National Centre for Sport and Exercise Medicine

2012-2024

NATIONAL CENTRE FOR
SPORT & EXERCISE MEDICINE
WORKING FOR HEALTH & WELLBEING

National Centre for Sport and Exercise Medicine

It started with the London Olympic and Paralympic Games in 2012. As part of the Games' legacy, the government set up the **National Centre for Sport and Exercise Medicine (NCSEM)**.

The NCSEM was established with a £30m investment from the Department of Health and is a collaboration between universities, healthcare trusts, local authorities and private and voluntary sector organisations, clustered around three regional hubs.

The NCSEM was established with a mission to improve the health and wellbeing of the nation through sport, exercise, and physical activity. This report reflects on the impact and achievements of the NCSEM since its inception. It encapsulates our journey, highlighting key milestones, innovative research, community engagement, and collaborative efforts that have contributed to the advancement of sports and exercise medicine.

Our commitment has been to bridge the gap between clinical practice and public health, fostering a culture where physical activity is integrated into everyday life. This report highlights some of our accomplishments and also underscores our ongoing dedication to enhancing the quality of life through the power of sport and exercise. As we look back, we also look to the future, continuing to provide a lasting legacy, educate, and lead in the field of sport and exercise medicine.

About us

Through world-class research, we are focused on developing a better understanding of the mechanisms of action underlying human movement. We are committed to understanding 'what works' to increase physical activity at population level, and to actively sharing and embedding this knowledge in practice. Basic science underpins everything we do from small scale pilot trials through to implementing change at a population level. This allows us to fully assess the health, wellbeing and economic benefits of physical activity, sport and exercise.

Through education we translate this research to the health and social care, and public health professions, equipping them with the tools they need to promote physical activity effectively.

Through the re-design of clinical services we are embedding physical activity as a core treatment in an attempt to improve patient outcomes and deliver a sustainable NHS.

We also work closely with elite sports people and leading sporting organisations, providing research discoveries that drive enhanced performance and developing improvements in clinical practice that support athlete health.

Three regional hubs

East Midlands

National Centre for Sport and Exercise Medicine

Loughborough University
Epinal Way
Loughborough
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Tel: 01509 222444
Email:
ncsem-em@lboro.ac.uk

London

Institute of Sport, Exercise and Health

170 Tottenham
Court Road
London
W1T 7HA
Tel: 020 3447 2800
Email:
info@iseh.co.uk

Sheffield

Advanced Wellbeing Research Centre

Sheffield Olympic
Legacy Park
Sheffield
S9 3TY
Tel: 0114 225 3399
Email:
info@movemoresheffield.com

NCSEM IN NUMBERS

RESEARCH

OVER

£65 MILLION

IN RESEARCH FUNDING

Our research is challenging the perceived limitations of athletic performance and exploring the ways physical activity and nutrition can positively benefit our health and quality of life. This innovative work in sport and exercise medicine underpins policy and practice, equipping people to make healthier lifestyle choices.

CLINICAL

OVER

1 MILLION

CLINICAL APPOINTMENTS

We have supported leading clinicians and healthcare professionals to provide a range of clinics and services for patients including:

Sport and exercise medicine
Musculoskeletal services
Sports respiratory medicine
Cardiac and pulmonary rehabilitation
Orthopaedics
Advanced brain health
Physiotherapy

EDUCATION

OVER

38,000

CPD AND EVENT ATTENDEES

We are supporting the education and training of both current and future healthcare professionals, equipping them with the tools they need to help people to be more active.

We run workshops and seminars at our regional centres on areas such as treating sporting injuries, hold continuing professional development classes for physical activity practitioners, as well as offering taught undergraduate and postgraduate qualifications in sport and exercise medicine. We also hold talks for the general public to disseminate research information and engage with a wider audience.

HIGHLIGHTS

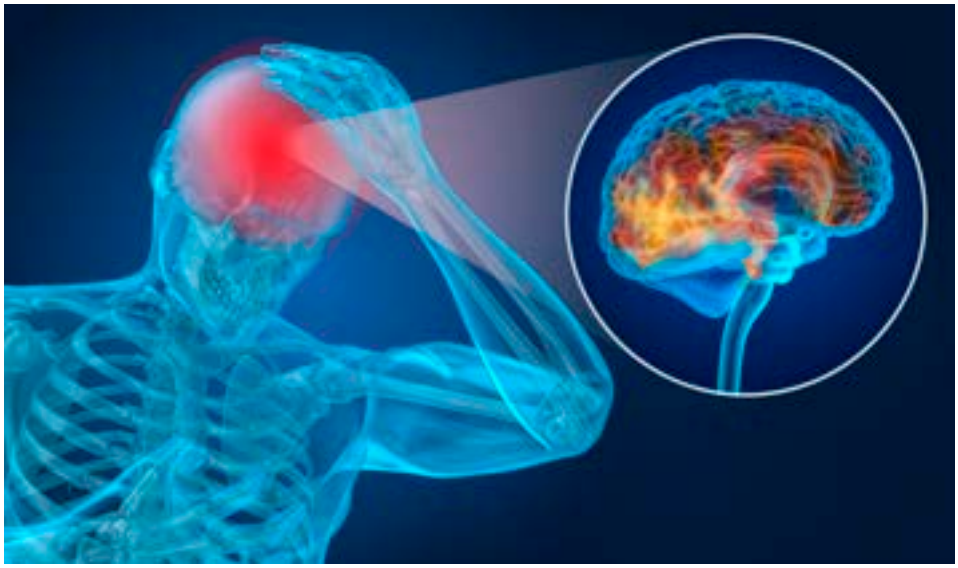
Some of the key projects we've worked on over the years.

The Advanced BRAIN Health Clinic at ISEH

The Advanced BRAIN Health Clinic at the Institute of Sport, Exercise and Health (ISEH) has been running in full swing since its high-profile launch in 2022. Led by Professor David Sharp and Dr Richard Sylvester, this specialist pathway offers a unique provision of clinical care combined with elite sport research. It includes advanced imaging, biomarker analysis and neurocognitive assessment for retired elite rugby and football players, who are assessed on three occasions over a four-year period for any time-related changes in brain health.

The clinic has assessed 58 footballers and 199 rugby players, with users of the clinic invited to share their experiences, providing constructive feedback on how the visits were structured and providing advice on the research study components. The clinic is delivered at the ISEH in partnership with Imperial College London, jointly funded by The Rugby Football Union and Premiership Rugby, and The Football Association.

More info here



HIGHLIGHTS

National Rehabilitation Centre

The National Rehabilitation Centre (NRC) will transform outcomes for people who have suffered potentially life-changing injury, trauma or illness, by fully integrating research, innovation, education and training with clinical practice. The NRC is a £105million programme which will create a 70-bed, purpose-built new facility as part of the Government's New Hospital Programme. The specialist NHS facility will be built on the Stanford Hall Rehabilitation Estate near Loughborough, home to the Defence Medical Rehabilitation Centre which opened in 2018.

The NRC is due to open in Summer 2025. With clinical services led by NUH NHS Trust, Loughborough University and the University of Nottingham are the two lead academic partners. Along with national network of 24 universities we will deliver improved education and training in the field of rehabilitation and deliver world-leading research and innovation that will help to transform clinical rehabilitation in the UK.

More info here

HIGHLIGHTS

Moving Healthcare Professionals evaluation

Moving Healthcare Professionals is a national programme, led by the Office for Health Improvement and Disparities (OHID) and Sport England, to support healthcare professionals to increase their knowledge and skills, and incorporate physical activity within routine care to support quality improvement and better patient outcomes.

The phase one programme evaluation was carried out by the National Centre for Sport and Exercise Medicine at Sheffield Hallam University and Loughborough University. The assessment of the Phase Two of the Moving Healthcare Professionals Programme (MHPP) was carried out by the National Centre for Sport and Exercise Medicine, research hubs at Sheffield Hallam University and Loughborough University and, global leader in market research, Ipsos.

The evaluation produced a series of findings, which were split into two areas – education, training and learning resources and creating system change – on how the promotion of physical activity influenced the workforce and the overall system and stakeholders.

More info here

HIGHLIGHTS

Exercise Neuroscience Research

Institute of Sport, Exercise and Health (ISEH) colleagues who specialise in exercise physiology have been collaborating with UCL colleagues specialising in neuroscience to undertake cutting-edge research investigating the impact of exercise and physical activity on brain activity and cognitive development. UCL has invested heavily in research equipment in this area. This new integrated equipment enables real time synchronised data collection and will allow the ISEH to deliver cutting edge research in exercise neuroscience, biomechanics and physiology.

The lab-based fNIRS equipment will enable the study of brain connectivity and changes in cortical activity following exercise. The portable fNIRS systems will enable school visits to study child cognitive development after physical activity interventions, and to collect pitch-side brain imaging changes before and after sport sessions. By integrating the biomechanical system (3D cameras, EMG, force plates) with the wireless brain fNIRS, the relationship between brain activity and movement can be examined.

More info here

HIGHLIGHTS

Centre for Lifestyle Medicine and Behaviour (CLiMB)

CLiMB involves world leading academics, researchers and health professionals who are working to provide high quality evidence to reduce preventable diseases in the population, and impact public health practice and policy. We are a Centre that brings together experts in behavioural science, clinical medicine and population health.

We collaborate with colleagues throughout the world, including CLiMB Ghana, and have been consistently awarded research funding from nationally competitive funding calls. The Centre has a focus on developing a critical mass of the next generation of leading researchers and on offering opportunities for collaboration and knowledge exchange.

More info here

HIGHLIGHTS

Move more empowering communities

Led by the NCSEM in Sheffield, Move More Empowered communities was designed to create the conditions to help people and communities move more where they live. This is done by understanding the approaches that are most likely to make this work, what helps, and what doesn't.

Move More Empowering Communities (MMEC) project aimed to support voluntary, community, faith, and social enterprise (VCSE) organisations across Sheffield work with communities with the lowest levels of physical activity. The aim was to work with these communities to understand what works to enable physical activity at a local level, what factors affect this, and ultimately enable more people to be active in ways and places that suit them.

In the Empowered Communities project, we wanted to look at what worked well and support the things, places, and people who do provide physical activity opportunities to grow. Or, try to introduce physical activity elements to things, places, or people who don't do physical activity already but do support people in other ways.

More info here

HIGHLIGHTS

The Role of Physical Activity in the Cognitive Development of Children

The ISEH has developed highly valued partnerships with the charities Greenhouse Sports, Active Movement and Volunteers Foundation, as well as with the UCL Institute of Cognitive Neuroscience. These partnerships have enabled the development of some interesting research opportunities, particularly investigating the role of physical activity in supporting the cognitive development of children.

There is increasing evidence supporting the value of physical activity throughout childhood. However, with schools and families under a range of different time and financial pressures, physical activity is often not prioritised. The goal of this research at the ISEH is to provide further evidence calling for a change in government policy to ensure all children have the opportunity for physical activity.

Within this theme the research team is exploring the times of day when physical activity would be most beneficial, the most advantageous type of activity, intensity and duration, and how the benefits of physical activity relate to other lifestyle factors such as body composition or socioeconomic status.

HIGHLIGHTS

Spinal Cord Injury exercise guidelines

Researchers from the NCSEM-EM and the Peter Harrison Centre for Disability Sport together with colleagues in Canada have developed scientific guidelines to inform people with spinal cord injury (SCI) how much exercise is necessary for important fitness and health benefits. The guidelines, developed through a series of consensus panels, are now being shared with local spinal cord injury communities.

Physical activity guidelines for this population are crucial as studies have shown that people with spinal cord injury are among the most physically inactive and deconditioned individuals compared to the general population. People with SCI face many challenges and barriers to physical activity participation, while physical responses to exercise also change in this population due to muscle paralysis and an impaired nervous system.

More info here

HIGHLIGHTS

#EasierToBeActive

One in three peoples in England live with a health condition. Those with a health condition are twice as likely to be amongst the least physically active, yet we know that being active can help to manage conditions and increase quality and length of life.

Researchers at Sheffield Hallam University led the #EasierToBeActive project which explored the ways people with long-term health conditions can be helped to lead a more active lifestyle. The project consisted of three phases:

- Phase 1 – an online conversation (March-May 2020)
- Phase 2 – interviews with leaders in the physical activity system (September 2020 – February 2021)
- Phase 3 – a second online conversation to test and refine the findings (April – June 2021)

The collective insight from the conversations has been used to co-create new insight and recommendations for those who provide, design, commission and deliver sport, physical activity and health and care services so that we can improve the experience of being active for people with health conditions.

More info here

HIGHLIGHTS

Knee & Hip Biomechanical Analysis Pre & Post Operations

The ISEH prides itself in bringing together clinicians, researchers and the health and sports sector to collaborate in producing cutting-edge research that has positive real-life implications. A good example of this is the work being undertaken by Prof. Fares Haddad and Dr Dia Giebaly in undertaking the first study of its kind to examine the gait biomechanical analysis of patients that have undergone robotic assisted knee and hip surgery.

There is growing evidence that robotic assisted knee and hip surgery has improved the accuracy of implant positioning resulting in better functional outcomes of these joints post-operation in comparison to more conventional surgical procedures on these joints. This study is looking to increase the understanding of the actual functional outcomes on the joints, patient satisfaction and gait analysis following this type of surgery and comparing it with more conventional methods.

HIGHLIGHTS

CPD for clinicians

The NCSEM was established with a mission to improve the health and wellbeing of the nation through sport, exercise, and physical activity. One of the ways this has been done is through training and development for clinical practitioners.

For example, medics such as Professor Patrick Wheeler were enabled to complete Clinical PhDs while continuing their medical practice. Patrick completed his clinical PhD at Loughborough University looking at the medical management of tendinopathy and what treatments work for people with chronic pain. The PhD was completed part time over five years. Working and doing research at the same time allowed him to continue his work as a consultant in Sport and Exercise Medicine for the University Hospitals of Leicester NHS Trust (UHL).

This has enabled him to become more involved in research happening within the NCSEM which he can apply to his day-to-day practice. It has also created opportunities for him to teach on postgraduate programmes at Loughborough University. Patrick feels this has given him the opportunity to give variety to his role and expanded his knowledge and clinical practice.

Find out more about Patrick's career

Influence on policy

The NCSEM continues to influence national policy relating to sport, physical activity and health. Our work has led to changes to the rules of the game for some sports such as paratriathlon. It has also made lasting impact on others such as 3x3 wheelchair basketball, where our work has helped lead to the sport's inclusion on the Commonwealth and Paralympic Games programmes and making the game accessible to a wider population.

Our experts are often invited to sit on the groups developing new guidelines around physical activity and health, for example the latest Chief Medical Officer physical activity guidelines, NICE guidance around physical activity and health.

Future direction of NCSEM

Through collaboration with external partners and working closely together across the three regional hubs we intend to continue to lead the development of sport and exercise medicine to positively impact the health of the nation.

Through strategic partnerships with academic institutions, healthcare providers, and industry leaders, the NCSEM will ensure that the latest scientific research is translated into practical applications. These collaborations will also enable the sharing of knowledge and resources, driving forward the collective expertise in the field.

The NCSEM is committed to reaching out to communities, promoting physical activity and wellbeing among the general population. Through education, clinical practice and influencing policy the NCSEM encourages individuals of all ages and backgrounds to adopt healthier lifestyles having a lasting positive impact on the nation's health and well-being, reducing the prevalence of lifestyle-related diseases and improving the quality of life for many.

National Centre for Sport & Exercise Medicine
Working for Health & Wellbeing

We would like to thank our partners for their continued support of the NCSEM

NCSEM East Midlands

Loughborough University
Nottingham University Hospitals NHS Trust
University Hospitals of Leicester NHS Trust
University of Leicester
University of Nottingham

NCSEM London

British Olympic Association
UK Sports Institute
HCA Healthcare UK
UCL
University College London Hospitals NHS Foundation Trust

NCSEM Sheffield

Sheffield Chamber of Commerce and Industry
Sheffield Children's NHS Foundation Trust
Sheffield City Council
Sheffield City Trust
Sheffield Hallam University
Sheffield Health and Social Care NHS Foundation Trust
Sheffield Teaching Hospitals NHS Foundation Trust
South Yorkshire Housing Association
South Yorkshire Integrated Care Board
South Yorkshire Integrated Care System
The University of Sheffield
UK Sports Institute - Sheffield
Voluntary Action Sheffield
Yorkshire Sport Foundation

To watch a short video of NCSEM highlights as well as find out more about the projects mentioned in this report please visit **www.ncsem-em.org.uk/highlights**

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