SYMPTOMS

- Pain along the achilles tendon during/after activity
- Swelling over the distal 1-3 inches of the Achilles tendon (see picture)
- Tender to touch
- Pain associated with or when trying to raise up on the toes, or with stretching of the calf/Achilles tendon
- Limited range of motion and stiffness

DEFINITIONS

Achilles Tendonitis

- An inflammation of the tendon that connects the calf muscles to the heel bone (calcaneus)
- May be small tears in the tendon from overuse

Achilles rupture

- Weakening of the collagen fibers of the tendon leading to partial tearing or rupture (complete tear) of the tendon away from the heel
- Rupture noted by inability to raise up on toes or push off with ball of foot in walking

Tenosynovitis

- Inflammation of the vascular sheath that covers the Achilles tendon
- May even be caused by the shoe counter rubbing on the heel

PRIMARY CAUSE

Excessive Pronation

- Pronation is a normal movement of the foot, that allows the arch to flatten to a degree, which helps the body to absorb shock and adapt to different ground surfaces.
- In analyzing ones gait, first contact is on the heel and outside of the foot; followed by a shift of body weight continuing forward toward the arch and toes.
- If the foot is weak or tired and/or the footwear is not supportive, then the arch can flatten more than normal, which is excessive pronation.
- Flattening of the arch (excessive pronation) places pressure on the arch and stretches the plantar fascia (which supports the arch) and can create inflammation at the attachment on the heel.
- This repetitive, excessive pronation, is the main contributor to many lower extremity, overuse injuries. As the achilles tendon attaches on the back of the heel, and if the the foot is in excessive pronation, there is an increased torque or pull on the tendon, which can cause inflammation.

CONTRIBUTING FACTORS

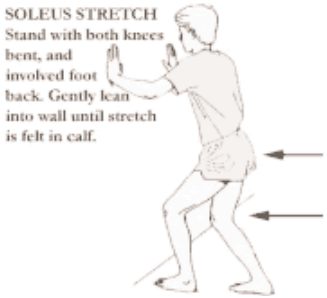
- Tight calf muscles (the gastroc and/or soleus) and tight achilles tendon.
- Often with increasing age, there is decreasing flexibility
- Increasing the amount or intensity of training — uphill running, or stair climbing
- Flat pronated feet add stress to the soleus and rigid, high arched feet add stress to the gastroc
- Poor support on the inside of a shoe or in the shoe's foundation/upper can add to the stress on the foot — thus increasing calf stress
- Change in the heel height of one's shoes (from training shoes to racing flats, heels to flats etc.)

TREATMENT — ADVICE GIVEN MOST OFTEN IN CURRENT LITERATURE

The 3's — Stretching, Strengthening, and Supporting, along with ICE and REST have been found to be the simplest and most effective treatment for these injuries

- Stretching of the calf (both gastroc and soleus) muscles and Achilles tendon can help eliminate or prevent many problems with the achilles tendon.
- Strengthening of the calf muscles once the inflammation is gone, can help prevent further injury.
- Avoid hill or stair running until symptoms disappear.
- Supporting the foot with the proper shoes and insoles, can prevent or eliminate the vast majority of increased stresses on the lower extremity.
- Make sure that the heel collar does not dig into the achilles. Look for a cut out of the heel (heel notch)

THE FOLLOWING ARE A FEW HELPFUL EXERCISES. CHECK WITH YOUR DOCTOR FOR SPECIFICS ON YOUR CONDITION AND WHAT YOU SHOULD, OR SHOULD NOT DO FOR YOUR PROBLEM.



SYMPTOMS

- Painful area around the big toe joint which may be red and swollen
- The big toe may be stiff and not want to bend and may be painful

DEFINITIONS

- An inflammation of the big toe joint that may cause an enlargement
- A bony protrusion, which is also generally associated with the angling of the big toe toward the smaller toes creating pressure at the first joint of the big toe.

PRIMARY CAUSE

Heredity

- Generally one does not have a choice if they develop a bunion.
- If there is not enough arch support or support under the ball of the foot the bunion can become worse

Excessive Pronation

- Pronation is a normal movement of the foot that allows the arch to flatten to a degree, which helps the body to absorb shock and adapt to different ground surfaces.
- In analyzing ones gait, first contact is on the heel and outside of the foot; followed by a shift of body weight continuing forward, toward the arch and toes.
- If the foot is weak or tired and/or the footwear is not supportive, then the arch can flatten more than normal, which is excessive pronation.
- Flattening of the arch (excessive pronation) places pressure and excessive force on the big toe joint which can cause degenerative changes and inflammation that can irritate the bunion.
- With excessive pronation, increased stresses can be placed on the foot which can further contribute to ankle, knee, hip and low back problems (a chain reaction)

CONTRIBUTING FACTORS

- Wearing shoes that do not fit correctly - such as narrow shoes or shoes with pointed toes
- Incorrect foot mechanics - excessive pronation
- Injury or arthritis may eventually increase the bunion.
- Wearing high heeled shoes with pointed or narrow toe box
- Insufficient support in the platform (and/or the inside arch area) of the shoe being worn, can add to the stress on the foot (bunion).

TREATMENT - ADVICE MOST OFTEN GIVEN IN CURRENT LITERATURE

The 3 S's - Stretching, Strengthening and Supporting, along with ICE and REST, have been found to be the simplest and most effective treatment for these problems

- Stretching of the calf and foot will help to decrease the pressure on the foot.
- Strengthening the ankle and foot, can help reduce pressures on the foot due to overpronation.
- Supporting the foot with proper shoes and insoles, can prevent or eliminate the vast majority of foot related problems. Although bunions and hallux valgus are hereditary, the symptoms can be kept to a minimum by reducing the pressure.
- Wear shoes with a wider toe box
- Stretching of the calf, achilles tendon and foot
- Strengthening of the muscles in the foot

SYMPTOMS

- Pain experienced under the heel and/or along the arch of the foot.
- Pain that is worse with the first few steps in the morning and after prolonged sitting.
- Dull intermittent pain which can progress to sharp persistent pain.
- General stiffness felt in foot/ankle.
- Pain often described as, "a hot poker through the bottom of the foot".

DEFINITIONS

Plantar Fasciitis

- An inflammation of the connective tissue of the bottom of the foot.
- Plantar= bottom of the foot, Fascia=dense fibrous connective tissue, Itis=inflammation
- The plantar fascia attaches to the bottom of the heel bone and fans out to the toes.
- The plantar fascia is designed to support the foot and form the arch. It has very little elasticity and is very thick.
- A heel spur is an abnormal growth of bone on the heel due to excessive stress or pulling where the plantar fascia attaches to the heel.
- The excessive tugging of the plantar fascia on the heel bone causes this excess of bone (bone spur) to grow in a pointed fashion.

PRIMARY CAUSE

Excessive Pronation

- Pronation is a normal movement of the foot that helps the body to absorb shock and adapt to different ground surfaces.
- In analyzing ones gait, first contact is on the heel and outside of the foot; followed by a shift of body weight continuing forward toward the arch and toes.
- If the foot is weak or tired and/or the footwear is not supportive, then the arch can flatten more than normal, which is excessive pronation.
- Flattening of the arch (excessive pronation) places pressure on the arch and stretches the plantar fascia (which supports the arch) and can create inflammation at the attachment on the heel.
- This repetitive, excessive pronation, is the main contributor to many lower extremity, overuse injuries, of which plantar fasciitis and heel spurs are the most common in the foot.

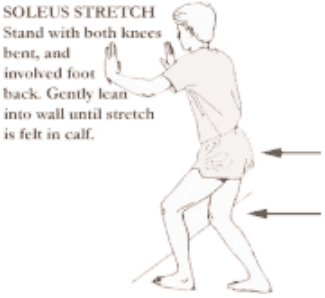
CONTRIBUTING FACTORS

- With increasing age, often there is decreasing flexibility.
- Any sudden change in activity, specifically activities that increase weight bearing or pressure on the foot.
- Changes in training - Increased toe running, speed of running or hill running can add stress to the feet.
- Flat, pronated feet or rigid, high arched feet may be more prone to problems.
- Sudden increase in body weight (such as pregnancy) may also add strain.
- Poor support in the shoes being worn and/or the poor support inside the shoes can add to the stress on the foot.
- Biomechanical changes in the foot can cause increases in pronation (see Primary Causes).

TREATMENT - ADVICE GIVEN MOST OFTEN IN CURRENT LITERATURE

- The 3S's - Supporting, Stretching, and Strengthening, along with ICE and REST, have been found to be the simplest and most effective treatment for these injuries.
- Supporting the foot with proper shoes and insoles, can prevent or eliminate the vast majority of foot related problems.
- Stretching of the calf, Achilles tendon and foot can help or eliminate the majority of plantar fasciitis problems.
- Strengthening the muscles of the foot and ankle can assist in eliminating and avoiding these problems.
- Arch supports are recognized as the most successful remedy with stretching a close second.

THE FOLLOWING ARE A FEW HELPFUL EXERCISES. CHECK WITH YOUR DOCTOR FOR SPECIFICS ON YOUR CONDITION AND WHAT YOU SHOULD, OR SHOULD NOT DO FOR YOUR PROBLEM.



SYMPTOMS

- Pain along the lateral (outside) of the hip
- Pain when ascending stairs and/or getting up from a seated position
- Pain associated with standing or for sitting extended periods
- May have trouble sleeping
- May have limited range of motion of the hip

DEFINITIONS

Iliotibial Band Syndrome

- An inflammation where the band rubs across the distal (lower portion) lateral femur
- Pain is felt along the outer side of the hip and also possibly the knee

Trochanteric Bursitis

- Inflammation of the bursa along the outside of the hip
- Mechanical imbalance in the lower extremity due to poor foot mechanics

Piriformis Syndrome

- A spasm or tightness of the piriformis muscle in the buttocks that can irritate the sciatic nerve or impinge the sciatic nerve
- May be caused by poor mechanics of the foot and lower extremity

Hamstring Strain

- A muscle imbalance or overload of the hamstring muscle which strains the muscle
- Pain is located either in the buttocks or in the "belly" of the muscle in the back of the thigh
- May feel tear or pop in severe cases

Hip Flexor Strain

- Overload or overuse of the muscle in front of thigh and hip such as climbing stairs, marching or uphill running
- There may be a limp and shortened stride
- Mechanical imbalance in lower extremity

Excessive Pronation

- Pronation (a flattening of the arch) is a normal movement of the foot that helps the body to absorb shock and to adapt to different ground surfaces
- In analyzing ones gait, first contact is on the heel and outside of the foot; followed by a shift of body weight continuing forward, toward the arch and toes.
- If the foot is weak or tired and/or the footwear is not supportive, then the arch can flatten more than normal, which is excessive pronation.
- If the pronation becomes excessive, there is increased rotation of the leg, knee, thigh and hip, causing added stresses to the joint.
- Flattening of the arch too much (excessive pronation) places pressure on the arch, and on up the chain including the ankle, knee and hip.

CONTRIBUTING FACTORS

- Poor flexibility
- Muscle imbalances
- Leg length discrepancies
- Tightness of IT Band/Tensor Fascia Latae
- Flattened pronated feet
- Poor support of shoes you wear and /or the support inside the shoes can add to the stress on the foot and lower extremity
- Biomechanical changes in the foot can allow increases in pronation
- Many foot injuries are caused by overpronation

TREATMENT - ADVICE GIVEN MOST OFTEN IN CURRENT LITERATURE

The 3 S's - Stretching, Strengthening, and Supporting, along with ICE and REST, have been found to be the simplest and most effective treatment for these injuries

- Stretching of the IT Band, Hamstring, Quad and Psoas Major can help to decrease and eliminate many of the problems.
- Strengthening of the muscles of the abdomen, quad and hip can assist in avoiding problems.
- Supporting the foot with proper shoes and insoles can prevent or eliminate the vast majority of stresses on the lower extremity.

THE FOLLOWING ARE A FEW HELPFUL EXERCISES. CHECK WITH YOUR DOCTOR FOR SPECIFICS ON YOUR CONDITION AND WHAT YOU SHOULD, OR SHOULD NOT DO FOR YOUR PROBLEM.

SYMPTOMS

- Pain experienced on the lateral (outer) side of the knee
- Pain sometimes experienced in lateral thigh or lateral hip
- The degree of discomfort can range from a dull aching to a sharp stabbing pain
- The pain is usually not localized but covers a larger area
- Pain often occurs early into the run (within 7-10 minutes)

DEFINITION

Iliotibial Band

- A thickening of the fascia that runs up the outside (lateral) thigh
- Connects to 2 muscles at the hip (Gluteus Maximus and Tensor Fasciae Latea) and then down below the outside of the knee to the tibia (shin bone)
- The primary function is to provide stability to the lateral knee while standing
- It helps to maintain hip extension in standing and hip/knee flexion in running and walking
- The IT-Band moves forward at the knee as the knee extends. It then slides backward at the knee as the knee flexes. It is tense in both positions

Iliotibial Band Friction Syndrome

- Inflammation where the band/tendon/fascia rubs across the distal lateral femur (outside, of bottom end, of thigh bone)
- Can be inflammation of the band/tendon, bursa under the tendon, or the periosteum (covering over bone) of femur

PRIMARY CAUSE

Excessive Pronation

- Pronation is a normal movement of the foot that helps the body to absorb shock and to adapt to different ground surfaces.
- In analyzing ones gait, first contact is on the heel and outside of the foot; followed by a shift of body weight continuing forward, toward the arch and toes.
- If the foot is weak or tired and/or the footwear is not supportive, then the arch can flatten more than normal, which is excessive pronation.
- Flattening of the arch (excessive pronation) places pressure on the foot and causes rotation to occur at the knee pulling on the IT Band. If the IT Band is not stretched enough it can cause inflammation.
- This repetitive, excessive pronation, is the main contributor to many lower extremity, overuse injuries.

CONTRIBUTING FACTORS

- With increasing age, often there is decreasing flexibility
- Any sudden change in activity, specifically, activities that increase weight bearing or pressure on the foot
- Changes in training - downhill running, running on banked surfaces, increasing training too quickly
- Anatomical abnormalities - leg length discrepancies, bowlegs, and laxity of lateral knee ligament stability
- Underlying faulty pelvic mechanics

TREATMENT - ADVICE GIVEN MOST OFTEN IN CURRENT LITERATURE

The 3 S's - Supporting, Stretching, and Strengthening, along with ICE and REST, have been found to be the simplest and most effective treatment for these injuries.

- Supporting the foot with proper shoes and insoles, can prevent or help to eliminate the vast majority of stresses on the lower extremity.
- Stretching of the IT-Band, hamstring, piriformis and quad.
- Strengthening of the hamstring, hip abductors, quad and gluteals (buttocks), for both the hip and knee areas.
- Physical Therapy including ultrasound, electrical stimulation, and exercise.

THE FOLLOWING ARE A FEW HELPFUL EXERCISES. CHECK WITH YOUR DOCTOR FOR SPECIFICS ON YOUR CONDITION AND WHAT YOU SHOULD, OR SHOULD NOT DO FOR YOUR PROBLEM.

SYMPTOMS

- Pain in area of "ball of foot"
- Burning or tingling sensation in the foot and maybe some numbness
- Pain may be sharp or stabbing
- Cramping may also occur
- No swelling or bumps

DEFINITION

Neuroma

- A bundle of nerve endings whose covering is inflamed
- Occurs when the tissue surrounding a nerve becomes enlarged - thickened
- Usually a pinching of the third and fourth metatarsal bones which compresses a nerve
- Generally occurs in adults and more common in females

PRIMARY CAUSE

Excessive Pronation

- Pronation is a normal movement of the foot, that allows the arch to flatten to a degree, which helps the body to absorb shock and adapt to different ground surfaces.
- In analyzing ones gait, first contact is on the heel and outside of the foot; followed by a shift of body weight continuing forward, toward the arch and toes.
- If the foot is weak or tired and/or the footwear is not supportive, then the arch can flatten more than normal, which is excessive pronation.
- Flattening of the arch (excessive pronation) places pressure on the foot and can decrease the metatarsal arch thus increasing the chance of compression on the nerve creating a neuroma.
- With excessive pronation, increased stresses can be placed on the foot.

CONTRIBUTING FACTORS

- Flat feet
- Wearing of tight, poorly fitting shoes such as pointed high heeled shoes
- Aggravated by prolonged standing
- Increased stress such as kneeling or climbing ladders
- Mechanically there is too much movement of the metatarsals (bones of the foot)

TREATMENT - ADVICE GIVEN MOST OFTEN IN CURRENT LITERATURE

The 3 S's - Stretching, Strengthening and Supporting, along with ICE and REST, have been found to be the simplest and most effective treatment for most foot and lower extremity, overuse injuries.

- Stretching of the foot and massage can help to decrease pressure between the toes and metatarsals.
- Strengthening of the foot with the toe curl can help to strengthen the arch.
- Supporting the foot with the proper shoes and insoles, can help prevent, improve or eliminate the vast majority of foot problems.
- Make sure the shoe has enough room in the toe box.

SYMPTOMS

Pain

- Along the medial (inner) aspect of the kneecap or just below the kneecap
- When using stairs or going up/down hills
- Worse after prolonged sitting with the knees bent
- More of a dull ache
- Cracking or grating in the knee
- Eventually, knee may want to "catch" and may feel like it wants to give out

DEFINITION

- Softening of the cartilage on the patella (kneecap)
- Roughening of the cartilage under the patella caused by the kneecap not tracking properly (patella does not glide smoothly over the femur/thigh bone)
- May also be referred to as Chondromalacia Patella
- One of the most common knee problems in running and other sports (may occur at any age)

PRIMARY CAUSES

Excessive Pronation

- Pronation is a normal movement of the foot, that allows the arch to flatten to a degree, which helps the body to absorb shock and adapt to different ground surfaces.
- In analyzing ones gait, first contact is on the heel and outside of the foot, followed by a shift of body weight forward, toward the arch and toes.
- If the foot is weak or tired and/or the footwear is not supportive, then the arch can flatten more than normal, which is excessive pronation.
- Flattening of the arch (excessive pronation) increases stresses on the foot, which can further contribute to ankle, knee, hip and low back problems (a chain reaction).
- This repetitive, excessive pronation, is the main contributor to many lower extremity, overuse injuries

CONTRIBUTING FACTORS

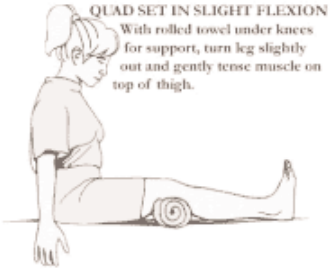
- Mechanical conditions including wide hips (females) knock knees, patella alta (high patella) and subluxating patella.
- Over pronation of the foot.
- Weakness of the quad, especially the VMO (Vastus Medialis Oblique Muscle) which runs along the inner aspect of the thigh and connects at the knee
- Overuse, or an increase in hill running or stair use
- Too large of a Q-angle at the knee (this is the angle of quad muscles effective pull on the kneecap). Less than 12 degrees is normal and greater than 15 degrees is abnormal

TREATMENT - ADVICE GIVEN MOST OFTEN IN CURRENT LITERATURE

The 3 S's - Supporting, Stretching, and Strengthening, along with ICE and REST, have been found to be the simplest and most effective for these injuries.

- Supporting the foot with proper shoes and insoles, can prevent or help to eliminate the vast majority of lower extremity problems due to faulty biomechanics. One of the easiest and most effective solutions is to add a simple over the counter insole that provides forgiving support for both the arch and heel.
- Stretching of the hamstring, quad, calf and IT Band will help to decrease pressure at the kneecap.
- Strengthening of the quad, especially the VMO (vastus medialis oblique muscle) will help the kneecap to glide more correctly through the groove at the knee joint.
- Avoid downhill running or going up/down stairs.
- Avoid exercises done with the knee bent unless being done as an isometric
- Physical Therapy including exercise, ultrasound, iontophoresis and patellar mobilization

THE FOLLOWING ARE A FEW HELPFUL EXERCISES. CHECK WITH YOUR DOCTOR FOR SPECIFICS ON YOUR CONDITION AND WHAT YOU SHOULD, OR SHOULD NOT DO FOR YOUR PROBLEM.



SYMPTOMS

- Aching along front of shin, at beginning of or after activity
- Pain along inside (medial) part of lower leg
- Generally develops gradually over weeks or months
- May have swelling in lower leg (in area of pain)

DEFINITIONS

Shin Splints

- Common, umbrella term used to identify pain along the shin or front of lower leg.
- More specific names for this condition are based on the area of the pain and the anatomy involved (see below).
- Injury generally occurs as a result of overuse

Stress Fracture - posterior

- Most often occurring on the tibia (shin bone) and along the bottom third of the lower leg
- Often undetectable on x-ray until 10-14 days after pain starts

Compartment Syndrome - anterior or posterior

- The four divisions of muscles in the lower leg (anterior, lateral, posterior-superficial and deep) are each covered by thick tissue called fascia that surround the muscles completely
- During exercise, muscle volume increases by 20%, increasing pressure within each compartment. Such pressure can affect blood vessels and nerves in the lower leg potentially causing pain and damage to tissue and nerves

Tibial Periostitis - posterior

- An inflammation of or trauma to the covering of the bone in shin (periostium)
- Over-exertion causes small tears of the muscle from the covering of the bone (periostium)
- Pain is most pronounced in the lower 3rd of the posterior tibia

Medial Tibial Stress Syndrome - posterior

- Stress to the muscles along the front medial side of the shin
- Generally occurring along the bottom third of the inside of tibia (shin)

PRIMARY CAUSE

Excessive Pronation

- Pronation is a normal movement of the foot, that allows the arch to flatten to a degree, which helps the body to absorb and adapt to different ground surfaces.
- In analyzing ones gait, first contact is on the heel and outside of the foot; followed by a shift of body weight continuing forward, toward the arch and toes.
- If the foot is weak or tired and/or the footwear is not supportive, then the arch can flatten more than normal, which is excessive pronation.
- Flattening of the arch (excessive pronation) places pressure on the arch and can cause some rotation into the lower leg. This repetitive movement can cause overuse problems from the foot to the back.
- If excessive pronation occurs from lack of support, then increased stresses can be placed on the lower leg and contribute to overuse problems

CONTRIBUTING FACTORS

- Muscular imbalances of lower leg (calf muscles and anterior leg muscles)
- Insufficient shock absorption
- Poor Biomechanics/Improper foot positioning while running
- Worn out or inappropriate shoes (shoes should typically be replaced after 300-500 miles)
- Sudden increase in exercise or running (too much-too soon)
- Incorrect individual training plan
- Flat pronated feet

TREATMENT - ADVICE GIVEN MOST OFTEN IN LITERATURE

The 3 S's - Supporting, Stretching, and Strengthening - along with ICE and REST have been found to be the simplest and most effective treatment for these injuries.

- Stretching of the calf (both gastroc and soleus muscles) and achilles tendon.
- Strengthening of the anterior leg muscles (that pull the foot and toes up).
- Supporting the foot with proper shoes and insoles can prevent and eliminate the vast majority of lower leg problems due to overuse.
- Physical therapy including massage, ultrasound and exercises

THE FOLLOWING ARE A FEW HELPFUL EXERCISES. CHECK WITH YOUR DOCTOR FOR SPECIFICS ON YOUR CONDITION AND WHAT YOU SHOULD, OR SHOULD NOT DO FOR YOUR PROBLEM.