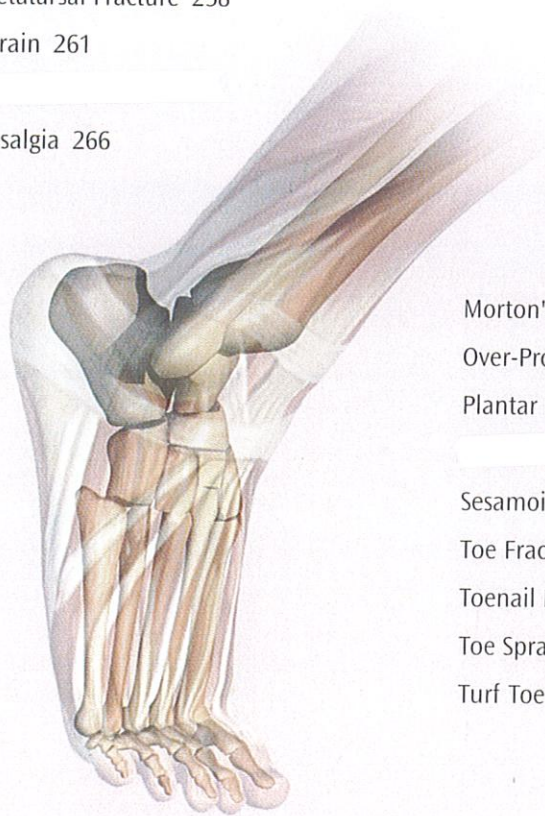


## *The Foot*

Arch Pain 252  
Bunion 255  
Bunion Removal 256  
Calcaneal Apophysitis 257  
Fifth Metatarsal Fracture 258  
Foot Sprain 261

Metatarsalgia 266



Morton's Neuroma 267  
Over-Pronation 269  
Plantar Fasciitis 270

Sesamoid Injuries 274  
Toe Fracture 276  
Toenail Injuries 277  
Toe Sprain 278  
Turf Toe 280

# ARCH PAIN

## What is arch pain?

There are two arches in your foot. The longitudinal arch runs the length of your foot, and the transverse arch runs across the width of your foot. The arches are made up of ligaments, which keep the bones of your feet in place. Arch pain can occur in one or both arches but occurs most commonly in the longitudinal arch.

## How does it occur?

Arch pain most often occurs as a result of overuse in activities such as running, hiking, walking, and jumping. People who have flat feet, or people whose feet flatten and roll inward when walking (a problem called over-pronation) are more prone to arch pain. Arch pain usually comes on slowly. However, it can occur suddenly if the ligaments are stretched or torn during a forceful activity such as sprinting or jumping.

## What are the symptoms?

The symptom is pain along the arch of the foot.

## How is it diagnosed?

Your healthcare provider will examine your foot for pain and tenderness along the arch.

## How is it treated?

You should place ice packs on your arch for 20 to 30 minutes every 3 to 4 hours for 2 or 3 days or until the pain goes away. Your healthcare provider may prescribe an anti-inflammatory medicine (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval).

Your arch needs extra support. Taping your arch or using an extra arch support in your shoe may give you the support you need. Your healthcare provider may recommend shoe inserts, called orthotics. You can buy orthotics at a pharmacy or athletic shoe store or they can be custom-made.

## When can I return to my sport or activity?

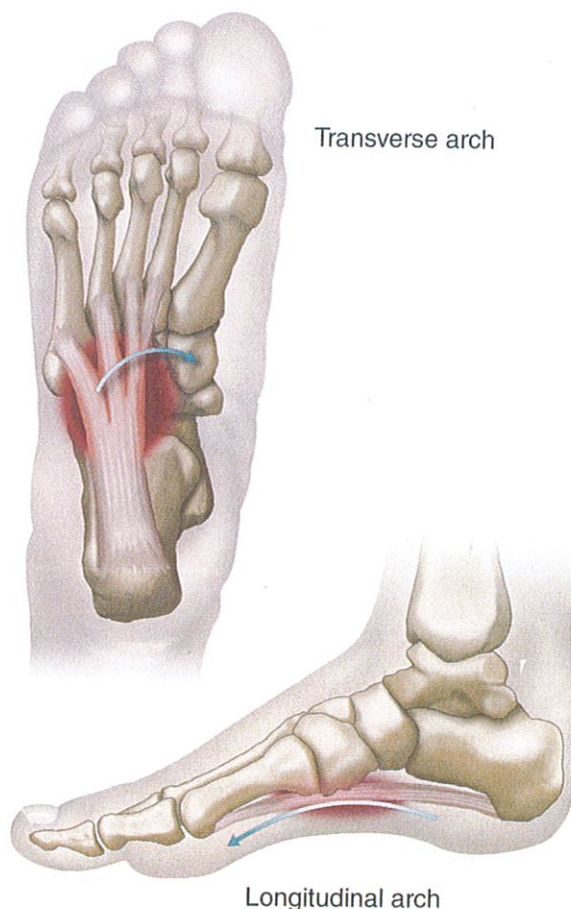
The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your activity will be determined by how soon your foot recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have

symptoms before you start treatment, the longer it will take to get better.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- You have full range of motion in the injured foot compared to the uninjured foot.
- You have full strength of the injured foot compared to the uninjured foot.
- You can jog straight ahead without pain or limping.
- You can sprint straight ahead without pain or limping.
- You can do 45-degree cuts, first at half-speed, then at full-speed.
- You can do 20-yard figures-of-eight, first at half-speed, then at full-speed.
- You can do 90-degree cuts, first at half-speed, then at full-speed.

## ARCH PAIN



- You can do 10-yard figures-of-eight, first at half-speed, then at full-speed.
- You can jump on both feet without pain and you can jump on the injured foot without pain.

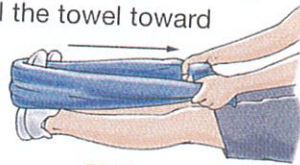
## How can I prevent arch pain?

Arch pain can be prevented by wearing shoes that fit properly and have proper arch support. Stretching your feet and arches before your activity will also help prevent this injury. You may need orthotics. Some people will need to wear orthotics all the time and others only during sporting activities.

## ARCH PAIN REHABILITATION EXERCISES

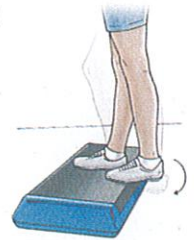
You may begin exercising the muscles of your foot right away by gently stretching them with the towel stretch. When the towel stretch becomes too easy, you may begin doing the standing calf stretch and plantar fascia stretch. Next, you can begin strengthening the muscles of your foot and lower leg by doing the rest of the exercises.

**1. TOWEL STRETCH:** Sit on a hard surface with one leg stretched out in front of you. Loop a towel around the ball of your foot and pull the towel toward your body keeping your knee straight. Hold this position for 15 to 30 seconds then relax. Repeat 3 times.



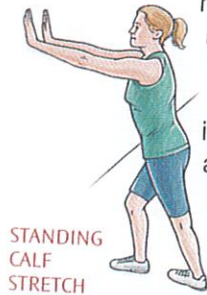
TOWEL STRETCH

**4. PLANTAR FASCIA STRETCH:** Stand with the ball of one foot on a stair. Reach for the bottom step with your heel until you feel a stretch in the arch of your foot. Hold this position for 15 to 30 seconds and then relax. Repeat 3 times.



PLANTAR FASCIA STRETCH

**2. STANDING CALF STRETCH:** Facing a wall, put your hands against the wall at about eye level. Keep one leg back with the heel on the floor, and the other leg forward. Turn your back foot slightly inward (as if you were pigeon-toed) as you slowly lean into the wall until you feel a stretch in the back of your calf. Hold for 15 to 30 seconds. Repeat 3 times. Do this exercise several times each day.



STANDING CALF STRETCH

**3. SITTING PLANTAR FASCIA STRETCH:** Sit in a chair and cross one foot over your other knee. Grab the base of your toes and pull them back toward your leg until you feel a comfortable stretch. Hold 15 seconds and repeat 3 times.

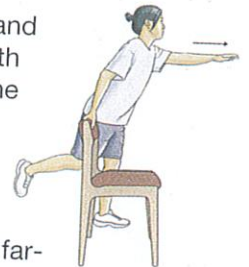


SITTING PLANTAR FASCIA STRETCH

## 5. BALANCE AND REACH EXERCISES

Stand upright next to a chair. This will provide you with balance if needed. Stand on the foot farthest from the chair. Try to raise the arch of your foot while keeping your toes on the floor.

A. Keep your foot in this position and reach forward in front of you with your hand farthest away from the chair, allowing your knee to bend. Repeat this 10 times while maintaining the arch height. This exercise can be made more difficult by reaching farther in front of you. Do 2 sets.



FOOT

B. Stand in the same position as above. While maintaining your arch height, reach the hand farthest away from the chair across your body toward the chair. The farther you reach, the more challenging the exercise. Do 2 sets of 10.



BALANCE AND REACH EXERCISES

When you can stand comfortably on your injured foot, you can begin standing to stretch the plantar fascia at the bottom of your foot.



TOWEL PICKUP

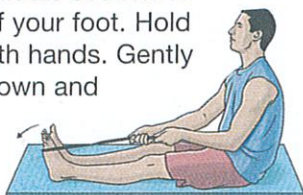
**6. TOWEL PICKUP:** With your heel on the ground, pick up a towel with your toes. Release. Repeat 10 to 20 times. When this gets easy, add more resistance by placing a book or small weight on the towel.

**7. FROZEN CAN ROLL:** Roll your bare injured foot back and forth from your heel to your mid-arch over a frozen juice can. Repeat for 3 to 5 minutes. This exercise is particularly helpful if done first thing in the morning.



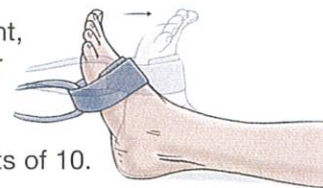
FROZEN CAN ROLL

**8. RESISTED ANKLE PLANTAR FLEXION:** Sit with your leg outstretched and loop the middle section of the tubing around the ball of your foot. Hold the ends of the tubing in both hands. Gently press the ball of your foot down and point your toes, stretching the tubing. Return to the starting position. Do 3 sets of 10.



RESISTED ANKLE PLANTAR FLEXION

**9. RESISTED ANKLE DORSIFLEXION:** Sit with one leg out straight and your foot facing a doorway. Tie a loop in one end of elastic tubing. Put your foot through the loop so that the tubing goes around the arch of your foot. Tie a knot in the other end of the tubing and shut the knot in the door. Move backward until there is tension in the tubing. Keeping your knee straight, pull your foot toward your body, stretching the tubing. Slowly return to the starting position. Do 3 sets of 10.



RESISTED ANKLE DORSIFLEXION

**10. HEEL RAISE:** Balance yourself while standing behind a chair or counter. Raise your body up onto your toes and hold for 5 seconds. Then slowly lower yourself down. Hold onto the chair or counter if you need to. When this exercise becomes less painful, try lowering on one leg only. Repeat 10 times. Do 3 sets of 10.



HEEL RAISE

# BUNION (HALLUX VALGUS)

## What is a bunion?

A bunion is an abnormal bony bump that forms on the joint at the base of the big toe. The big toe joint becomes enlarged and the big toe points toward the other toes. The medical term for the deformity where the big toe angles toward the other toes is hallux valgus.

People with weak or flat feet and women who wear high heels a lot tend to develop bunions.

## How does it occur?

Bunions can result from wearing shoes that don't fit properly or from wearing high-heeled shoes with narrow, pointed toes. When a shoe rubs against the toe joint it irritates the area and makes it swollen, red, and painful. A tough, calloused covering grows over the site.

The tendency to have bunions may be inherited.

## What are the symptoms?

Symptoms include:

- a bony bump at the base of the big toe
- swelling, redness, and soreness of the big toe joint
- thickening of the skin at the base of the big toe

## How is it diagnosed?

Your healthcare provider will examine the affected foot. He or she may want to take X-rays of the joint.

## How is it treated?

Often nonsurgical treatment is sufficient. You can usually relieve pressure on the big toe by:

- wearing roomy, comfortable shoes
- wearing a corrective device that pushes the big toe back into the right position and holds it in place
- placing a pad on the bunion

In addition, take anti-inflammatory medicine (such as aspirin or ibuprofen) for pain relief (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval). Custom-made arch supports called orthotics may help reduce bunion pain.

If the bunion gets worse and causes too much discomfort, your healthcare provider may suggest surgery (called bunionectomy) to:

- straighten the toe by taking out part of the bone
- permanently join the bones of the affected joint

## How long will the effects last?

A bunion is a permanent problem. You'll continue to have it unless you have surgery to remove it. Recovery from bunion surgery may take 2 months or more.

## How can I take care of myself?

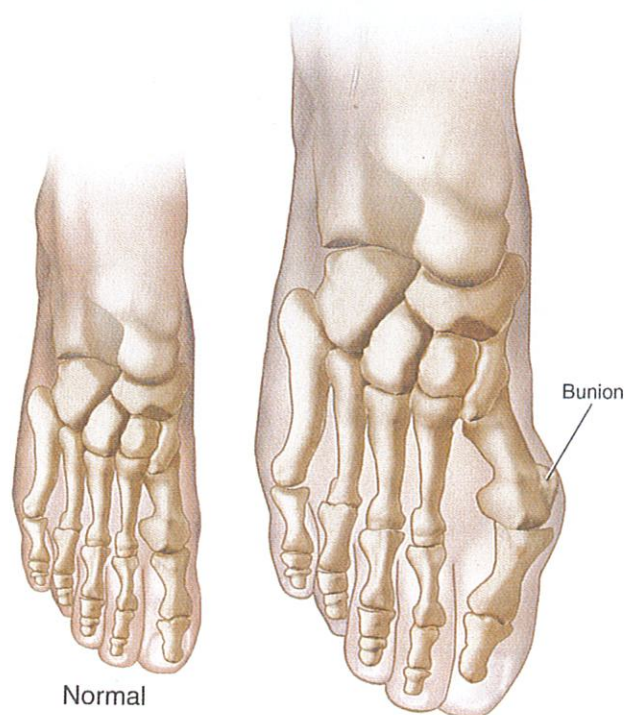
If you have swelling, redness, or pain in the big toe joint, you should do the following:

- Keep pressure off the affected toe.
- Wear comfortable shoes that fit well and allow enough room for your toes.
- See your healthcare provider or a foot specialist if your condition doesn't improve or if new symptoms develop.
- Follow your healthcare provider's instructions for taking prescribed medicine.

## What can be done to help prevent bunions?

You can help prevent bunions from developing by wearing comfortable shoes that fit well. Be sure your shoes don't cramp or irritate your toes. This is especially important if your family has a history of weak or flat feet, conditions that may be inherited.

## BUNION (HALLUX VALGUS)



# BUNION REMOVAL (BUNIONECTOMY)

## What is bunion removal?

Bunion removal, called a bunionectomy, is a procedure in which the doctor removes a swelling or thickening on your big toe joint called a bunion. The doctor may also straighten your toe if necessary.

## When is it used?

This procedure is used when a bunion makes walking painful.

Examples of alternatives are to:

- Wear different shoes.
- Wear a thick felt ring around the bunion to relieve pressure.
- Choose not to have treatment, accepting your present condition.

You should ask your doctor about these choices.

## How do I prepare for a bunionectomy?

Plan for your care and recovery after the operation. Allow for time to rest and try to find people to help you with your day-to-day duties.

Follow any instructions your doctor may give you. Eat a light meal, such as soup or salad, the night before the procedure. Do not eat or drink anything after midnight and the morning before the procedure. Do not even drink coffee, tea, or water.

## What happens during the procedure?

You will be given general anesthesia to relax your muscles and make you feel as if you are in a deep sleep. It will prevent you from feeling pain during the operation. The doctor makes a cut over the bump in your toe, cuts off the bump, and puts the toe in a more normal position. The doctor may have to make more than one cut, and may have to cut the bone in the toe to reposition it. After the procedure, the doctor closes the cut.

## What happens after the procedure?

- You will limit your walking for 2 or more weeks.
- You may go home the same day or you may stay in the hospital for a day, depending on your condition.
- You will probably wear a brace, special shoe, or cast to help support the toe and foot.
- Your toe may be painful for a few months.

Ask your doctor what steps you should take and when you should come back for a checkup.

## What are the benefits of this procedure?

Walking will be more comfortable, your shoes may fit better, and your toe won't hurt.

## What are the risks associated with this procedure?

There are some risks when you have general anesthesia. Discuss these risks with your doctor.

- The bunion may grow back.
- The nerves and arteries in the affected area could be damaged.
- Your toe could lose its blood supply.
- Infection and bleeding may occur.
- Your toe may be stiff.

You should ask your doctor how these risks apply to you.

## When should I call the doctor?

Call the doctor immediately if:

- you develop a fever
- you can't control the pain
- you develop excessive bleeding

Call the doctor during office hours if:

- you have questions about the procedure or its result
- you want to make another appointment

# CALCANEAL APOPHYSITIS (SEVER'S DISEASE)

## What is calcaneal apophysitis?

The heel bone is called the calcaneus. In children, there is an area on the heel bone where the bone grows that is called the growth plate, or apophysis. Calcaneal apophysitis, also called Sever's disease, is inflammation of the calcaneal growth plate that causes pain in the heel. It is the most common cause of heel pain in children, adolescents, and teenagers.

## How does it occur?

This inflamed heel growth plate is caused by overusing the foot with repetitive heel strikes. It may also occur from wearing shoes with poor heel padding or poor arch supports.

## What are the symptoms?

A child will complain of heel pain. Running and jumping usually increase the symptoms.

## How is it diagnosed?

The healthcare provider will find tenderness over the bottom part of your child's heel. In severe cases of calcaneal apophysitis, he or she may order an X-ray to be sure there is no damage to the growth plate.

## How is it treated?

Your child may need to rest or do activities that do not cause heel pain. It is very important that your child wear shoes with padded heel surfaces and good arch supports. Extra heel pads may be placed in your child's shoe. Your healthcare provider may recommend shoe inserts, called orthotics. You can buy orthotics at a pharmacy or athletic shoe store or they can be custom-made. Your provider may also prescribe an anti-inflammatory medicine for your child.

## When can my child return to his or her sport or activity?

The goal of treatment is to return your child to his or her sport or activity as soon as is safely possible. If your child returns too soon the injury may be made worse,

which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to his or her activity will be determined by how soon your child's heel recovers, not by how many days or weeks it has been since the injury occurred. In general, the longer your child has symptoms before starting treatment, the longer it will take to get better.

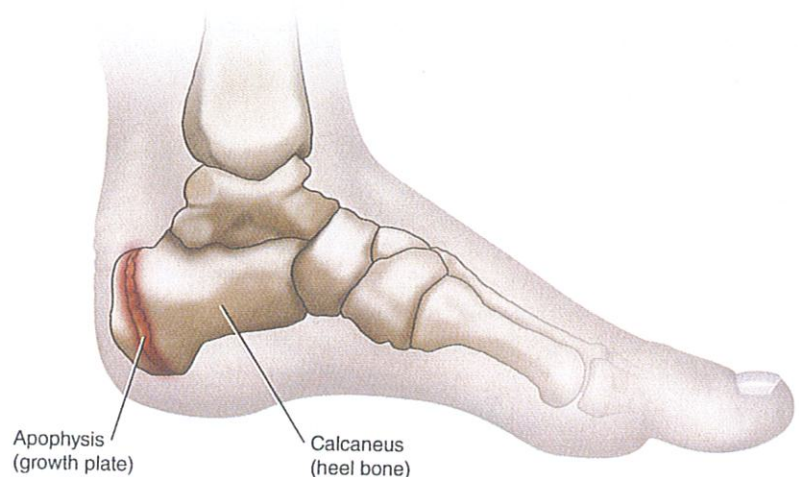
If the heel hurts, your child needs to rest from his or her sport or activity. Your child should rest for several days at a time and then go back gradually. Before returning, he or she should be able to jog painlessly, then sprint painlessly, and be able to hop on the injured foot painlessly. If at any time during this process your child develops further heel pain, he or she should rest for 3 to 4 more days until the pain is gone before trying to return again.

## How calcaneal apophysitis be prevented?

Calcaneal apophysitis is best prevented by having your child wear shoes that fit properly. The heel portion of the shoe should not be too tight, and there should be good padding in the heel. You may want to put extra heel pads in your child's shoes.

Some children simply get too much physical activity (such as playing on too many teams, practicing for hours, etc). Their heel pain is a message to slow down.

## CALCANEAL APOPHYSITIS (SEVER'S DISEASE)



# FIFTH METATARSAL FRACTURE

## What is a fifth metatarsal fracture?

The metatarsals are the long bones of the feet. The fifth metatarsal is the outermost foot bone and connects to the little toe. A fracture is a break in a bone.

## How does it occur?

A fifth metatarsal fracture can occur several ways and break in several places.

- **Avulsion fracture:** This occurs when the foot or ankle rolls in (an inversion injury). When this happens a tendon that attaches a muscle to the fifth metatarsal can pull off a piece of the bone.
- **Mid-shaft fracture:** This usually occurs from a violent twist of the foot, but can also happen if a heavy object lands on the foot.
- **Jones fracture:** This is a stress fracture caused from overuse. Because of overactivity, the bone gradually wears out and breaks.

## What are the symptoms?

Pain, swelling, and tenderness on the outer side of the foot. There will be difficulty walking.

## How is it diagnosed?

Your provider will review your symptoms, ask how you injured your foot, and examine you.

A fifth metatarsal fracture is diagnosed by an X-ray showing a break in the bone. Some X-rays do not detect stress fractures, and a special test called a bone scan may need to be done.

## How is it treated?

The treatment depends on the type of fracture you have. There are several ways to treat each type of fracture.

- **Avulsion fracture:** This can be treated by wearing a stiff-soled shoe or a removable cast boot for 4 to 6 weeks. You will usually be on crutches until you can walk without pain.
- **Mid-shaft fracture:** This can be treated by wearing a stiff-soled shoe, a removable cast boot, or a cast for 6 to 8 weeks. You will usually be on crutches until you can walk without pain.
- **Jones fracture:** These fractures sometimes take a longer time to heal. A stress fracture can be treated with a removable cast boot or cast worn for 6 to 8 weeks. You may need to have surgery and have a screw placed in your bone to hold the broken bone

together. You will usually be on crutches until you walk without pain.

Treatment will also include the following:

- Elevate your foot by placing a pillow underneath it. Try to keep your foot above the level of your heart.
- Take an anti-inflammatory medicine or other pain medicine prescribed by your provider (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval).
- If you are not in a cast, you should apply ice packs to your foot for 20 to 30 minutes every 3 to 4 hours for the first 2 to 3 days or until the pain goes away. Thereafter, ice your foot at least once a day until the other symptoms are gone.

## When can I return to my sport or activity?

You may start your rehabilitation when your provider has taken a follow-up X-ray and see that your fracture has healed.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- You have full range of motion in the injured foot compared to the uninjured foot.

## FIFTH METATARSAL FRACTURE



- You have full strength of the injured foot compared to the uninjured foot.
- You can jog straight ahead without pain or limping.
- You can spring straight ahead without pain or limping.
- You can do 45-degree cuts, first at half-speed, then at full-speed.
- You can do 20-yard figures-of-eight, first at half-speed, then at full-speed.
- You can do 90-degree cuts, first at half-speed, then at full-speed.
- You can do 10-yard figures-of-eight first at half-speed, then at full-speed.
- You can jump on both legs without pain and you can jump on the injured leg without pain.

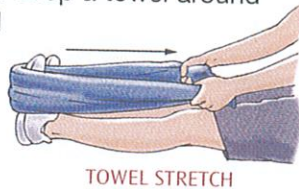
### How can I prevent a fifth metatarsal fracture?

Most fifth metatarsal fractures are caused by accidents that cannot be prevented. However it is important to wear proper fitting footwear and avoid playing or running on surfaces that are uneven.

## FIFTH METATARSAL FRACTURE REHABILITATION EXERCISES

Do these exercises as soon as your healthcare provider says you can.

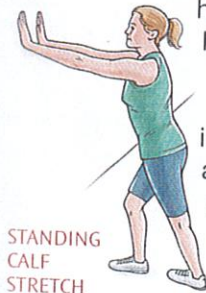
**1. TOWEL STRETCH:** Sit on a hard surface with one leg stretched out in front of you. Loop a towel around the ball of your foot and pull the towel toward your body keeping your knee straight. Hold this position for 15 to 30 seconds then relax. Repeat 3 times.



TOWEL STRETCH

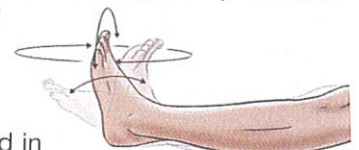
You can do the next 5 exercises when your foot swelling has stopped increasing.

**2. STANDING CALF STRETCH:** Facing a wall, put your hands against the wall at about eye level. Keep one leg back with the heel on the floor, and the other leg forward. Turn your back foot slightly inward (as if you were pigeon-toed) as you slowly lean into the wall until you feel a stretch in the back of your calf. Hold for 15 to 30 seconds. Repeat 3 times. Do this exercise several times each day.



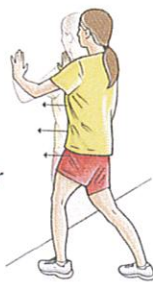
STANDING CALF STRETCH

**4. ANKLE RANGE OF MOTION:** Sitting or lying down with your legs straight and your knee toward the ceiling, move your ankle up and down by pointing your toes toward your nose, then away from your body; in toward your other foot and out away from your other foot; and in circles. Only move your foot and ankle. Don't move your leg. Repeat 10 times in each direction. Push hard in all directions.



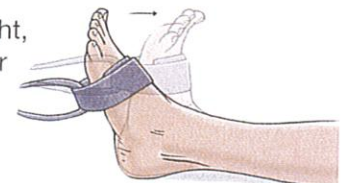
ANKLE RANGE OF MOTION

**3. STANDING SOLEUS STRETCH:** Stand facing a wall with your hands on a wall at about chest level. With both knees slightly bent and one foot back, gently lean into the wall until you feel a stretch in your lower calf. Angle the toes of your back foot slightly inward and keep your heel down on the floor. Hold this for 15 to 30 seconds. Return to the starting position. Repeat 3 times.



STANDING SOLEUS STRETCH

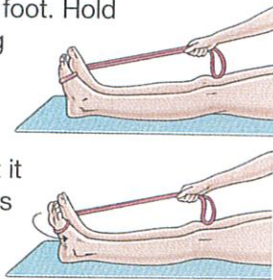
**5. RESISTED ANKLE DORSIFLEXION:** Sit with one leg out straight and your foot facing a doorway. Tie a loop in one end of elastic tubing. Put your foot through the loop so that the tubing goes around the arch of your foot. Tie a knot in the other end of the tubing and shut the knot in the door. Move backward until there is tension in the tubing. Keeping your knee straight, pull your foot toward your body, stretching the tubing. Slowly return to the starting position. Do 3 sets of 10.



RESISTED ANKLE DORSIFLEXION

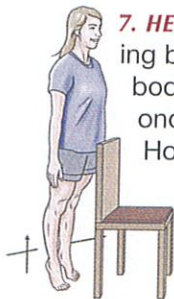
FOOT

**6. RESISTED ANKLE EVERSION:** Sit with both legs stretched out in front of you, with your feet about a shoulder's width apart. Tie a loop in one end of elastic tubing. Put one foot through the loop so that the tubing goes around the arch of that foot and wraps around the outside of the other foot. Hold onto the other end of the tubing with your hand to provide tension. Turn the foot with the tubing up and out. Make sure you keep your other foot still so that it will allow the tubing to stretch as you move your foot with the tubing. Return to the starting position. Do 3 sets of 10.



RESISTED ANKLE EVERSION

You may do the rest of the exercises when you can stand on your injured foot without pain.



**7. HEEL RAISE:** Balance yourself while standing behind a chair or counter. Raise your body up onto your toes and hold for 5 seconds. Then slowly lower yourself down. Hold onto the chair or counter if you need to. When this exercise becomes less painful, try lowering on one leg only. Repeat 10 times. Do 3 sets of 10.

HEEL RAISE

**8. STANDING TOE RAISE:** Stand with your feet flat on the floor, rock back onto your heels and lift your toes off the floor. Hold this for 5 seconds. Do 3 sets of 10.



STANDING TOE RAISE



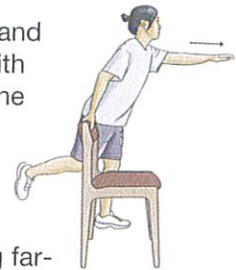
TOWEL PICKUP

**9. TOWEL PICKUP:** With your heel on the ground, pick up a towel with your toes. Release. Repeat 10 to 20 times. When this gets easy, add more resistance by placing a book or small weight on the towel.

**10. BALANCE AND REACH EXERCISES**

Stand upright next to a chair. This will provide you with balance if needed. Stand on the foot farthest from the chair. Try to raise the arch of your foot while keeping your toes on the floor.

A. Keep your foot in this position and reach forward in front of you with your hand farthest away from the chair, allowing your knee to bend. Repeat this 10 times while maintaining the arch height. This exercise can be made more difficult by reaching farther in front of you. Do 2 sets.



B. Stand in the same position as above. While maintaining your arch height, reach the hand farthest away from the chair across your body toward the chair. The farther you reach, the more challenging the exercise. Do 2 sets of 10.



BALANCE AND REACH EXERCISES



**11. SINGLE LEG BALANCE:** Stand without any support and attempt to balance on one leg. Begin with your eyes open and then try to perform the exercise with your eyes closed. Hold the single-leg position for 30 seconds. Repeat 3 times. When you have mastered this, try doing this exercise standing on a pillow.

SINGLE LEG BALANCE

# FOOT SPRAIN

## What is a foot sprain?

A foot sprain is an injury that causes a stretch or tear in one or more ligaments in the foot. Ligaments are strong bands of tissue that connect bones to bones.

## How does it occur?

A foot sprain occurs by twisting or bending the foot. This can happen if you stumble on an uneven surface, land awkwardly from a jump, or from kicking an object that doesn't move easily.

## What are the symptoms?

Pain, swelling, and tenderness in the foot. You may have difficulty walking.

## How is it diagnosed?

Your healthcare provider will review your symptoms, ask how you injured your foot, and examine you. Your provider may want to get an X-ray of your foot. The X-ray will be normal if you have a sprain.

## How is it treated?

Treatment may include the following:

- Apply ice packs to your foot for 20 to 30 minutes every 3 to 4 hours for the first 2 to 3 days or until the pain goes away. Thereafter, ice your foot at least once a day until the other symptoms are gone.
- Elevate your foot by placing a pillow underneath it. Try to keep your foot above the level of your heart.
- Wrap an elastic bandage around your foot to keep the swelling from getting worse.
- Use crutches until you can walk without pain.
- Take anti-inflammatory medicine or other pain medicine prescribed by your provider (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval).
- Do foot exercises to improve your foot strength and range of motion. The exercises will help you return to your normal activity or sports.

## When can I return to my sport or activity?

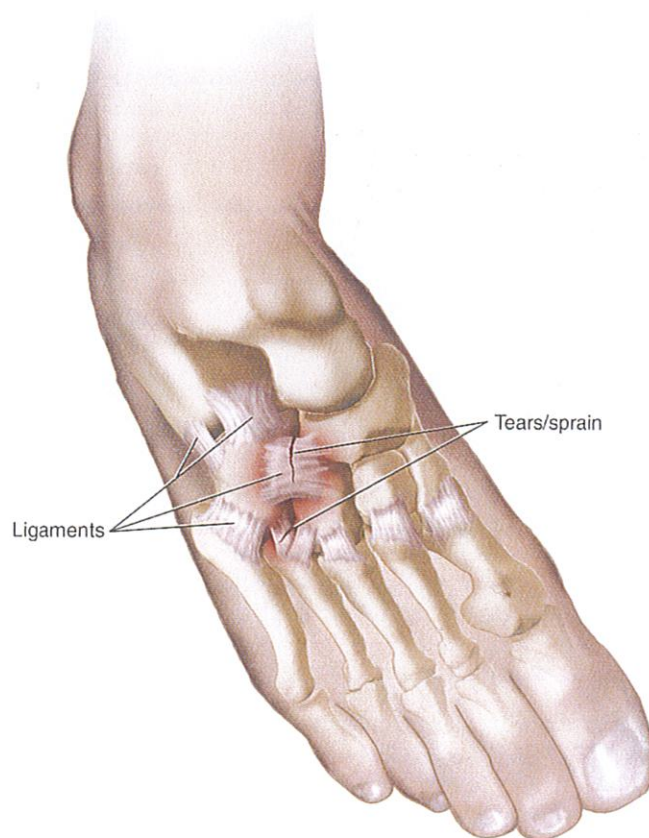
The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon your foot recovers, not by how many days or weeks it has been

since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- You have full range of motion in the injured foot compared to the uninjured foot.
- You have full strength of the injured foot compared to the uninjured foot.
- You can jog straight ahead without pain or limping.
- You can spring straight ahead without pain or limping.
- You can do 45° cuts, first at half-speed, then at full-speed.
- You can do 20-yard figures-of-eight, first at half-speed, then at full-speed.
- You can do 90° cuts, first at half-speed, then at full-speed.

## FOOT SPRAIN



- You can do 10-yard figures-of-eight first at half-speed, then at full-speed.
- You can jump on both legs without pain and you can jump on the injured leg without pain.

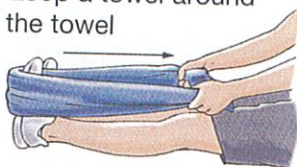
### How can I prevent a foot sprain?

Unfortunately, most foot sprains occur during accidents that are not preventable. However, it is important to wear proper fitting footwear and to avoid running or playing on uneven surfaces.

## FOOT SPRAIN REHABILITATION EXERCISES

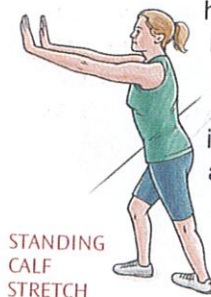
As soon as you can tolerate pressure on the ball of your foot, begin stretching your foot using the towel stretch. When this stretch is too easy, try the standing calf stretch and soleus stretch.

**1. TOWEL STRETCH:** Sit on a hard surface with one leg stretched out in front of you. Loop a towel around the ball of your foot and pull the towel toward your body keeping your knee straight. Hold this position for 15 to 30 seconds then relax. Repeat 3 times.



TOWEL STRETCH

**2. STANDING CALF STRETCH:** Facing a wall, put your hands against the wall at about eye level. Keep one leg back with the heel on the floor, and the other leg forward. Turn your back foot slightly inward (as if you were pigeon-toed) as you slowly lean into the wall until you feel a stretch in the back of your calf. Hold for 15 to 30 seconds. Repeat 3 times. Do this exercise several times each day.



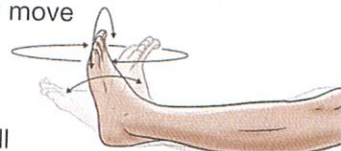
STANDING CALF STRETCH

**3. STANDING SOLEUS STRETCH:** Stand facing a wall with your hands on a wall at about chest level. With both knees slightly bent and one foot back, gently lean into the wall until you feel a stretch in your lower calf. Angle the toes of your back foot slightly inward and keep your heel down on the floor. Hold this for 15 to 30 seconds. Return to the starting position. Repeat 3 times.



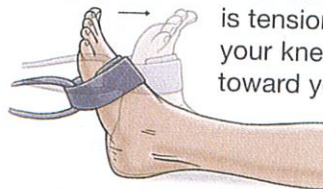
STANDING SOLEUS STRETCH

**4. ANKLE RANGE OF MOTION:** Sitting or lying down with your legs straight and your knee toward the ceiling, move your ankle up and down by pointing your toes toward your nose, then away from your body; in toward your other foot and out away from your other foot; and in circles. Only move your foot and ankle. Don't move your leg. Repeat 10 times in each direction. Push hard in all directions.



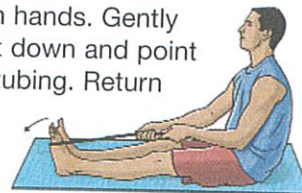
ANKLE RANGE OF MOTION

**5. RESISTED ANKLE DORSIFLEXION:** Sit with one leg out straight and your foot facing a doorway. Tie a loop in one end of elastic tubing. Put your foot through the loop so that the tubing goes around the arch of your foot. Tie a knot in the other end of the tubing and shut the knot in the door. Move backward until there is tension in the tubing. Keeping your knee straight, pull your foot toward your body, stretching the tubing. Slowly return to the starting position. Do 3 sets of 10.



RESISTED ANKLE DORSIFLEXION

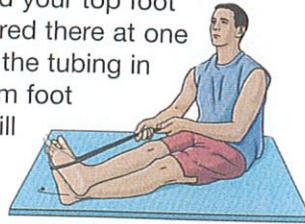
**6. RESISTED ANKLE PLANTAR FLEXION:** Sit with your leg outstretched and loop the middle section of the tubing around the ball of your foot. Hold the ends of the tubing in both hands. Gently press the ball of your foot down and point your toes, stretching the tubing. Return to the starting position. Do 3 sets of 10.



RESISTED ANKLE PLANTAR FLEXION

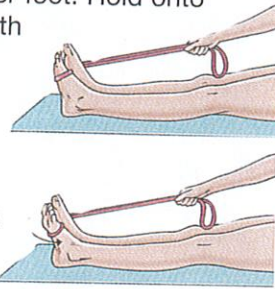
You can do the next 5 exercises when your foot swelling has stopped increasing.

**7. RESISTED ANKLE INVERSION:** Sit with your legs out straight and cross one leg over your other ankle. Wrap elastic tubing around the ball of your bottom foot and then loop it around your top foot so that the tubing is anchored there at one end. Hold the other end of the tubing in your hand. Turn your bottom foot inward and upward. This will stretch the tubing. Return to the starting position. Do 3 sets of 10



RESISTED ANKLE INVERSION

**8. RESISTED ANKLE EVERSION:** Sit with both legs stretched out in front of you, with your feet about a shoulder's width apart. Tie a loop in one end of elastic tubing. Put one foot through the loop so that the tubing goes around the arch of that foot and wraps around the outside of the other foot. Hold onto the other end of the tubing with your hand to provide tension. Turn the foot with the tubing up and out. Make sure you keep your other foot still so that it will allow the tubing to stretch as you move your foot with the tubing. Return to the starting position. Do 3 sets of 10.



RESISTED ANKLE EVERSION

You may do the rest of the exercises when you can stand on your injured foot without pain.

**9. HEEL RAISE:** Balance yourself while standing behind a chair or counter. Raise your body up onto your toes and hold for 5 seconds. Then slowly lower yourself down. Hold onto the chair or counter if you need to. When this exercise becomes less painful, try lowering on one leg only. Repeat 10 times. Do 3 sets of 10.

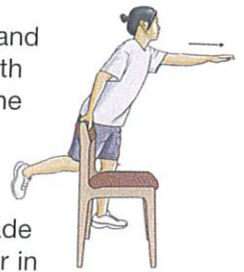


HEEL RAISE

**10. BALANCE AND REACH EXERCISES**

Stand upright next to a chair. This will provide you with balance if needed. Stand on the foot farthest from the chair. Try to raise the arch of your foot while keeping your toes on the floor.

A. Keep your foot in this position and reach forward in front of you with your hand farthest away from the chair, allowing your knee to bend. Repeat this 10 times while maintaining the arch height. This exercise can be made more difficult by reaching farther in front of you. Do 2 sets.



B. Stand in the same position as above. While maintaining your arch height, reach the hand farthest away from the chair across your body toward the chair. The farther you reach, the more challenging the exercise. Do 2 sets of 10.



BALANCE AND REACH EXERCISES



**11. SINGLE LEG BALANCE:** Stand without any support and attempt to balance on one leg. Begin with your eyes open and then try to perform the exercise with your eyes closed. Hold the single-leg position for 30 seconds. Repeat 3 times. When you have mastered this, try doing this exercise standing on a pillow.

SINGLE LEG BALANCE

# METATARSALGIA

## What is metatarsalgia?

The metatarsal bones are the long bones of the feet. They are located between the bones that form the ankle (tarsal bones) and the bones of the toes (phalanges). Metatarsalgia is pain in the long bones of the feet, especially located at the heads, or tips, of these bones.

## How does it occur?

Metatarsalgia typically occurs from doing too much of a weight-bearing activity such as running, jumping, or walking. It may occur if you start wearing a new type of shoes, especially high-heeled shoes. In some people, the tips of some metatarsals point further down than in others, making these bones more likely to hurt.

## What are the symptoms?

You have pain in the middle of the foot, especially over the bones. You have pain when the bones move and tenderness over the bony surfaces.

## How is it diagnosed?

Your healthcare provider will examine your foot and may order an X-ray to see if a foot bone is fractured. If you have metatarsalgia, the X-ray will show no break.

## How is it treated?

You may be treated with an anti-inflammatory medicine (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval). Your healthcare provider may prescribe a pad to put underneath the tender metatarsal. Custom-made arch supports (orthotics) are often prescribed for metatarsalgia.

While you are recovering from your injury, you will need to change your sport or activity to one that does not make your condition worse. For example, you may need to swim or bicycle instead of run or walk.

## When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon your foot recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you

have symptoms before you start treatment, the longer it will take to get better.

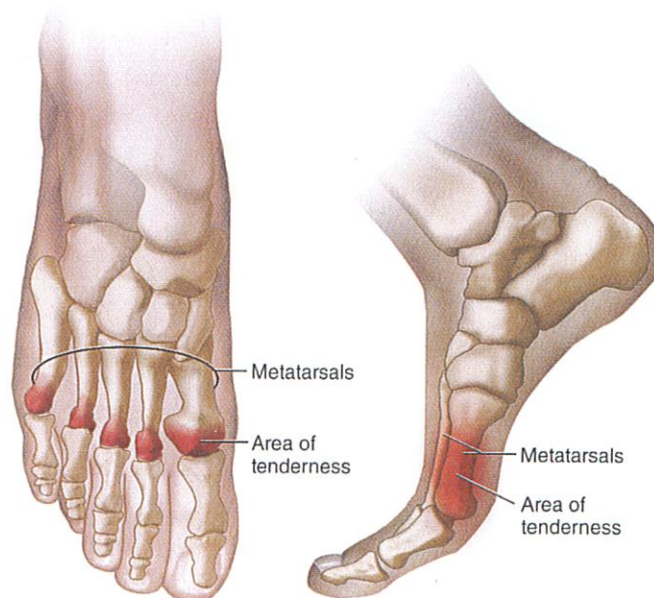
You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- You have full range of motion in the injured foot compared to the uninjured foot.
- You have full strength of the injured foot compared to the uninjured foot.
- You can jog straight ahead without pain or limping.
- You can sprint straight ahead without pain or limping.
- You can do 45-degree cuts, first at half-speed, then at full-speed.
- You can do 20-yard figures-of-eight, first at half-speed, then at full-speed.
- You can do 90-degree cuts, first at half-speed, then at full-speed.
- You can do 10-yard figures-of-eight, first at half-speed, then at full-speed.
- You can jump on both feet without pain and you can jump on the injured foot without pain.

## How can I prevent metatarsalgia?

Metatarsalgia is best prevented by wearing good shoes that fit well.

## METATARSALGIA



# MORTON'S NEUROMA

## What is a Morton's neuroma?

A neuroma is a benign (not cancerous) tumor of nerve tissue. A Morton's neuroma most commonly occurs in the nerves between the bones of the third and fourth toes or the second and third toes, but can occur between the bones of any toes.

## How does it occur?

A neuroma may be caused by running or walking too much, but often it just occurs on its own. The pain is made worse by running on hard surfaces or by wearing shoes that are too tight.

## What are the symptoms?

Your foot is painful. The pain is usually worse when your toes are pointed up. You may get numbness or tingling in the affected area. You have tenderness between the bones that are on each side of the neuroma.

## How is it diagnosed?

Your healthcare provider will examine your foot and review your symptoms.

## How is it treated?

Treatment may include:

- wearing properly fitting shoes
- taking anti-inflammatory drugs (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval)
- wearing a pad below one of the bones in your foot or custom-made arch supports (orthotics)
- getting a shot of a cortisone-like medicine if the above treatments fail

Surgery may be required to remove the neuroma.

## When can I return to my sport or activity?

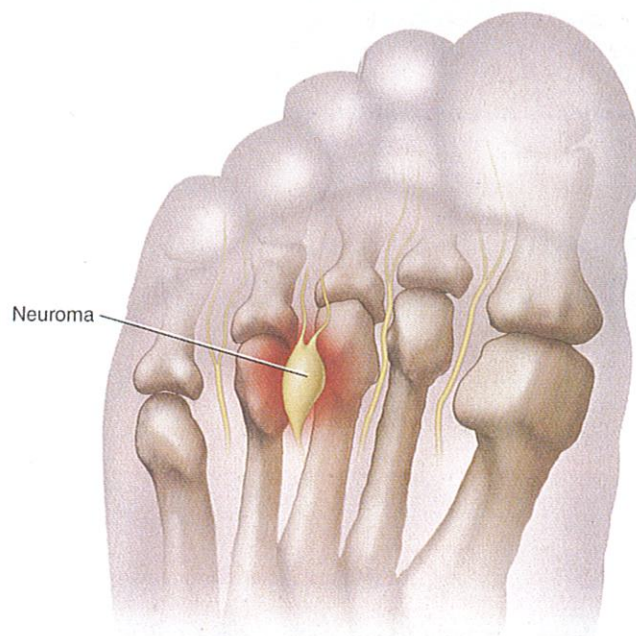
The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your activity will be determined by how soon your foot recovers, not by how many days or weeks it has been since

your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- You have full range of motion in the injured foot compared to the uninjured foot.
- You have full strength of the injured foot compared to the uninjured foot.
- You can jog straight ahead without pain or limping.
- You can sprint straight ahead without pain or limping.
- You can do 45-degree cuts, first at half-speed, then at full-speed.
- You can do 20-yard figures-of-eight, first at half-speed, then at full-speed.
- You can do 90-degree cuts, first at half-speed, then at full-speed.
- You can do 10-yard figures-of-eight, first at half-speed, then at full-speed.
- You can jump on both feet without pain and you can jump on the injured foot without pain.

## MORTON'S NEUROMA



### How long will the effects last?

The effects of a Morton's neuroma may be temporary or long-lasting. Some people get better simply by wearing more comfortable shoes. Others need cortisone injections or surgery. A cortisone injection may give you relief in a few days to a few weeks. Recovery after surgery takes several weeks or longer.

### How can I prevent a Morton's neuroma?

It is not known how to prevent a Morton's neuroma. However, wearing properly fitting shoes with good padding will help decrease the pain of a Morton's neuroma.

# OVER-PRONATION

## What is over-pronation?

In normal walking or running, the first part of the foot to strike the ground is usually the heel. As a person's body weight is transferred to the middle of the foot, the arch of the foot will naturally flatten out a small amount. This flattening is called pronation. If your foot flattens more than is normal, it is called over-pronation. Over-pronation can cause many problems, such as Achilles tendinopathy and heel pain, and can contribute to knee problems.

## How does it occur?

Over-pronation occurs when you are walking or running and your foot hits the ground and the arch and the bones in your feet flatten out and roll inward. This can occur because of looseness in the ligaments or tendons that attach to your foot bones. You can be born with this type of problem or it can result from injuries or overuse.

## What are the symptoms?

Over-pronation can cause pain in your arch, heel, shin, ankle, knee, hip, or back.

## How is it diagnosed?

Your healthcare provider will examine your feet and watch you walk or run. He or she will notice that the motion of your feet when they strike the ground is not normal. Your running shoes may show an abnormal pattern of wear.

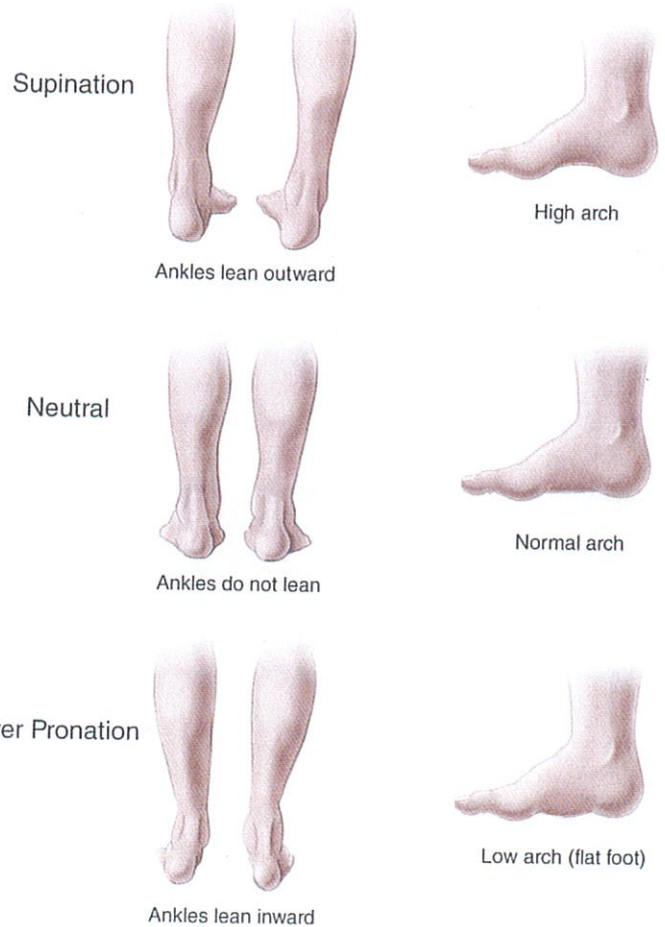
## How is it treated?

Over-pronation and the problems that go with it are best treated with a special type of arch support called orthotics. These can be custom-made or bought off the shelf. Orthotics are usually made by making a mold of your feet so your specific foot problem can be taken care of. Orthotics are made from several types of material, ranging from spongy rubber to hard plastic.

## How can I prevent over-pronation?

Over-pronation is usually caused by a problem with your feet that you were born with. However, the problems associated with over-pronation can be prevented by wearing orthotics in your shoes.

## OVER-PRONATION



# PLANTAR FASCIITIS

## What is plantar fasciitis?

Plantar fasciitis is a painful inflammation of the bottom of the foot between the ball of the foot and the heel.

## How does it occur?

There are several possible causes of plantar fasciitis, including:

- wearing high heels
- gaining weight
- increased walking, standing, or stair-climbing.

If you wear high-heeled shoes, including western-style boots, for long periods of time, the tough, tendonlike tissue of the bottom of your foot can become shorter. This layer of tissue is called fascia. Pain occurs when you stretch fascia that has shortened. This painful stretching might happen, for example, when you walk barefoot after getting out of bed in the morning.

If you gain weight, you might be more likely to have plantar fasciitis, especially if you walk a lot or stand in shoes with poor heel cushioning. Normally there is a pad of fatty tissue under your heel bone. Weight gain might break down this fat pad and cause heel pain.

Runners may get plantar fasciitis when they change their workout and increase their mileage or frequency of workouts. It can also occur with a change in exercise surface or terrain, or if your shoes are worn out and don't provide enough cushion for your heels.

If the arches of your foot are abnormally high or low, you are more likely to develop plantar fasciitis than if your arches are normal.

## What are the symptoms?

The main symptom of plantar fasciitis is heel pain when you walk. You may also feel pain when you stand and possibly even when you are resting. This pain typically occurs first thing in the morning after you get out of bed, when your foot is placed flat on the floor. The pain occurs because you are stretching the plantar fascia. The pain usually lessens with more walking, but you may have it again after periods of rest.

You may feel no pain when you are sleeping because the position of your feet during rest allows the fascia to shorten and relax.

## How is it diagnosed?

Your healthcare provider will ask about your symptoms. He or she will ask if the bottom of your heel is tender and if you have pain when you stretch the bottom of your foot. An X-ray of your heel may be done.

## How is it treated?

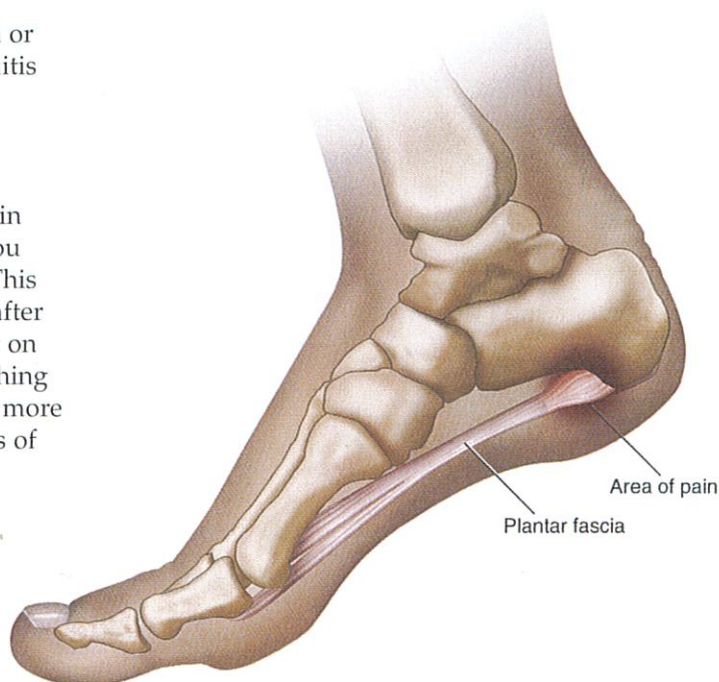
Give your painful heel lots of rest. You may need to stay completely off your foot for several days when the pain is severe.

Your healthcare provider may recommend or prescribe anti-inflammatory medicines, such as aspirin or ibuprofen. These drugs decrease pain and inflammation (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval). Resting your heel on an ice pack for a few minutes several times a day can also help.

Try to cushion your foot. You can do this by wearing athletic shoes, even at work, for awhile. Heel cushions can also be used. The cushions should be worn in both shoes. They are most helpful if you are overweight or an older adult.

Your provider may recommend special arch supports or inserts for your shoes called orthotics, either custom-made or off the shelf. These supports

## PLANTAR FASCIITIS



can be particularly helpful if you have flat feet or high arches.

If your heel pain is not relieved by the treatments described above, your provider may recommend physical therapy. The goals of physical therapy are to stretch the plantar fascia and to strengthen the lower leg muscles, which stabilize the ankle and heel. Sometimes physical therapists recommend athletic taping to support the bottom of the foot. A splint may be fitted to the calf of your leg and foot, to be worn at night to keep your foot stretched during sleep. Another possible treatment is a shot of cortisone in the heel. Surgery is rarely needed.

### How long will the effects last?

You may find that the pain is sometimes worse and sometimes better over time. If you get treatment soon after you notice the pain, the symptoms should stop after several weeks. If, however, you have had plantar fasciitis for a long time, it may take many weeks to months for the pain to go away.

### When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport will be determined by how soon your foot recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it takes to get better.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- You have full range of motion in the injured foot compared with the uninjured foot.
- You have full strength of the injured foot compared with the uninjured foot.
- You can jog straight ahead without pain or limping.
- You can sprint straight ahead without pain or limping.
- You can do 45-degree cuts, first at half-speed, then at full-speed.
- You can do 20-yard figures-of-eight, first at half-speed, then at full-speed.
- You can do 90-degree cuts, first at half-speed, then at full-speed.
- You can do 10-yard figures-of-eight, first at half-speed, then at full-speed.
- You can jump on both feet without pain and you can jump on the injured foot without pain.

### How can I prevent plantar fasciitis?

The best way to prevent plantar fasciitis is to wear shoes that are well made and fit your feet. This is especially important when you exercise or walk a lot or stand for a long time on hard surfaces. Get new athletic shoes before your old shoes stop supporting and cushioning your feet.

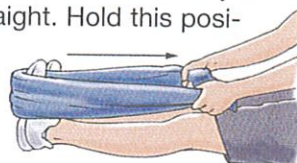
You should also:

- avoid repeated jarring to the heel
- keep a healthy weight
- do your leg and foot stretching exercises regularly

## PLANTAR FASCIITIS REHABILITATION EXERCISES

You may begin exercising the muscles of your foot right away by gently stretching them as follows:

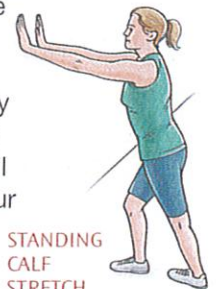
**1. TOWEL STRETCH:** Sit on a hard surface with one leg stretched out in front of you. Loop a towel around the ball of your foot and pull the towel toward your body keeping your knee straight. Hold this position for 15 to 30 seconds then relax. Repeat 3 times. It is helpful to do this stretch before you get out of bed in the morning.



TOWEL STRETCH

When the towel stretch becomes too easy, you may begin doing the standing calf stretch.

**2. STANDING CALF STRETCH:** Facing a wall, put your hands against the wall at about eye level. Keep one leg back with the heel on the floor, and the other leg forward. Turn your back foot slightly inward (as if you were pigeon-toed) as you slowly lean into the wall until you feel a stretch in the back of your calf. Hold for 15 to 30 seconds. Repeat 3 times. Do this exercise several times each day.



STANDING CALF STRETCH

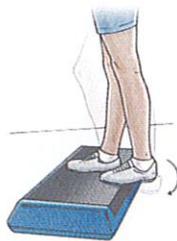
**3. SITTING PLANTAR FASCIA STRETCH:** Sit in a chair and cross one foot over your other knee. Grab the base of your toes and pull them back toward your leg until you feel a comfortable stretch. Hold 15 seconds and repeat 3 times.



SITTING PLANTAR FASCIA STRETCH

When you can stand comfortably on your injured foot, you can begin standing to stretch the bottom of your foot using the plantar fascia stretch.

**4. PLANTAR FASCIA STRETCH:** Stand with the ball of one foot on a stair. Reach for the bottom step with your heel until you feel a stretch in the arch of your foot. Hold this position for 15 to 30 seconds and then relax. Repeat 3 times.



PLANTAR FASCIA STRETCH

After you have stretched the bottom muscles of your foot, you can begin strengthening the top muscles of your foot.

**5. FROZEN CAN ROLL:** Roll your bare injured foot back and forth from your heel to your mid-arch over a frozen juice can. Repeat for 3 to 5 minutes. This exercise is particularly helpful if done first thing in the morning.



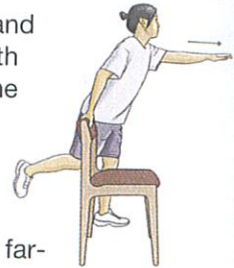
TOWEL PICKUP

**6. TOWEL PICKUP:** With your heel on the ground, pick up a towel with your toes. Release. Repeat 10 to 20 times. When this gets easy, add more resistance by placing a book or small weight on the towel.

**7. BALANCE AND REACH EXERCISES**

Stand upright next to a chair. This will provide you with balance if needed. Stand on the foot farthest from the chair. Try to raise the arch of your foot while keeping your toes on the floor.

A. Keep your foot in this position and reach forward in front of you with your hand farthest away from the chair, allowing your knee to bend. Repeat this 10 times while maintaining the arch height. This exercise can be made more difficult by reaching farther in front of you. Do 2 sets.

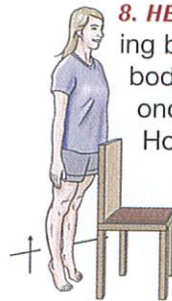


B. Stand in the same position as above. While maintaining your arch height, reach the hand farthest away from the chair across your body toward the chair. The farther you reach, the more challenging the exercise. Do 2 sets of 10.



BALANCE AND REACH EXERCISES

**8. HEEL RAISE:** Balance yourself while standing behind a chair or counter. Raise your body up onto your toes and hold for 5 seconds. Then slowly lower yourself down. Hold onto the chair or counter if you need to. When this exercise becomes less painful, try lowering on one leg only. Repeat 10 times. Do 3 sets of 10.



HEEL RAISE

**9. SIDE-LYING LEG LIFT:** Lying on your side, tighten the front thigh muscles on your top leg and lift that leg 8 to 10 inches away from the other leg. Keep the leg straight. Do 3 sets of 10.



SIDE-LYING LEG LIFT

# SESAMOID INJURIES OF THE FOOT

## What is a sesamoid injury?

A sesamoid bone is a bone found inside a tendon where it passes over a joint. A tendon is a strong band of connective tissue which attaches a muscle to a bone. Your body has several sesamoid bones. The largest sesamoid bone is your patella, or kneecap. The ball of your foot contains two small sesamoid bones, the medial (inner side) and lateral (outer side) sesamoids. These sesamoids act as pulleys for the tendons and help flex or curl your big toe. When you run and jump these sesamoid bones absorb much of your body weight.

An injury to a sesamoid bone is one of three types:

- Sesamoiditis: An irritation or inflammation.
- Sesamoid fracture: A break from an injury.
- Sesamoid stress fracture: A break that develops slowly over time.

## How do sesamoid injuries occur?

Sesamoiditis can occur when a person has repeated stress to the ball of their foot. This is seen in running and jumping sports. It is common in dancers, who are constantly on the balls of their feet. Wearing high-heeled shoes can contribute to sesamoiditis. Sometimes tight calf muscles, high-arched feet, or feet that over-pronate (flatten out when you walk) can cause the inflammation. Some people have a “bipartite” sesamoid. This is a sesamoid bone that is in 2 pieces (without being broken). Although it is not broken the edges of the 2 pieces may rub against each other and cause irritation.

A break, or fracture, usually occurs from an injury such as landing too hard on the foot after a jump or fall. A sesamoid stress fracture occurs from overuse and wear and tear on the foot over time.

## What are the symptoms?

Symptoms can include:

- pain when moving the big toe, especially lifting the big toe up
- tenderness to touch at the ball of the foot
- pain when walking, running, jumping, or standing
- swelling

## How is it diagnosed?

Your provider will examine your foot and find tenderness in the area of the sesamoid bones. You will have pain when moving the big toe.

Your provider may order an X-ray to see if you have a fracture. An X-ray will also show if you have a

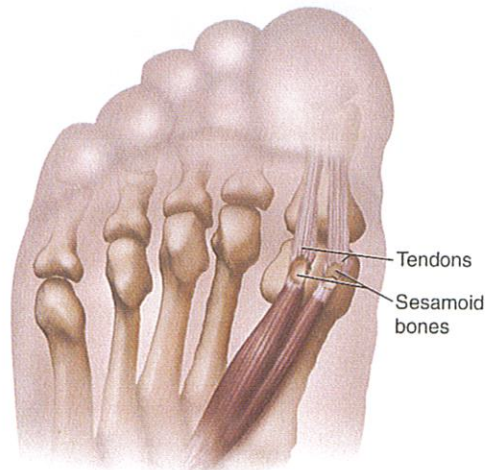
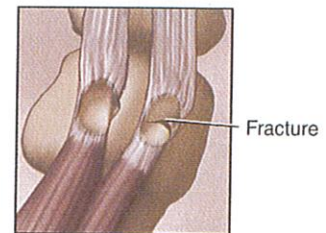
bipartite bone. Your provider may also order a bone scan or an MRI to see if you have a stress fracture.

## How is it treated?

Treating a sesamoid injury means protecting it from overuse. This can be done in several ways:

- You may be given a special pad to wear that supports the bones.
- You may be given a shoe insert that limits the motion of your big toe.
- You may have custom-made shoe inserts made for you (orthotics).
- You may need to tape your big toe to provide support and limit movement.
- You may be given a removable walking cast to wear until the pain is gone.

## SESAMOID INJURIES OF THE FOOT



- The pain may be treated with an anti-inflammatory medicine or other pain medicine (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval). While you are having acute pain you may need crutches. You should keep your foot elevated and use ice for 20 to 30 minutes 3 to 4 times a day.
- Your provider may recommend a cortisone shot in the foot to help reduce the inflammation. In some cases the painful sesamoid bone needs to be surgically removed.

### How long do the effects last?

Sesamoid fractures and stress fractures may take 4 to 8 weeks to heal. The pain from sesamoiditis may last weeks to months, depending on the amount of overuse.

### When can I return to my sport or activity?

Ideally you may return to your sport or activity when your sesamoid pain is gone. If you have a fracture, your provider may want to take another X-ray to make sure the fracture is healed or healing before you start participating. However many people return when the pain has improved and they can tolerate their activity. You should talk this over with your provider.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- You have full range of motion in the injured big toe compared to the uninjured big toe.
- You have full strength of the injured big toe compared to the uninjured big toe.
- You can jog straight ahead without pain or limping.
- You can spring straight ahead without pain or limping.
- You can do 45-degree cuts, first at half-speed, then at full-speed.
- You can do 20-yard figures-of-eight, first at half-speed, then at full-speed.
- You can do 90-degree cuts, first at half-speed, then at full-speed.
- You can do 10-yard figures-of-eight first at half-speed, then at full-speed.
- You can jump on both feet without pain and you can jump on the injured foot without pain.

### How can I prevent a sesamoid injury?

Sesamoid injuries are usually from overuse. It is important to wear proper fitting footwear. Because these are typically gradually occurring injuries it is important to get early treatment so the injury does not become worse.

# TOE FRACTURE (BROKEN TOE)

## What is a broken toe?

A broken toe is a break in a toe bone. A broken bone is also called a fracture. The break can occur in any of the toe bones. You may have a break in several places or the break may be in the joint between toe bones.

## How does it occur?

A broken toe can occur several ways. Broken toes are commonly caused by a direct hit (such as kicking a hard object or something landing on the toe). A toe can also break from a twisting type injury.

If you play a sport where you don't wear shoes (such as martial arts, ballet, gymnastics) you are at an increased risk for a toe injury.

## What are the symptoms?

You will have pain, swelling, and tenderness in the toe. It will be difficult to walk or run.

Your toe may turn black and blue. You may get bleeding or discoloration underneath your toenail. Your toenail may eventually come off.

## How is it diagnosed?

Your provider will review your symptoms, ask about how the injury occurred, and examine you. A toe fracture is diagnosed by an X-ray showing a break in the bone.

## How is it treated?

The treatment depends on the type of fracture you have. Usually the broken toe is taped to the toe directly next to it. In rare cases surgery must be done to fix the broken bone.

Treatment will also include the following:

- Putting ice packs on your toe for 20 to 30 minutes every 3 to 4 hours for the first 2 to 3 days or until the pain goes away. Thereafter ice your toe at least once a day until the other symptoms are gone.
- Elevating your foot by placing a pillow underneath it to keep the swelling down. Try to keep your foot above the level of your heart.
- Taking an anti-inflammatory or pain medicine as prescribed by your provider (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval)

Your provider may advise you to wear stiff-soled shoes. You may also be given crutches until you can walk without pain.

If your toenail is loose and has not yet fallen off, keep a Band-Aid around it.

## How long do the effects last?

It usually takes 4 to 6 weeks for a broken toe to heal. If the fracture goes into a joint your toe may continue to feel stiff and can lose some range of motion. You may develop arthritis over time. Sometimes a toe may become shorter after a fracture.

## When can I return to my normal activities?

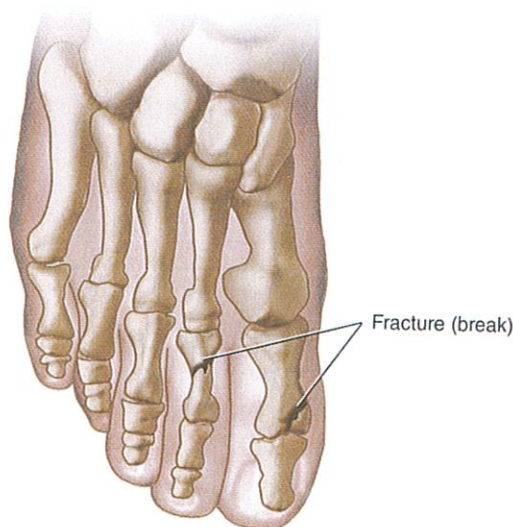
Everyone recovers from an injury at a different rate. Return to your activities will be determined by how soon your toe recovers, not by how many days or weeks it has been since your injury has occurred. The goal of rehabilitation is to return you to your normal activities as soon as is safely possible. If you return too soon you may worsen your injury.

You may safely return to your normal activity when you can walk straight ahead without pain or limping.

## How can I prevent a toe fracture?

Most toe fractures are caused by accidents that cannot be prevented. However it is important to wear proper fitting footwear and avoid playing or running on surfaces that are uneven.

## TOE FRACTURE (BROKEN TOE)



# TOENAIL INJURIES

## What is a toenail injury?

Common toenail injuries include bleeding under the toenail (subungual hematomas) and tearing off part or all of the toenail (toenail avulsions).

Bleeding under the toenail has been called "tennis toe," "runner's toe" or "skier's toe" because it occurs more commonly in these sports.

## How does it occur?

Bleeding under the toenail usually occurs from the toenail repeatedly making contact with the shoe. This causes bleeding under the toenail from a shearing force that can separate the toenail from the nail bed (skin holding the nail to the toe). This often happens because shoes are too tight or because toenails are too long. It can also happen if a heavy object strikes the toenail.

Torn nails usually occur when the nail catches on something and is pulled off.

## What are the symptoms?

Blood underneath a toenail can be painful, especially if the injury occurred from an object directly striking the toenail. Because of the underlying blood the nail will turn reddish to brown to bluish black. Eventually the nail may fall off.

A torn toenail is also painful.

## How is it treated?

The toenail should be clipped short so it does not make contact with the shoe. Shoes with a bigger, wider area for your toes should be worn.

If the blood underneath the nail is causing a lot of pain your healthcare provider may drain the blood by making a hole in the nail by drilling with a needle or using a sterile heated paperclip or heating tool.

A partially torn nail is usually taped down until a new nail has begun to form and then it is trimmed away.

Sometimes a nail that is severely damaged may be removed by your healthcare provider. If a nail is removed or falls off, put a topical antibiotic ointment on the nail area and cover it with a bandage until a new nail grows in.

You can take an anti-inflammatory medicine or other pain medicine as directed for pain (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval).

## When can I return to my sport or activity?

Although toenail injuries are not serious, they can be painful. You may return to your sport or activity as soon as you can tolerate the pain and are wearing shoes that do not make the pain and discomfort worse.

## How can I prevent a toenail injury?

Wear proper fitting shoes. Be sure to keep your toenails trimmed.

# TOE SPRAIN

## What is a toe sprain?

A sprain is an injury to a joint that causes a stretch or tear in a ligament. Ligaments are strong bands of tissue that connect one bone to another.

## How does it occur?

A toe sprain usually occurs when you stub your toe on a hard object or land awkwardly on your toes while running or jumping. It commonly occurs in kicking sports like soccer or martial arts. Activities that are done barefoot increase the risk of a toe sprain.

## What are the symptoms?

Symptoms of a toe sprain include pain, swelling, and tenderness in your toe. You may be unable to walk or run.

## How is it diagnosed?

Your healthcare provider will examine your toe. You may have an X-ray to be sure you have not broken any bones.

## How is it treated?

Treatment may include the following:

- Apply ice packs to your injured toe for 20 to 30 minutes every 3 to 4 hours for 2 or 3 days or until the pain goes away.
- Elevate your foot on a pillow while you are lying down or on a chair or desk while you are sitting (to help reduce swelling).
- Wear a stiff shoe to prevent movement of your injured toe.
- "Buddy taping" (taping to the toe next to it) your injured toe for 1 to 3 weeks.
- Use crutches if not able to walk.
- Take an anti-inflammatory or other pain medicine prescribed by your healthcare provider (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval).
- Do exercises given to you by your provider.

## How long will the effects last?

Your toe may remain swollen with decreased flexibility and strength for several weeks. Sometimes the

joint swelling may take weeks or months to go away, and in some cases may be permanent. It is important to continue doing toe exercises during and even after you return to your normal activities.

## When can I return to my sport or activity?

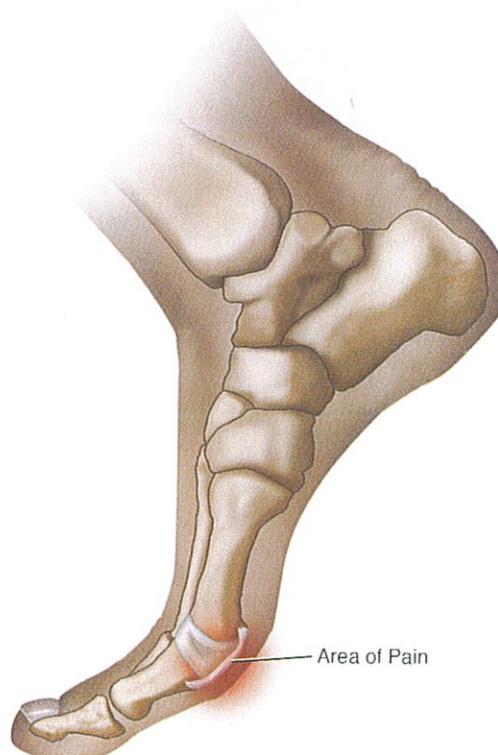
Everyone recovers from an injury at a different rate. Return to your activities will be determined by how soon your toe recovers, not by how many days or weeks it has been since your injury has occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better. The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury.

In many cases, you will be able to return to your activities as you can tolerate walking, running or jumping.

## How I prevent a toe sprain?

Toe sprains are usually the result of injuries that are not preventable. However, be sure to wear proper fitting footwear.

## TOE SPRAIN



# TOE SPRAIN REHABILITATION EXERCISES

**1. TOWEL PICKUP:** With your heel on the ground, pick up a towel with your toes. Release. Repeat 10 to 20 times. When this gets easy, add more resistance by placing a book or small weight on the towel.

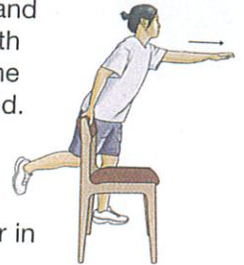


TOWEL PICKUP

## 2. BALANCE AND REACH EXERCISES

Stand upright next to a chair. This will provide you with balance if needed. Stand on the foot farthest from the chair. Try to raise the arch of your foot while keeping your toes on the floor.

- A. Keep your foot in this position and reach forward in front of you with your hand farthest away from the chair, allowing your knee to bend. Repeat this 10 times while maintaining the arch height. This exercise can be made more difficult by reaching farther in front of you. Do 2 sets.



- B. Stand in the same position as above. While maintaining your arch height, reach the hand farthest away from the chair across your body toward the chair. The farther you reach, the more challenging the exercise. Do 2 sets of 10.



BALANCE AND REACH EXERCISES

# TURF TOE

## What is turf toe?

Turf toe is pain at the joint where the big toe attaches to the rest of the foot.

## How does it occur?

Turf toe can result from excessive pushing off of the big toe when you run or jump. Jamming the toe into a hard surface can also cause turf toe.

## What are the symptoms?

You have pain where your big toe attaches to your foot. You may have difficulty bending and straightening your toe. Your toe joint may be swollen.

## How is it diagnosed?

Your healthcare provider will ask about your symptoms and examine your toe. He or she may order an X-ray to be sure you did not break your toe.

Turf toe can sometimes look like gout, a type of arthritis of the big toe. Your provider may order tests to be sure you do not have gout.

## How is it treated?

Treatment may include the following:

- Put ice packs on your toe for 20 to 30 minutes every 3 to 4 hours for the first 2 to 3 days or until the pain goes away.
- Elevate your foot on a pillow.
- Take anti-inflammatory medicines prescribed by your healthcare provider.

One of the keys to treating turf toe is keeping the toe from moving too much. Your toe can be taped to restrict how much it moves. You may have a special insole placed in your shoe that will reduce the movement of your big toe.

## When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon your toe recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

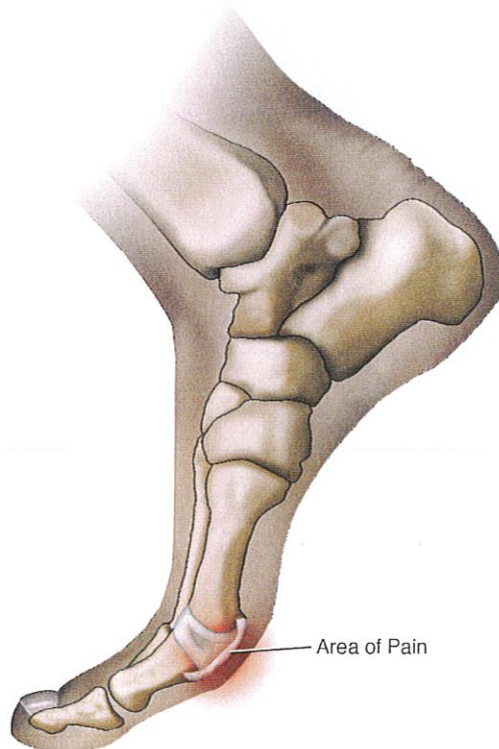
You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- You have full range of motion in the injured toe compared to the uninjured toes.
- You have full strength of the injured toe compared to the uninjured toes.
- You can jog straight ahead without pain or limping.
- You can sprint straight ahead without pain or limping.
- You can do 45-degree cuts, first at half-speed, then at full-speed.
- You can do 20-yard figures-of-eight, first at half-speed, then at full-speed.
- You can do 90-degree cuts, first at half-speed, then at full-speed.
- You can do 10-yard figures-of-eight, first at half-speed, then at full-speed.
- You can jump on both feet without pain and you can jump on the foot with the injured toe without pain.

## How can I prevent turf toe?

Turf toe is best prevented by wearing good shoes that fit properly and by avoiding jamming your big toe into a hard surface.

## TURF TOE



# TURF TOE REHABILITATION EXERCISES

**1. TOWEL PICKUP:** With your heel on the ground, pick up a towel with your toes. Release. Repeat 10 to 20 times. When this gets easy, add more resistance by placing a book or small weight on the towel.

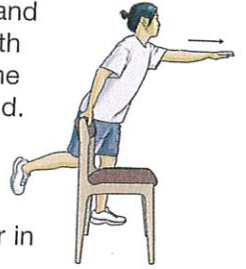


TOWEL PICKUP

## 2. BALANCE AND REACH EXERCISES

Stand upright next to a chair. This will provide you with balance if needed. Stand on the foot farthest from the chair. Try to raise the arch of your foot while keeping your toes on the floor.

A. Keep your foot in this position and reach forward in front of you with your hand farthest away from the chair, allowing your knee to bend. Repeat this 10 times while maintaining the arch height. This exercise can be made more difficult by reaching farther in front of you. Do 2 sets.



B. Stand in the same position as above. While maintaining your arch height, reach the hand farthest away from the chair across your body toward the chair. The farther you reach, the more challenging the exercise. Do 2 sets of 10.



BALANCE AND REACH EXERCISES