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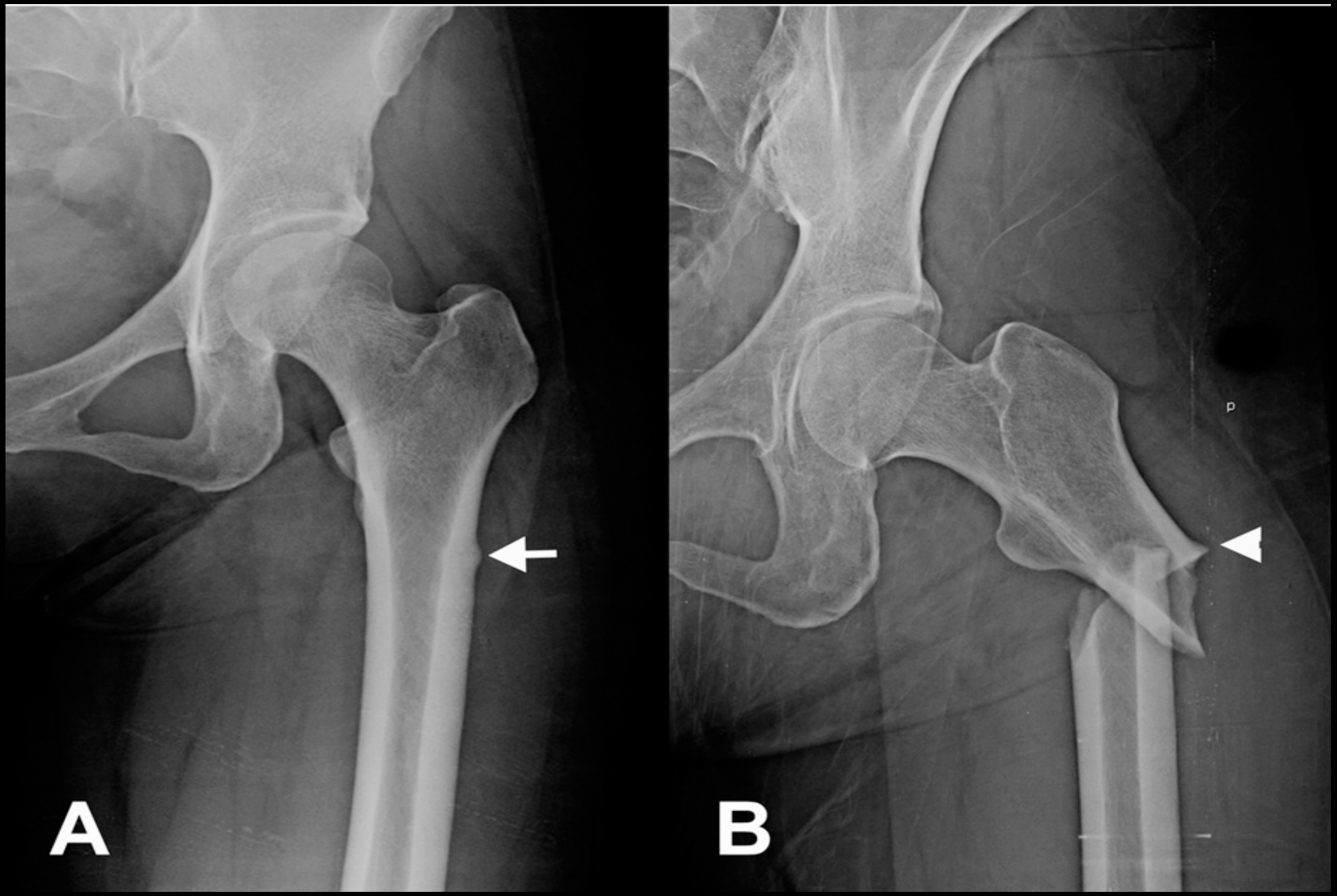
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Disclosures

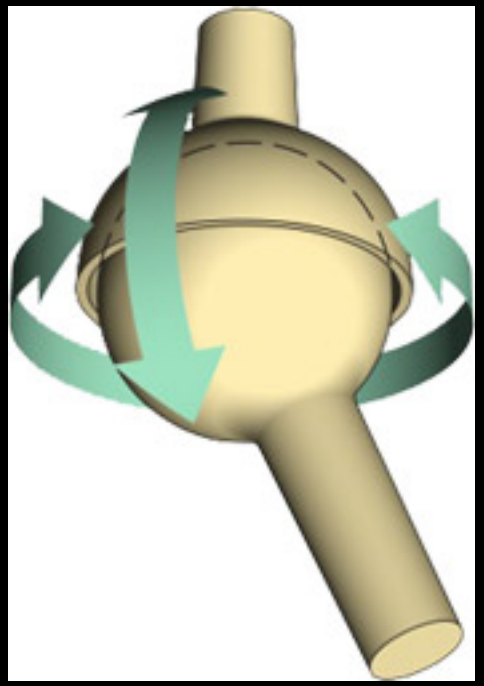
- None

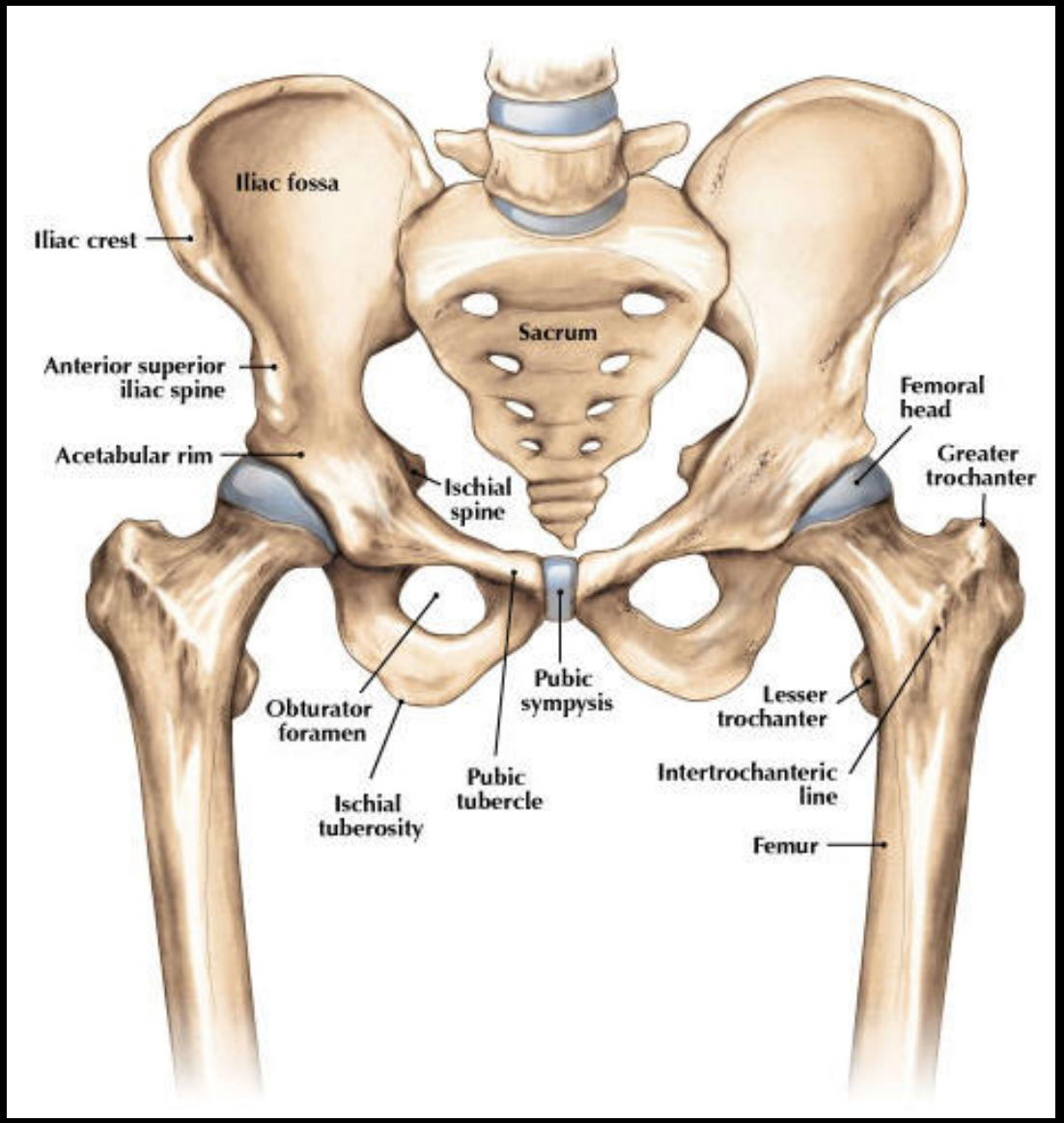
Outline

- Definition: What's a "hip fracture"?
- Why do we fix them?
- How do we fix them?
- How do we choose amongst our tools?
- What are the outcomes?

Definition: What's a hip fracture?

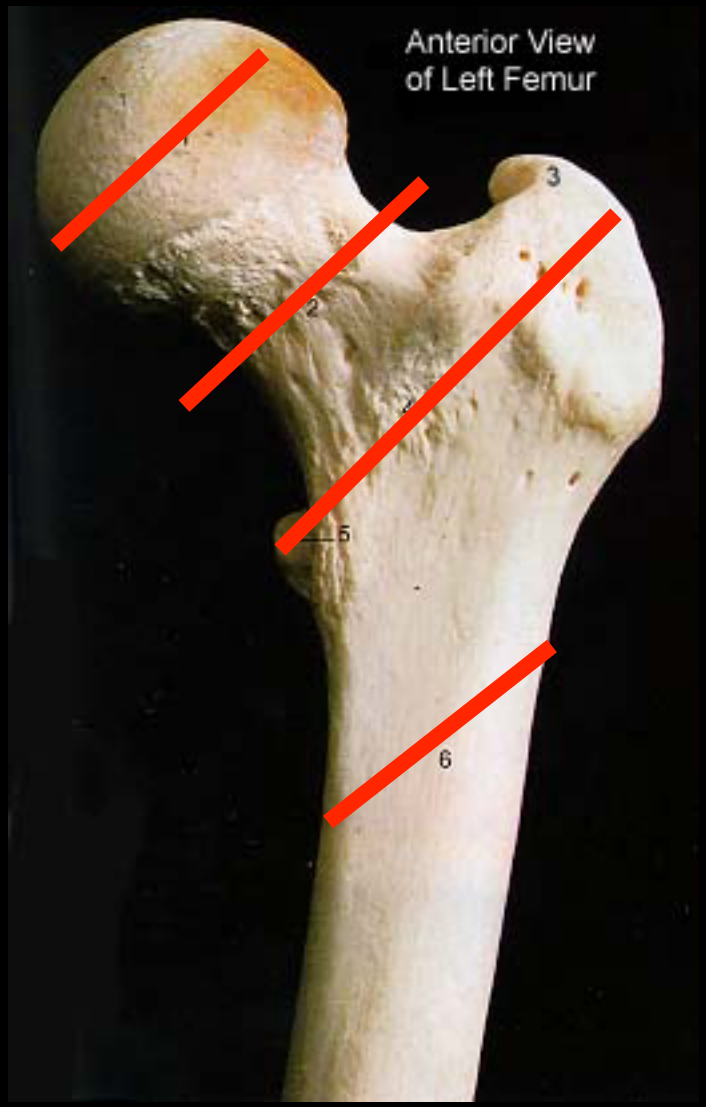
- Hip Anatomy
  - "Ball & Socket" joint
    - Ball: Femoral head
    - Socket: Acetabulum





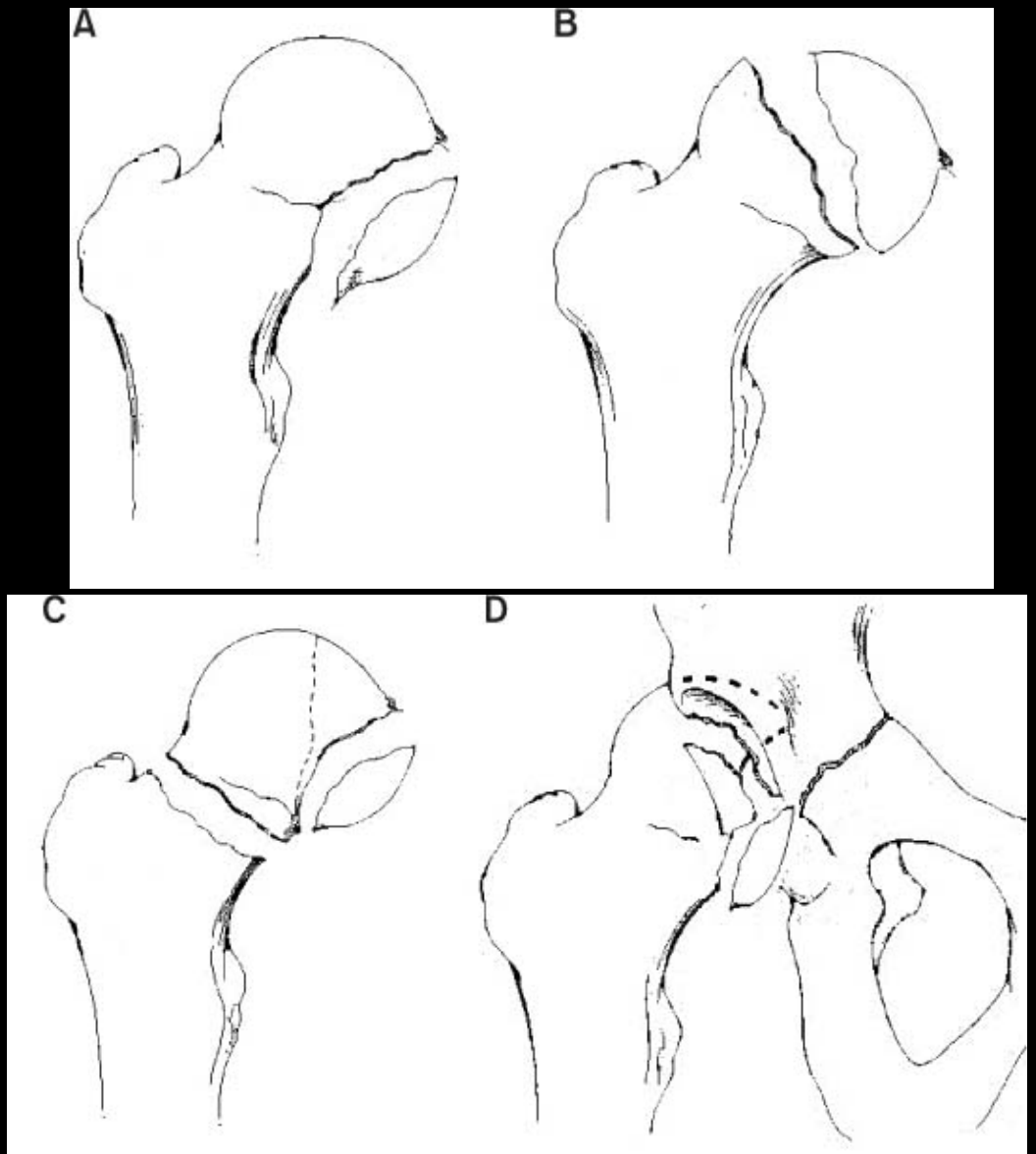
Definition: What's a hip fracture?

- Hip fractures
  - Femur
    - Femoral head
    - Femoral neck
    - Intertrochanteric
    - Subtrochanteric



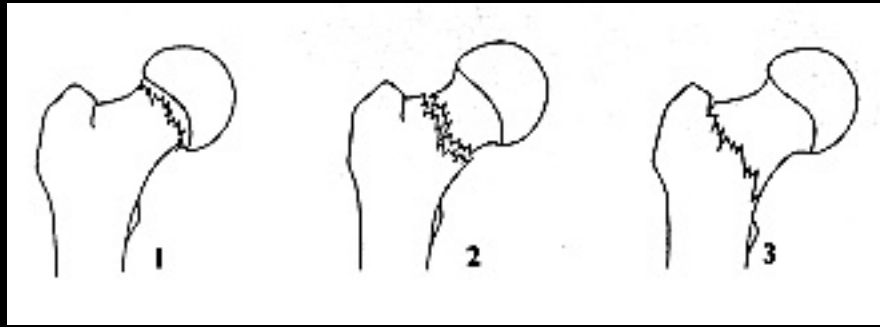
Definition: What's a hip fracture?

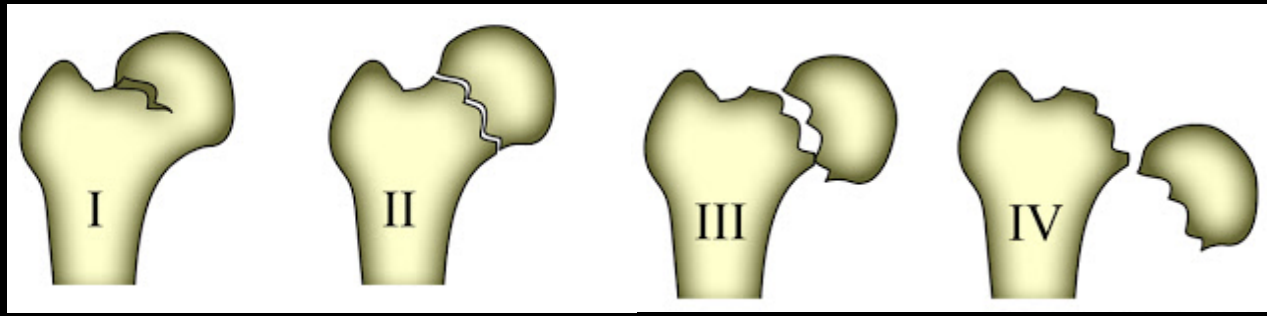
- Femoral Head Fracture
  - Pipkin 1
  - Pipkin 2
  - Pipkin 3
  - Pipkin 4

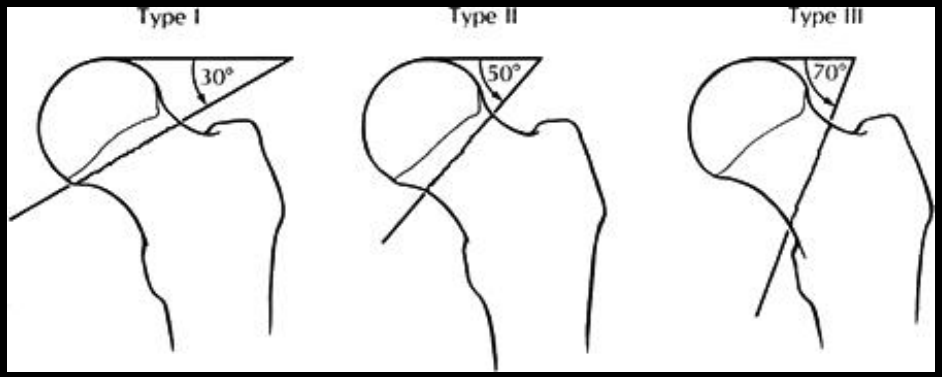


Definition: What's a hip fracture?

- Femoral Neck Fracture
  - I: Location
    - Basicervical
    - Transcervical
    - Subcapital
  - II: Displacement
    - Garden 1
    - Garden 2
    - Garden 3
    - Garden 4
  - III: Angulation
    - Pauwel's 1
    - Pauwel's 2
    - Pauwel's 3

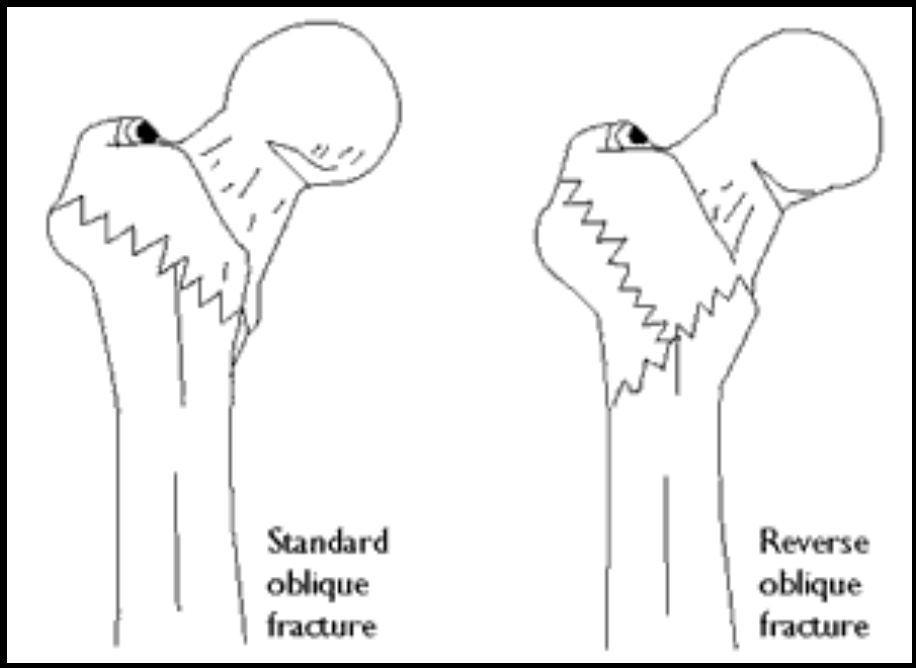






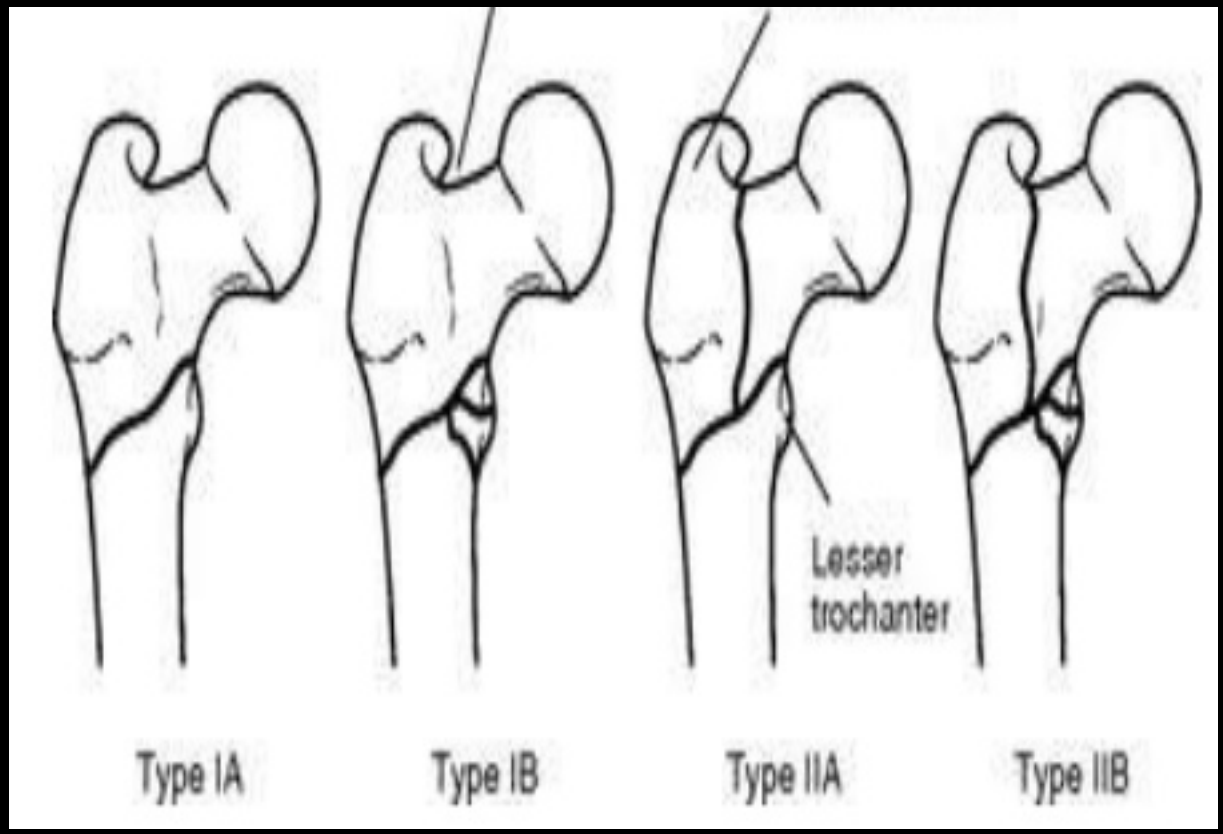
Definition: What's a hip fracture?

- Intertrochanteric Femur Fracture
  - Normal Obliquity
  - Reverse Obliquity



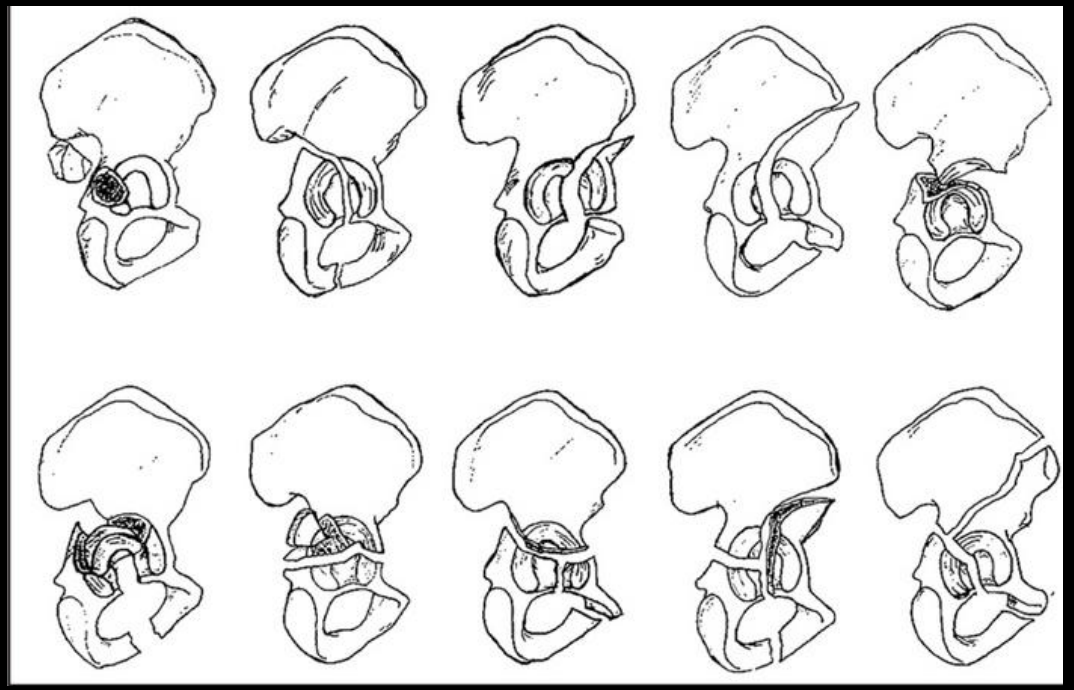
Definition: What's a hip fracture?

- Subtrochanteric Femur Fracture
  - Russell-Taylor
    - IA
    - IB
    - IIA
    - IIB



Definition: What's a hip fracture?

- Acetabulum
  - Judet & Letornel
    - Elementary
      - Anterior Column
      - Posterior Column
      - Anterior Wall
      - Posterior Wall
      - Transverse
    - Associated
      - Posterior Column + Posterior Wall
      - Transverse Posterior Wall
      - Anterior Column Posterior Hemitransverse
      - T-shaped
      - Associated Both Column



Definition: What's a hip fracture

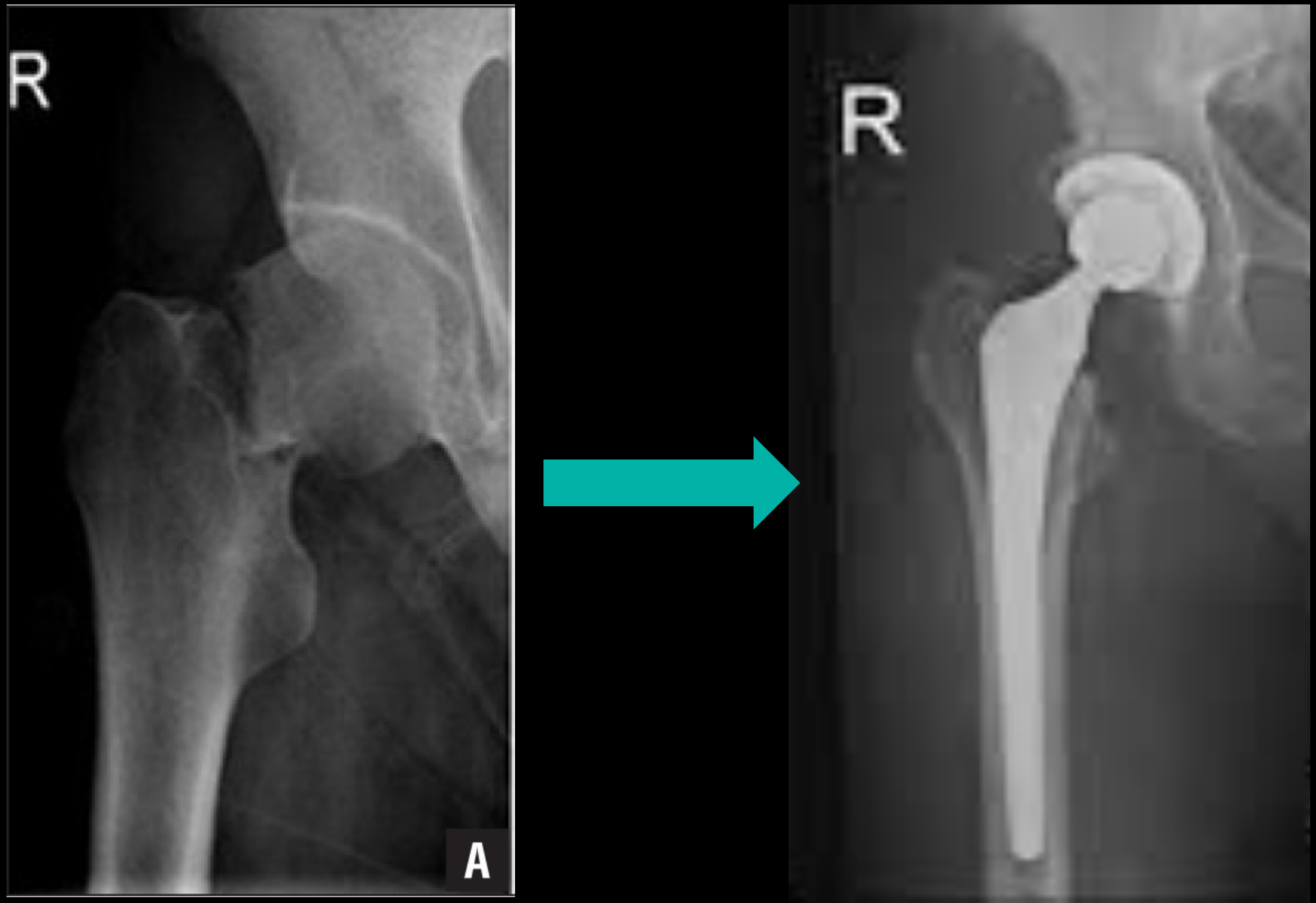
- Large group of diagnoses, each with its own natural history, surgical treatments, and prognoses.

Why do we “fix” hip fractures

- Quantity of life
  - Mortality rate if untreated: ~85% at 1 month
  - Mortality rate if treated: 30% at 1 year
  - Cause of death: Complication of immobilization:
    - Pneumonia
    - Urinary Tract Infections
    - Bed Sores
    - Deconditioning

Why do we “fix” hip fractures

- Quality of life
  - O
  - O
  - B
  - W
  - B
  - A
  - T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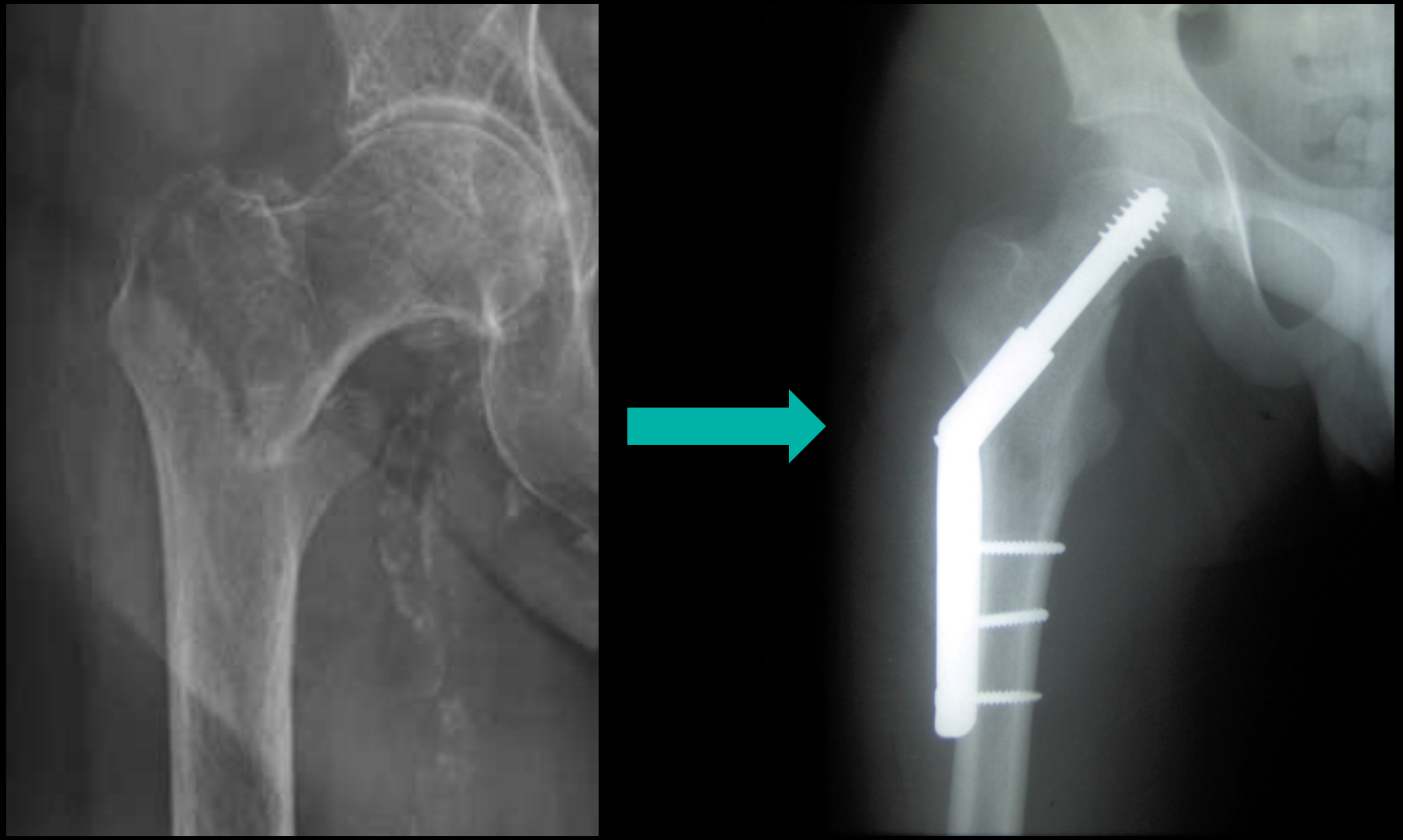


How do we fix hip fractures

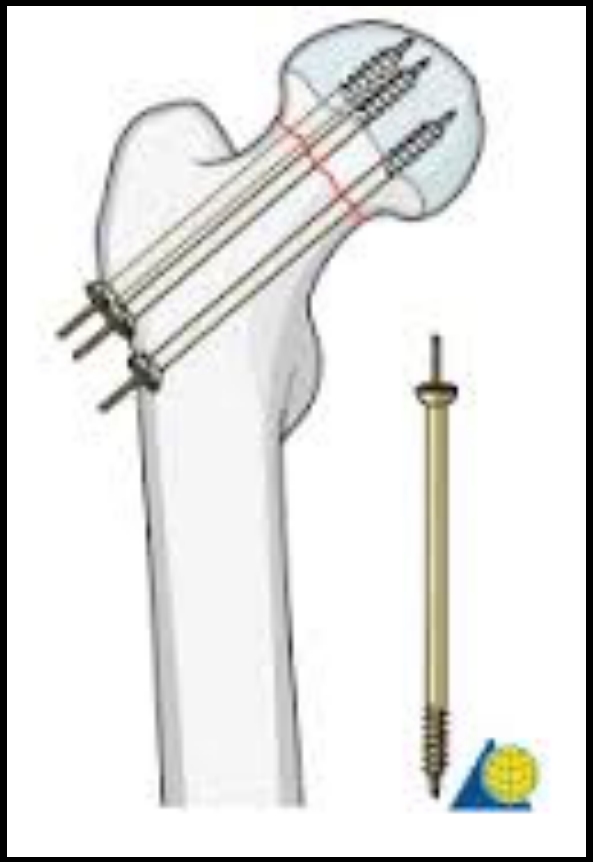
Internal Fixation

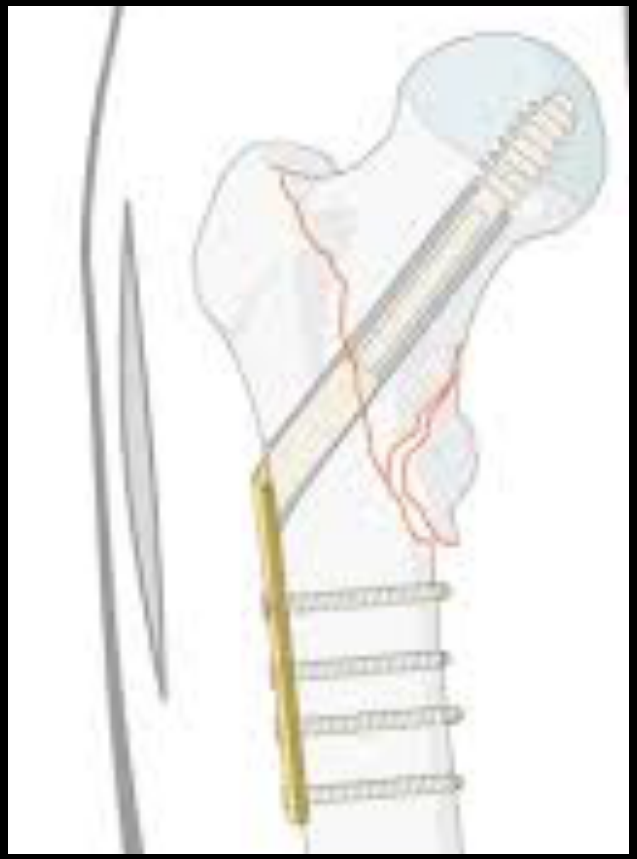
Arthroplasty

Internal Fixation

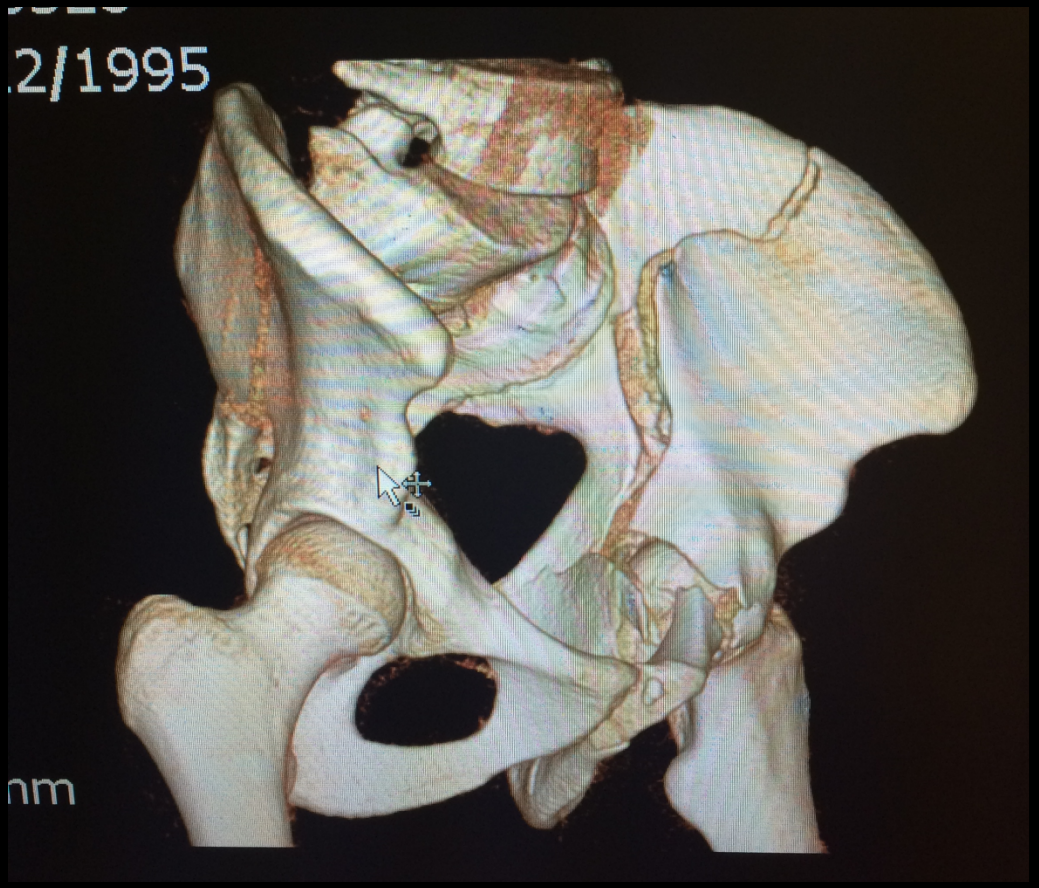
- Goals of Treatment:
  - Reduce the fracture
    - Restore patient's own anatomy
  - Stable Fixation
    - Place an internal implant that will maintain the reduction
    - Allow immediate WBAT
  - Limit soft tissue injury
    - Maintain the blood supply to the bone
    - Keep surrounding tissues healthy and functional
  - Fracture healing

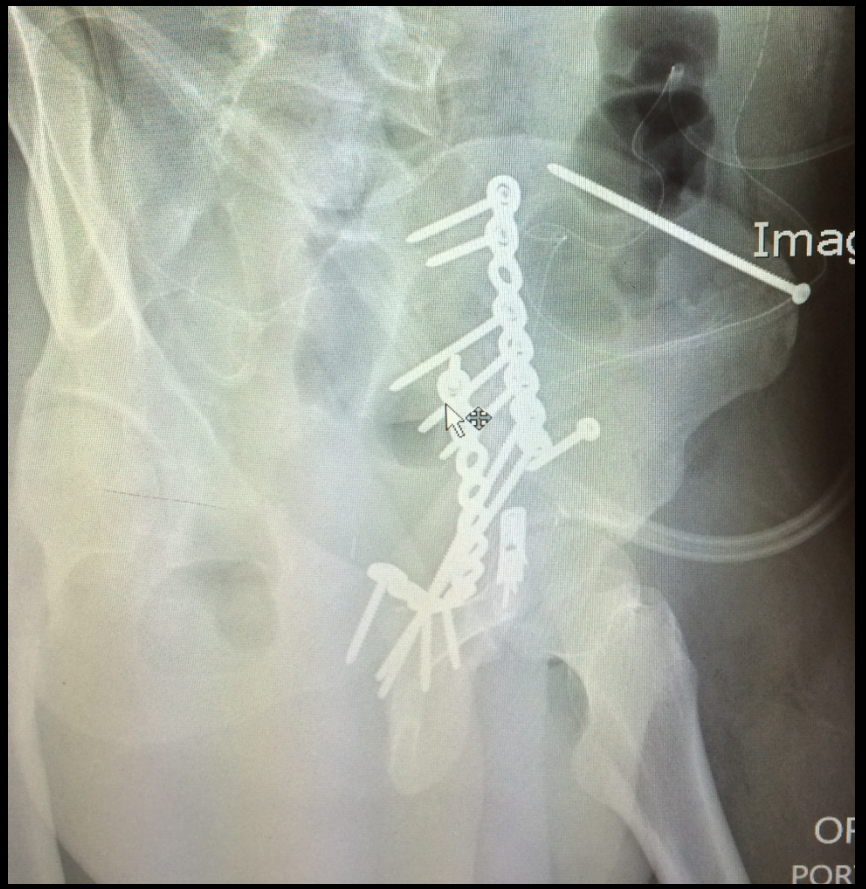
Internal Fixation





Internal Fixation



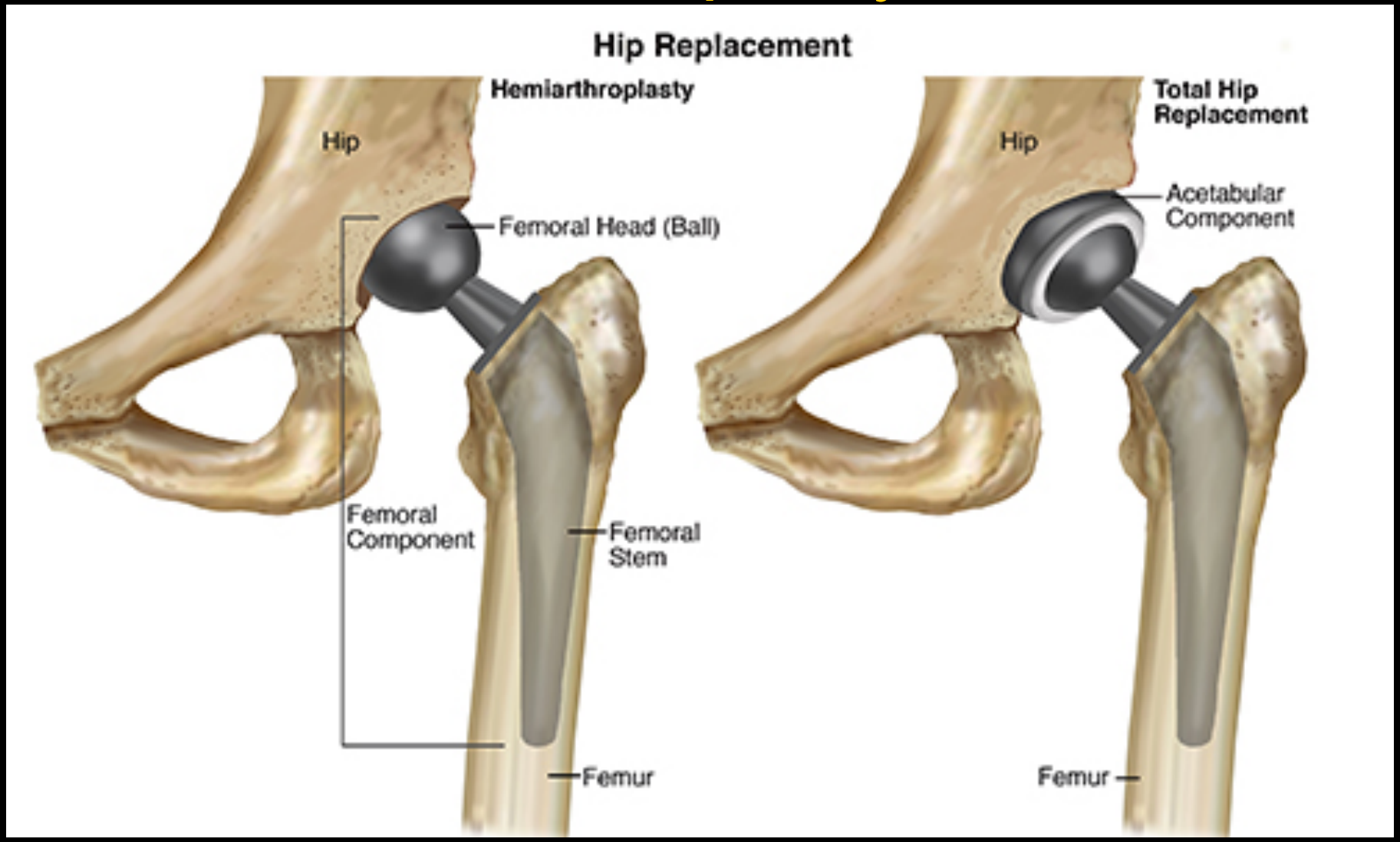


Arthroplasty

- Goals of Treatment:
  - Remove the fractured bone
    - Restore patient's biomechanics, not their native anatomy
  - Stable implant
    - Implant geometry
      - Allows immediate stability within bone
    - Implant surface
      - Allows eventually bone ingrowth to implant
    - Both required for WBAT
  - Limit soft tissue injury
    - Maintain the blood supply to the bone
    - Keep surrounding tissues healthy and functional

  - Implant that lasts life span of patient

Arthroplasty



How do we chose amongst our tools?

- 1) Potential for fracture healing
- 2) Which procedure will allow for the weight bearing needs of the patient

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Scenario 1: 22yo M MCA, p/w R Pipkin II femoral head fracture and associated hip dislocation

How do we chose amongst our tools?

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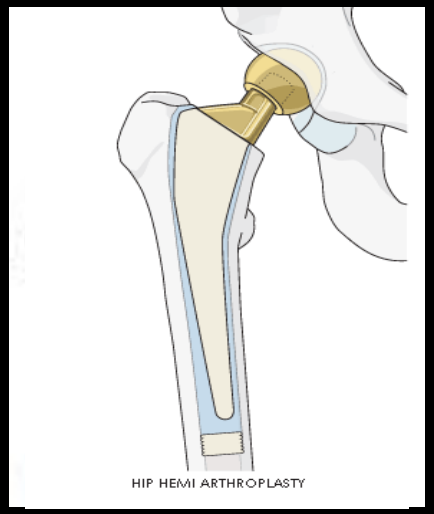
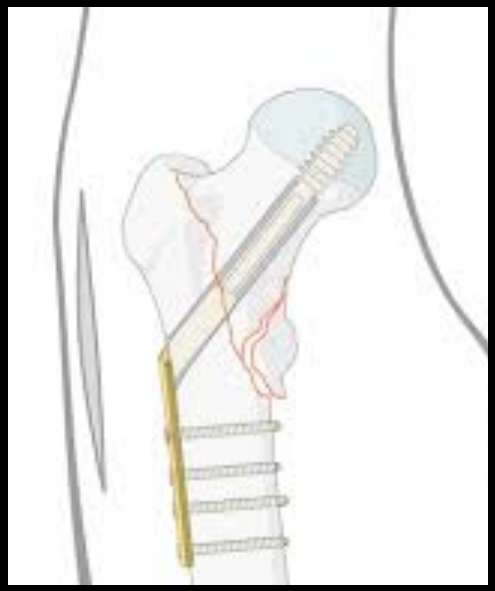
Scenario 1: 89yo M GLF, p/w R Pipkin II femoral head fracture and associated hip dislocation



How do we chose amongst our tools?

- 1) Potential for fracture healing
- 2) Which procedure will allow for the weight bearing needs of the patient

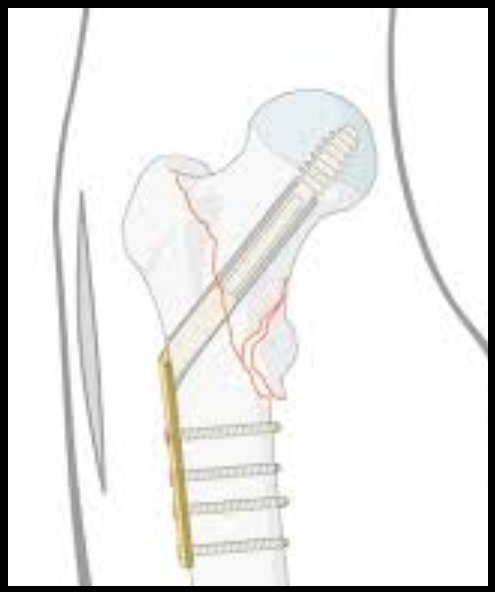
Scenario 1: 22yo M MCA, p/w R intertrochanteric hip fracture



How do we chose amongst our tools?

- 1) Potential for fracture healing
- 2) Which procedure will allow for the weight bearing needs of the patient

Scenario 1: 89yo M GLF, p/w R intertrochanteric hip fracture



How do we chose amongst our tools?

- 1) Potential for fracture healing
- 2) Which procedure will allow for the weight bearing needs of the patient

Scenario 1: 65yo M GLF, p/w R Garden IV femoral neck fracture fracture

How do we chose amongst our tools?

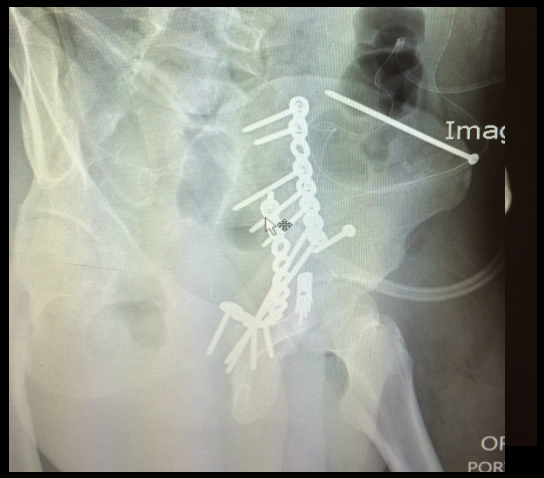
- 1) Potential for fracture healing
- 2) Which procedure will allow for the weight bearing needs of the patient

Scenario 1: 89yo M GLF, p/w R Garden IV femoral neck fracture fracture

How do we chose amongst our tools?

- 1) Potential for fracture healing
- 2) Which procedure will allow for the weight bearing needs of the patient

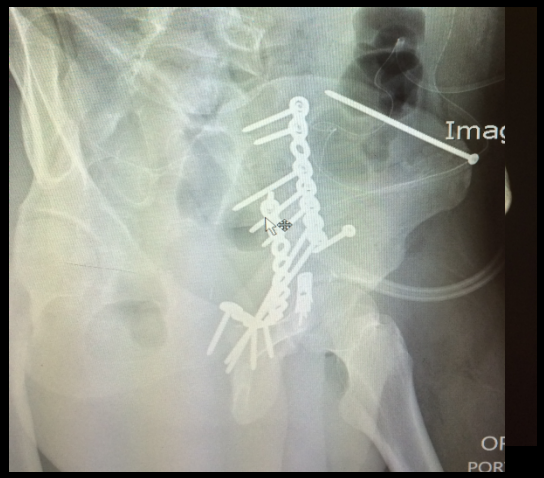
Scenario 1: 22yo M MCA, p/w L Associated both column acetabular fracture



How do we chose amongst our tools?

- 1) Potential for fracture healing
- 2) Which procedure will allow for the weight bearing needs of the patient

Scenario 1: 79yo M GLF, p/w L Associated both column acetabular fracture



What are the outcomes?

- Complications:
  - Heterotopic Ossification
    - 5-50%
  - Avascular Necrosis
    - 1-25%
  - Sciatic nerve plasy
    - 1-25%
  - Post trauma arthritis
    - 1-75%
  - Non-union
    - 2-30%
  - Dislocation
    - 0-10%
  - Infection:
    - 3-5%

Summary

- Definition: What's a "hip fracture"?
  - Large group of diagnoses, each with its own natural history, surgical treatments, and prognoses.
- Why do we fix them?
  - Quantity of life
  - Quality of life
- How do we fix them?
  - Internal Fixation
  - Arthroplasty
- How do we choose amongst our tools?
  - Healing potential of the fracture
  - Weight bearing needs of the patient
- What are the outcomes?
  - If complications can be avoided, outcomes are clearly better on an individual and societal level than non-operative treatment.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Thank You