Comparing Sports Activity Following Total Ankle Replacement vs Ankle Arthrodesis

Seth Richman, M.D., Tyler Rutherford, B.S., Timothy Rearick, M.D., Rebecca A. Cerrato, M.D., Clifford L. Jeng, M.D, and John T. Campbell, M.D.
Disclosures

• The authors have no relevant conflicts to disclose

• Full list of disclosures can be found on the AAOS website
Ankle Osteoarthritis

• Ankle arthritis is painful & debilitating, often progressive leading to significant impairment $^{1,2,7,9}$
  – Commonly causes activity limitations in sports or exercise regimen$^1$

• Two primary operative treatment modalities for end stage ankle OA:
  – Total Ankle Replacement (TAR) $^4$
  – Ankle Arthrodesis (AA) $^4$
Objective

• Study Purpose:
  – Provide a meaningful comparison of pre & post op sports related activity levels after TAR & AA in U.S. population
    • Using current FDA approved TAR implants
    • With validated outcome measures
      – SF 12 and FFI-R

• Clinical Application Goal:
  – Guide ankle OA treatment algorithms
  – Managing patient expectations post op for participation in sports activities
Methods

• Exclusion Criteria
  • Paralysis, rheumatoid arthritis, non-union, revision surgery, incomplete pre- & post-op scores, and follow up < 2 yrs

• N=113 pts
  • 62 TAR – Salto Talaris (Integra Life Sciences, Plainsboro, NJ) or STAR (Stryker, Kalamazoo, MI)
  • 51 AA – All open with percutaneous screws and/or anterior plate

• Outcome Measures
  • General Health and Wellness (SF-12)
  • Revised Foot Function Index (FFI-R)
  • Return to Sport Activity Questionnaire
  • Satisfaction
  • Visual Analog Scale

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Aerobic</td>
<td>Golf</td>
<td>Spinning</td>
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<tr>
<td>classes</td>
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<tr>
<td>Baseball/softball</td>
<td>Gymnastics</td>
<td>Squash/handball</td>
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<td>Basketball</td>
<td>Ice/roller skating</td>
<td>Swimming</td>
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<td>Mountain hiking</td>
<td>Tennis</td>
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<tr>
<td>Bowling</td>
<td>Running/jogging</td>
<td>Walking</td>
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<tr>
<td>Dancing</td>
<td>Water skiing/Wake Boarding</td>
<td>Weight-lifting</td>
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<td>Football</td>
<td>Snowboarding</td>
<td>Ice/field hockey</td>
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<tr>
<td>Gardening</td>
<td>Soccer</td>
<td>Yoga</td>
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## Methods

Table 1
Demographics (N=113) of Ankle Fusion and Total Ankle Replacement Groups

<table>
<thead>
<tr>
<th>Variables</th>
<th>Ankle Fusion (N=51)</th>
<th>TAR (N=62)</th>
<th>P-value</th>
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</thead>
<tbody>
<tr>
<td>Age (yr)</td>
<td>57.03 (12.12)</td>
<td>64.9 (8.57)</td>
<td>&lt; 0.001</td>
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<tr>
<td>Gender (male/female)</td>
<td>27/24</td>
<td>31/31</td>
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<tr>
<td>Smoking</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Diabetes</td>
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</tr>
<tr>
<td>Obesity</td>
<td>6</td>
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<tr>
<td>Etiology (PT/OA)*</td>
<td>26/24</td>
<td>40/22</td>
<td></td>
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</tbody>
</table>

* Posttraumatic Osteoarthritis, Primary Osteoarthritis
Figure 1 – Postoperative activity distribution
Results

Figure 1 – Postoperative activity participation after Fusion and TAR
Results

Figure 3 – Summary of decrease in activity participation for the AA group

Figure 4 – Summary of opposing change in activity participation for the AA & TAR group
Results

Figure 4 – Postoperative Satisfaction

Figure 5 – Postoperative Visual Analog Scale for Pain
Conclusion

• TAR’s compared to AA’s
  • Perform a more diverse range of activities postoperatively
  • Regained more function
  • More satisfied
  • Less pain
  • Met their activity expectations postoperatively
    • AA did not
• Both groups had significant improvement in SF-12 & FFI-R post op
• The data from this study can help guide patient expectations postoperatively and will allow the surgeon to more confidently recommend a treatment method based on patient’s current function and goals
References


