Plantar Fasciitis & Exercise

with Rick Kaselj, MS

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  - Returning the Shoulder Back to Optimal Function Seminar
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  - Visit www.ExercisesForInjuries.com

My Story

Rick Kaselj

- BSc – 1997
- MS – 2008 / RC
- Work – physio, studio, gym, rehab
- Courses
- Writing – books, manuals
- Blog – ExercisesForInjuries.com

Rick Hiking 4300 km / 5 months from Mexico to Canada

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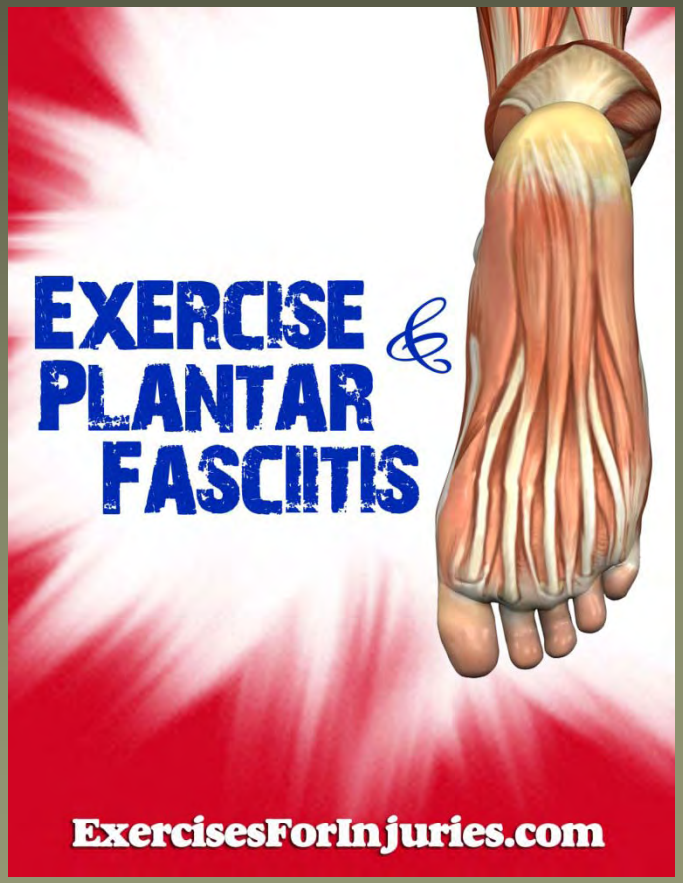
Webinar Objectives



- **Part 1** – Plantar Fasciitis
- **Part 2** – Exercise Considerations for Plantar Fasciitis
- **Part 3** – 3 Month Exercise Program for a Client with a Plantar Fasciitis

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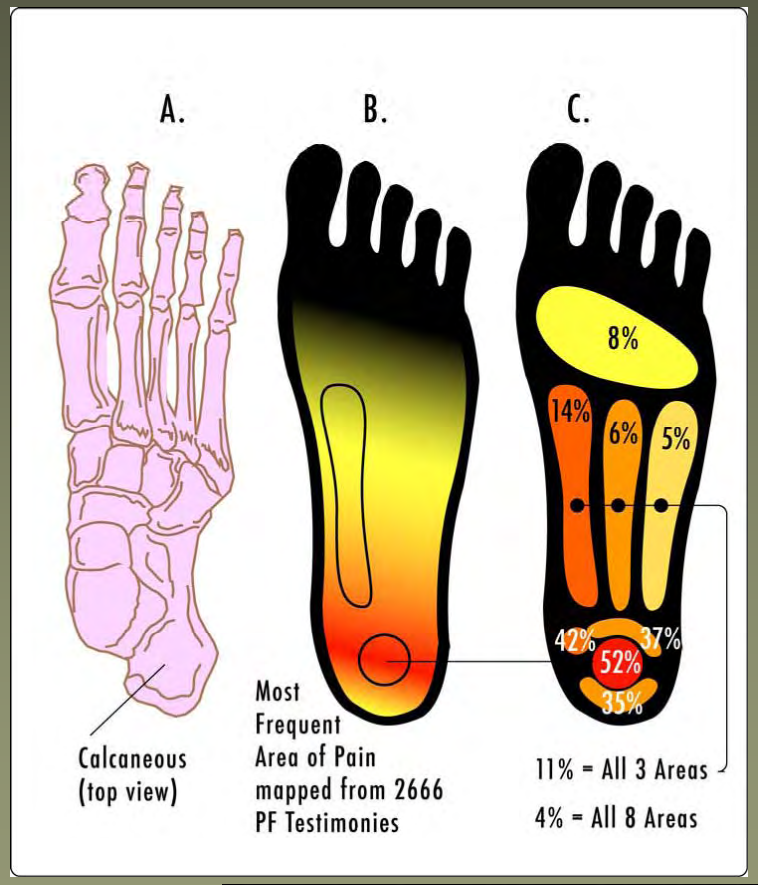
Part 1 – Plantar Fasciitis

What is Plantar Fasciitis?

– "…precise cause remains unclear, the most common theory is repetitive partial tearing and chronic inflammation of the plantar fascia at its insertion on the medial tubercle of the calcaneus." – DiGiovanni 2003

What is Plantar Fasciitis?

- Plantar fasciitis is one of the more common soft-tissue disorders of the foot
- Common problem in adults (Riddle 2003)
- Seen in sedentary and athletic individuals
- 10% of patients with plantar fasciitis develop persistent and disabling symptoms past 10 months (DiGiovanni, 2003)
- Worse in the morning but gets better after tissue is warmed up (Ryan 2009)



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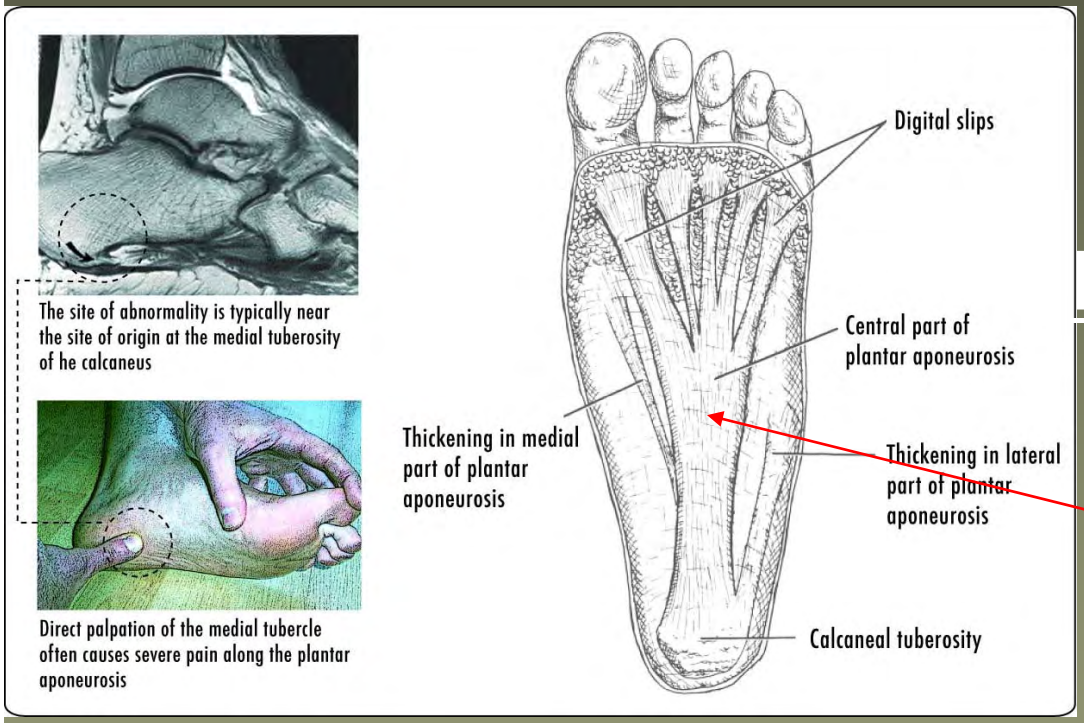
Key Structures Involved in Plantar Fasciitis



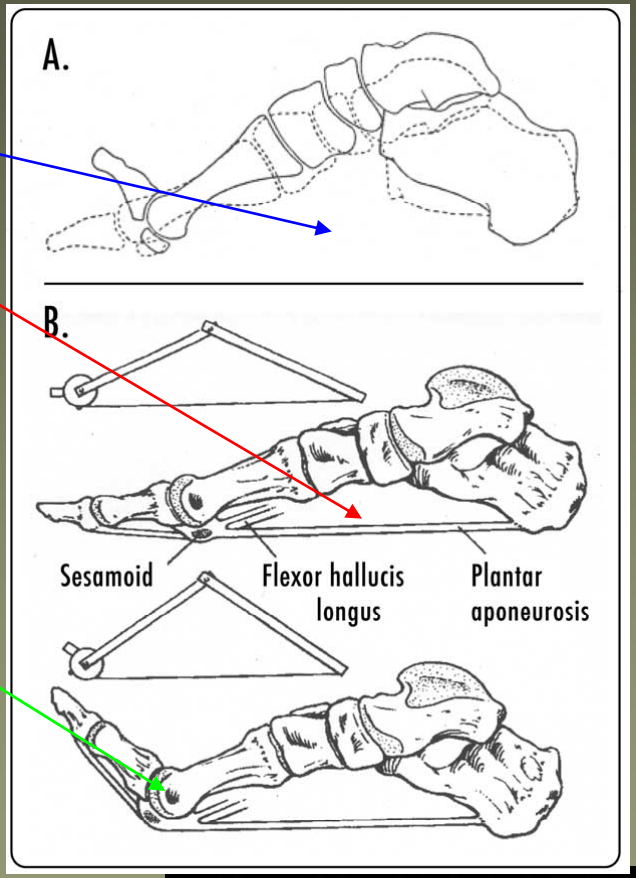
- *Injury to the plantar aponeurosis, leading to pain at the proximal insertion at the medial calcaneal tubercle*

Foot

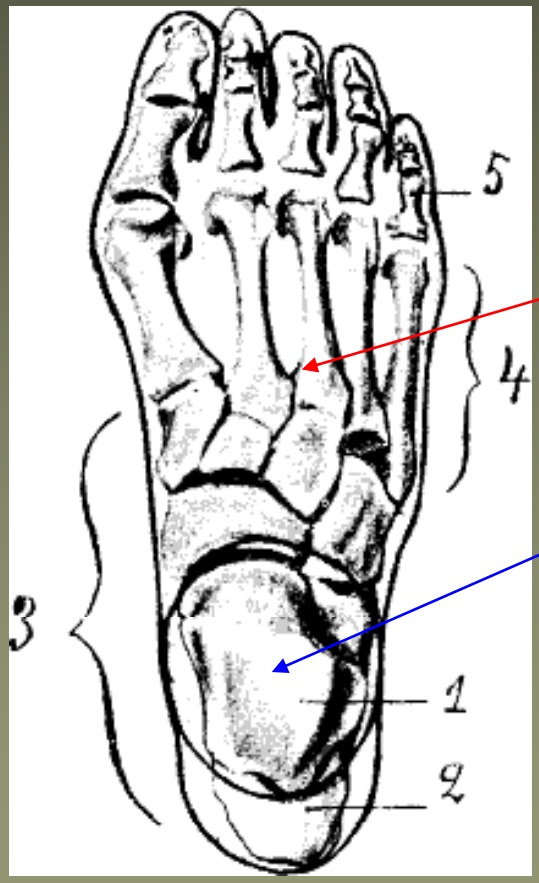
- ***Plantar Fascia***
  - **Plantar aponeurosis – central part**
- ***Calcaneus***
  - **Medial tubercle**

Key Structures Involved in Plantar Fasciitis

- **Plantar Fascia**
  - Plantar Aponeurosis
  - **MTP joint (*metatarsophalangeal* joint)**



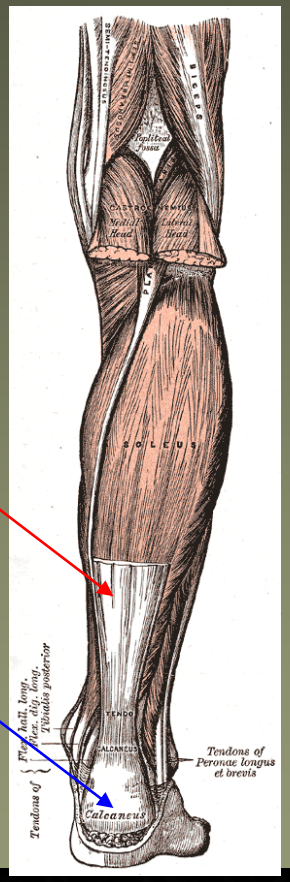
Key Structures Involved in Plantar Fasciitis



- **Other Structures**
  - ***MTP joint* (metatarsophalangeal *joint*)**
  - ***Ankle***

Key Structures Involved in Plantar Fasciitis

- **Other Structures**
  - ***Achilles Tendon***
  - ***Calcaneus***



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Most Common Causes for Plantar Fasciitis

- Body mass index and foot supination at the subtalar joint (Pascual 2008)
- limited ankle dorsiflexion with the knee extended, obesity (BMI>30 kg/m^2) , and time spent weight-bearing (Riddle, 2003)

Most Common Causes for Plantar Fasciitis

– forefoot pronation, high metatarsal pressure on the gait assessment, increasing time spent standing on hard surfaces (Werner 2010)

Plantar Fasciitis Treatment Options

- ICE
- Shoe modifications
- Use of prefabricated shoe inserts
- Use of custom shoe inserts
- Stretching exercises
- Physical therapy
- Nonsteroidal anti-inflammatory medications
- Cortisone injections
- Night splints
- Application of a cast
- Heel Cups
- Activity Modification
- Surgery (less than 50% happy with results from surgery Davies 1999)

Part 2 – Exercise Considerations for Plantar Fasciitis

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Important Training Techniques for a Client Recovering from Plantar Fasciitis

- **<u>Inappropriate Stretching</u>**
  - Focus on Achilles tendon and not plantar fascia
    - *(DiGiovanni 2003)*

Important Training Techniques for a Client Recovering from Plantar Fasciitis

Nonspecific Stretching Technique

- Structure-specific plantar fascia-stretching program for eight weeks have a better functional outcome than do patients managed with a standard Achilles tendon-stretching protocol
- Stretches target other structures other than plantar fascia

- (DiGiovanni, 2003)

Important Training Techniques for a Client Recovering from Plantar Fasciitis

- **Incorrect Ankle and Toe Position to Target Plantar Fascia**
  - Ankle and MTP joint (metatarsophalangeal joint) dorsiflexion produced a significant increase (14.91%) in stretch in the plantar fascia
  - Ankle dorsiflexion alone created a 9.31% increase in stretch on the plantar fascia
  - MTP dorsiflexion alone created a 7.33% increase in the plantar fascia
  - no significant increase in stretch with positions of abduction or varus (2.49%,)
  - (Flanigan, 2007)

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Important Training Techniques for a Client Recovering from Plantar Fasciitis

- **<u>Lack of Ankle Dorsiflexion</u>**
  - Reduced ankle dorsiflexion appears to be the most important risk factor for plantar fasciitis (Riddle 2003).

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Important Training Techniques for a Client Recovering from Plantar Fasciitis

- **<u>Improper Shoe Insert Recommendations</u>**
  - Rigid custom foot orthotics compared to pre-fabricated flexible
  - (DiGiovanni 2003)

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Essential Components of an Exercise Program when Training a Client with Plantar Fasciitis

1. Eliminating Risk Factors
2. Education
3. Structure Specific Stretching
4. Self Massage
5. Lower Body Stretching
6. Ankle Mobility
7. Footwear
8. Anti-inflammatory
9. Look at the Hip

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Essential Components of an Exercise Program when Training a Client with Plantar Fasciitis

- **<u>Eliminating Risk Factors</u>**
  - Decrease BMI
  - Decrease time on feet
  - Avoid footwear that decreases dorsiflexion of the ankle (high heels)
  - Getting rid of poor footwear

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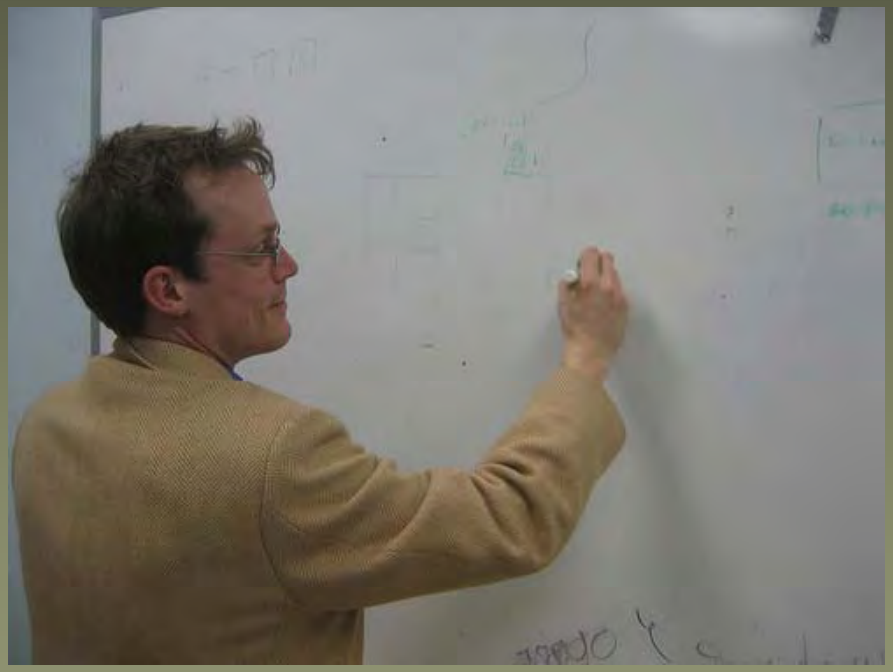
Essential Components of an Exercise Program when Training a Client with Plantar Fasciitis



- **Education**
  - What is plantar fasciitis?
  - What make it worse?
  - What to do about it?
  - How to do exercise program properly?

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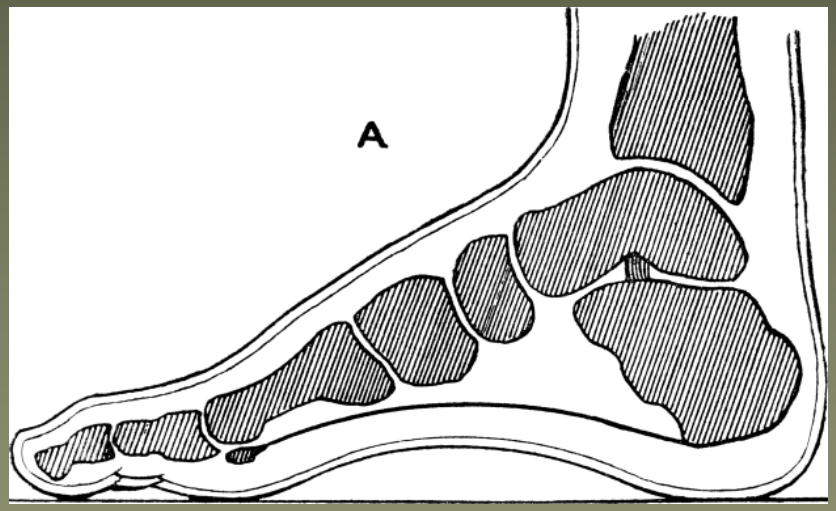
Essential Components of an Exercise Program when Training a Client with Plantar Fasciitis

- **<u>Structure Specific Stretching</u>**
  - Stretches that focus on the plantar fascia



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Essential Components of an Exercise Program when Training a Client with Plantar Fasciitis

- **Self Massage**
  - Calf
  - Hamstring

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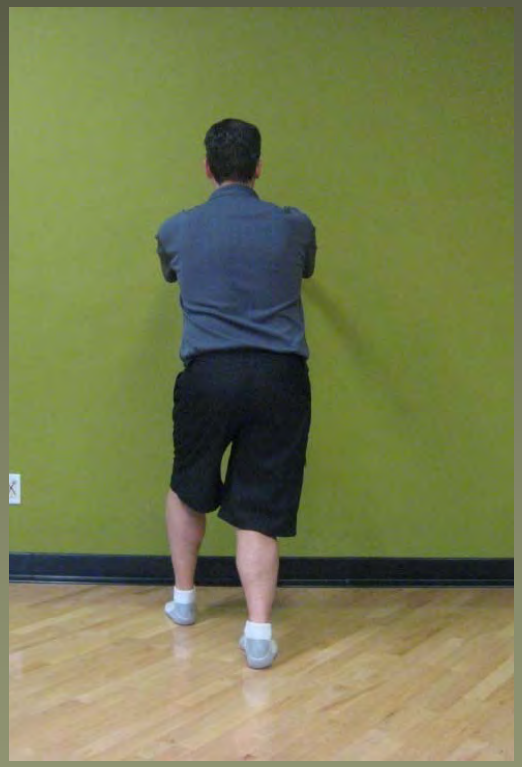
Essential Components of an Exercise Program when Training a Client with Plantar Fasciitis

- **<u>Lower Body Stretching</u>**
  - Calf
  - Soleus



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Essential Components of an Exercise Program when Training a Client with Plantar Fasciitis

- **<u>Ankle Mobility</u>**
  - Static calf muscle stretching provides a small and statistically significant increase in ankle dorsiflexion (Radford 2006)
  - May need physical therapy to help (Cleland 2009)

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Essential Components of an Exercise Program when Training a Client with Plantar Fasciitis

- **Footwear**
  - Soft insoles
  - Shoe rotation
  - Nike Frees
  - Calcaneal tape job

Essential Components of an Exercise Program when Training a Client with Plantar Fasciitis

- **<u>Look at the Hip</u>**
  - Core Stability of the Hip

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Essential Components of an Exercise Program when Training a Client with Plantar Fasciitis

- **<u>Anti-inflammatory</u>**
  - NOT OUR ROLE BUT Short term does may help (DiGiovanni 2003)

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Part 3 – 3 Month Exercise Program for a Client with Plantar Fasciitis

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The Exercise to DO when Training a Client Recovering from Lumbar Spinal Fusion

	Stage 1	Stage 2	Stage 3
Structure Specific Stretching	Fascia Stretch	Fascia Stretch	Fascia Stretch
Self Massage	Foam Roller	Bottle	Ball
Self Massage	Foam Roller Calf - Toe Up	Foam Roller Calf – Toe Out	Foam Roller Calf – Toe Out
Self Massage	Foam Roller Hamstring Toe Up	Foam Roller Hamstring Toe Out	Foam Roller Hamstring Toe Out
Lower Body Stretching	Soleus Stretch - Natural	Soleus Stretch – Toe Straight	Soleus Stretch – Toe In
Lower Body Stretching	Calf Stretch – Natural	Calf Stretch – Toe Straight	Calf Stretch – Toe In
Lower Body Stretching	Soleus Stretch with Foam Roller – Double Heel Drop	Soleus Stretch with Foam Roller – Single Heel Drop	Soleus Stretch with Foam Roller – Off Edge
Lower Body Stretching	Calf Stretch with Foam Roller - Double Heel Drop	Calf Stretch with Foam Roller – Single Heel Drop	Calf Stretch with Foam Roller – Off Edge
Ankle Mobility	Knee to Wall	Knee to Wall on ½ Foam Roller	Heel off Step

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Exercise Rehabilitation Program

Fascia Stretch

- Sitting

-Toe Back

- 10 second hold

- 10 times

- 1 to 3 times a day

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Exercise Rehabilitation Program

Self Massage

-Foam Roller

- Bottle

- Ball

- 10 times

- 1 to 3 times a day

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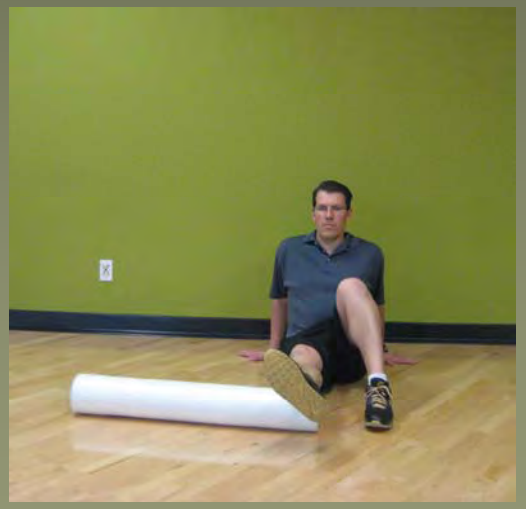
Exercise Rehabilitation Program

Foam Roller Calf



- Toe up
- Toe out
- No foam roller use 2L soda / pop bottle
- Hold until subside
- 1 to 3 times a day

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Exercise Rehabilitation Program

Foam Roller Hamstring

- Toe up
- Toe out (Biceps Femoris)
- No foam roller use 2L soda / pop bottle
- Roll 10 times
- 1 to 3 times a day

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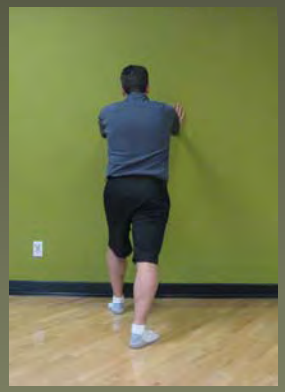
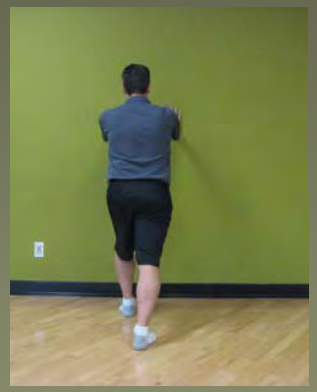
Exercise Rehabilitation Program

Calf Stretch





- Natural
- Straight
- Toe In
- 2 times for 30 seconds
- 1 to 3 times a day

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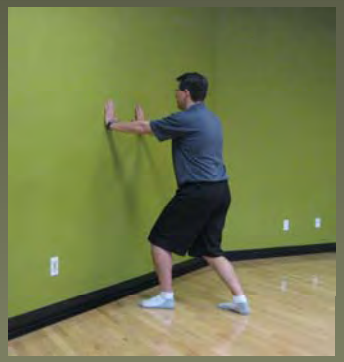
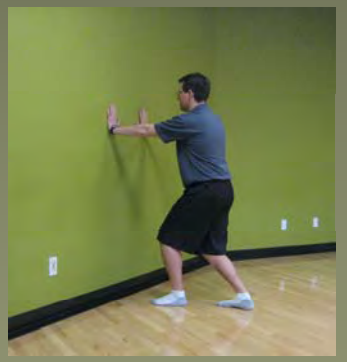
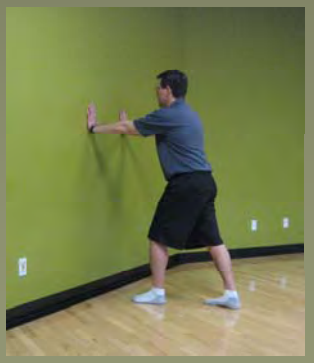
Exercise Rehabilitation Program

Soleus Stretch

- Natural
- Straight
- Toe In
- 2 times for 30 seconds
- 1 to 3 times a day







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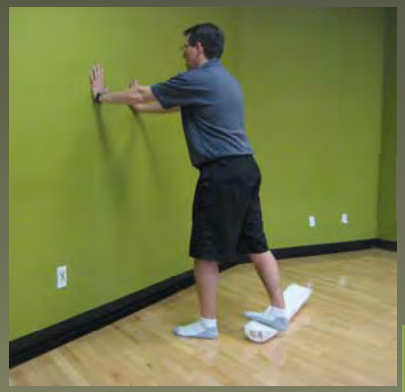
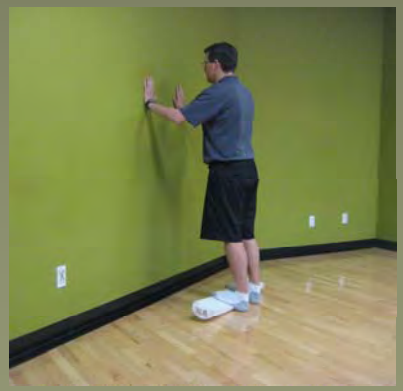
Exercise Rehabilitation Program

Calf Stretch with Foam Roller

- Double heel drop
- Single Heel Drop
- Off Edge
- No foam roller use books
- 2 times for 30 seconds
- 1 to 3 times a day





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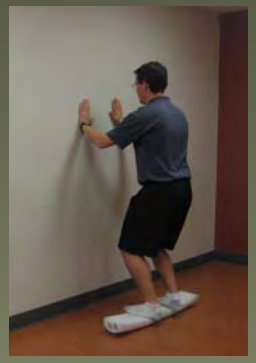
Exercise Rehabilitation Program

Soleus Stretch with Foam Roller



- Double heel drop
- Single Heel Drop
- Off Edge
- No foam roller use books
- 2 times for 30 seconds
- 1 to 3 times a day

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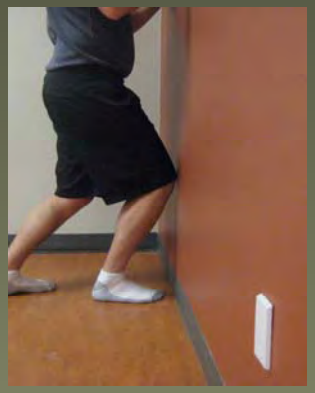
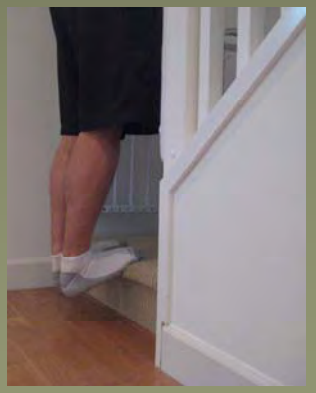
Exercise Rehabilitation Program

Ankle Mobility

- Knee to wall
- Knee to Wall on ½ Foam Roller
- Heel Off Step
- 10 times
- Smooth controlled movement
- 1 to 3 times a day





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Rapid “1 Stretch” Plantar Fascia Exercise Program

Especially for 10% that do not have plantar fasciitis symptoms resolve after 10 months.

In a sitting position, you cross the affected leg over the other leg. Then hand on the affected side, you place them at the base of your toes (metatarsophalangeal joints). Pull your toes back until you feel a stretch in the arch of your foot.

Confirm the stretch by having the free hand touch the plantar fascia to feel that it is stretched.

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Rapid “1 Stretch” Plantar Fascia Exercise Program

- Hold stretch for 10 seconds and repeat 10 times
- Perform 3 times per day
- First stretch was don before taking the first step in the morning.
- Provide them with written instructions
- Have them fill out a stretch log
- Take anti-inflammatory medication (celebrex, or ibuprofen)
- Do this for 8 weeks

Exercise Rehabilitation Program

What about Strengthening the Plantar Fascia?

- No evidence it helps

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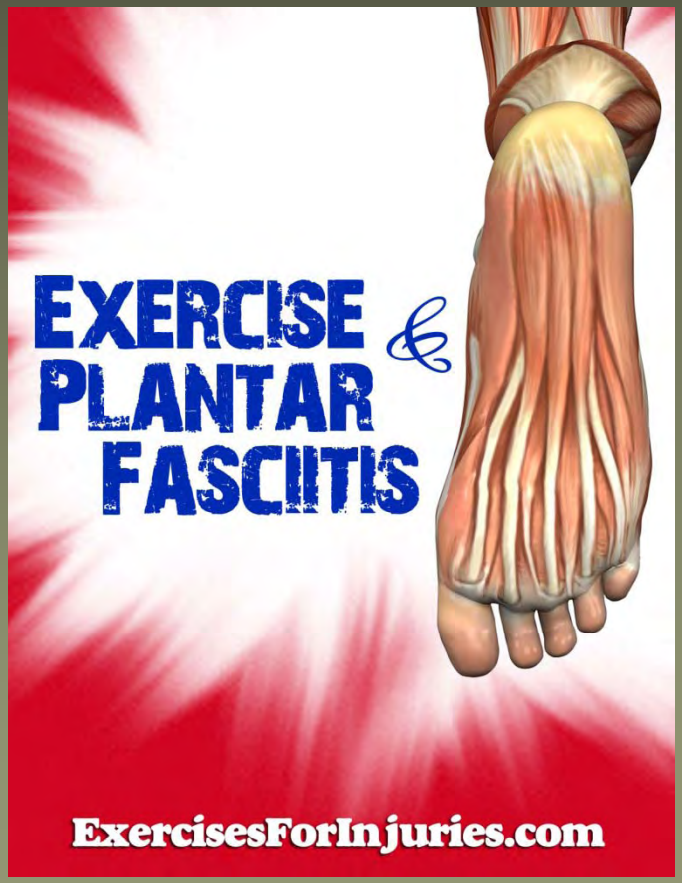

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