Percentage of Articular Surface Debridement is Equivalent in Arthroscopic and Open Ankle Fusions

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Disclosure

There are no potential conflicts to disclose with this presentation

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Our disclosures are listed in their entirety in the final AOFAS mobile app.
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Background

• Tibiotalar arthrodesis is a reliable option in the treatment of end-stage ankle arthritis
  • Both open and arthroscopically assisted techniques well described

• Advantages of arthroscopic arthrodesis over open fusions:
  • Decreased morbidity
  • Shorter hospital stays
  • Equivalent or increased rates of fusion

• Extent of cartilage debrided via each procedure has not been established
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**Methods**

- Six matched sets of fresh frozen cadaver lower extremities
  - One extremity randomly assigned to open fusion, one assigned to arthroscopic fusion
  - Duration of procedure was timed
  - Following debridement the extremities were disarticulated and the percent of residual cartilage was mapped using ImageJ software
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Results

• Arthroscopic
  • 88.99±11.19% of cartilage debrided tibial plafond
  • 88.84±5.45% of cartilage debrided talar dome
  • 50.17±5.57 minutes

• Open
  • 82.93±6.91% of cartilage tibial plafond
  • 84.08±5.45% of cartilage talar dome
  • 30.67±5.16 minutes
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**Figure 1.** Comparing the average percent of articular cartilage debrided at the tibiotalar joint in open vs. arthroscopic debridement. No significant differences were observed.
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• There were no differences in the percentage of articular surface debrided when comparing arthroscopic versus open arthrodesis of the ankle joint in cadaver specimens.

• Time difference between procedures may be offset by a decrease in time required for wound closure.
  • Furthermore, increased time of debridement may be warranted if it results in decreased wound complications and pain.

• This study supports previous clinical findings that arthroscopic debridement can yield fusion rates comparable to, or better, than open debridement of the ankle joint.
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Limitations

- Extent of debridement necessary for successful fusion has not been established
- Cartilage mapping was completed with 2-demensional photos while the articular surfaces are 3-demonensional
- Time may be inaccurate
  - Limitations of equipment in lab
  - Time for fixation not accounted for
  - Handling characterizes of cadaver specimens versus living patients may be different
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References


