

Labral pathology predicts articular cartilage loss over 2/3-years in young adult football players: Findings from the femoroacetabular impingement and hip osteoarthritis cohort study

Joshua Heerey¹, Anne Smith², Felix Gassert³, Johanna Luitjens³, Rich Souza^{3,4}, Mark Scholes¹, Matthew King¹, Peter Lawrenson⁵, Rintje Agricola⁶, Andrea Mosler¹, Sharmila Majumdar³, Thomas Link³, Joanne Kemp¹ and Kay Crossley¹




! Young adult football players with hip and/or groin pain have a high prevalence of labral tears

? No longitudinal studies have been undertaken in football players to understand the role of labral tears in the progression of articular cartilage loss

Aim: to examine if baseline acetabular labral pathologies predict articular cartilage loss over 2/3-years in football players with longstanding hip/groin pain

Methods



Femoroacetabular impingement and osteoarthritis cohort (FORCe) study

Symptomatic football players (n=182)

Main eligibility
Aged 18-50 years, >6 months hip and/or groin pain, +ve FADIR test

Hip classification
Symptomatic hips: hip and/or groin pain and +ve FADIR test

3T hip MRI at baseline & 2/3-year follow up

Scoring Hip Osteoarthritis with MRI
used to quantify labral tears and change of cartilage defects

Two blinded musculoskeletal radiologists evaluated all baseline and follow-up MRIs

Data analysis
Negative binomial regression models were used to estimate if labral pathologies predicted cartilage loss (adjusting for sex, age and BMI) with incidence rate ratios (IRR) with associated 95% confidence intervals and p values presented

Labral tears

- Assessed in 4 subregions (anterior, anterosuperior, superior and posterior)
- Classified as present if a grade ≥ 2
- Five predictor variables were determined:
 - Labral tear presence (grade 2 or higher)
 - Subregion location
 - Number of subregions with a labral tear
 - Maximal labral score
 - Presence of paralabral cysts

Articular cartilage loss

- Assessed in 10 subregions
- Articular cartilage sum score (0-20) was determined for baseline and follow-up
- Articular cartilage change score (difference between baseline and follow-up) was determined for each hip with values >0 indicating cartilage loss

Results

143 of 182 (79%) symptomatic football players completed baseline and 2/3-year hip MRIs

Symptomatic hips: n=222/Age 26 (IQR 9)/22% female

Labral tears were present in 74% of hips **50% of hips had cartilage loss (change score of ≥ 1)**

Five predictor variables

Labral tear presence (grade 2 or higher)	Location (anterior, anterosuperior, superior, posterior)	Number of subregions with a labral tear (0-4)	Maximum labral score (0-5)	Paralabral cyst (present/absent)
IRR: 1.17 95%CI 0.84, 1.63 p=0.345	Anterior labral tears IRR: 1.69 95%CI 1.07, 1.63 p=0.023	≥ 3 subregions IRR: 1.90 95%CI 1.11, 3.3 p=0.022	Max labral score of 5 IRR: 2.62 95%CI 1.30, 5.3 p=0.007	IRR: 1.84 95%CI 1.23, 2.75 p=0.003

★ ★ ★ Conclusion ★ ★ ★

Specific labral pathologies predicted articular cartilage loss over 2/3-years in football players with hip/groin pain

The findings highlight the importance of the acetabular labrum to hip joint function and the role of labral tears in early hip osteoarthritis development in football players

For information: j.heerey@latrobe.edu.au