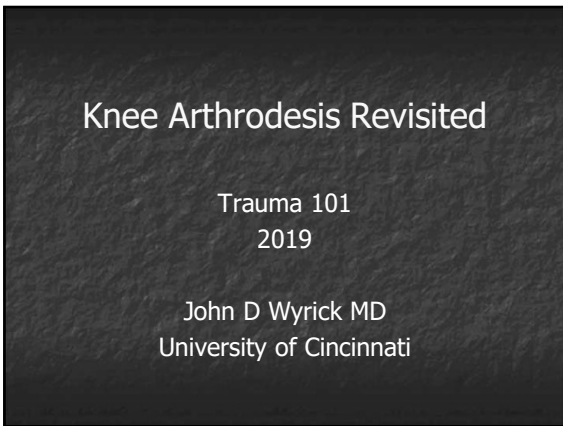
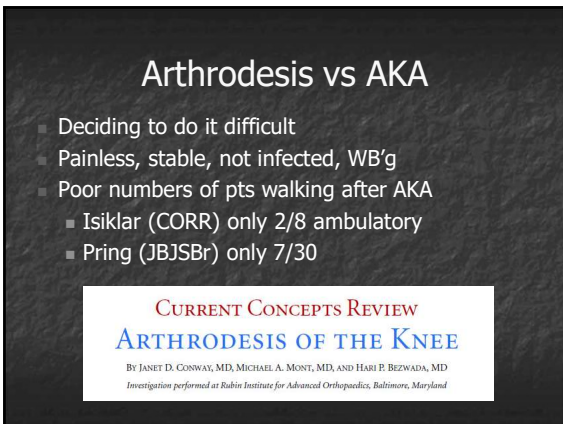


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Arthrodesis vs AKA

- Knee society scores better (70 vs 50)
- Lower energy expenditure with walking
 - O₂ consumption 0.16 vs 0.20 mg/kg/min
- Satisfaction correlated with limb length equality

4

Case Based Principles of Arthrodesis

- 65 yo female referred for recurrent infection TKA
- Not a candidate for reimplantation



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Case Based Principles of Arthrodesis


- 65 yo female referred for recurrent infection TKA
- Not a candidate for reimplantation



6

Case Based Principles of Arthrodesis


- First goal: eradicate infection
- "Infection burns in the flames of regeneration"



7

Case Based Principles of Arthrodesis

- First goal: eradicate infection
- "Infection burns in the flames of regeneration"
- Fusion rate much better after infection cleared



8

Case Based Principles of Arthrodesis

- Antibiotic cement spacer
 - Dead space management



9

Case Based Principles of Arthrodesis


- Antibiotic cement spacer
 - Dead space management
- Good soft tissue coverage
- Culture specific IV atbs



10

Case Based Principles of Arthrodesis

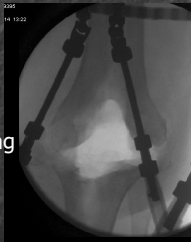
- Fixation strategies
- Good bone apposition
- "No compression device can overcome bad carpentry"
- But need to minimize shortening



11

Case Based Principles of Arthrodesis

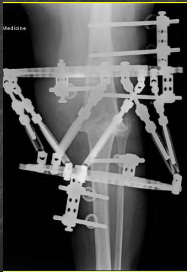
- Fixation strategies
- Good bone apposition
- "No compression device can overcome bad carpentry"
- But need to minimize shortening



12

Case Based Principles of Arthrodesis

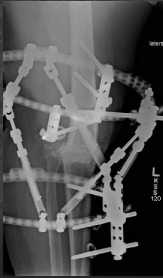
- Alignment
- Anatomic valgus (5-7°) best achieved with ex fix
- Knee fusion implants
- IMN places knee in 2-5° varus



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Case Based Principles of Arthrodesis


- Sagittal plane
 - 10-15° flexion most efficient for walking
 - Sacrifices length
 - Usually put in full extension



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Case Based Principles of Arthrodesis


- Compression arthrodesis
- Charnley principle applied to knee and ankle arthrodeses
- Best applied with ex fix
- Plates lose compression
- Fusion nail
 - How to apply



15

Case Based Principles of Arthrodesis



- Compression arthrodesis
- Charnley principle applied to knee and ankle arthrodeses
- Best applied with ex fix
- Plates lose compression
- Fusion nail
 - How to apply



16

Case Based Principles of Arthrodesis

- Back to our knee arthrodesis




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Arthrodesis General Principles

- Maintaining adequate length
- Most pts don't tolerate >5cm LLD
- Often significant bone loss after explantation
- How can we maintain length?



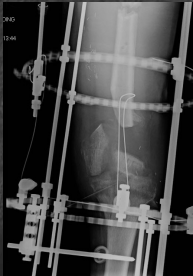

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Lengthening/Transport with Knee Fusion

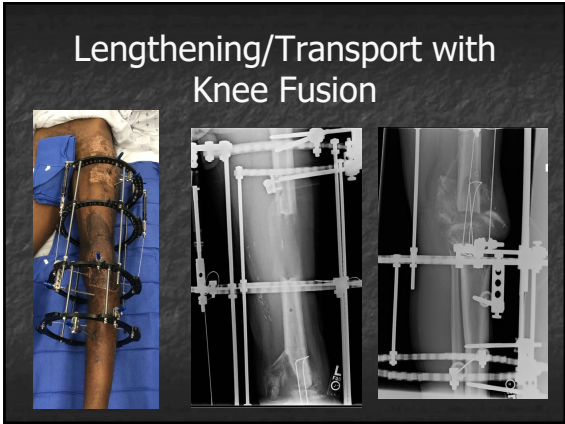


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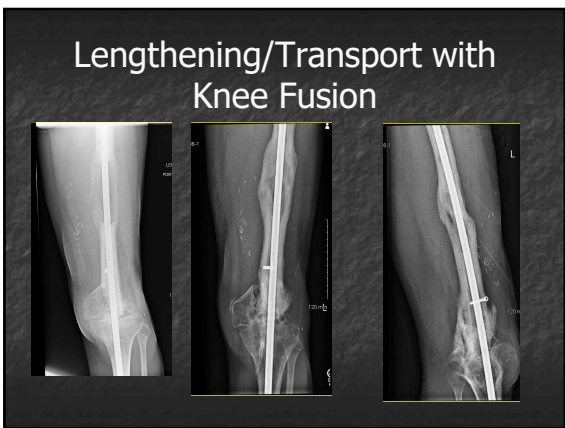
Lengthening/Transport with Knee Fusion



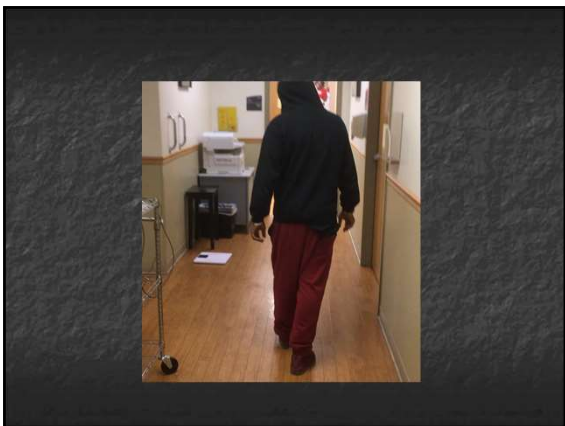
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Lengthening/Transport with Knee Fusion

- 60yo male, open femur fx in his teens. H/O osteo but no infection last 40yrs.
- Having knee pain, no one wants to put TKA in him
- Approximately 6cm short
- 15° of painful knee motion



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Lengthening/Transport with Knee Fusion



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Lengthening/Transport with Knee Fusion

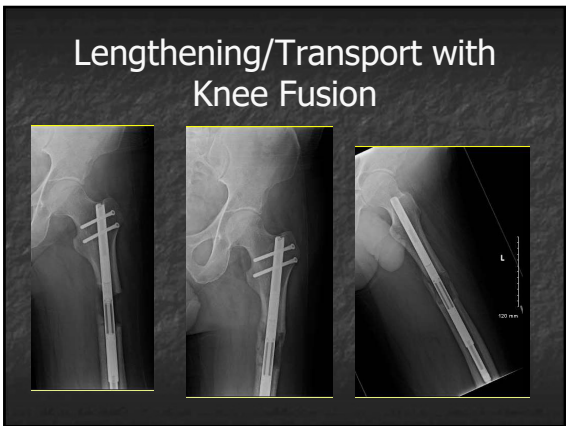
- Principle
- Must have healthy joints above and below fusion
- Knee stresses hip and ankle



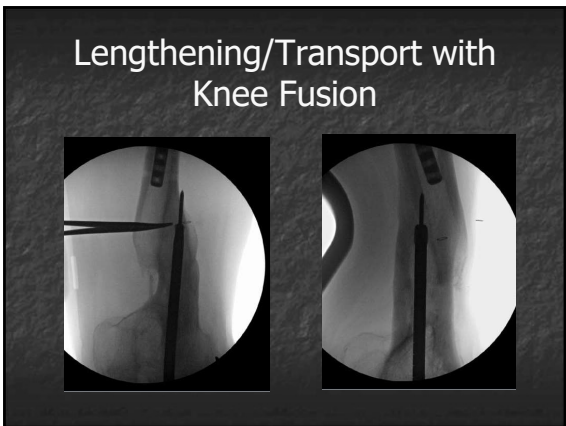
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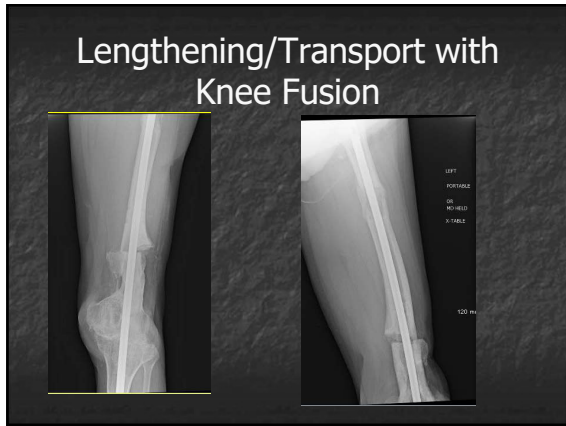
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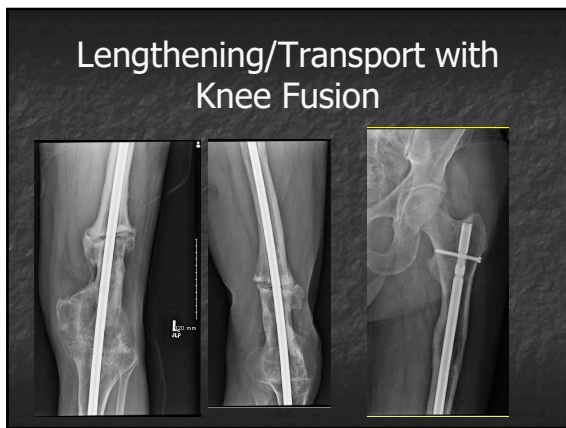
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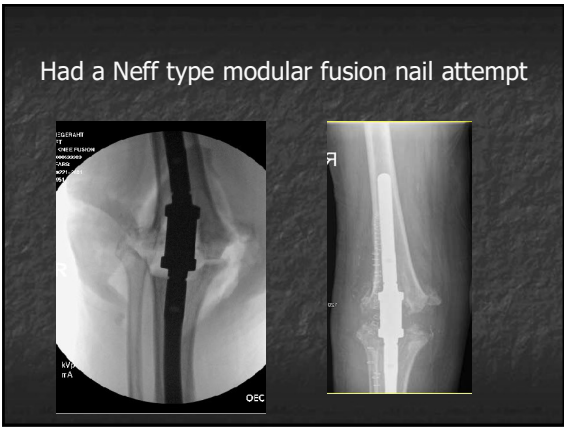
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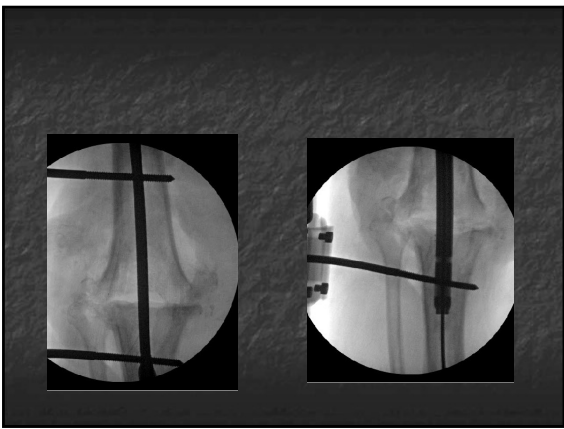
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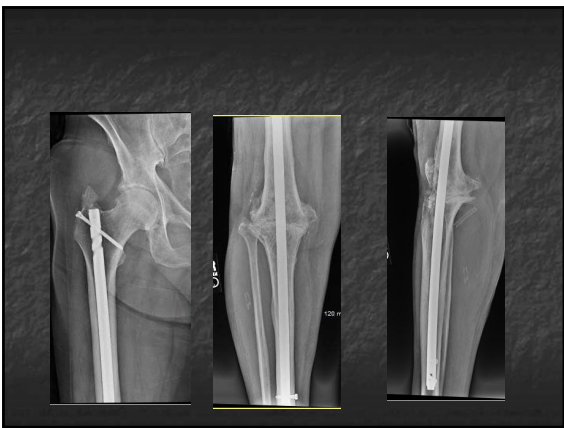
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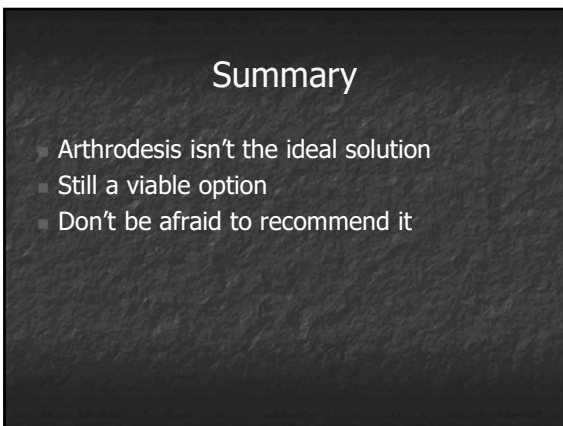
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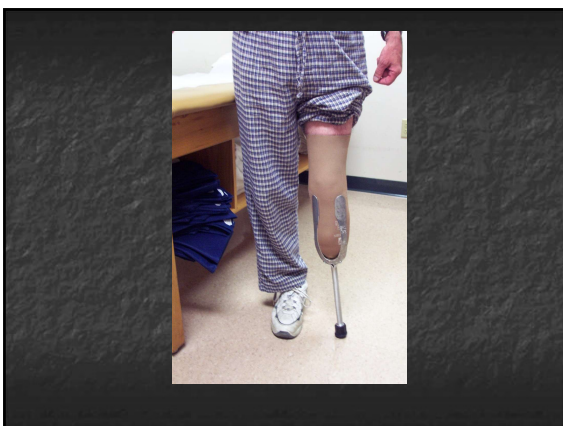
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Joint Arthrodesis

Some General Considerations

Santiago, Chile
May 25, 2018

John D Wyrick MD
Professor
University of Cincinnati

40

Introduction

- Perspectives over my career
- Indications have declined for proximal joints
- Difficult to get adequate training
- Big Q's are indications

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Indications

- Upper extremity
 - Shoulder: infected rotator cuff repairs, infected TSAs, ? Failed RTSA
 - Elbows: Rarely indicated, infected complications, TEA, elbow trauma, complete instability
 - Wrist and hand frequently

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Indications

- Lower extremity
 - Hip: very rare today, maybe pediatric septic sequelae
 - Knee: much more common, usually for infected TKAs, occasionally trauma
 - Ankle / foot: frequent

43

Positioning

- The major problem

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Positioning

- The major problem
- There is no ideal position!
- Except for the distal joints

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Positioning

- Hip pretty well accepted
 - 20-30° flexion (adjust relative to occupation)
 - 5° adduction
 - 5-10° external rotaton
- Main issue is limb length inequality
 - Adduction(>10°) increases relative inequality
- Increased stresses ipsilateral knee and lumbar spine

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Positioning

- Shoulder
- Support for 20/20/20, also 20/30/40 (abd, ER, flexion)
- Goal is to get hand to head

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Case Based Principles of Arthrodesis

- Compression arthrodesis
- Very useful in ankle
- Lot of infections
- Infected pilons



- 26yo, stepped in a hole, closed injury

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3 months later she returns with medial wound drainage. She had I&D, retention of hardware.



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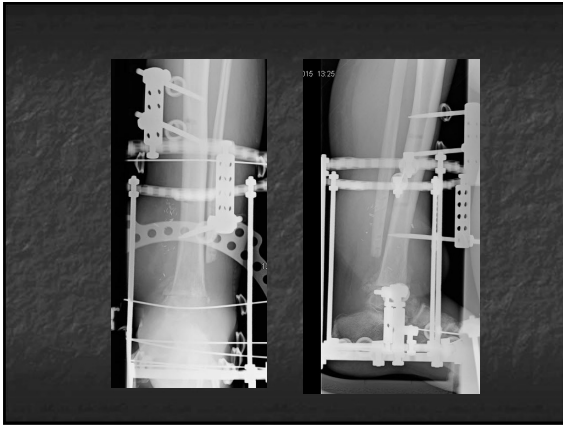
She disappears for a few months. She has large 'blister' appear medially. And we find out she is on heroin.



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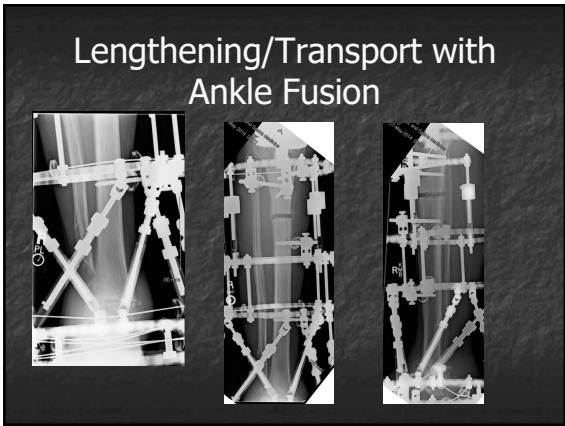


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Lengthening/Transport with Ankle Fusion

- 55 yo male, 8 yrs out from open ankle fx
- Severe valgus deformity, pain
- Possible h/o infection

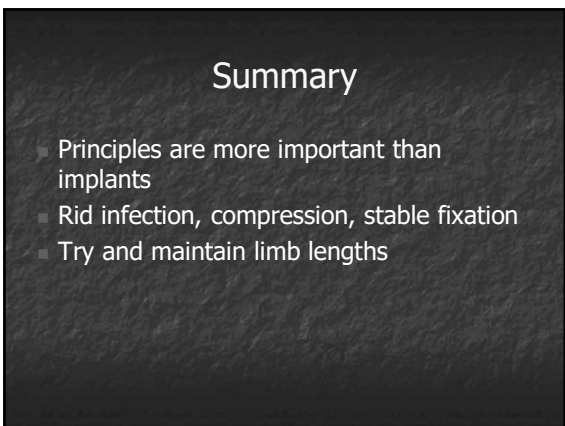
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