

Shin Splints

Overview:

Shin splints is the general name given to pain at the front (anterior) of the lower leg. Shin splints is not a diagnosis in itself but a description of symptoms arising from any number of causes. The most common cause is inflammation of the periosteum of the tibia (sheath surrounding the bone) from traction forces from the muscles of the lower leg. Most commonly, shin splints occur early in the season due to improper preparation for the athletic activity

Causes:

- Overuse
- Muscle fatigue
- Anatomic variation (fallen arches, overpronation)
- Poor running techniques
- Poor training surfaces (running indoors on concrete, frozen ground, etc.)
- Improper footwear
- Improper stretching in preparation for activity

Signs & Symptoms:

- Pain in the anterior tibia (can be in one, isolated spot or shooting pains)
- Loss of normal ankle motion and function (particularly flexing the ankle above 90 degrees (dorsiflexion))
- Pain on active, passive and resistive dorsiflexion of the ankle
- Abnormal gait (the way in which one walks)
- Lower leg pain that only occurs with running

Treatment:

- Rest – Decrease in amount of activity
- Heat/Ice and Stretching before activity (Should be done several times a day)
- Ice therapy after activity – ice massage (A block of ice formed into a paper cup that is rubbed on an injury in a massaging action to achieve pain relief)
- Temporary use of an anti-inflammatory such as ibuprofen, advil or Aleve.
- Maintain fitness with other non-weight bearing exercises such as swimming, cycling or running in water
- Proper fitting shoe that is not worn out. Most running shoes are good for 300-500 miles.
- Shock absorbing insoles in the shoes.
- Compression sleeve -- comfort and warmth

Helpful Websites:

[Http://www.sportsinjuryclinic.net/cybertherapist/front/lowerlef/shinsplints.htm](http://www.sportsinjuryclinic.net/cybertherapist/front/lowerlef/shinsplints.htm)

<http://www.mayoclinic.com/health/shin-splints/DS00271>

Patellofemoral Pain Syndrome (PFPS)

Overview:

Patellofemoral Pain Syndrome is also referred to as Chondromalacia Patallae, and Patellalgia. It is a term used to describe anterior knee pain due to abnormal motion. PFPS results in pain between the patella and femur. The pain usually increases gradually with symptoms increasing over a period of time. It is sometimes also called anterior knee pain. In general, Patellofemoral Pain Syndrome occurs when the patella does not move or 'track' in a correct fashion when the knee is being bent and straightened. This movement can lead to damage of the surrounding tissues, such as the cartilage on the underside of the patella itself, which can lead to pain in the region. This injury is quite common in people who do a lot of sport, in particular adolescent girls. PFPS can also occur following a knee injury, if the muscles of the quadriceps (especially VMO) become inhibited or considerably weakened.

Causes:

- Quadriceps weakness (particularly Vastus Medialis Oblique)
- Malalignment of the femur, patella, and tibia (Q-Angle)
- Overpronation of the mid-foot: pronating or 'flat' feet lead to an increased biomechanical stress on the knee joint. This may affect the alignment of the patella particularly during movement. Training errors
- Rapid change in activity, intensity, duration
- Old or inappropriate shoes
- Poor flexibility of hip flexors, hamstrings, IT band
- Rapid change in height or weight
- Increased Q-Angle: Some people have a larger than normal femoral angle (known as the Q-angle) resulting in a 'knock-kneed' appearance (genu valgum). When the person straightens their leg when weight bearing, the patella will be forced to the outside of the knee. With repeated bending and loading, this motion may lead to damage of the underlying structures and cause pain. A larger Q-angle is common in women due to their wider pelvis. This is why more women suffer with this condition than men.

Signs & Symptoms:

- Dull, achy pain surrounding entire patella (may involve one or both knees)
- Pain which worsens during activity (particularly activity requiring stair/hill work)
- Stiffness or pain after prolonged sitting (Theatre sign)
- Knee pain occasionally resulting in weakness or feelings of instability
- Tenderness along the inside border of the patella
- A clicking or cracking sound may be present on bending the knee.
- A Q-angle greater than 18 to 20 degrees.
- Tight muscles including calf muscles, hamstrings

Treatment:

- Avoid activity that worsens the pain
- Stretching and strengthening program that involves quadriceps, hip flexor, and hamstring muscles
- Icing after activity, temporary use of NSAIDs
- Appropriate footwear/orthotics
- Stabilizing bracing/McConnell taping
- Vastus Medialis Oblique (VMO) strengthening exercises combined with stretches for the ITB and any other tight muscles.
- Massage use to loosen tight structures.
- Gait analysis to determine overpronation
- Operation in chronic cases to release the tight lateral structures

Helpful Websites:

http://www.sportsinjuryclinic.net/cybertherspist/front/knee/patellofemorall_pain_syndrome.php

<http://www.aafp.org/afp/991101ap/2012.html>

<http://orthoinfo.aaos.org/topic.cfm?topic=a00382>

Iliotibial Band Syndrome

Overview:

Iliotibial Band Syndrome is an overuse injury most commonly seen in runners and cyclists. The Iliotibial band is a sheath of connective tissue attaching from muscles in the gluteal region to the lateral surface of the tibia. Its purpose is to extend the knee joint as well as abducting the hip. Tendinitis of the IT band usually causes pain just above lateral aspect of knee joint. The greatest friction on the Iliotibial Band occurs when the knee is bent at an angle of approximately 20-30 degrees with is roughly the angle of the knee when the foot strikes the ground when running.

Causes:

- Overuse (running long distances)
- Lack of proper stretching
- Tight musculature (IT band, hip flexors, hamstrings, quadriceps)
- Running on “shoulder” of road (can result in overpronation)
- Old, improper shoes/cleats

Signs & Symptoms:

- Pain on lateral knee above joint

- Pain with knee flexion at 20-70°
- Pain normally aggravated by running, particularly downhill
- Discomfort at start of activity, followed by decrease of pain, then return of pain after
- Constant soreness during activities of daily living
- Increased pain on uneven terrain
- “Snapping” sensation w/ squat motion
- Weakness in hip abduction
- Tenderness in trigger points in the gluteal area may also be present.

Treatment:

- Rest – modification of activity or complete, followed by gradual return to activity
- Heat/Ice and Stretch before activity (should be done several times a day)
- Ice therapy after activity – ice massage
- Temporary use of NSAIDs
- Stretching exercises for entire surrounding musculature
- Chopat strap for compression
- Self massage techniques can also be very helpful in correcting excessive ITB tightness
- A home exercise program that includes exercises to strengthen the hip abductors.
- In acute cases a corticosteroid injection into the site of irritation may provide pain relief.

Helpful Websites:

<http://www.sportsinjuryclinic.net/cybertherapist/front/knee/irunnersknee.html>

<http://www.thestretchinghandbook.com/archives/knee-pain.php>

<http://www.aafp.org/afp/20050415/1545.html>

Plantar Fasciitis

Overview:

Plantar Fasciitis is inflammation of the plantar fascia or arch tendon of the foot. The plantar fascia or arch tendon is a broad, thick band of tissue that runs from under the heel to the front of the foot. A rupture can sometimes occur at the origin of the arch ligament and result in inflammation and pain. Overuse of the plantar fascia can cause inflammation at point of fascia attachment to the calcaneus. Plantar fasciitis can also be known as a heel spur although they are not strictly the same. A heel spur is a bony growth that occurs at the attachment of the plantar fascia to the calcaneus. A heel spur can occur (with repetitive pulling of the plantar fascia) on a foot with no symptoms at all and a painful heel can have no heel spur present.

Causes:

- Tight calf muscles which leads to prolonged and / or high velocity pronation of the foot.
- Chronic overuse – running, jumping
- Acute injury
- High arch or low arch feet (pes cavus / planus)
- Increase in weight
- Sudden increase in activity
- Lack of proper stretching prior to activity
- Poor shoe support, running on toes (hills) running on soft surfaces (sand)

Signs & Symptoms:

- Pain on plantar (bottom) surface of foot
- Pain is usually worse w/ 1st few steps in the morning and following prolonged sitting
- Pain may decrease w/ activity and return at rest
- Tenderness @ plantar fascia insertion on calcaneus
- Increased pain w/ dorsiflexion of ankle
- Ecchymosis (bruising or discoloration)

Treatment:

- Rest – modification of activity or complete, followed by gradual return to activity
- Ice therapy after activity – ice massage
- Temporary use of NSAIDs
- Stretching Achilles tendon and plantar fascia
- Arch support taping
- Wear shoes with adequate support
- Use of shock absorbing pad or arch supports
- Avoid walking barefoot
- Gait analysis to determine overpronation or oversupination
- Corticosteroid injection - usually best combined with biomechanical correction with orthotics.
- X-rays to see if there is any bone growth (calcification).
- Operation if symptoms do not resolve. It is more common for patients with rigid high arch where the plantar fascia has shortened to benefit from surgery.

Helpful Websites:

<http://www.sportsinjuryclinic.net/cybertherapist/front/foot/plantarfasciitis.htm>

<http://www.mayoclinic.com/health/plantar-fasciitis/DS00508>

<http://orthoinfo.aaos.org/topic.cfm?topic=A00149>

Posterior Tibialis Tendinitis

Overview:

Posterior tibialis tendonitis is characterized by medial ankle pain, often caused by forceful eversion (outward turning) of the foot w/ repetitive activity (kicking in soccer, runners with hypermobility of ankle or overpronation, e.g.) A common site for tibialis posterior tendinitis to occur is in the area behind the medial malleolus. Although this site is the most common, inflammation can occur anywhere along the tibialis posterior tendon. The tibialis posterior muscle originates from the posterior tibia and runs into a tendon that passes behind the medial malleolus. Inflammation can occur around the medial malleolus and further down under the foot where the tendon attaches. Athletes that are involved in sports where the foot rolls in a lot such as speed skating or running on tight bends are also more prone to this injury.

Causes:

- Forceful pronation of the foot/ankle as seen in repetitive kicking
- Hypermobility or overpronation of feet
- Poor flexibility of the calf muscles and of the Achilles tendon
- Activities requiring sudden starting and stopping w/ push-off action
- Improper footwear
- Poor training techniques
- Running on crowned surfaces
- Direct trauma (after an ankle sprain, or fracture)

Signs & Symptoms:

- Medial ankle pain generally surrounding the medial malleolus (bump)
- Swelling of medial ankle
- Pain with passive and active eversion of ankle
- Point tenderness over posterior tibialis tendon
- Pain when raising up on toes
- Pain over the attachment of the tendon to the navicular bone in the foot.
- Pain when the tendon slides in the sheath during exercise.

Treatment:

- Proper footwear for sport or activity
- Rest – modification of activity or complete, followed by gradual return to activity
- Ice therapy to decrease inflammation and pain
- Temporary use of NSAIDs
- Stretching and strengthening exercises (stretching w/ focus on the heel cord)
- Heel wedge or orthotics to correct improper biomechanics
- Arch support taping

Helpful Websites:

<http://www..sportsinjuryclinic.net/cybertherapist/front/ankle/tibialisposterior.htm>

http://www.physioroom.com/injuries/ankle_and_foot/tibialis_posterior_syndrome_full.php

<http://footpaininfo.com/tibposttendinitis.html>