

# **Hip Morphology and Outcomes of Hip Arthroscopy in Soccer Athletes: A Comparison to a Cohort of Non-Kicking Athletes**

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# Disclosures

- **Ryan Degen, MD**
  - **I have no financial relationships to disclose**

# Intro

## - Background:

- The cam deformity in femoroacetabular impingement (FAI) is theorized to form in response to high activity levels during adolescence
  - Particularly with participation in cutting and pivoting sports, such as soccer, football and ice hockey <sup>1,2,3</sup>
- In addition to cutting and pivoting, soccer involves repetitive, forceful kicking, requiring muscular contraction of the rectus femoris
- While kicking has been associated with acute anterior inferior iliac spine (ASIS) avulsion<sup>4-6</sup>, the effect of repetitive stress on AIS morphology and subsequent subspine impingement is unknown

# Intro

## - Purpose:

- To describe the AIIIS morphology and subsequent clinical outcomes following arthroscopic surgical decompression in a group of high-level soccer athletes presenting with symptomatic hip impingement.
- To compare these results with a control group of non-kicking athletes who also underwent arthroscopic treatment for symptomatic FAI

## - Hypothesis:

- Soccer players will have a higher proportion of type II and type III subspine morphology, compared with non-kicking athletes;
- However, their clinical outcome scores following surgical treatment will not differ



# Methods

## - Patient Identification

- Retrospective review of our prospectively-collected hip registry from 2009 to 2013,
- Inclusion criteria: alpha angle  $> 50^\circ$ , soccer as primary sport, follow-up  $> 2$  years
- Matched, control cohort of patients with non-kicking sports as primary sport

## - Data Collection

- Demographics, radiographic parameters, operative details recorded
- Patient-reported outcomes collected at 6 weeks, 3 months, 6 months, 1 year and 2 year
  - Modified Harris Hip Score (mHHS)
  - Hip Outcome Score – Activities of Daily Living (HOS-ADL) and Sport-specific subscale (HOS-SSS)
  - International Hip Outcome Tool (iHOT-33)

# Results

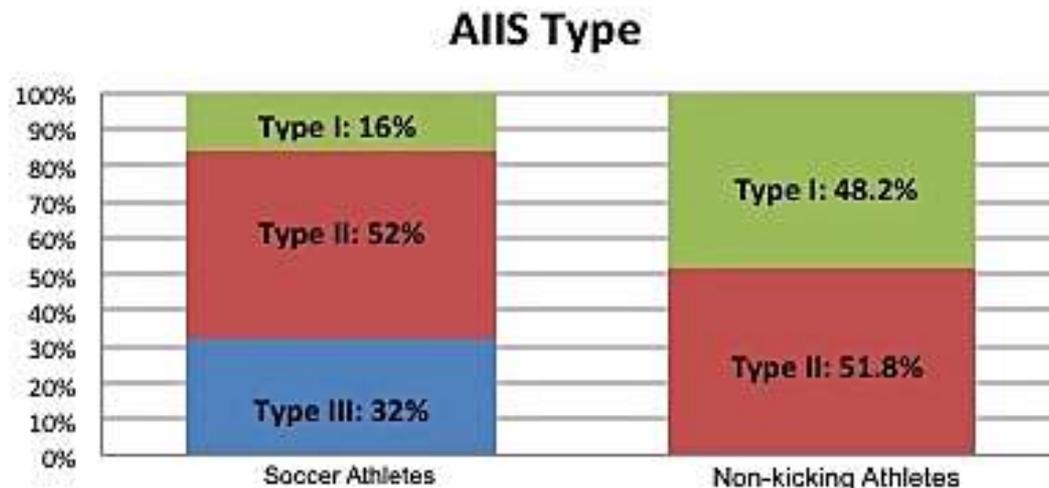
## - Demographics

- Twenty six soccer players (34 hips) and 87 non-kicking athletes (115 hips) were identified.
- Age ( $19.2 \pm 4.1$  vs.  $20.1 \pm 3.8$  years) and gender distribution (53.8% vs. 51.7% male), were similar between the soccer and non-kicking athletes ( $p > 0.288$ )

# Results

## - Subspine Morphology

- Eighty-four percent of soccer players demonstrated some abnormality of the AHS extending to (Type II, 52%) or below the anterior acetabular rim (Type III, 32%), compared to 52% non-kicking athletes ( $p < 0.001$ )



# Results

## - Intra-operative data

	Soccer	Non-kicking Cohort	p-value
Cam decompression	85.30%	97.40%	<b>0.016*</b>
Rim decompression	44.10%	23.70%	<b>0.020*</b>
Subspine decompression	82.40%	69.30%	0.771
Cam, rim, and subspine decompression	35.30%	22.80%	0.144
Ligamentum teres debridement	2.90%	10.50%	0.300
T-capsulotomy closure	100%	100%	1.0
Interportal Capsular closure	76.50%	92.10%	<b>0.027*</b>
Labral Debridement	20.60%	18.40%	0.364
Labral Repair	73.50%	79.80%	0.364

# Results

## - Patient Reported Outcomes

- There were statistically significant improvements on all immediate and final post-operative PROM (mHHS, HOS-ADL, HOS-SSS and iHOT-33,  $p < 0.001$ ) in both groups
- There were no statistically significant differences between groups in:
  - mHSS:  $89 \pm 14.6$  vs.  $88.2 \pm 14.4$ ,  $p = 0.804$
  - HOS-ADL:  $94.1 \pm 9.1$  vs.  $92.2 \pm 11.1$ ,  $p = 0.431$ ;
  - HOS-SSS:  $86 \pm 17.1$  vs.  $81.3 \pm 24.3$ ,  $p = 0.362$ )
- There was a statistically significant difference in iHOT-33, with the soccer group demonstrating a better outcome score at final follow-up
  - iHOT-33 ( $81.7 \pm 19$  vs.  $70.3 \pm 23.6$ ,  $p = 0.027$ )

# Discussion

## - Conclusion

- High-level soccer players have a significantly higher rate of subspine impingement compared to non-kicking athletes.
- There should be a high index of suspicion for subspine impingement when treating soccer players for FAI
- However, appropriate recognition and treatment can yield excellent clinical results, comparable to those in a matched cohort of non-kicking athletes

# References

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# Thank You

