

# The Forgotten Arthroplasty: Total Ankle



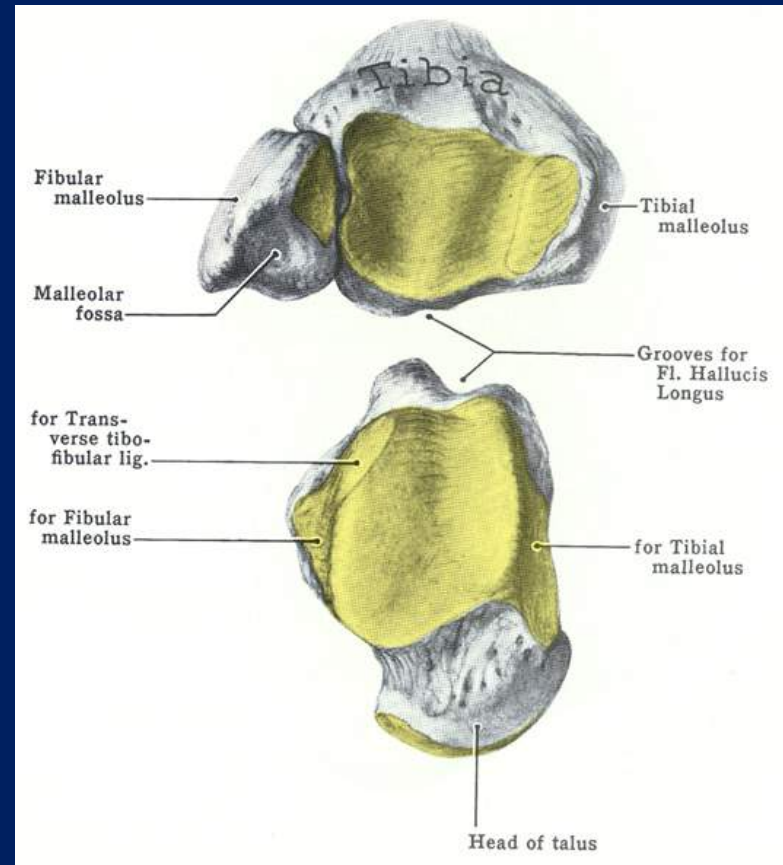
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# Anatomy

- Articular surface area of the ankle is smaller than that of the hip and knee



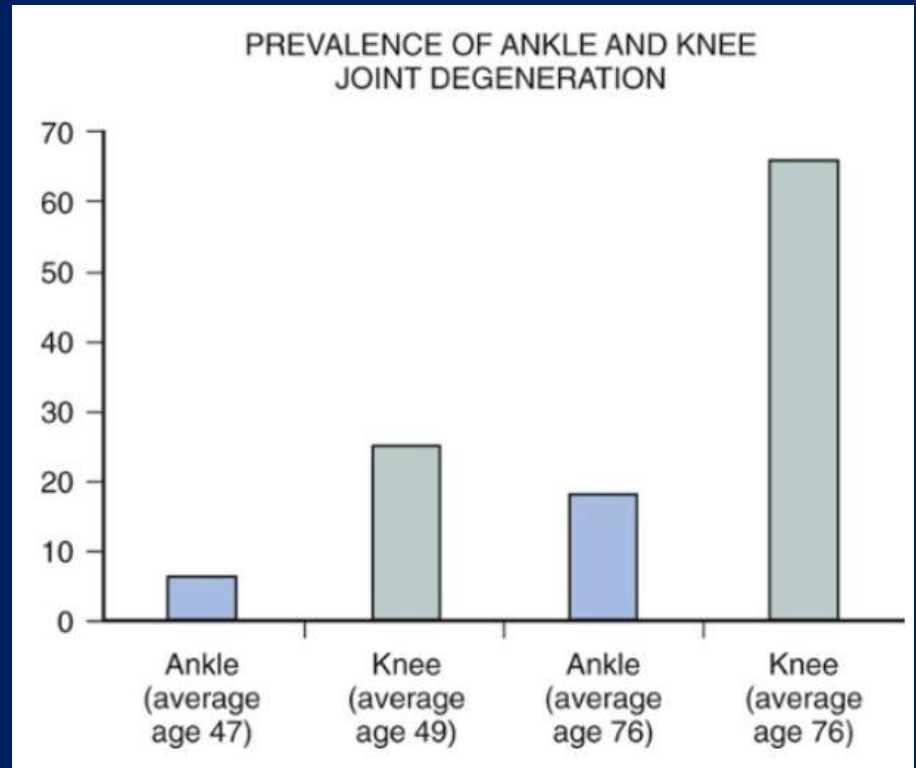
# Anatomy

- Articular cartilage of the ankle is thinner



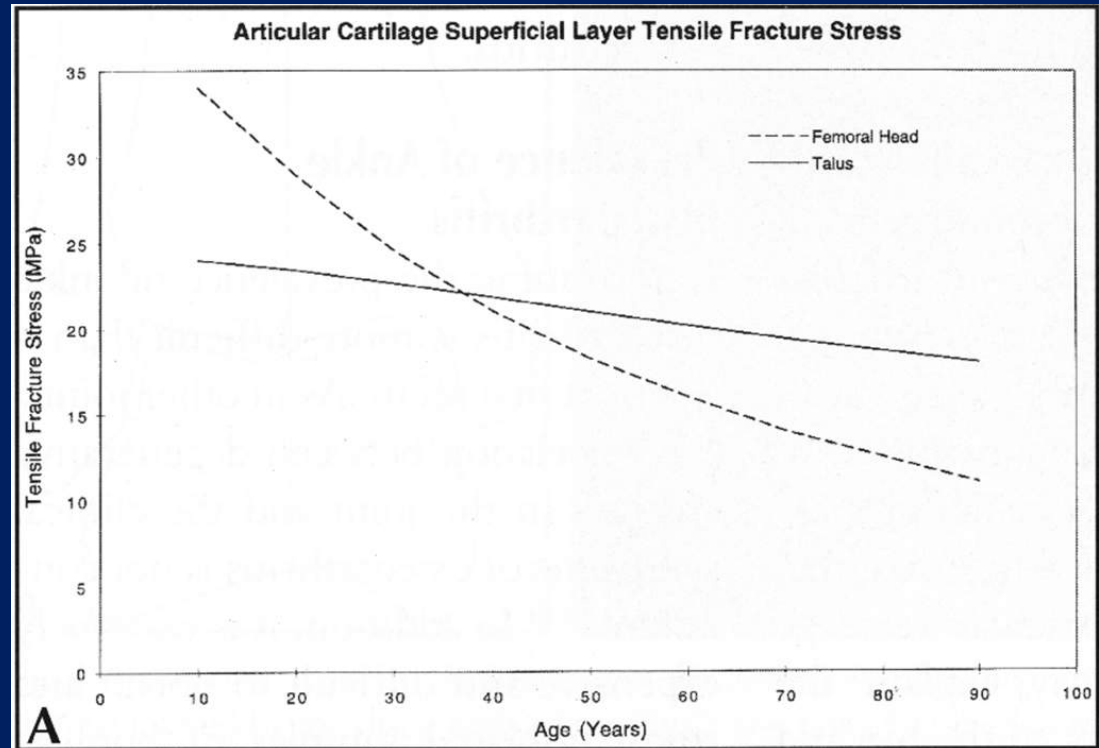
# Etiology

- Primary DJD of the ankle is uncommon despite higher contact stress



# Etiology

- Articular cartilage of the ankle is stronger over time
- Metabolism



# Etiology

- Secondary causes
  - Trauma
    - Soft tissue
    - Bony



# Etiology

- Secondary causes
  - Rheumatoid Arthritis
  - Crystalline Disease
  - Seronegative Arthropathies



# Operative Gold Standard?



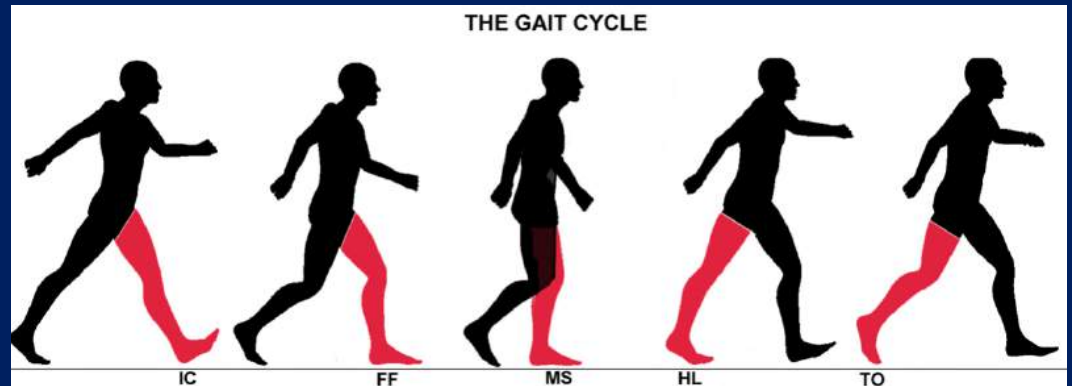


# Better Biomechanics

- Ankle Joint Motion is important
  - 68% of motion through the TAA
  - Cavus and Neutral Feet
  - Allows for a more normal gait
  - Less Adjacent Joint Arthritis



# Gait

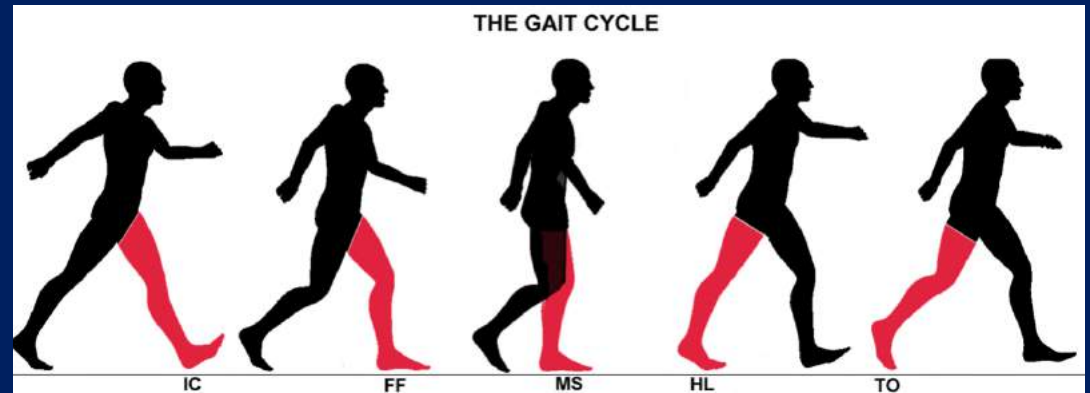


- 17 TAA vs 17 Arthrodesis
- 10 Matched Controls
- Sagittal Plane Motion:  $18.1^\circ$  versus  $13.7^\circ$ ;  $p < 0.05$
- Dorsiflexion:  $11.9^\circ$  versus  $6.8^\circ$ ;  $p < 0.05$
- Conclusion: “The gait patterns of patients following three-component, mobile-bearing total ankle arthroplasty more closely resembled normal gait when compared with the gait patterns of patients following arthrodesis.”

J Bone Joint Surg Am. 2013 Dec 18;95(24):e191(1-10).

Ankle arthroplasty and ankle arthrodesis: gait analysis compared with normal controls.

# Gait



- 50 consecutive TAA patients
- Walking velocity increased
  - increases in cadence and stride length
- Increases in ankle power
- “...the study demonstrated marked improvement in multiple, objective parameters of gait following total ankle arthroplasty as compared with the patient's own preoperative function.”

# Adjacent Joint Arthritis after Fusion

- Systematic Review of 24 Articles 1974 to time of publication
  - 24% to 100% Subtalar Arthritis
  - 18% to 77% Talonavicular and Calcaneocuboid Arthritis



JBJS: March 18, 2015 - Volume 97 - Issue 6 - p 513-519

Investigating the Relationship Between Ankle Arthrodesis and Adjacent-Joint Arthritis in the Hindfoot: A Systematic Review.

# Less Complications

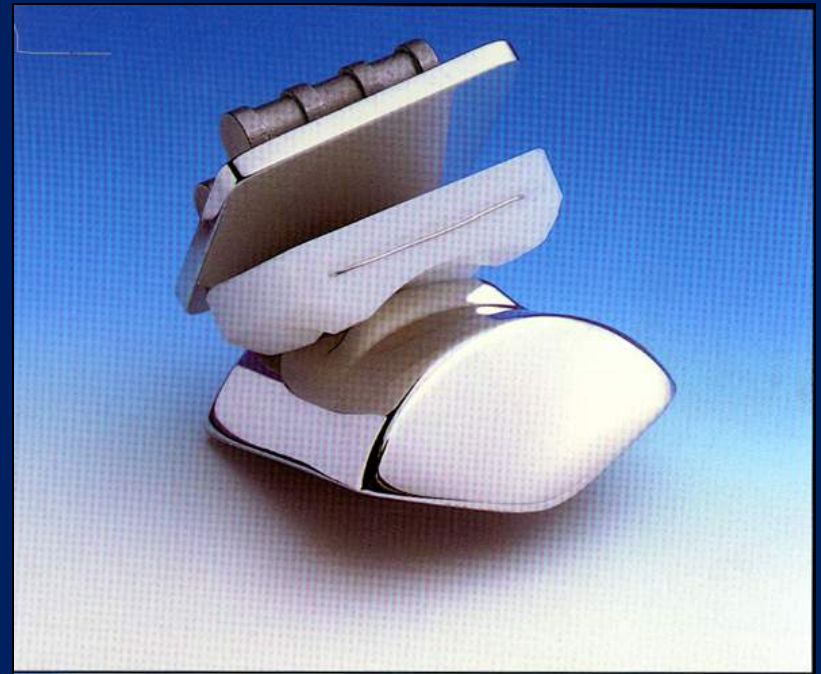
- 517 Patients underwent operative intervention for ankle arthritis
- “The risk of an ankle-specific AE was slightly higher in the arthrodesis group versus the arthroplasty group, odds ratio (OR) 1.84, 95% confidence interval (CI, 0.85, 3.98).”

# Less Complications

- 1574 matched pairs of TAA and Arthrodesis
- “Ankle arthrodesis was 1.8 times more likely to be followed by a major complication (odds ratio [OR] = 1.78, 95% confidence interval [CI] = 1.32 to 2.39)”

# Longevity

- INBONE 5.9 years: 90.6%
- Salto Talaris 5.2 years: 97.5%
- HINTERGRA 10 years: 84%
- STAR 15-year survival: 73%



# Revisions

- 117 patients underwent revision TAA after 4.3 years
- After 6.2 years, 83% survival rate
- “The medium-term results of revision arthroplasty after a failed total ankle arthroplasty were similar to those after primary arthroplasty.”



# Better Outcomes

- 273 consecutive patients
- Arthrodesis and 2 generations of TAA
- “The average improvement in the MFA and SF-36 PF scores was better after TAR than after arthrodesis, particularly when the TAR had been done with later-generation implants.”

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