

# Evaluating the Prevalence of Signs and Symptoms Associated with Femoroacetabular Impingement Syndrome in Youth Ice Hockey and Ringette

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## INTRODUCTION

- Femoroacetabular impingement (FAI) syndrome is a known cause of anterior hip pain, and a recognized cause of Osteoarthritis
- It is known to disproportionately affect ice hockey athletes
- Early recognition and intervention may be critical to prevent progression and morbidity of the syndrome

## MATERIALS AND METHODOLOGY

**Cross-Sectional Design** - ice hockey/ringette athletes aged 14-24 (primarily team participation)

**Screening Protocol:** (1) focused hip history (2) clinical assessment for suspected FAI syndrome (3) iHOT-33

*Clinical assessment:* passive range of motion (p-ROM); strength testing; special tests (AB-HEER, AIMT, IROP, FADIR, FDT, MST)

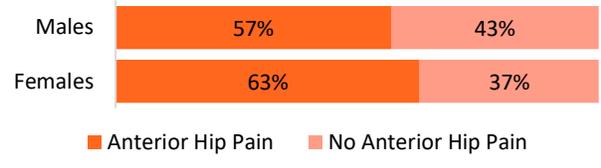
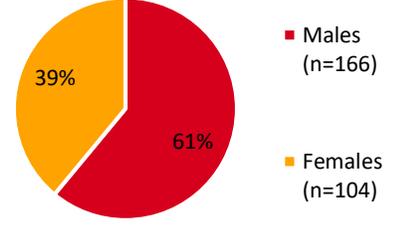
**Statistical Analysis:** logistic regression analysis was performed to determine the odds of a hip being symptomatic (suggesting FAI syndrome) with consideration for potential risk factors [i.e., clinical measures (p-ROM IR, abduction/SLR strength, special tests), sex, age, iHOT-33, years in sport]

Abbr: AB-HEER, abduction-hyperextension-external rotation; AIMT, anterior impingement test; IROP, internal rotation overpressure; FADIR, flexion adduction internal rotation; FDT, flexion-abduction-external rotation (FABER) distance test; MST, maximal squat test; IR, internal rotation; SLR, straight leg raise

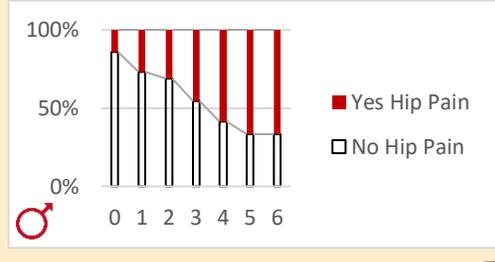
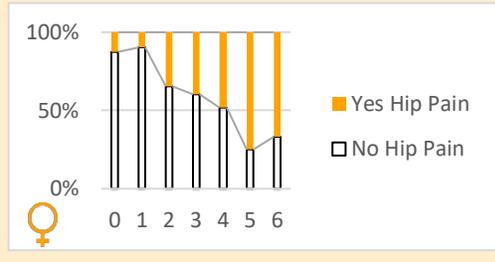
## Objective

Investigate presence of signs and symptoms (S&S) associated with FAI syndrome in ice sport using a novel, screening protocol with a cluster of tests for FAI syndrome

Participants  
(n hips=540)



## KEY FINDINGS



- > Larger proportion of male participants were goalies (male=43%) compared to females (13%): **male goalies** display higher odds of reporting anterior hip pain **Odds Ratio (OR) = 2.85, 95%CI: 1.38-6.00 (relative to other positions)**
- > No p-ROM restrictions evident in females; males with hip pain reported restricted p-ROM in flexion (with: 124°, 95%CI:122-125; without:126°, 95%CI:124-127, t=1.81, p=0.04), adduction (with=26°, 95%CI:25-27; without=28°, 95%CI:27-29; t=.21, p=0.01), and internal rotation (with=31°, 95%CI:30-33; without=34°, 95%CI: 33-35; t=2.86, p=0.002)
- > Adjusted models showed **FADIR (OR=2.16, 95%CI:1.30-3.60)** and **MST (OR=1.69, 95%CI:1.30-3.60)** were associated with increased odds of reporting hip pain, higher **iHOT-33** scores were inversely related (**OR=0.96, 95%CI:0.95-0.98**)
- Males and females exhibit similar proportions in the number of positive findings (max 6) on special tests, whether they experience hip pain or not. As the number of positive tests increases, the proportion of individuals with hip pain tends to rise.

## CONCLUSION

- The high prevalence of symptomatic hips and identification of significant covariates such as a positive FADIR test provide foundational evidence supporting hip screening in youth athletes at risk of developing FAI syndrome
- Evidence that a cluster of tests may be useful in the setting of FAI syndrome, though imaging is required to investigate this significance

## Significance

Findings from the present study provide evidence to support the use of a screening protocol in at risk youth sport participants. Future research is necessary to investigate the effectiveness of such methods, and subsequent intervention.

