

**Collaborating partners** – Nottingham University Hospitals NHS Trust, University of Nottingham, University of Oxford, University of Southampton, University of Bath, Loughborough University, Leeds University and University College London

Osteoarthritis is the most common form of arthritis, affecting millions of people around the world. Osteoarthritis occurs when the protective cartilage on the ends of bones wears down over time. The disease most commonly affects the middle-aged and elderly, although younger people can be affected as a result of injury or overuse. Osteoarthritis primarily affects the knees, hands, hips, feet, and spine.

We know that some individuals will sustain acute severe sports injuries in contact or collision sports such as rugby or football. We also know that other groups of individuals develop overuse injuries through hours of participation in non-contact sports such as tennis or rowing. However, we lack fundamental knowledge in understanding who gets injured and why. Similarly there is a poor understanding of who does well or badly following injury, and why some people develop debilitating osteoarthritis.

Regular exercise is vital for health and to keep joints healthy and the benefits of exercise far outweigh the risk of injury. Everyone can benefit from some form of exercise, regardless of their condition.

**The aim of this collaborative Centre is to better understand the number and nature of sports injuries based on studies of athletes currently or recently in training, and analyses of sportspersons whose careers have finished but are now left with disabling osteoarthritis. We hope these studies will give us insight into the processes producing degenerative joint disease post-injury and lead to effective prevention and treatment strategies. The Centre will look at prevention of injuries happening in the first place, understanding why some injuries can lead to osteoarthritis, whether it is possible to prevent or slow down the degeneration of the joint and attempt to predict who will develop symptomatic osteoarthritis post-injury.**

The Centre will deliver four comprehensive and linked work packages:

**WP1** will describe the **epidemiology** of sport, exercise and injury with OA across the full spectrum of exercisers (general population to elite athletes) and produce a clinical risk prediction tool

**WP2** will examine **mechanisms, biomarkers and intermediate phenotypes** of osteoarthritis in athletes

**WP3** will design **clinical trials** assessing current and develop novel surgical and non-surgical interventions of sports injuries with the aim of informing injury/sport specific intervention packages

**WP4** will focus on the **translation** of our research into routine practice for the benefit of patients and society

