**Background**

- **Tibial Tubercle Osteotomy (TTO)** is a surgical procedure used to improve the alignment of the patella by changing the insertion point of the patellar tendon on the tibial tubercle.
- Return to sport and/or duty following surgery is a significant goal that needs to be considered by those undergoing the procedure.

**Purpose**

- Evaluate the use of TTO surgical intervention as treatment for recurrent patellar dislocations.
- Determine effective RTS / RTD proportions following TTO.

**Methods**

**Databases:** Medline, CINAHL, Embase, SportDiscus

**Inclusion:** Human subjects, all ages, TTO for patellar instability, RTS or RTD, > 10 participants, English language, prospective or retrospective

**Exclusion:** Non-human subjects, non-surgical studies, TTO not performed, studies not reporting RTS or RTD, case studies with < 10 participants, not original study

**Outcomes:** Satisfaction scale, KOOS, Kujala, Tegner, KSS,VAS Pain, IKDC, rehab guidelines varied, RTS or RTD

**Results**

- **Article Inclusion:** 13 studies (9 RTS, 4 RTD) out of 1188 identified in database search.
- **Risk of Bias:** 1 High quality, 11 Medium quality, and 1 Low quality.
- **Total Patients:** 502 (153 RTD, 349 RTS)
- **Common Sports:** Volleyball, soccer, running, basketball
- **Surgical:** 57% of TTOs were anteromedializations. Lateral release was performed concomitantly in 35.3%.
- **Rehabilitation Guidelines:** Highly variable in weight-bearing restrictions, immobilizer use, CPM use, and ROM protocols.
- **Readiness for Return:** Isokinetic strength with limb symmetry comparison was the most used measure
- **Career Longevity:** One study reported that only 10.5% of service members performed an active duty deployment following TTO.

**Analysis**

<table>
<thead>
<tr>
<th></th>
<th>Return to Activity (RTA)</th>
<th>Return to Sport (RTS)</th>
<th>Return to Sport at Previous Level (RTSP)</th>
<th>Return to Duty (RTD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>334</td>
<td>281</td>
<td>124</td>
<td>153</td>
</tr>
<tr>
<td><strong>Returned</strong></td>
<td>232</td>
<td>203</td>
<td>60</td>
<td>106</td>
</tr>
<tr>
<td><strong>Ratio</strong></td>
<td>0.69</td>
<td>0.72</td>
<td>0.48</td>
<td>0.69</td>
</tr>
<tr>
<td><strong>P-value</strong></td>
<td>0.0*</td>
<td>0.0*</td>
<td>0.0*</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>I²</strong></td>
<td>89.1%</td>
<td>92.5%</td>
<td>94.0%</td>
<td>38.7%</td>
</tr>
<tr>
<td><strong>Articles Reporting</strong></td>
<td>12</td>
<td>8</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**Conclusions**

- 69% of patient return to some level of activity postoperatively
- Limitations often persist following return, restricting return to pre-surgical levels of activity
- Guidance in rehabilitation is highly variable

**Clinical Relevance**

Tibial tubercle osteotomies serve as a final attempt to correct chronic patellar instability. However, functional limitations often persist following rehabilitation.

**Acknowledgements / References**

We would like to acknowledge research and education librarian Brandi Tuttle for her assistance with the database search. References available upon request.