

Supracondylar Femur Fractures- IM Nails

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Disclosures

- METRC: Core Center
- Zimmer: Minor stockholder
- SMV: Investor

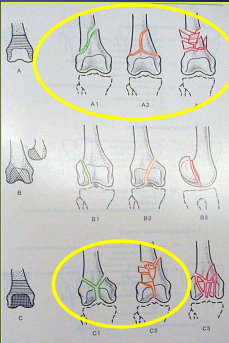
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Retrograde Intramedullary Rodding:

- Reduction
- Starting Point
- Entrance Angles
- Ending Point

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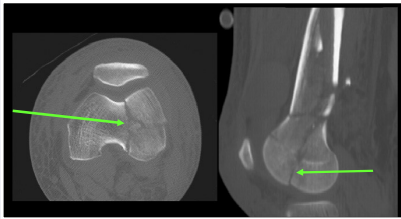
- AO/OTA classification
 - Type 3X-XX: femur
 - Type 33-XX: distal femur
- AO/OTA Type 33
 - 33-AX Supracondylar
 - 33-BX Unicondylar
 - 33-CX Bicondylar
- See figure for further subclassification



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Evaluation of Distal Femur Fractures

- Don't forget the Hoffa fragment!
 - 38% of supracondylar/intercondylar distal femur fractures have a coronal plane fracture (Nork et al, *J Orthop Trauma*, 87:584, 2005)
 - Most precisely diagnosed via CT scanning



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Table Selection-Supine Position

■ Flat top (+) <ul style="list-style-type: none">■ Patient positioning■ Multiple injuries■ Easy	■ Flat top (-) <ul style="list-style-type: none">■ Fracture reduction■ Maintaining fracture reduction■ Assistants■ Lateral images-proximally
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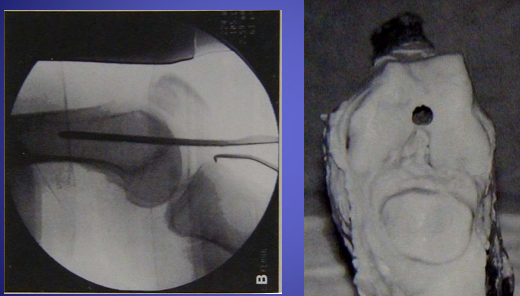
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Why Retrograde Medullary Nail?

- "Advantages"
 - Smaller incision
 - "Percutaneous" joint fixation
 - Limited exposure
 - Decreased blood loss (?)
 - Load-sharing device, longer lever arm (if long nail utilized)
 - Soft tissues intact
- "Disadvantages"
 - Arthrotomy required
 - "Percutaneous" joint fixation
 - Lack of alignment control ("windshield wiper" of implant)
 - Insertion thru reconstructed cartilage
 - Difficulty of insertion with total knee arthroplasty component in place

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Retrograde Femoral Nailing

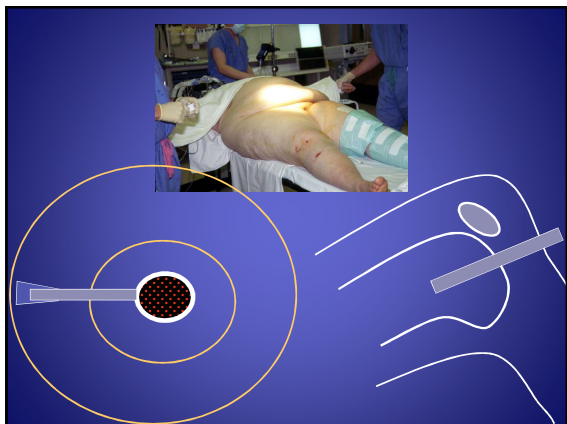


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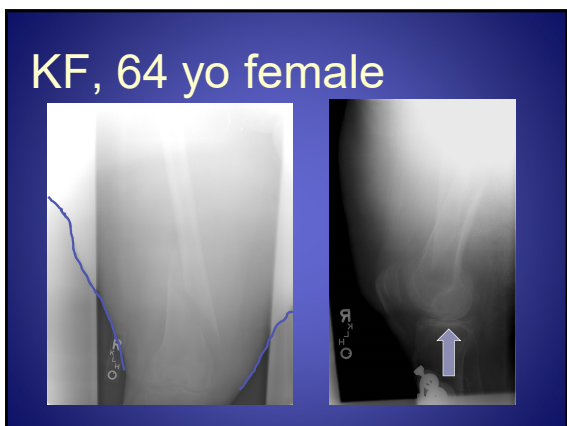
When to Retrograde Nail?

- Floating knee
- One surgical positioning
- Preexisting arthritis
- Ipsilateral femoral fractures
- Appropriate fracture pattern

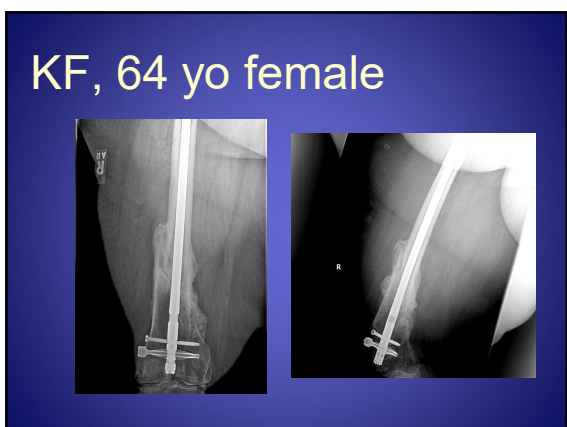
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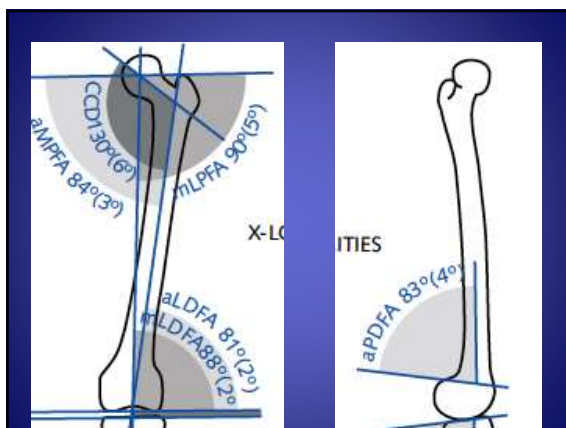


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Preferred Steps

1. Get fluoroscopic images of contralateral side
2. Restore the joint surface
3. Obtain length/alignment
 1. Sagittal plane alignment!
4. SEE

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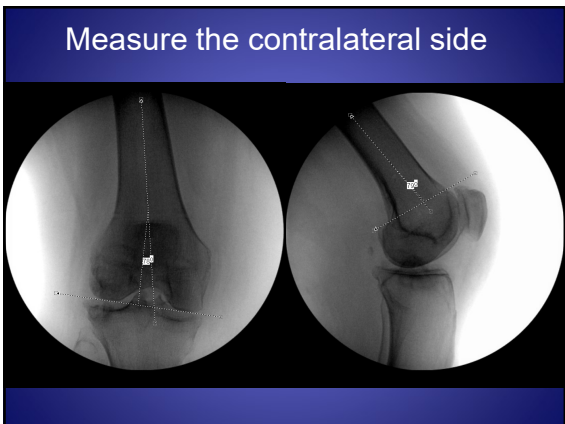


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Final films



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Planning Definitive Reconstruction – Deforming Forces

- Recognition of muscular deforming forces allows for reduction techniques designed to overcome these forces, thereby achieving anatomical reduction.

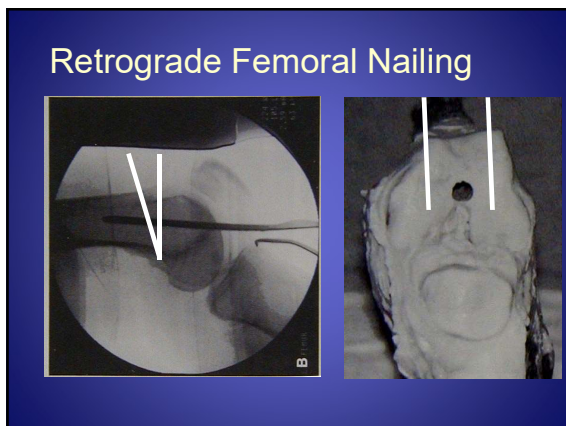
Hamstrings Shorten

Gastrocnemius Extends

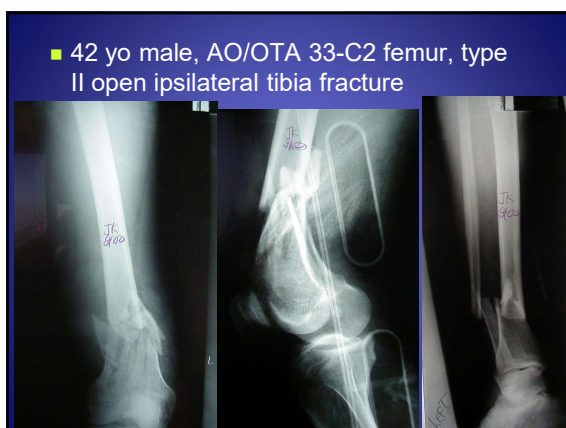
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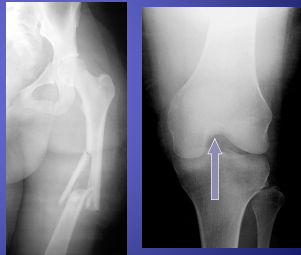
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Case Presentation

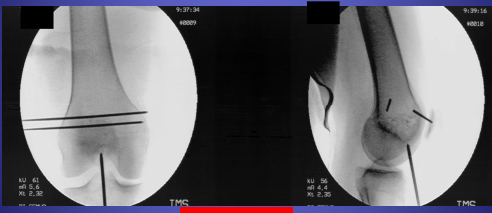
- 23 yo female
- MVC
- B SIJD
- L acetab fx
- R femoral shaft fx
- L femoral shaft fx
 - Assoc IC fx



SB

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Entry Portal

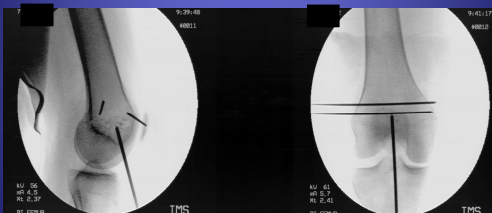


STARTING POINT

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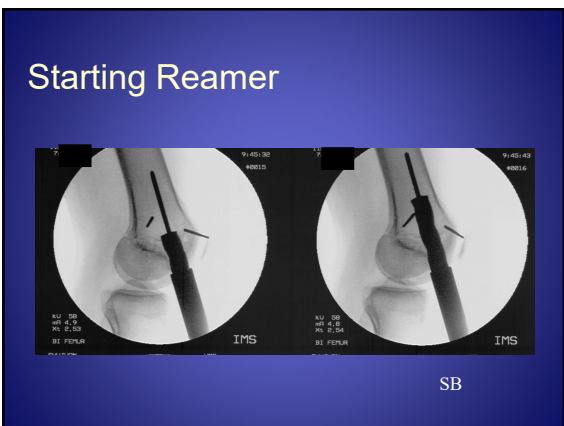
Confirmation



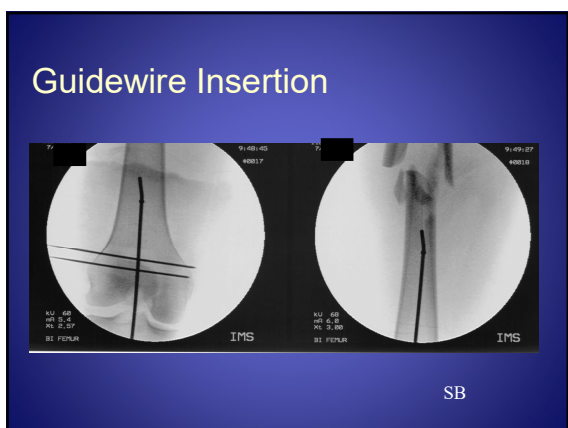
ENTRANCE ANGLE

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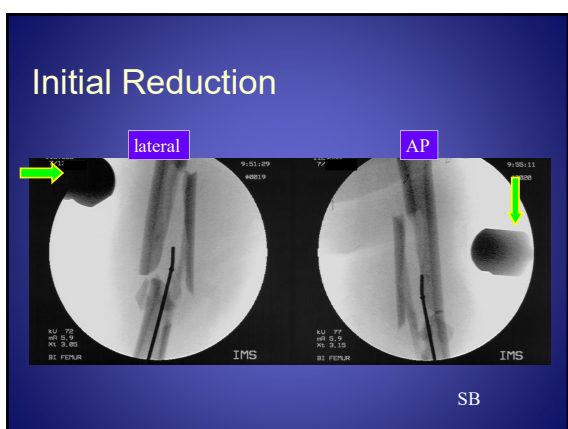
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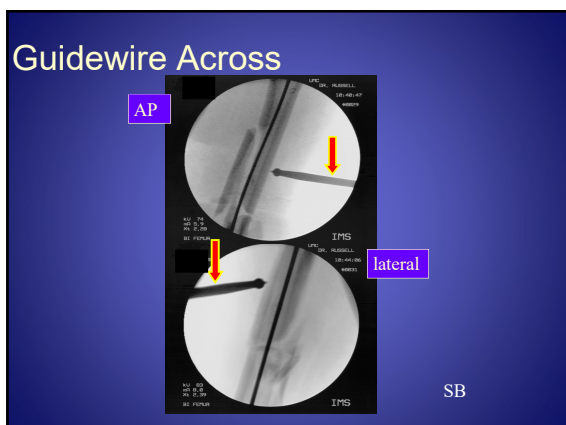
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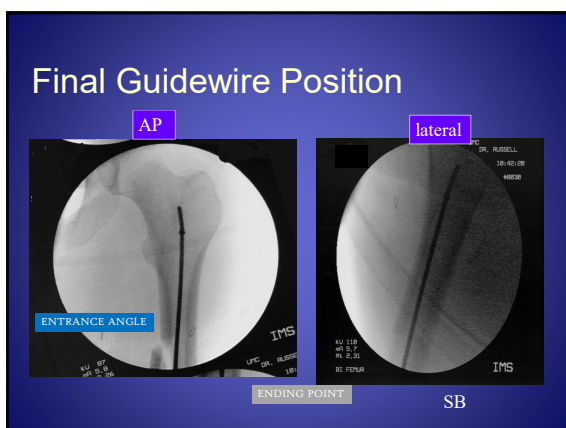
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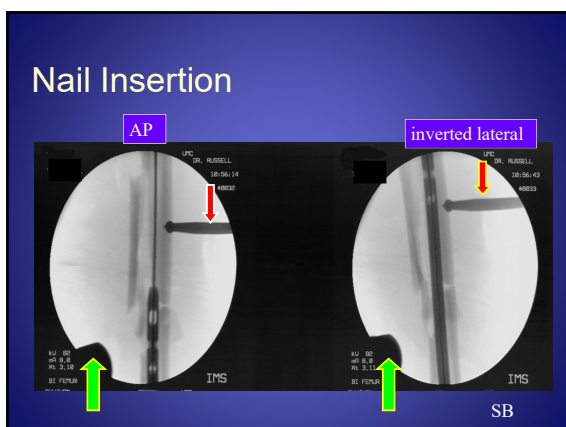
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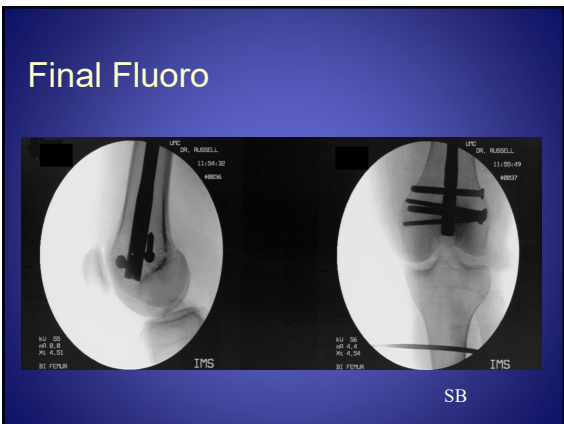
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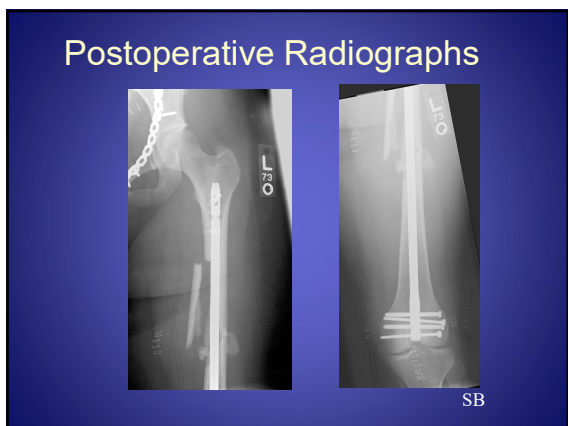
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Key Points

- Get contralateral fluoro images before beginning the operation
- Reduce/fix articular fracture
- Correct extension deformity
- SEE

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Thank You

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Retrograde Medullary Nail

- Don't forget to reduce the fracture first!
 - Nail will not assist with this as you are not achieving an isthmic fit as can be achieved with diaphyseal femoral shaft fractures
 - Nail will happily "lock" a fracture in a malreduced position as easily as it will "lock" a fracture reduced

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