

Plantar Fasciitis



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The **plantar fascia** is a thick band of tissue that spans the bottom of your foot from your medial heel to your toes. It helps to support the arch of the foot by undergoing tension when the foot bears weight and assists the foot during gait. Plantar fasciitis is an inflammation of the fascia where it attaches to the medial heel bone.



Symptoms:

- Sharp pain in the heel that worsens when bearing weight on the heel after resting for a prolonged period of time.
- Most complain of pain with their first steps in the mornings, and improvement with prolonged walking.
- Though rare, may have numbness, tingling and swelling.

Causes:

- Running or prolonged standing on hard surfaces
- High arches or flat feet
- Tight calves
- Inappropriate footwear

Treatment and Prevention:

- Focus on calf stretching (gastroc and soleus stretch)
- Arch flexibility (Golf ball rolling, Theraband Flexbar)
- Ankle stability (Single leg balance variations)
- Gait analysis and fitted for orthotics
- Strassburg Sock



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Achilles Tendonitis



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The Achilles is a tendon in the back of your leg that connects your gastroc and soleus muscle to your heel bone. The Achilles allows the foot to plantarflex or point downward. **Achilles tendonitis** is an inflammation or thickened tendon.



Symptoms:

- Pain or burning in the back of the ankle
- Swelling is possible
- Stiffness in the joint
- Worsening of symptoms during or after activity
- Thickening of the tendon and pain to palpate

Causes:

- Inappropriate footwear
- Tight calf muscles
- Excessive foot pronation
- Overuse from high impact activities such as running, jumping and plyometric exercise.

Treatment and Prevention:

- Stretching calves (gastroc and soleus muscles)
- Ankle stability (Single leg balance variations)
- Eccentric heel raises
- Rest/Ice
- Fitted for appropriate footwear or orthotics



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Patellofemoral Pain Syndrome



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The patella (kneecap) glides within a groove on the femur as you straight and bend your knee. The motion of the patella is controlled by the muscles above it, namely the quadriceps, and the angles of your hips and knees while you are walking or running. **Patellofemoral Pain Syndrome** occurs when the gliding motion of the patella is disrupted, causing friction along the cartilage of the groove.



Symptoms:

- Pain with climbing and descending stairs
- Swelling or tenderness along the tendon below the kneecap
- Clicking or locking of the knee

Causes:

- Weakness or imbalance of your hip muscles
- Tightness or inflammation of the ITB band
- Weakness of adductor or quadriceps muscles
- Over striding or a heavy heel strike
- Excessive wear of running shoes

Treatment and Prevention:

- Hip and core strengthening
- ITB and quadriceps rolling or stretching
- Patellar taping (Kinesiotaping or McConnell)
- Strengthening of quadriceps muscles
- Gait analysis



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Iliotibial Band (ITB) Syndrome



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The **iliotibial band** is a long band of fascia which runs the length of your leg from the side of your hip down to outside of your knee. Its purpose is to provide lateral support to the knee and hip, but it can become inflamed by friction over either the outside of the knee or the side of your hip.



Symptoms:

- Snapping or burning sensation over the bump on the outside of your hip as you lift your leg.
- Snapping or burning sensation over the outside of your knee as you run.
- Tenderness over the knee or hip or with deep pressure on along the outside of the thigh.

Causes:

- Running on a banked or cambered surface
- Weakness of hip abductor muscles
- A large increase in mileage
- Heavy heel striking or under-striding

Treatment and Prevention:

- Hip abductor and extensor strengthening
- Stretching and foam rolling of quadriceps and ITB
- Gait analysis of running form
- Balance training and core strengthening



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Metatarsalgia



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The ball of your foot is the metatarsophalangeal joint, and represents a significant point of impact in your walking and running strides. **Metatarsalgia** is a common condition in which too much stress or strain has been placed on this joint, resulting in inflammation throughout the ball of the foot and base of the toes. Stress fractures can present with similar symptoms and - if suspected - should be checked out by a medical professional.



Symptoms:

- Pain and tenderness along the bottom of your feet.
- Pain walking barefoot or descending the stairs.
- Stress fractures will result with sharp pain with all weight bearing activities and pain tends to be felt over the top of the foot.

Causes:

- Worn out sneakers
- Dress shoes are too narrow or put too much pressure on ball of foot
- High arches or improper running shoes
- Tight calves
- Toe strike running pattern
- Recent increase in running intensity or mileage

Treatment and Prevention:

- Calf and arch flexibility
- Toe strength and foot mobility
- Gait analysis to identify running imbalance
- Proper dress and running shoe selection
- Use of metatarsal pad or full length orthotic



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Shin splints commonly occur with the introduction of impact activities, like running or basketball. Shin splints can occur from an irritation of the muscles along the lower leg as the attachment site of the muscle is compromised. Pain along the outside of the shin is commonly associated with too much impact and an irritation of the anterior tibialis muscle. Pain along the inside of the lower leg and arch of the foot is associated with poorly supportive shoes and an irritation of the posterior tibialis muscle.



Symptoms:

- Pain along the outside or inside of the shin bone that increases with running.
- Tender points over either the outside of the shin or along the inside edge of the shin bone.
- A stress fracture will result in very sharp pain with running or even walking, and the shin bone itself may be tender to touch.

Causes:

- Worn out sneakers or improper running shoe
- Over-striding or heavy heel strike
- Recent increase in running intensity or mileage

Treatment and Prevention:

- Calf and shin flexibility
- Proper running shoes with correct arch support and cushion
- Gait analysis to identify running imbalances
- Rest or modification of exercise intensity



Piriformis Syndrome



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The piriformis is a small muscle which attaches to your pelvis and femur. It primarily helps to externally rotate your hip.

Piriformis syndrome occurs when this muscle is overworked or tight and compresses the sciatic nerve as it passes through the back of the hip and buttocks. The result is pain over the buttocks and can result in some radiating pain down the leg.



Symptoms:

- Tender point deep within gluteal muscles.
- Increased pain with sitting on a hard surface or sitting for a prolonged time.
- A sensation of tightness and pain in the buttock and dull symptoms along the back of the thigh.
- Consult with a medical professional if symptoms are felt in lower back or below the level of the knee.

Causes:

- Recent increase in running intensity or trail running
- Weak hip abductors and extensors
- Tight gluteal or hamstring muscles
- Poor core strength

Treatment and Prevention:

- Hamstring and gluteal flexibility
- Piriformis release with ball or manual technique
- Hip abductor and extensor strengthening
- Gait analysis to determine hip alignment
- Core strengthening



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Peroneal Tendinosis



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The peroneal or fibularis muscles run along the outside of your lower leg from the knee to the base of the pinky toe. They are designed to provide lateral stabilizing support to the foot and ankle. If the peroneal muscles are overworked or strained, inflammation will occur along the tendons of these muscles which lay just behind the outside of your ankle bone.



Symptoms:

- Pain or snapping along the outside of your ankle while running.
- Tender points over the outside of the leg or foot.
- Symptoms are increased by pressing the outside of your foot into your hand.
- Swelling along the outside of the heel and ankle.

Causes:

- Worn out sneakers
- Running shoe which provides too much arch support or too little cushion
- Weak hip abductors
- Tight calves
- History of ankle sprains
- Recent increase in running intensity or mileage

Treatment and Prevention:

- Calf and shin flexibility
- Proper running shoes with correct arch support and cushion
- Gait analysis to identify running imbalances
- Hip strengthening and balance training
- Rest or modification of exercise intensity



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Hip Flexor Strain



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The muscles that make up the hip flexors are the iliopsoas, Psoas and rectus Femorus muscles. Though these muscles originate from various places, they all work together to bend the hip to bring the knee to the chest. A **hip flexor strain** can be characterized as small partial tears up to a complete rupture of the tendon or muscle fibers.



Symptoms:

- May feel a sudden sharp pain or a pulling sensation in the front of the hip/groin
- Pain can be minimal or severe
- Pain with walking, running, stair climbing
- Stiffness and/or discomfort with rest
- Swelling and bruising may be present

Causes:

- A sudden contraction of the hip flexor muscles, especially when in a position of stretch (ex: sprinting or kicking)
- Inadequately warming up
- Repetitive activities like running, kicking, jumping

Treatment and Prevention:

- Stretching hip flexors (prone, half-kneeling)
- Rest
- Heat prior to activity – Ice following activity
- Hip and postural strengthening



Hamstring Strain



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The hamstrings are a group of muscles that originate in the back of the thigh originating from the pelvis to the back of the knee, inserting on the tibia. The hamstrings act by flexing the knee and extending the hip. A **hamstring strain** is an excessive stretch or tear of the muscle fibers.



Symptoms:

- Sensation of cramping or tightness and pain when the muscles are stretched or contracted (Grade 1).
- Swelling and immediate, severe pain as well as bruising (Grade 2).
- Immediate burning or stabbing pain with an inability to walk. May be a large lump or a depression under the skin and bruising (Grade 3).

Causes:

- Quick movements, running, sprinting, changing directions
- Muscle weakness or imbalances
- Poor flexibility
- Fatigue
- Inadequate warm up
- A previous hamstring injury

Treatment and Prevention:

- Rest – Ice
- Ace wrap to reduce swelling
- Hamstring stretching
- Gentle static strengthening progressed to dynamic strengthening
- Sports massage

