Do Outcomes Measures Differ by Ankle Pathology?

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INTRODUCTION

◆ People with various ankle pathologies present with different levels of disability and activity level.

◆ The purpose of this study was to determine associations between different ankle pathologies and outcomes scores.
METHODS

- This study was IRB approved
- All data were collected prospectively
- Between Jan 2010 and Dec 2011, all patients who underwent surgery for an ankle injury completed a pre-op questionnaire with outcomes measures currently in use
  - Tegner activity scale
  - Foot & Ankle Disability Index (FADI) Sport Subscale
  - Foot and Ankle Ability Measure (FAAM) Sport Subscale
- Detailed surgical findings were also documented
- 144 consecutive patients completed the survey
  - 50 males, 94 females
  - Mean age = 42 years (range, 18 - 75 years)
**Tegner Activity Scale**

- **Level 10** Competitive Sports (national elite (soccer, football, rugby))
- **Level 9** Competitive Sports (lower divisions (soccer, football, rugby, hockey))
- **Level 8** Competitive Sports (racquetball, track, alpine skiing)
- **Level 7** Competitive Sports (recreational sports (soccer, football))
- **Level 6** Recreational Sports (tennis, skiing, jogging 5x/week)
- **Level 5** Work (heavy labor, competitive sports, recreational (cycling, x-country ski))
- **Level 4** Work (moderately heavy labor and recreational sports (cycling, jog 2x/wk))
- **Level 3** Work (light labor, competitive and recreational sports (swimming, hiking))
- **Level 2** Work (light labor, walking on uneven ground)
- **Level 1** Work (light labor, walking on even ground possible)
- **Level 0** Sick leave or disability (due to injured joint)

Tegner and Lysholm, *CORR* 1985
Ankle Pathologies

- Synovitis: 49%
- Osteophytes: 40%
- Chondral Defect: 29%
- Ligament Tear: 26%
- Ankle Fracture: 17%
- Tendon Tear: 17%
- Total Ankle Arthroplasty: 6%
- Syndesmosis: 3%

Number of Patients
RESULTS

- There was a significant difference in age for patients who had a tendon tear (50 years) versus those who did not (41 years) (p=0.023)
- Of 42 patients who had chondral defects, 86% (n=36) had an ICRS grade 3 or 4 lesion
- Of 38 patients who had a ligament tear, 84% (n=32) had a tear in at least one of the lateral ligaments:
  - Anterior talofibular ligament (ATFL)
  - Calcaneofibular ligament (CFL)
  - Posterior talofibular ligament (PTFL)
RESULTS

- Patients who had osteophytes were more likely to have synovitis ($p<0.001$)
- Patient age was significantly higher in patients who had osteophytes (46 years) versus those who did not (39 years) ($p=0.013$)
- Patients who had a ligament tear were more likely to have synovitis than those who did not have a ligament tear ($p=0.001$)
- There was a significant difference in patients who had ankle fractures (35 years) versus those who did not (44 years) ($p=0.004$)
## RESULTS

<table>
<thead>
<tr>
<th></th>
<th>Tegner</th>
<th>FAAM Sport</th>
<th>FADI Sport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tendon Tear</td>
<td>1 (range, 0-2)</td>
<td>33 (range, 0-78)</td>
<td>33 (range, 0-78)</td>
</tr>
<tr>
<td>Chondral Defect</td>
<td>3 (range, 0-10)</td>
<td>46 (range, 0-100)</td>
<td>46 (range, 0-100)</td>
</tr>
<tr>
<td>Ligament Tear</td>
<td>3 (range, 0-9)</td>
<td>49 (range, 0-100)</td>
<td>49 (range, 0-100)</td>
</tr>
<tr>
<td>Osteophyte</td>
<td>4 (range, 0-10)</td>
<td>54 (range, 0-100)</td>
<td>54 (range, 0-100)</td>
</tr>
<tr>
<td>Fracture</td>
<td>5 (range, 0-10)</td>
<td>47 (range, 0-100)</td>
<td>47 (range, 0-100)</td>
</tr>
</tbody>
</table>

- Patients who had tendon tears of the ankle had lower FADI sport ($p=0.005$), FAAM sport ($p=0.005$) and Tegner activity scale ($p=0.001$) scores than those who did not have a tendon tear.
CONCLUSIONS

- This study showed that patients with ankle fractures were more likely to be younger while older patients were more likely to have tendon and osteophyte pathology.
- Outcome scores are associated with age, which may be a confounding variable with type of injury.
- Tegner activity scale, FADI and FAAM sport subscale may be sensitive outcomes instruments in assessing activity level in patients with tendon pathology.
- More research is necessary to determine other predictors of ankle pathology and sensitivity of these outcomes measures.