MIDWEST ORTHOPAEDICS AT RUSH

RUSH UNIVERSITY MEDICAL CENTER

Normative LCEA Values Predict Clinically Significant Outcomes following Primary Hip Arthroscopy

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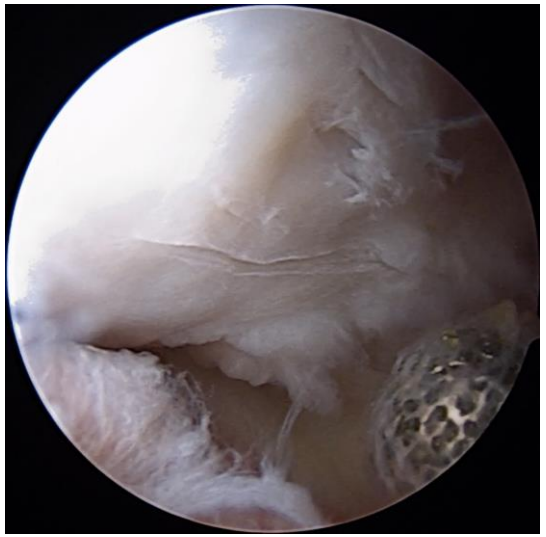
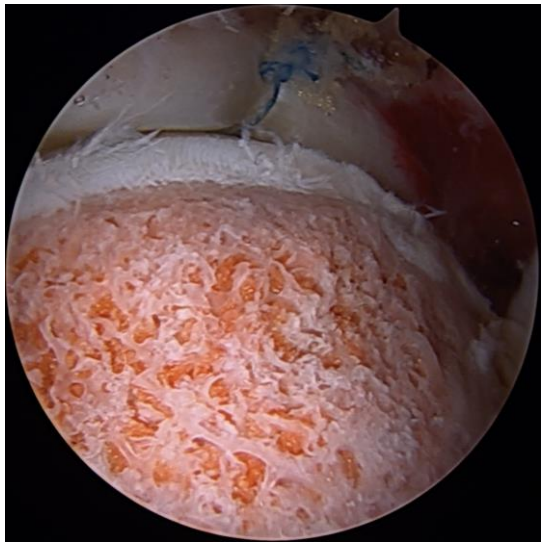
Disclosures

▪ Mario Hevesi, MD, PhD:	Moximed, LLC, Journal of Cartilage and Joint Preservation
▪ Morgan W. Rice, MD	Nothing to Disclose
▪ Reagan S. Chapman, MD:	Nothing to Disclose
▪ Shane J. Nho, MD, MS:	Allosource, AJO, AOSSM, Arthrex, AANA, Athletico, DJ Orthopaedics, Linvatec, Miomed, Ossur, Smith & Nephew, Springer, Stryker

Background

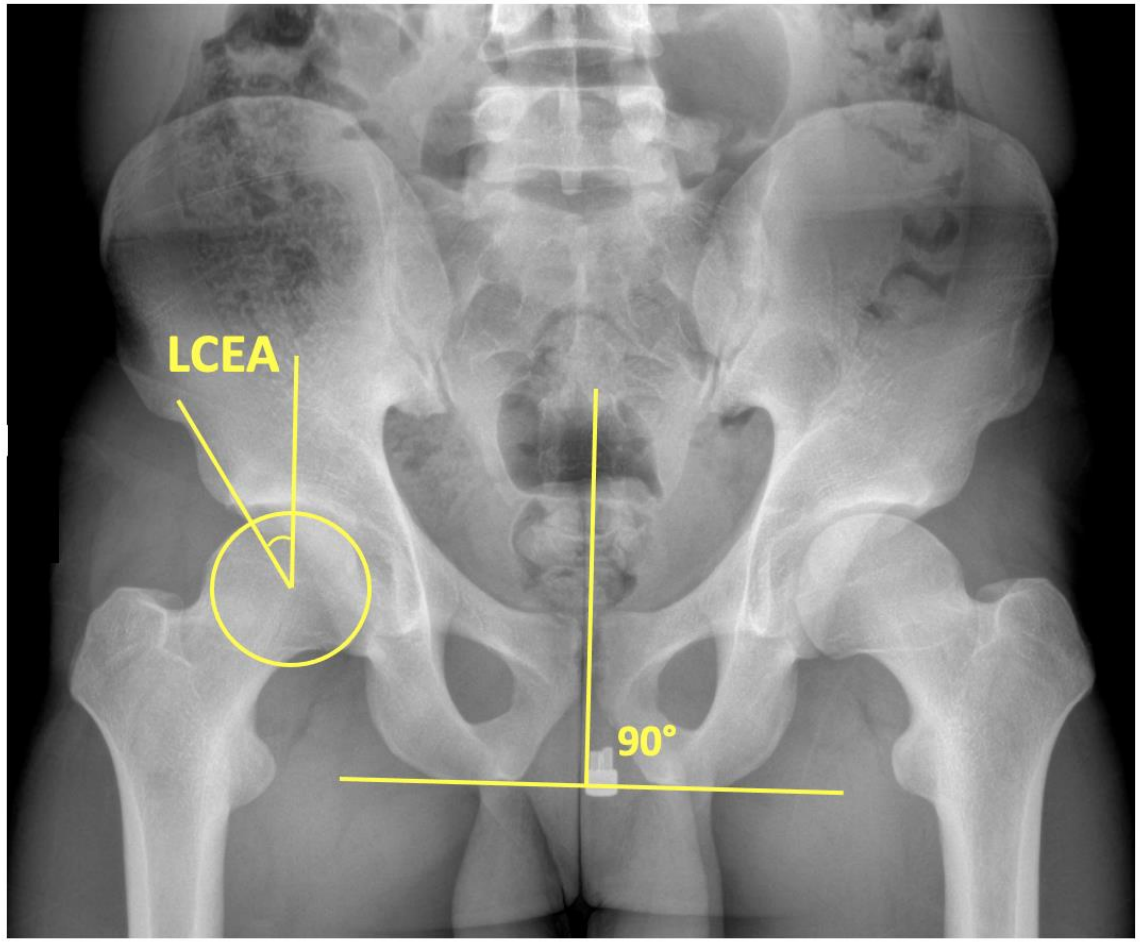
- Hip arthroscopy is advancing and becoming more commonly performed[1]
- Evidence supports contemporary techniques[2]:
- Predictors of mid-term outcomes, particularly as they relate to granular measures of acetabular coverage, remain controversial





1. Hevesi et al., *AJSM*, 2018.
2. Nho et al., *CRMM*, 2019.

Evaluating Lateral Center Edge Angle:



LCEA

Dysplasia: < 25°

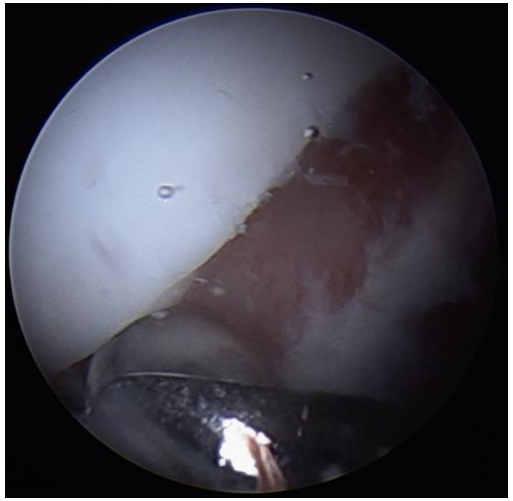
Normal: 25 – 40°

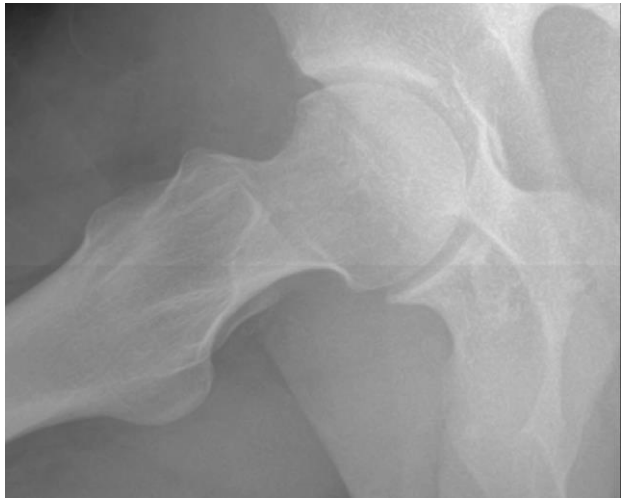
Pincer: > 40°

How does this affect subjective outcomes?

Purpose:

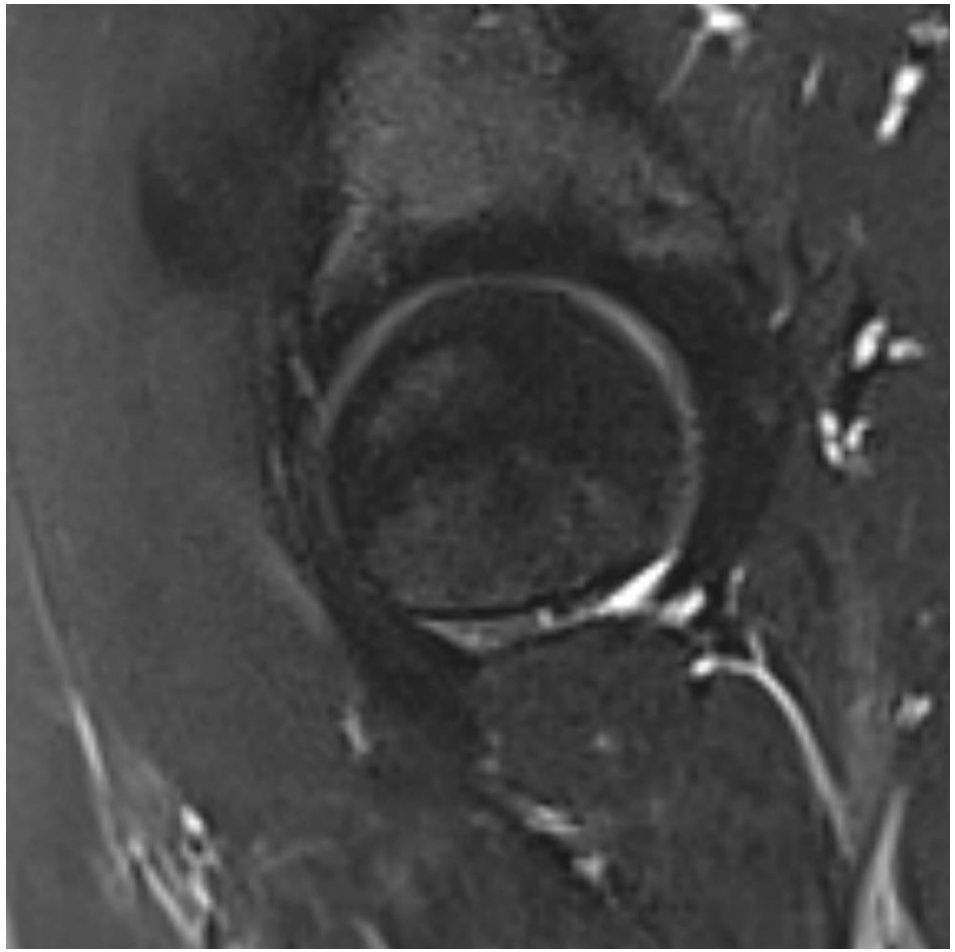
- To determine the relationship between preoperative LCEA and likelihood of achievement of clinically significant outcomes (CSOs) following primary hip arthroscopy





Methods:

- Hip Arthroscopy 2013 – 2016
- <u>Radiographic Measure of Interest:</u>
  - **LCEA**
- <u>Patient Reported Outcomes (Collected preoperative at at 5-years postoperatively):</u>
  - mHHS
  - HOS-ADL
  - HOS-SS
  - iHOT-12
- <u>Endpoint:</u> MCID, PASS, SCB at 5 Years



MCID: Minimal Clinically Important Difference **PASS: Patient Acceptable Symptom State** **SCB: Substantial Clinical Benefit**

Methods:

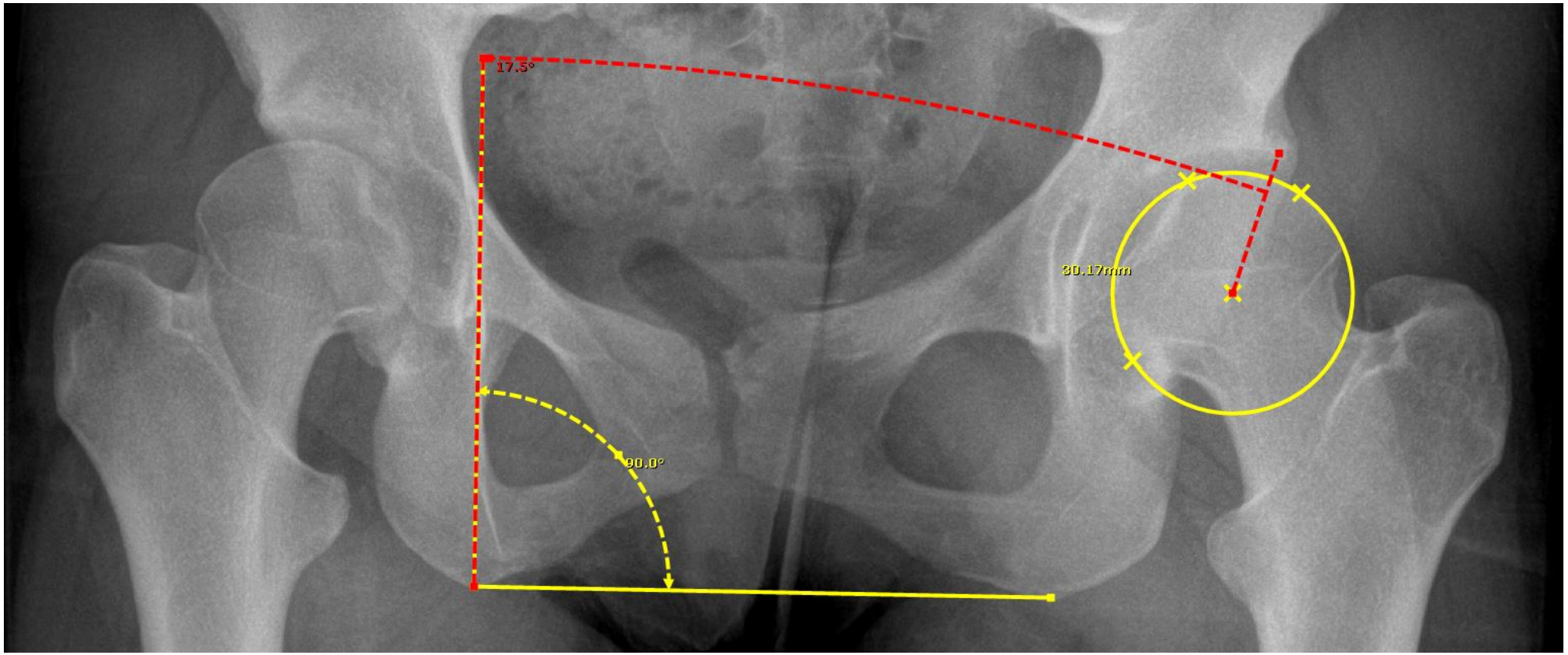
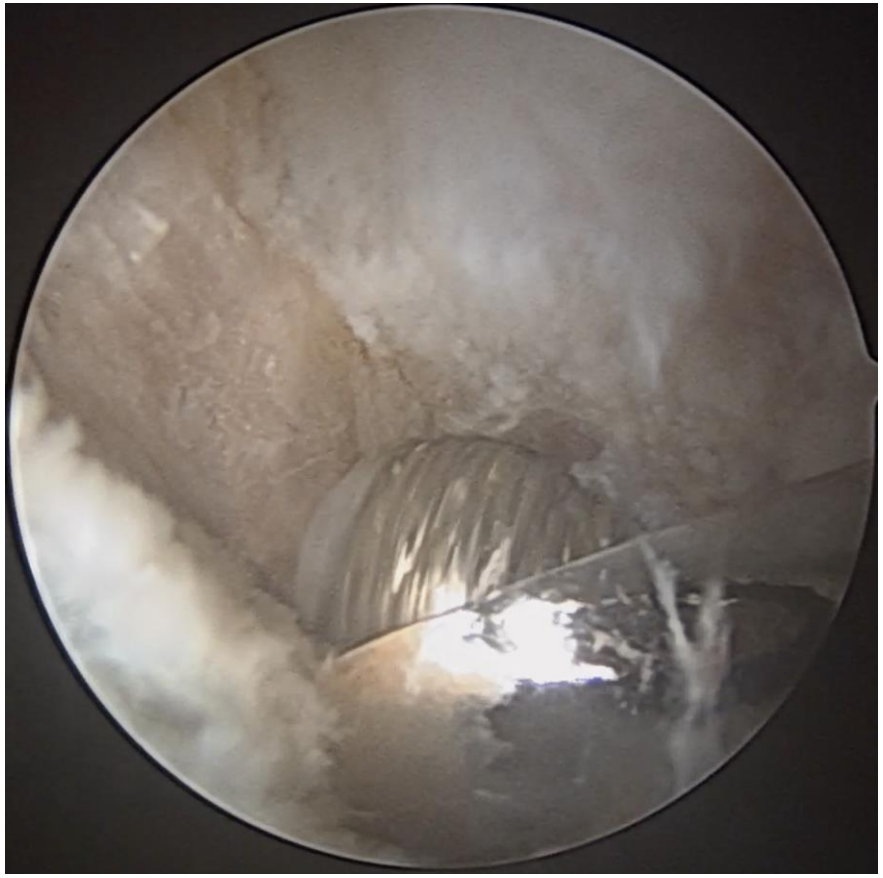


Figure 1. Lateral center edge angle (LCEA) measured on AP radiograph utilizing the sourcil along the acetabular rim. Example displays dysplastic patient with LCEA measurement of 17.5 degrees.

Results: Patient Demographics

- 934 Patients
  - Age: 34 ± 12 years
  - 632 Female, 302 Male
- Preoperative Measures:
  - LCEA: 32 ± 7° (IQR: 27 - 36°)
  - Alpha: 65 ± 18°
- Followed for 5.2 ± 1.3 years



Results: Patient Reported Outcomes

Significant **postoperative improvements** in all PRO measures

Table 1. Patient-reported outcome scores preoperatively and at the time of final follow-up at 5-years

Outcome Score	Preoperative	5-Years Postoperative	P-value
mHHS	58.2 ± 14.8	79.9 ± 19.2	< 0.01
HOS-ADL	65.6 ± 18.9	85.5 ± 18.7	< 0.01
HOS-SS	41.4 ± 22.9	75.0 ± 27.6	< 0.01
iHOT-12	34.8 ± 17.7	71.0 ± 28.2	< 0.01

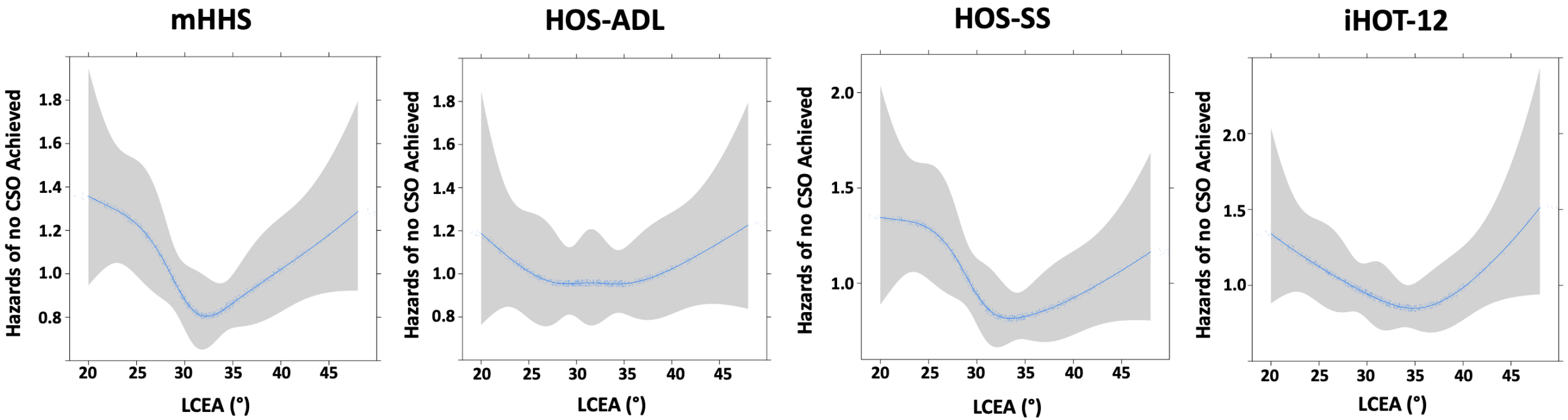
Cox Proportional Hazards (Linear):

- No significant *linear* relationship between LCEA and:
  - mHHS: p = 0.61
  - HOS-ADL: p = 0.82
  - HOS-SS: p = 0.30
  - iHOT-12: p = 0.75

But are real-world relationships often linear?

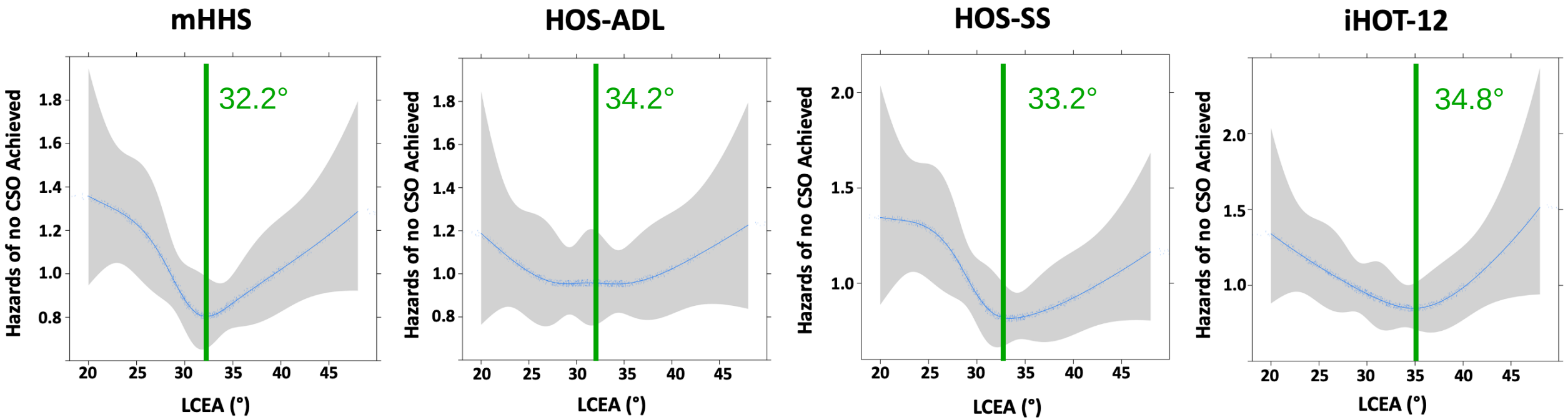
Continuous Modeling for Real-world Phenomena:

LCEA Predicts 5 Year Outcomes



CSO: Clinically Significant Outcome (MCID, PASS, or SCB)

LCEA Predicts 5 Year Outcomes



Normative Values Do Best

Ideal: 32 - 35°

CSO: Clinically Significant Outcome (MCID, PASS, or SCB)

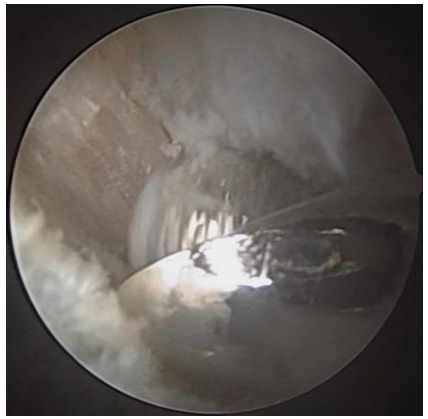
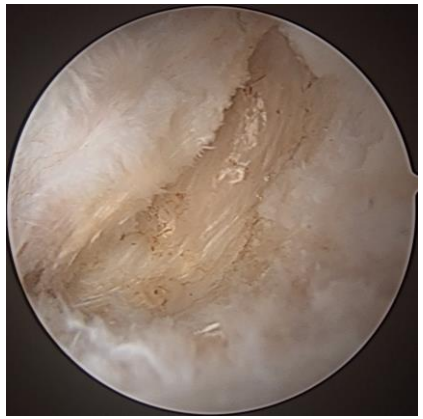
Discussion:

- Structural anatomy underpins long-term patient function
  - Suboptimal dysplasia outcomes observed supported by prior publications[1]
- LCEA and long-term outcomes interact in a complex, non-linear manner
  - Asymmetric outcomes “valley” highlights benefits of advanced statistics
- Nuanced analysis can inform patient counselling and surgical decision making
  - Powerful prognostic tool given 5-year outcomes data

1. **Wyles et al., CORR, 2017.**

Conclusion:

- **Patients with normal acetabular coverage demonstrate better subjective outcome scores at 5-year follow-up compared to peers with dysplasia or pincer lesions**
- **This data highlights the clinical importance of acetabular coverage and can help aid mid-term prognostication following hip arthroscopy**


THANK YOU

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