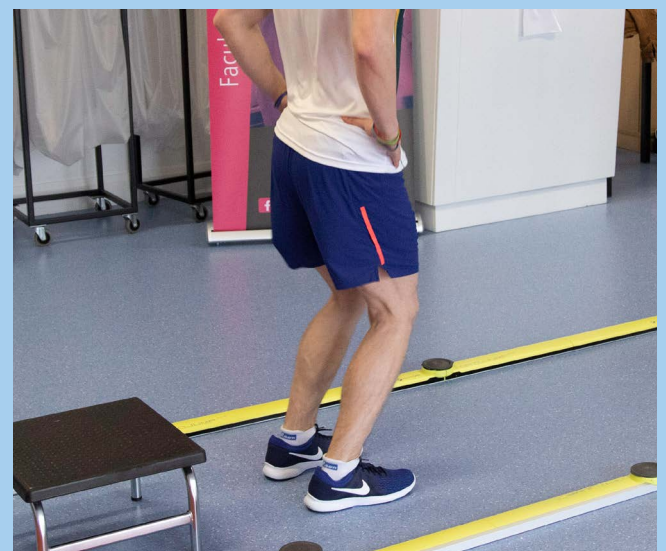
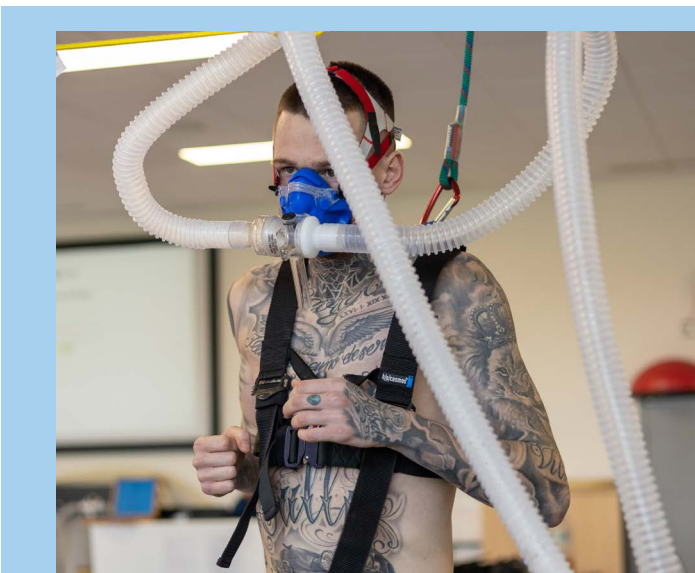
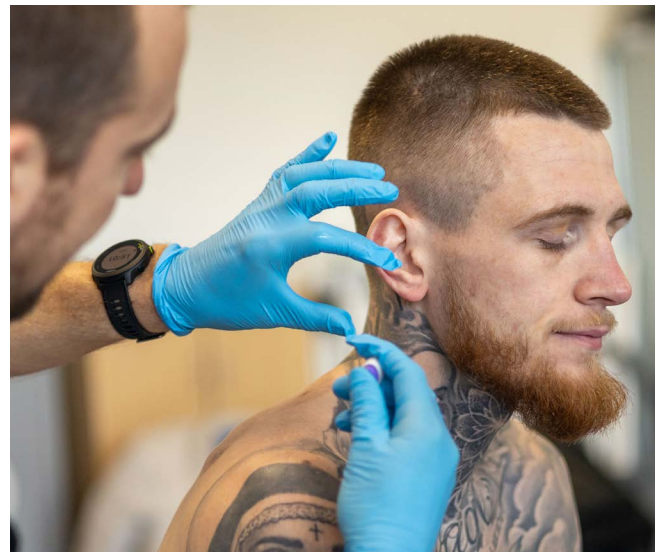
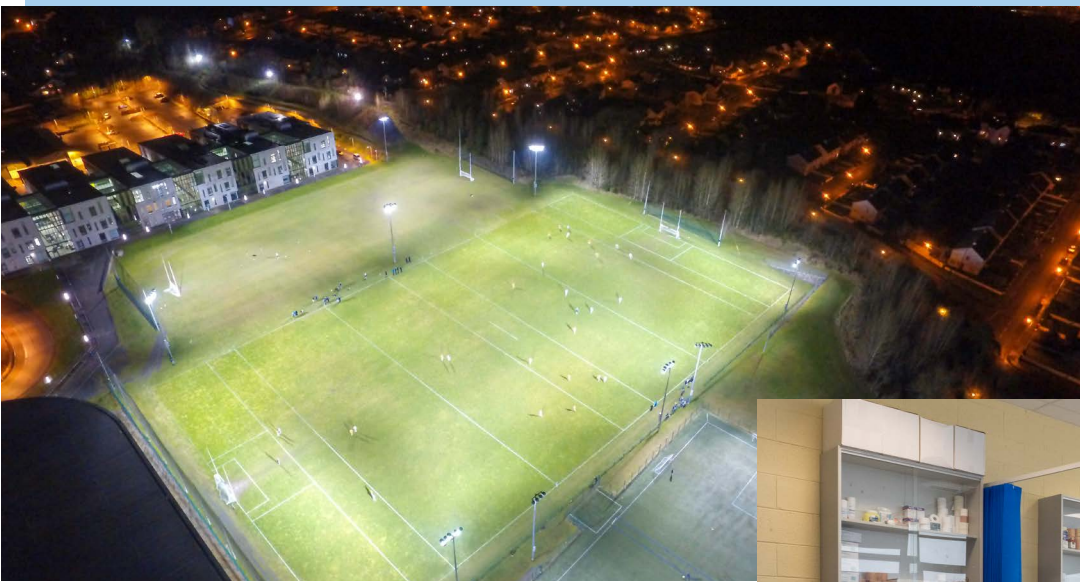
Bachelor of Science (Hons) in **Physical Activity and Health Science**

This is a unique course that develops graduates to undertake a multidisciplinary approach to physical activity and nutrition for public health. No existing course within the Republic of Ireland produces graduates with an in-depth knowledge of both physical activity and nutritional interventions, while bringing together the social, behavioural, biological and biomedical sciences to facilitate the development and improvement of existing interventional techniques.

US956

Bachelor of Science (Hons) in **Sports Science with Exercise Physiology**

This four-year programme equips students with the necessary skills to meet the needs of elite athletes, as well as the health and fitness requirements of the general population. Students move from core science to sports science modules, each with practical applications therefore ensuring a deep theoretical and applied understanding of how to enhance performance in athletic populations.



Our Facilities

TUS Midlands has a unique facility provision for sport and health science. The flagship facility is the International Arena, which has an indoor profile equipped to host annual International Grand Prix events. The Arena also houses a Sports Science Lab, High Performance Gym and Biomechanics Lab for teaching and research. The Department also has access to a Nutrition Lab and two Rehabilitation Suites. Several software, such as Nutritics, Vicon Motion Analysis, Dartfish and Forcedecks are used to deliver content on modules such as Nutritional Assessment, Performance Analysis, Biomechanics and Strength and Conditioning.

Our Staff



Dr Aoife Lane

Head of Department of Sport and Health Sciences. Aoife has a BSc in Sport and Exercise Science from UL, a Masters in Health Promotion in NUI Galway and completed her PhD studies on the public health impact of the Women's Mini Marathon in Waterford IT. Aoife is a founder of the Women's Gaelic Players Association and current Chair of the Gaelic Games Sports Science Working Group. Aoife's research focuses on sport, health and exercise in women and girls, working with partners internal and external to TUS. Aoife is Lead of the SHE Research Group.



Dr Kieran Dowd

Programme Co-ordinator & Lecturer on BSc in Physical Activity & Health Science. Kieran lectures across modules such as Physical Activity Policy and Measurement of Physical Activity Behaviours. Kieran's research interests include the examination of physical activity behaviours in free-living environment; the examination of the associations between physical activity behaviours and indices of health and the implementation of interventions to modify health behaviours. Kieran is Lead of the Exercise and Health strand of the SHE Research Group..



Dr Niamh Ní Chéilléachair

Lecturer on BSc in Sports Science with Exercise Physiology. Niamh leads the Physiology for High Performance Athlete module. Niamh's research interests include multi-disciplinary, applied sports science studies involving physiological and biomechanical approaches to improve the performance of well-trained and elite athletes. Niamh is an accredited physiologist with the Sport Ireland Institute.



Dr David Kelly

Lecturer on BSc in Sport Science & Exercise Physiology, specifically on the performance testing and fundamentals of sport science modules. David obtained a BSc in Sport Science and Health (2010) and a PhD in Exercise Physiology (2014), both at DCU. His doctoral studies investigated high-intensity interval training and repeated sprinting in field-based invasion team sport athletes. David is a member of the Irish Society for Sport and Human Performance and also part of the Gaelic Games Sports Science Working Group. David is currently supervising a number of PhD students and his research interests are in training specificity, workload monitoring and performance profiling of elite and sub-elite athletes.



Dr Ciarán Ó Catháin

Programme Co-ordinator & Lecturer for BSc in Sports Science with Exercise Physiology. Ciarán has a BSc in Sport Science and Health from DCU, an MSc in Sports Nutrition from St Mary's University London, and a PhD in Biomechanics and Exercise Physiology from DCU. For his PhD Ciarán developed a novel technology based biofeedback system that allowed runners to intuitively alter running technique to reduce the risk of injury. Ciarán is a registered Sports Nutritionist (SEnr, SENG), and is a member of the Sports Nutrition in Gaelic Games working group. Ciarán's research focuses on a multidisciplinary approach to improving sporting performance, reducing injury risk and addressing the current gender data gap that exists in Sport Science. Ciarán is lead investigator for the Sports Performance Pillar of the SHE Research Group.



Dr Mairéad Cantwell

Lecturer in Exercise Science; Programme Co-ordinator BSc Physical Activity & Health, & BSc Exercise & Health Science. Mairéad has a BSc in Sport Science and Health from DCU, a Masters in Clinical Exercise Physiology from Liverpool John Moores University and completed her PhD in exercise and cancer survivorship at DCU. Mairéad's PhD was funded by the Irish Cancer Society and she was the recipient of the Irish Cancer Society's First PhD Researcher of the Year Award. Mairéad lectures on modules in Clinical Populations, Health Promotion and Interventions for Special Populations. Mairéad's research focuses on the role of exercise in prevention, treatment and management of chronic disease, with a particular emphasis on cancer across a number of settings, including paediatric oncology and community-based cancer care. Mairéad is a member of Irish Life Health's Medical Scientific Advisory Council and the SHE Research Group.



Dr Clare McDermott

Programme Co-ordinator & Lecturer in BSc in Physical Activity and Health Science and Sports Science with Exercise Physiology. Clare lectures on Human Physiology, Sport and Exercise Physiology, Youth Physical Activity, Physical Activity and Health and Group Exercise Instruction modules. Clare has a BSc in Physical Education and Biology from DCU and completed her PhD studies on the efficacy of a home-based technology-enabled cardiac rehabilitation program for patients with cardiovascular disease. Clare's research interests include both the prevention and management of chronic diseases through physical activity and exercise. Clare is a member of the Exercise and Health strand of the SHE Research Group.



Dr Kris Beattie

Lecturer on Sports Science with Exercise Physiology. Kris has a BSc in Sport & Exercise Science from Ulster University, an MSc in Sports Physiology from Liverpool John Moore's University, and a PhD from the University of Limerick where his research focused predominantly on the physiological adaptations of strength training in endurance athletes. Kris leads modules on Human Physiology 2, Sport & Exercise Physiology and Applied Coaching Science. Kris is also a UKSCA accredited Strength & Conditioning coach and his research interests include the physiology of strength, speed and endurance training.



Dr Robin Healy

Lecturer on BSc in Sports Science with Exercise Physiology. Robin has a BSc in Sport and Exercise Sciences from UL and also completed his PhD studies in UL on the biomechanics of resistance training for sprinters. Robin lectures on modules in biomechanics, statistics, and research methods. Robin's research interests include monitoring long term changes in sprint kinematics, kinetics, and performance in team sports; improving assessment methods of high speed running and sprinting within training and match environments; and providing biomechanical support to evaluate and enhance performance in track and field athletics. Robin is a member of the Sports Performance Pillar of the SHE Research Group.



Dr Patricia Heavey

Programme Co-ordinator & Lecturer on BSc in Nutrition and Health Science. Trish lectures on nutritional assessment, ecological issues in health and health promotion modules. Trish is the lead for the Nutrition and Health pillar in the SHE Research Group and her research aims to explore the role of nutrition on health, well-being, and disease with a particular emphasis on the nutritional needs and challenges of women throughout the lifespan including the menopausal transition. Trish is a registered Nutritionist (Public Health) with the Association for Nutrition and an IUHPE Registered Health Promotion Practitioner.



Dr Geraldine Cuskelly

Dr Geraldine Cuskelly is a Lecturer in Nutrition, a Registered Dietitian (UK HPC) and a Registered Nutritionist. Her BSc and PhD qualifications in Nutrition are from Trinity College Dublin and Ulster University, respectively. Geraldine has worked in the US, England and Northern Ireland in both academic and food industry posts; primarily conducting research commissioned by multiple external funders through competitive bids worth almost €2m. Her current research interests include how sleep and circadian sodium status affect blood pressure variability. She also teaches modules across all stages of the BSc Nutrition & Health Science and co-ordinates the Professional Placement for Nutrition.



Dr Áine O'Connor

Programme Co-ordinator & Lecturer on BSc on Nutrition and Health Science. Áine teaches on a variety of modules including epidemiology, lifecycle nutrition and advanced sports nutrition. Áine has a BSc in Nutritional Sciences from UCC and a PhD in Nutritional Metabolomics from UCD. She also worked as a Lecturer and Nutrition Scientist in London. Áine is a Principle Investigator in the Nutrition and Health Pillar of the SHE Research Group. Her research interests include evaluation of micronutrient intake (iron, vitamin D) and paediatric nutrition. She is an AFN registered Public Health Nutritionist and member of the Nutrition Society and Nutri-PD Community of Practice.



Anna Postawa

Programme Co-ordinator & Lecturer on BSc in Athletic & Rehabilitation Therapy. Anna has a BSc in Physiotherapy from PWSZ in Tarnow, Poland, and MSc in Physiotherapy from AWF in Krakow, Poland. She is a Member of Irish Society of Chartered Physiotherapists, with over 10 years of clinical experience. Anna lectures in the area of upper limb and spine injuries as well as treatments including joint mobilisations, soft tissue techniques and electrotherapy. Currently, Anna is a Professional Doctorate candidate at DCU, investigating confidence and clinical competence of Irish Athletic Therapy students.



Lynn Allen

Programme Co-ordinator & Lecturer on BSc in Athletic & Rehabilitation Therapy. Lynn has a BSc in Sport Rehabilitation and Athletic Therapy, a Masters in Exercise Physiology and is currently undertaking her Professional Doctorate in Elite Performance (Sports). Lynn has recently completed her Postgraduate Diploma in Teaching and Learning. Lynn lectures on Anatomy of the Lower Limb, Injuries and Therapies of the Lower Limb, Fundamental Rehabilitation Skills and Medical Conditions in Sport. Lynn's research interests include athletic therapy education, metacognition, clinical reasoning skills, reflective practice, and psychology of sport injuries.



Michael Donohoe

Clinic/Placement Co-Ordinator and Lecturer on BSc (Hons) in Athletic & Rehabilitation Therapy. Michael lectures on Rehabilitation and Return to Competition, Student-Led Clinics, and Anatomy of the Lower Quadrant modules. Michael has a BSc in Athletic Therapy and Training from DCU and an MSc by Research from TUS. Michael is a Certified Athletic Therapist (CAT) with Athletic and Rehabilitation Therapy Ireland (ARTI). Michael's research interests include return to play criteria and deceleration ability.



Marese Gilhooly

Lecturer on the BSc (Hons) in Athletic and Rehabilitation Therapy. Marese has a BSc in Physiotherapy from Trinity College Dublin, MSc in Manipulative Therapy from Coventry University in UK and MSc in Medical Science from University of Galway. Marese has completed her PG Diploma in Teaching, Learning and Assessment in TUS..



Laurie Ryan

Lecturer in Science in the Department of Sport and Health Sciences. Laurie lectures on a range of science modules such as Human Biochemistry, Sports Biochemistry, Cell Biology, Microbiology and Neuroscience. Laurie is a former secondary school science teacher and conducts research in STEM education. Laurie is currently finishing her PhD examining argumentation in non-formal learning environments in the University of Limerick.



Dr Fiona Skelly

Lecturer in Physiology on BSc in Physical Activity and Health Science. Fiona lectures on Human Physiology, Human Pathophysiology and Anatomy for Sport Science. Fiona has a BSc in Sport Science and Health and completed her PhD in the area of exercise prescription for clinical populations in Dublin City University. She continues to work with ExWell Medical which is an organization offering community-based exercise rehabilitation to a diverse chronic disease population. Fiona's primary research interests are in the area of exercise and health, specifically the practical application and impact of exercise rehabilitation for chronic disease.



Dr Lewis King

Lecturer in Psychology in the Department of Sport and Health Sciences. Lewis lectures across modules on Sport Psychology, Advanced Sports Psychology, Health Psychology and Behaviour Change. Lewis completed his PhD at WIT exploring the mental health of jockeys in Ireland. His research interests include the mental health of athletes, occupational wellbeing, behaviour change, and e-sports.



Shane Carrington

Technician in the Department of Sport and Health Sciences. Shane plays a pivotal role in the delivery of practical content across the department. Shane has a BSc in Sport and Exercise Science from IT Carlow, and is currently undertaking an MSc in Sport and Exercise Psychology at the University of Staffordshire. Prior to his current role, Shane completed internships in IT Carlow and Connacht GAA. Shane also has a wealth of strength and conditioning experience, coaching across a variety of sports including Gaelic football, rugby, camogie and hurling.

Our Research Group

SPORT
HEALTH
EXERCISE

The SHE Research Group was set up in 2020 to work to bridge the gender data gap in sport, health and exercise science research. We are committed to undertaking bespoke projects for girls and women and also to ensuring equal representation of males and females in mixed gender studies. We have a network of SHE Mentors, academic and applied specialists, who guide and shape our work and partner on research studies.

The Core Principles of our group are to;

1. Embed gender equality into teaching, and research activities at undergraduate and postgraduate level.
2. Prioritise women and girls specific research that aligns with national priorities in a sustainable and developing research environment.
3. Collaborate with stakeholders from research, policy and practice across Ireland and internationally.
4. Disseminate evidence based research that will inform decision making on issues for females in policy and practice.

Our main Thematic Areas for research are structured across three areas;

1. Sports Performance: understanding and enhancing engagement in sport across the disciplines of sports science with a focus on team sports at recreational, amateur and high performance levels; led by Dr Niamh Ní Chéilleachair. Members include Dr Ciarán Ó Catháin, Dr David Kelly, Dr Robin Healy and Dr Kris Beattie.
2. Exercise and Health: developing strategies to increase physical activity levels and exercise for health, particularly for the least active members of society who generally include girls and women; led by Dr Kieran Dowd. Members include Dr Mairéad Cantwell, Dr Clare McDermott, Dr Aoife Lane and Dr Fiona Skelly.
3. Nutrition and Health: exploring nutrition and the promotion of optimal health and wellbeing throughout the female lifespan, accounting for behavioural, environmental and socio-economic issue; led by Dr Patricia Heavey. Members include Dr Geraldine Cuskelly, Dr Áine O'Connor and Dr Clem Higginbotham.

For more information please find us online at www.sheresearch.ie

Our Research Projects

Menstruation and Athletic Performance

There is a current disparity in the number of female versus male participants in sports science research. Traditionally this was accepted, but it has led to, not only an underrepresentation of female participants in the literature, but also a lack of understanding of female exercise physiology, including the menstrual cycle and the impact it may have on athletic performance. Monthly hormonally disruptions have been implicated in alterations in strength, endurance performance and anaerobic capacity. However, research investigating these alterations has been limited and due to methodological issues has been equivocal to date. Furthermore, there is a lack of research investigating the effect of the menstrual cycle on high intensity exercise, how athletes perceive the menstrual cycle impacts their performance, and how the menstrual cycle interacts with athlete wellbeing and training load. Therefore, this research aims to reduce the ambiguity that surrounds the menstrual cycle and athletic performance in order to empower and better support female athletes.

Strength and Speed Adaptations in Female Team Sport Athletes

Team-sports, such as soccer, rugby and GAA, require a unique blend of physical characteristics for performance. Due to this, there has been a substantial growth of sport science research over the last decade investigating the effect of specific training interventions (i.e. strength, speed, endurance) on improving performance. Sprinting ability, such as acceleration and maximum-velocity, is required for success in specific scenarios in team-sports (i.e. evasive play). Additionally, sprinting ability can often differentiate between performance level of team-sports (i.e. elite vs. non-elite players). Research has found that non-specific training methods, such as strength training, can be as beneficial as specific sprint training in improving acceleration performance. However, there has been a dearth of research in female athletes. Therefore, the aim of this project is to evaluate the role of strength on speed adaptations (i.e. acceleration, maximum-velocity & 'game' speed) in elite female team-sport athletes, specifically Ladies Gaelic Football players. The findings from this innovative project will provide key stakeholders (e.g. Ladies Gaelic Football Association, Sport Ireland) with evidence-based research and best practice on strength and speed development within elite female team sports.

The Contribution of Organised Sport to Youth Physical Activity Levels

This research aims to examine the physical activity levels of male and female adolescents that play Gaelic football, and to determine the contribution that playing this sport made to their overall daily physical activity levels. The results of this research so far have highlighted that the majority of adolescents were not meeting the physical activity guidelines, while male adolescents were significantly more active than their female peers. The results also demonstrated that playing Gaelic football provided a good opportunity for the adolescents to be physically active. However, they also spent over 50% of training time inactive, presenting an opportunity to increase time spent physically active. The next phase of the research aims to examine if a coach education programme can increase the amount of physical activity adolescent players attain during Gaelic football training sessions.

The Impact of Female Sporting Role Models on Participation in Sport and Physical Activity

There is little evidence to definitively support an impact of sporting role models on actual engagement in sport and physical activity. The limited data that is available suggests that role models are most impactful when local, relevant, and successful, therefore identifying and creating an intervention around female athletes in communities across the country could prove instrumental in increasing physical activity levels and decreasing sports drop out among Irish female youth.

Weight Variation, Body Composition and Body Shape During Menopausal Transition

The menopausal transition (MT) are natural processes that occur in women's lives as part of normal aging and includes the period of change from perimenopause to postmenopause and its associated symptoms. Weight and body fat distribution change particularly during menopausal transition is commonly reported. Although extensive international research has been conducted, the links between weight variation, body composition, shape and the menopause transition are complex and not extensively understood. Nationally there is a sparsity of data regarding the menopausal transition regarding body shape, body composition and weight. Findings from international research suggest health behaviours (including diet and physical activity) and the prevention of certain health conditions (including obesity) are key targets to ensure midlife women who encounter challenges related to MT, maintain optimal health and wellbeing as they age. This PhD focuses on a highly unexplored area of research in Ireland- exploration of weight variation, body composition and body shape in Irish women during the menopause transition. This will have the potential to provide a unique and significant understanding of this stage in women's life and will inform future interventions and policy in the Irish context.

UPMC-SHE Postdoctoral Research: Lifestyle Programme for Menopause

Research led by the SHE Research Group, TUS, revealed that Irish women feel inadequately supported through the menopause and the majority would welcome a lifestyle programme to assist them with their symptoms. To this end, a postdoctoral programme, funded by UPMC Institute for Health connects researchers in TUS and Waterford Institute of Technology and practitioners from Waterford Local Sports Partnership to come together to develop and evaluate a novel menopause lifestyle intervention. The goal of the programme is to deliver for women and support them through the menopause during what can be a particularly challenging time in their lives.