**Plantar Fasciitis Research**

### Predictors of Response to Physical Therapy Intervention for Plantar Fasciitis

- Individuals with PF for less than 7 months were more likely to respond to physical therapy interventions.
- Some individuals with symptoms greater than 7 months were still able to demonstrate clinically meaningful changes in response to physical therapy intervention.
- Participants who were obese were receptive to physical therapy intervention despite previous that obese individuals have a poor treatment response.

### Early Treatment is Important to Successful Resolution of Plantar Fasciitis when Physical Therapy Intervention is Indicated

- A patient’s expectations regarding treatment can influence their outcomes.

### Foot Position Affects Weight-Bearing Ankle Dorsiflexion Measures in Individuals with Plantar Fasciitis

- Stretching the calves is helpful in individuals with plantar fasciitis, but individuals with plantar fasciitis do not always have limited flexibility.
- Individuals with plantar fasciitis appear to get flexibility by flattening their foot when stretching their calves.

### Impaired Foot Plantar Flexor Muscle Performance in Individuals with Plantar Fasciitis and Association with Foot Orthosis Use

- Individuals with plantar fasciitis had weaker calf and foot muscles than individuals of the same age and weight without plantar fasciitis.
- The longer that individuals wore foot orthoses the weaker their calf and foot muscles were.

### Comparison of Usual Podiatric Care and Early Physical Therapy Intervention for Plantar Fasciitis: Study Protocol for a Parallel-Group Randomized Clinical Trial

- Pragmatic trial to investigate the clinical outcomes and cost-effectiveness of early physical therapy (ePT) and usual podiatric care (uPOD) in individuals with PF.
- The proposed work builds on emerging evidence indicating the benefit of early physical therapy intervention, which has not been established in a population of individuals with PF.
- Estimated study completion Fall 2017.

### The Role of Patient Expectations On Plantar Fasciitis Treatment Outcomes

- Individuals who met 6wk expectations were 6.28 times more likely to achieve treatment success. Individuals who met 6mo expectations were 12.27 times more likely to achieve treatment success.
- No significant differences in treatment outcome between patients with high and low expectations.

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**Plantar Fasciitis (aka, heel pain)**

- Altered patterns of pelvic motion associated with individuals with plantar fasciitis:
  - The pelvis on the same side as the painful heel was:
    - Lower during mid- and terminal stance,
    - Tilted forward during the stance phase.
- Plantar fasciitis is commonly thought to be primarily a foot problem, but it can affect the way one uses their pelvis to walk.

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**Planter Fasciitis and Functionality in Gait**

- The calf muscles of individuals with plantar fasciitis group exhibited less torque and power while walking, especially at push-off phase.

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**Prevalence of Low Back Pain in Individuals with Plantar Fasciitis: A Retrospective Case Control Analysis**

- Individuals with PF were 4.68 times more likely to have lower back pain than the control group.
- Seventy percent of individuals with PF had lower back pain compared to only 38% in the control group and compared to the global prevalence of lower back pain (33%) among individuals 40 to 60 years old.

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**How are the back & pelvis involved?**

- There appears to be a connection between the lower back and plantar fasciitis that may explain why some patients do not respond to treatment directed only at the foot.

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**How will patients respond to treatment?**

- Participants who were obese were responsive to physical therapy intervention despite previous that obese individuals have a poor treatment response.

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**What changes can be seen in the foot & ankle?**

- Plantar fasciitis changes the way the foot is used during walking either to decrease pain or walking differently may contribute to plantar fasciitis.

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**How is gait affected?**

- Plantar fasciitis is associated with impairments of the calf muscles and rehabilitation of the calf muscles is important to restore walking function.

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**Differences in the 3 rocker phases in individuals plantar fasciitis during walking**

- When walking the foot “rocks” from heel strike to foot flat, then to heel off, and finally the toe lifts off the ground.
- Individuals with plantar fasciitis took longer for their heel to lift off.

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**Plantar Fasciitis and Associated with Foot Orthosis Use**

- Plantar fasciitis results in a delay in starting push-off when walking and may be due to pain or impairments of the calf muscles.

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**Systematic Review**

- Moderate to strong evidence: altered timing and loading patters of the rearfoot, midfoot, and forefoot.
- Evidence that supported decreased center of pressure duration, decreased rearfoot impulse, and decreased rearfoot peak vertical ground reaction force at loading response.

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**When measuring flexibility and when stretching the calves to help plantar fasciitis, the arch should be lifted if possible and the foot straight. Individuals with plantar fasciitis may need orthotics and/or foot strengthening to develop their arch.**

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**Plantar Fasciitis Research**

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