Diagnoses

Observe and palpate tendon and surrounding tissues

Assessment

Foot/Ankle mobility
- WBDF
- Hypomobility
- Hypermobility
- 1st MTPJ extension
- Distal TFJ

Knee mobility
- Flexion
- Extension
- Hyper-Extension
- PFJ Hypomobility/ Hypermobility

Hip mobility
- Flexion
- Extension (Thomas Test)
- IR
- ER
- Abduction, Lx lateral collapse

Flexibility
- Knee to wall
- Toe touch
- Prone heel to bum
Achilles Tendinopathy

Inflammatory - AS, RA, PA, Gout

Insertional - Severs Disease (Mainly adolescent population)
- Fat Pad
- Retrocalcaneal bursa

Midportion - Paratendon
- Tear/ partial tear
- Accessory Soleus
- Plantaris

Patella Tendinopathy

Tibial Tuberosity - Osgood Schallatters
- Infrapatella bursitis
- Pes Ans

Inferior Pole - PFJ
- Fat pad
- Singding larsson johansson

Functional Assessment

Squat Gait cycle

Stairs Hop/Jump

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Treatment Strategy

Address Extrinsic factors with patient

<table>
<thead>
<tr>
<th>Isometric loading protocol</th>
<th>Isometric loading protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achilles</td>
<td>Patella</td>
</tr>
<tr>
<td>• Mid-range (ROM)</td>
<td>• Mid-range (ROM)</td>
</tr>
<tr>
<td>• BW heel raise</td>
<td>• 40-50% MVC (leg Ext)</td>
</tr>
<tr>
<td>• 40-60 seconds</td>
<td>• DL Squat mid range hold</td>
</tr>
<tr>
<td>• 3-5 reps</td>
<td>• 45-60 sec 3-5 reps</td>
</tr>
<tr>
<td>• x2 Daily</td>
<td>• x2 daily</td>
</tr>
</tbody>
</table>

(see table overleaf for irritation, If pain persists for >3 days a period of rest should be advised)

<table>
<thead>
<tr>
<th>Irritable Pain</th>
<th>Stable Pain</th>
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</thead>
<tbody>
<tr>
<td>Pain</td>
<td>&gt;3 days of irritation</td>
</tr>
<tr>
<td>Pathology</td>
<td>Reactive, Dis-repair</td>
</tr>
</tbody>
</table>

A “polypill” for acute tendon pain in athletes with tendinopathy?

Treatment of tendon pain Selective NSAID prescription

Recent research and clinical experience suggests that NSAIDs may act via mechanisms other than those which alter the standard inflammatory cascade. Ibuprofen, indomethacin and naproxen have been demonstrated to inhibit aggrecan expression in in-vitro tendon preparations (Ferry et al. 2007)
The use of ibuprofen in tendinopathy is supported by studies of tendon repair after transection, where ibuprofen was the only NSAID of six NSAIDs not to have a detrimental effect.

**TNF inhibitors**

Some evidence exists that TNF may affect both structural change and pain in activity-induced tendinopathy. Up-regulation of TNF is also associated with apoptosis. Apoptosis may be a key process in tendinopathy in humans as apoptotic cell death was recently shown to be a feature of patellar tendinopathy in humans.

Doxycycline, commonly used in acne for both antibacterial and anti-inflammatory effects, has been shown to block the action of TNF. Doxycycline also inhibits connective tissue breakdown.

Paradoxically, most anti-inflammatory agents (naproxen celecoxib, diclofenac) increase TNF levels (Rubin, 2004)

**Dosage**

Standard anti-inflammatory (Ibuprofen 400 mg tds) and anti-microbial doses (Doxycycline 100 mg daily) are given to athletes with acutely painful tendinopathy. The medication is continued for 14—28 days with an impression of optimal effect by the third week. The addition of non-pharmaceutical medications such as green tea or omega 3 fatty acids can be without restriction.
References


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