



INTERNATIONAL SOCIETY
FOR HIP ARTHROSCOPY

Symptomatic FAI and Dysplasia in Women's Professional Soccer

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Disclosures

- JDH: Editorial Board (Arthroscopy; Frontiers In Surgery); Paid consultant (Smith & Nephew); Royalties (SLACK Incorporated); Research support (Smith & Nephew, Depuy Synthes); Committees (AOSSM SAE, AANA Research, AAOS OAFP WG PM)
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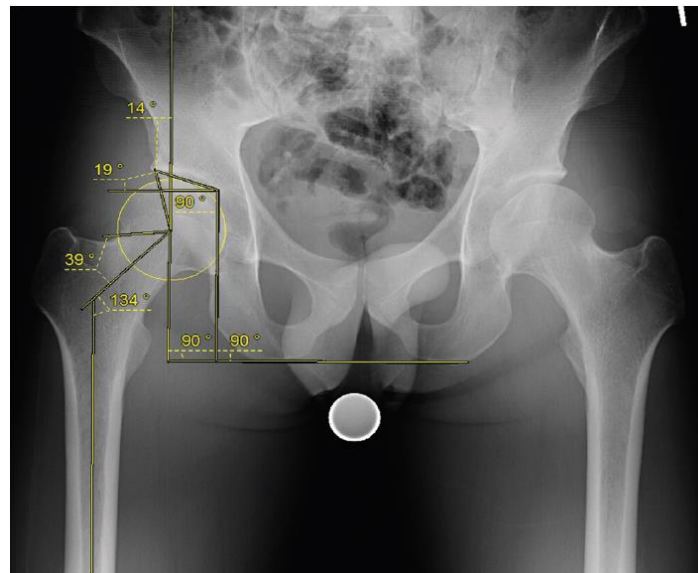
Introduction

- Symptomatic FAI is a common source of symptoms and decreased performance in soccer
 - Loss of motion (flexion, rotation [IR, ER, IR+ER])
- Symptomatic dysplasia is a common source of symptoms and decreased performance in soccer
 - May demonstrate increased motion (flexion, abduction, rotation [IR, ER, IR+ER])



Purpose

- In female professional soccer players, to determine:
 1. The prevalence of symptomatic FAI and dysplasia morphologies
 2. The plain radiographic parameters that are significantly associated with hip range of motion

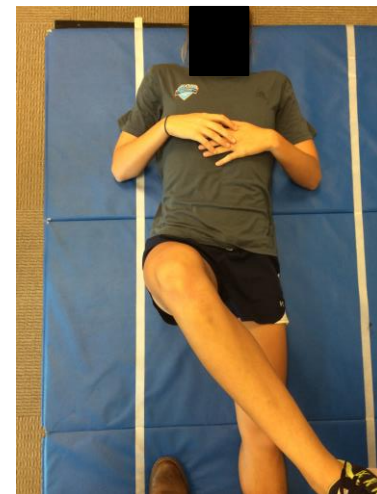
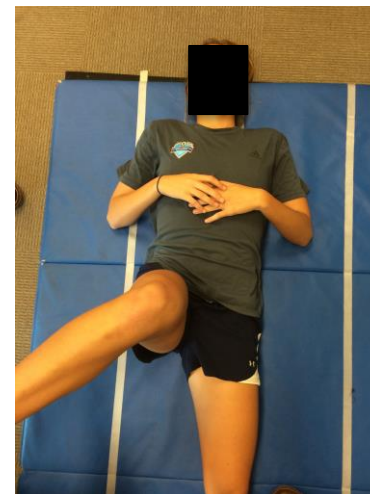


- Cross-sectional evaluation of professional women's soccer (National Women's Soccer League) in US
- Adult players without prior hip surgery were eligible
- Hip motion (flex, IR, ER, abduction) – digital photo
- Impingement exam (ant, subspine, lat, post)
- Radiographs (AP pelvis, false profile, Dunn 45°, 90°)
 - Cam, pincer, dysplasia, OA
- Statistics
 - Pearson/Spearman correlations (ROM vs radiographs)
 - Binary logistic regression (radiographs vs pos impingement)

- **24 subjects (48 hips; 25.4+/-3.0 years; 2.8+/-2.2 years in experience in NWSL)**
 - 54% cam
 - 52% pincer
 - 23% dysplasia
 - 50% borderline dysplasia
 - 96% Tonnis grade 0
 - 69% crossover sign
 - 48% posterior wall sign
 - 38% ischial spine sign
 - Alpha angle Dunn 45: 57.8+/-7.8°
 - Head-neck offset: 5.2+/-1.4 mm
 - HNOR: 11.0+/-3.0%
 - Neck-shaft angle: 128+/-4.4°
 - LCEA: 23.5+/-5.0°
 - ACEA: 28.6+/-4.0°
 - Tonnis angle: 6.8+/-3.1°
 - Extrusion index: 15.9+/-6.4%

Results

- **Range of motion:**
 - Flexion: 128°
 - Abduction: 71°
 - IR: 28°
 - ER: 38°
 - IR+ER=66°
 - Strong correlation observed between NSA and hip flexion (Left: $R=-0.45$, $p=0.03$; Right: $R=-0.41$, $p=0.04$)



- **16 hips (33%) had positive anterior impingement sign**
 - **Left: Model was statistically significant, $\chi^2(13)$; $p=0.007$**
 - Model correctly predicted 100% of cases
 - IR ($p<0.001$), ER ($p<0.001$), and IR+ER ($p<0.001$) all contributed to positive anterior impingement test
 - **Right: Model was not significant, $\chi^2(13)$; $p=0.72$**
 - Model correctly predicted 75% of cases
 - IR ($p<0.001$), ER ($p<0.001$), and IR+ER ($p<0.001$) all contributed to positive anterior impingement test

- There is a high radiographic prevalence of both FAI, dysplasia in women's professional soccer
- One out of three hips demonstrates impingement on physical exam
 - IR, ER, IR+ER are associated with a positive anterior impingement sign
- Neck-shaft angle is significantly correlated with hip motion

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