Guidelines for:
Chronic Heel Pain - PLANTAR FASCIITIS
ICF Based Orthopaedic Physical Therapy Practice Guidelines

Foot & Ankle Group

• MEMBERS
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  – Stephen Reischl, PT, DPT, OCS
  – Gary Hunt, PT, DPT, OCS, CPed
  – Mark Cornwall, PT, PhD, CPed
  – Tom McPoil, PT, PhD, ATC (team leader)

Epidemiologic Features

• Plantar Fasciitis
  – Most common foot condition treated by health care providers
  – Occurs in ~ 2 million Americans per year
  – FASIG surveyed over 500 PTs in 2000
    - Of 117 responding - plantar fasciitis most common foot condition treated

Risk Factors

• Strong Association
  – BMI in non-athletic population

• Weak Association
  – Increased age
  – Decreased ankle dorsiflexion
  – Decreased 1st MTP extension
  – Prolonged standing

• Inconclusive
  – Static foot posture
  – Dynamic foot motion

• NO association
  – Height in non-athletic population
  – Height, Weight, & BMI in athletic population


Prognostic Groups

<table>
<thead>
<tr>
<th>Group 1: Full Recovery</th>
<th>Group 2: Full to Partial Recovery</th>
<th>Group 3: Partial Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptom duration &lt; 2 months</td>
<td>Symptom duration 2 to 6 months</td>
<td>Symptom duration &gt; 6 months</td>
</tr>
<tr>
<td>Is non-athletic OR participates in athletic activity</td>
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</tr>
<tr>
<td>BMI &lt; 25 kg/m²</td>
<td>Decreased ankle DF</td>
<td>50 years old</td>
</tr>
<tr>
<td>Recent &amp; substantial increase in standing at work OR athletic activity</td>
<td>BMI 25 to 30 kg/m²</td>
<td>Decreased ankle DF</td>
</tr>
<tr>
<td>Pronated foot posture?</td>
<td>Prolonged standing or walking</td>
<td>BMI &gt; 30 kg/m²</td>
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<td>DMF 25 to 30 kg/m²</td>
<td>Decreased 1st MTP ext</td>
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Clinical Diagnosis

• Diagnosis made with reasonable certainty based on clinical assessment alone
  – Insidious onset of plantar heel pain with WB after period of Non-WB
    - Most noticeable in AM with 1st step or after inactivity
  – Can have antalgic gait
  – History indicates recent change in level of activity
  – Sharp, localized pain under anteromedial aspect of plantar heel
  - Parathesias are uncommon
Tests & Measurements

<table>
<thead>
<tr>
<th>ICF Impairment</th>
<th>GROUP 1</th>
<th>GROUP 2</th>
<th>GROUP 3</th>
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<tbody>
<tr>
<td>Pain</td>
<td>VAS</td>
<td>VAS</td>
<td>VAS</td>
</tr>
<tr>
<td></td>
<td>FAAM Palpation</td>
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</tr>
<tr>
<td>Power of isolated muscles</td>
<td>MMT of extrinsics &amp; intrinsics</td>
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Tests & Measurements

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<tr>
<td>Mobility of single joint/tarsal bones</td>
<td>Active &amp; passive RF &amp; MF mobility DF ROM 1st MTP Ext</td>
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Tests & Measurements

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<tr>
<td>Gait Pattern</td>
<td>Gait Analysis</td>
<td>Gait Analysis</td>
<td>Gait Analysis</td>
</tr>
<tr>
<td>Ligaments &amp; fascia of foot</td>
<td>Windless test</td>
<td>Windless test</td>
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</tr>
</tbody>
</table>

Differential Dx

- Calcaneal Stress Fx
- Bone bruise
- Fat pad atrophy
- Tarsal tunnel syndrome
- Soft tissue, primary or metastatic bone tumors
- Sever disease
- Referred pain secondary to S1 radiculopathy

Interventions

- Level of Evidence Classification
  - Level I: Evidence obtained from high quality randomized controlled trials
  - Level II: Evidence obtained from lesser quality randomized controlled trials or prospective comparative studies
  - Level III: Evidence obtained from retrospective comparative or case-controlled studies
  - Level IV: Evidence obtained from case studies

Manual Therapy

<table>
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<th>Level of Evidence</th>
<th>RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>Manual therapy for short-term (1 to 3 months) pain &amp; function improvement. Techniques: P-A talocrural glide; Lat subtalar glide; subtalar distraction manip</td>
</tr>
</tbody>
</table>

- Young et al, JOSPT 34:725, 2004
## Modalities

<table>
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<tr>
<td>II</td>
<td>Dexamethasone 0.4% or acetic acid 5% delivered via iontophoresis to provide short-term (2 to 4 weeks) pain relief and function.</td>
</tr>
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## Stretching

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<tr>
<td>II</td>
<td>Calf muscle &amp;/or plantar fascia stretching for short-term (2 to 4 months) pain relief &amp; calf flexibility improvement. Stretching dosage can be sustained or intermittent.</td>
</tr>
</tbody>
</table>

- Porter et al, Foot Ankle Int 23:619, 2002

## Taping

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<tr>
<td>II</td>
<td>Calcaneal or low-Dye taping to provide short-term (7 to 10 days) pain relief, but no function improvement.</td>
</tr>
</tbody>
</table>

- Radford et al, BMC Musculoskeletal Disorder 40:870, 2006

## Night Splints

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<tr>
<td>II</td>
<td>Night splints should be used when symptoms $&gt;6$ months. Desired length of wear time $=1$ to $3$ months. Type of splint does not affect outcome.</td>
</tr>
</tbody>
</table>

- Powell et al, Foot Ankle Int 19:10, 1998
- Barry et al, J Foot Ankle Surg 41:221, 2002
- Roos et al, Foot Ankle Int 27:506, 2006

## Orthotic Devices

<table>
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<th>RECOMMENDATION</th>
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<tr>
<td>I</td>
<td>Pre-fabricated or custom foot orthoses can provide short-term (3 months) pain and function improvement. Type of orthotic makes no differences in degree of pain or function improvement.</td>
</tr>
</tbody>
</table>

- Pfeffer et al, Foot Ankle Int 20:214, 1999
- Martin et al, JAPMA 91:55, 2001

## Landorf et al, Arch Intern Med, 2006

- Participant-blinded, randomized trial
- 12 month duration
- 3 groups
  - Sham = 46
  - Pre-FAB = 44
  - Custom = 46
- Outcomes
  - FHSQ
    - Pain
    - Function

![Graph showing comparison of FHSQ scores over 12 months for different interventions.](https://via.placeholder.com/150)
## PT Interventions

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<tr>
<td>2 to 3 iontophoresis Tx</td>
<td>Manual therapy</td>
<td>Specific plantar fascia or calf muscle stretching</td>
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<td>Extrinsic &amp; Intrinsic muscle strengthening</td>
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<td>Taping or Pre-fabricated foot orthoses</td>
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<td>Patient education</td>
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**Group 3:** Partial Recovery

- Specific plantar fascia or calf muscle stretching
- Extrinsic & Intrinsic muscle strengthening
- Taping or Pre-fabricated foot orthoses
- Patient education

**Group 2:** Full to Partial Recovery

- Manual therapy
- Specific plantar fascia or calf muscle stretching
- Extrinsic & Intrinsic muscle strengthening
- Taping or Pre-fabricated foot orthoses
- Patient education

**Group 1:** Full Recovery

- Manual therapy
- Specific plantar fascia or calf muscle stretching
- Extrinsic & Intrinsic muscle strengthening
- Taping or Pre-fabricated foot orthoses
- Patient education

**Thank You**