Characterizing the Prevalence of Cam-Type Hip Impingement in Professional Women’s Ice Hockey Players

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BACKGROUND
Recent studies have demonstrated a high prevalence of femoroacetabular impingement (FAI) in elite men’s ice hockey players, yet little is known about the hips of elite women’s ice hockey players.

OBJECTIVES
• The purpose was to determine the prevalence of radiographic cam-type FAI in professional women’s ice hockey players in the National Women’s Hockey League (NWHL).
• The secondary purpose was to analyze the relationship between the presence of cam deformity and:
  - Hip Range-of-Motion (ROM)
  - Age of menarche

METHODS
• Data collected at 2018 pre-participation physicals
  - ROM measured with goniometer
  - FLEX, EXT, ABD, ADD, IR, ER
• Alpha angles measured on 45° Dunn XR
  - Alpha angle >55° → cam-positive
  - Each hip measured 3 separate times by 4 investigators: 2 residents, 1 fellow, 1 attending
• One-way ANOVA, independent means t-test and Pearson correlation coefficient calculated
  - Statistical significance set at p<0.05

RESULTS
• 26 female athletes
• Average age = 25.1 ±2.8 years
• Average menarchal age = 13.8 ±1.7 years
• Cam lesion prevalence:
  - 24 players (92%) with cam-positive hip
  - 20 players (77%) with bilateral cam-positive hips
• Average alpha angle = 59.8 ±4.9°
• Cam lesion associations:
  - No association between alpha angle and ROM, p>0.05
  - Significant positive association between age of menarche and alpha angle, p<0.02

CONCLUSIONS
• Elite female ice hockey players have a higher prevalence of cam morphology than the general population.
• The positive association between alpha angle and age of menarche supports the etiological hypothesis of the cam lesion resulting from activity-related stress at the proximal femoral physis during a period of physiologic vulnerability.

SIGNIFICANCE
Professional women’s ice hockey players have a high risk of developing cam-type morphology of the proximal femur, although each player’s age of menarche may mediate her individual risk for cam lesion development.