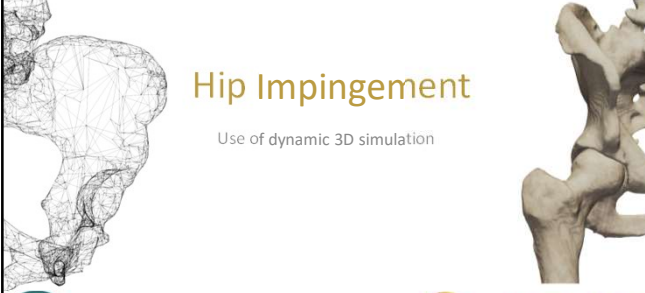


Hip Impingement

Use of dynamic 3D simulation




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What is hip impingement?

- Conflict between femur and acetabulum
- Can lead to labral pathology and cartilage lesions
- Depends on morphology of the hip




71 degrees

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CAM Impingement

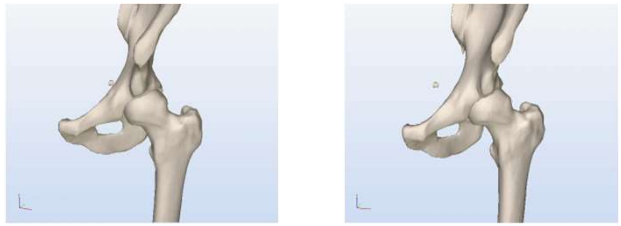
- Bump on femoral head-neck junction
‘Femoral head not round’



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CAM Impingement



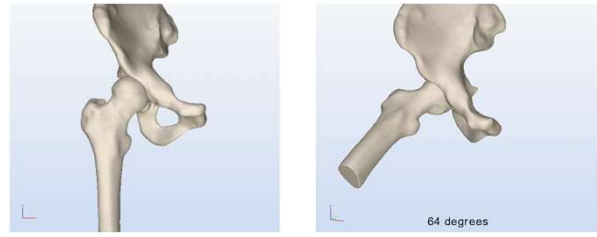
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There is more than CAM impingement!!

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64 degrees

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Femoral version



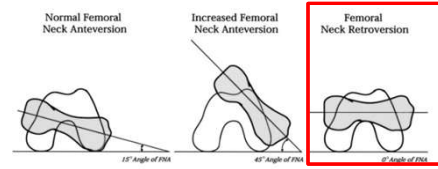
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Femoral version

- Normal: 5 - 20° anteversion



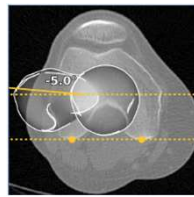
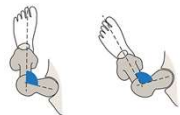
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Femoral retroversion

- Femoral retroversion can lead to impingement
- Out toeing to compensate



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Acetabular version

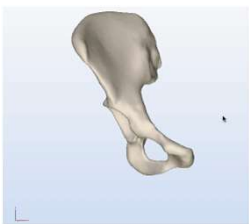


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Acetabular version



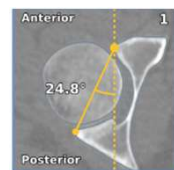
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Acetabular version

- Normal : 15-25° anteversion



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Acetabular retroversion

- Acetabular retroversion can lead to impingement

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Acetabular retroversion

Supine

Standing

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Impingement is dynamic

↓ Pelvic Tilt →

↑ Retroversion / anterior coverage

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Impingement is dynamic

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Pincer impingement

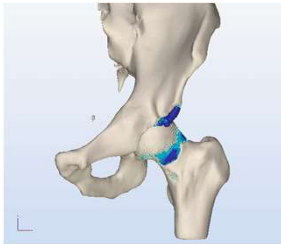
- Excessive lateral acetabular coverage of femoral head

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Pincer impingement



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Treatment

- Physiotherapy!
 - Importance of pelvic tilt
- Surgical options
 - Hip Arthroscopy
 - Proximal femoral osteotomy
 - Peri acetabular osteotomy (PAO)



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Hip arthroscopy

- CAM resection



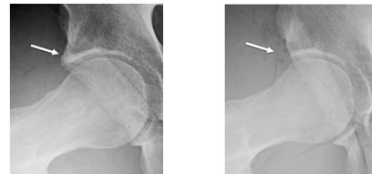
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Hip arthroscopy

- Pincer & acetabular retroversion resection



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Proximal femoral derotation

- For femoral version abnormalities



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Peri-acetabular osteotomy

- For true acetabular retroversion



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Conclusion

- Dynamic interplay between pelvis and femur
- Multiple morphologies can lead to hip impingement
- Dynamic 3D simulation is very useful in understanding the impingement pattern
- Importance of pelvic tilt → **Physiotherapy is key!!**



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