

# Differences in Hip Alpha Angles on Different Imaging Modalities

## Background

- Identify differences in alpha angles on plain radiographs, MRIs, and CTs of patients diagnosed with abnormal hip pathologies.
- Determine which modality is the most effective at predicting patient outcomes.

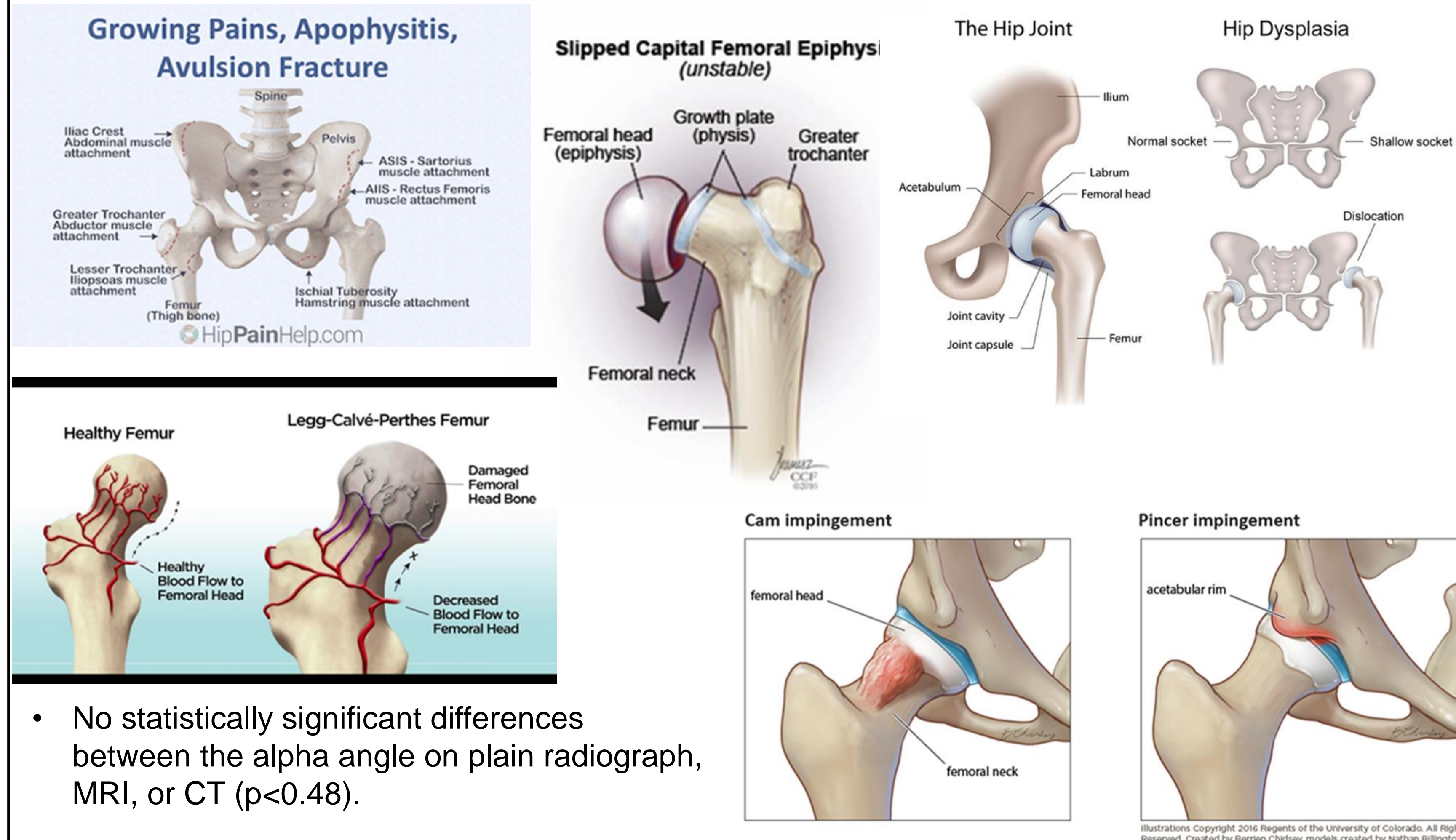
## Methods

- Retrospective review of 60 (n=93 hips) patients diagnosed with:
  - Pelvic apophyseal injuries
  - Slipped capital femoral epiphysis (SCFE)
  - Hip dysplasia
  - Legg-Calvé-Perthes disease
  - Femoroacetabular impingement (FAI)
- Imaging performed prior to intervention:
  - Plain radiograph
  - MRI
  - CT

	Normal Hips	Ideopathic Cam	Slip-like Morphology	Postslip Morphology
Head-neck Offset (Anteroposterior)	↓	↑	↑	↑
Head-neck Offset (Posteroanterior)	=	↑	↑	↑
Epiphyseal Angle (Anteroposterior)	↓	↑	↑	↑
Epiphyseal Angle (Posteroanterior)	=	↓	↑	↑
Tilt Angle (Anteroposterior)	↓	↑	↑	↑

- We compared the alpha angle of the affected hips using a one-way ANOVA and defined statistical significance as  $p < 0.05$ .

## Results



- No statistically significant differences between the alpha angle on plain radiograph, MRI, or CT ( $p < 0.48$ ).
- No statistically significant differences in alpha angle between genders on plain radiograph ( $p < 0.53$ ), MRI ( $p < 0.93$ ), or CT ( $p < 0.17$ ) for those diagnosed with FAI.
- When comparing open versus closed physes, open physes had significantly higher alpha angles on plain radiograph ( $p < 0.03$ ) and CT ( $p < 0.01$ ), not MRI ( $p < 0.11$ ).

Imaging Modality	Open Physes	Closed Physes	P-value
X-ray	57.7°	43.8°	0.03
MRI	57.7°	44.6°	0.11
CT	57.5°	40.3°	0.01

## Conclusions

- No significant differences between alpha angles for patients diagnosed with FAI.
- Differences in alpha angles were significant when comparing open and closed physes, except with MRI.
- Data collection is not complete.**

## Implications

- Although no significant difference was observed when comparing angles of patients with FAI, subjects with open versus closed physes showed significant differences, except in MRI.
- Differences in a few degrees can greatly impact treatment recommendations.
- It appears that the use of the physeal status may help dictate which imaging modality is most effective.

## Disclosures/References

- No disclosures

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