

UQ pioneers research to reduce post-knee surgery osteoarthritis

30 November 2012

Young people who have the potential to experience osteoarthritis in the knee post reconstructive surgery will benefit from pioneering research at The University of Queensland.

[School of Health and Rehabilitation Sciences](#) PhD Candidate Adam Culvenor is the first to explore the mechanisms behind the development of osteoarthritis in the knee cap after anterior cruciate ligament (ACL) reconstruction.

Whilst many researchers have examined alterations in knee biomechanics after ACL injury and reconstruction, Mr Culvenor's research is unique as it examines the biomechanics between those with and without osteoarthritis after ACL reconstruction.

ACL reconstruction is a common operation in young active people who have ruptured the ACL of their knee and reconstructive surgery is normally aimed at restoring stability of the knee and to allow the person to return to sports and other high-impact activities.

" Although these aims are frequently achieved, it is known that people who have undergone an ACL reconstruction are at increased risk of developing knee osteoarthritis in the future," Mr Culvenor said.

" One of the parts of the knee that is commonly affected by osteoarthritis is the patellofemoral joint or knee-cap, however very little is known about osteoarthritis after reconstruction.

" My research is focused on evaluating the prevalence of osteoarthritis after ACL reconstruction and the potential mechanisms for its development and effects on biomechanics, symptoms, function and quality of life."

To achieve this, Mr Culvenor is undertaking a biomechanical evaluation of people with and without knee-cap osteoarthritis nine years after ACL reconstruction to determine any differences and a functional, symptomatic and radiographic evaluation of 120 people 12 months after reconstruction.

Each participant will be examined via magnetic resonance imaging (MRI) to determine if early changes are occurring and predict those at greater risk of developing osteoarthritis.

Mr Culvenor said ACL rupture occurred typically in people less than 30 years of age.

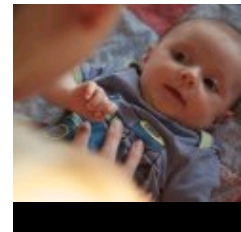
He said up to 90 per cent of people who injured their ACL would develop knee osteoarthritis within 20 years of the injury; the onset of which was some 15 years earlier than expected for the general population.

" Young people who develop osteoarthritis may have pain, decreased function and sports participation, and ultimately a decreased quality of life for many years; young people with old

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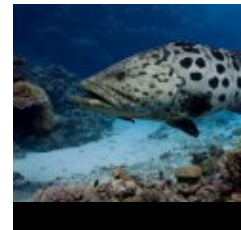
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knees," he said.

" Early onset osteoarthritis after ACL reconstruction ultimately increases the likelihood of joint replacement surgery at a younger age which has obvious and extensive implications for public health spending, not to mention the personal impact on the individual' s health.

" By the time these patients have developed knee osteoarthritis, there is no cure, only attempts to slow down the progression to delay the need for joint replacement surgery."

This provided the incentive for a literature review recently published in the British Journal of Sports Medicine, with Mr Culvenor as the lead author.

Mr Culvenor said he hoped his research would provide valuable information for optimising surgical techniques, management of post-injury and post-operative inflammation, and the pursuit of targeted rehabilitation.

Media Contact: Kirsten Rogan, Communications and Media, University of Queensland Faculty of Health Sciences, 07 3346 4713, 0412 307 594, or k.rogan@uq.edu.au

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