

TARSAL FRACTURE



■ ■ ■ Description

A tarsal fracture is a broken bone (fracture) in the back half of the foot (hindfoot). The tarsal bones are the major bones of the back half of the foot and include the talus (part of the ankle) and calcaneus (heel bone).

■ ■ ■ Common Signs and Symptoms

- Sharp pain, especially with standing or walking on the foot; may be preceded by a dull pain for 2 weeks to 2 months
- Tenderness, swelling, and later bruising of the foot
- Numbness or paralysis from swelling in the foot, causing pressure on the blood vessels or nerves (uncommon)

■ ■ ■ Causes

Tarsal fracture is caused by a direct blow, twisting injury to the foot or ankle, repetitive high-impact loads to the foot, or landing wrong on the foot and ankle. To break any of these bones usually requires a significant injury or force.

■ ■ ■ Risk Increases With

- Participation in contact sports, sports that require jumping and landing (basketball, volleyball), and distance running
- Previous foot or ankle sprains or dislocations or repeated injury to any joint in the foot
- Poor physical conditioning (strength and flexibility)

■ ■ ■ Preventive Measures

- Appropriately warm up and stretch before practice or competition.
- Maintain appropriate conditioning:
 - Cardiovascular fitness
 - Strength, flexibility, and endurance
- For participation in jumping (basketball, volleyball) or contact sports, protect vulnerable joints with supportive devices, such as braces, wrapped elastic bandages, tape, or high-top athletic shoes.
- Wear proper protective equipment and ensure correct fit.

■ ■ ■ Expected Outcome

With appropriate treatment and normal alignment of the bones, healing can be expected. Occasionally, surgery is necessary to realign fractures that are displaced.

■ ■ ■ Possible Complications

- Nonunion (fracture does not heal)
- Malunion (heals in a bad position)
- Chronic pain, stiffness, or swelling of the foot
- Excessive bleeding in the foot or at the dislocation site, causing pressure and injury to nerves and blood vessels (rare)
- Some bones have a risk of bone death due to interrupted blood supply associated with the fracture

- Unstable or arthritic joint following repeated injury or delayed treatment

■ ■ ■ General Treatment Considerations

If the bones are in appropriate alignment (position), the initial treatment consists of ice and elevation of the injured foot and ankle at or above heart level to reduce swelling. Crutches and medications help to relieve pain. Immobilization by splinting, bandaging, casting, or bracing for 6 or more weeks, usually while using crutches and not walking on the injured foot, are recommended to protect the bones while they heal. Severe fractures, fractures that are displaced (not in appropriate alignment), or multiple foot fractures may require surgery restore and maintain the joint in its normal position. Surgery usually includes repositioning the bones and holding the position with plates, screws, or pins. After immobilization (with or without surgery), stretching and strengthening of the injured and weakened joint and surrounding muscles (due to the injury and the immobilization) are necessary. Usually these are done with the assistance of a physical therapist or athletic trainer. Also, a stiff-soled shoe and arch support (orthotic) may be required when returning to sports.

■ ■ ■ Medication

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (do not take within 7 days before

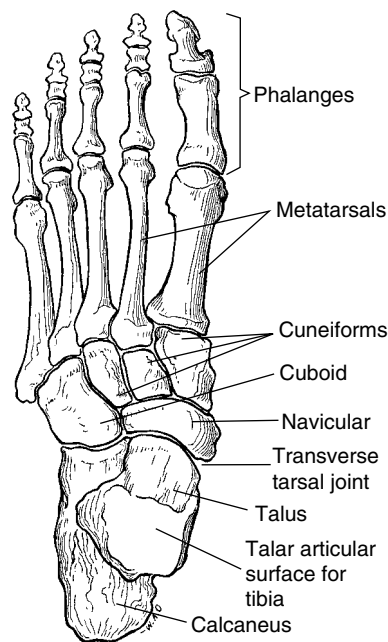


Figure 1

From Jenkins DB: Hollinshead's Functional Anatomy of the Limbs and Back, 6th ed. Philadelphia, WB Saunders, 1991, p. 286.

surgery), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.

- Strong pain relievers may be prescribed as necessary. Use only as directed and only as much as you need.

■ ■ ■ Cold Therapy

Cold is used to relieve pain and reduce inflammation for acute and chronic cases. Cold should be applied for 10 to 15 minutes every 2 to 3 hours for inflammation and pain and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage.

■ ■ ■ Notify Our Office If

- Pain, tenderness, or swelling worsens despite treatment
- You experience pain, numbness, or coldness in the foot
- Blue, gray, or dusky color appears in the toenails
- Any of the following occur after surgery: fever, increased pain, swelling, redness, drainage, or bleeding in the surgical area
- New, unexplained symptoms develop (drugs used in treatment may produce side effects)

EXERCISES

> RANGE OF MOTION AND STRETCHING EXERCISES • Tarsal Fracture

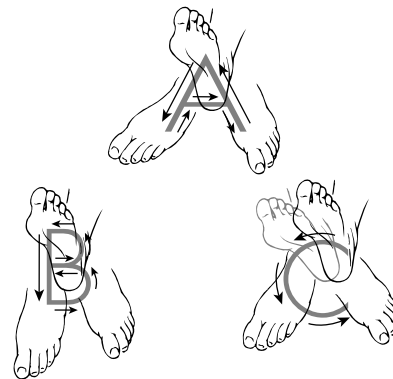
These are some of the *initial* exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- Flexible tissue is more tolerant of the stresses placed on it during activities.
- Each stretch should be held for 20 to 30 seconds.
- A *gentle* stretching sensation should be felt.



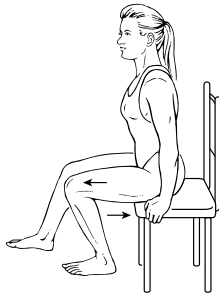
RANGE OF MOTION • Active Dorsi/Plantar Flexion

1. Pull your toes and foot toward your body as far as possible, then point the foot and toes away from body as far as possible.
2. Perform this exercise with the knee straight and then with the knee bent.
3. Hold this position for _____ seconds.
4. Repeat exercise _____ times, _____ times per day.



RANGE OF MOTION • Ankle Alphabet

1. Write all the capital letters of the alphabet with your foot and ankle. The motion should come from your foot and ankle, not your hip or knee.
2. Move the foot and ankle slowly, writing the letters as large as possible/comfortable for you.
3. Repeat exercise _____ times, _____ times per day.



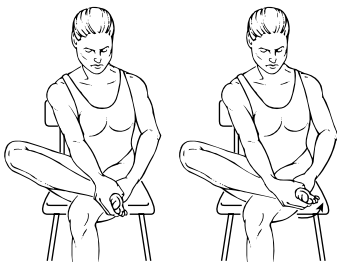
RANGE OF MOTION • Ankle Dorsiflexion

1. Sit on the edge of a chair as shown.
2. Place your _____ foot closest to the chair.
3. Keep your foot flat on the floor and move your knee forward over the foot.
4. Hold this position for _____ seconds.
5. Repeat exercise _____ times, _____ times per day.



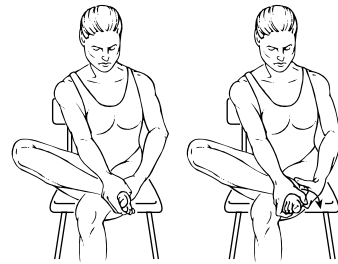
RANGE OF MOTION • Ankle Plantar Flexion

1. Sit in the position shown.
2. Using your hand, pull your toes and ankle down as shown so that you feel a gentle stretch.
3. Hold this position for _____ seconds.
4. Repeat exercise _____ times, _____ times per day.



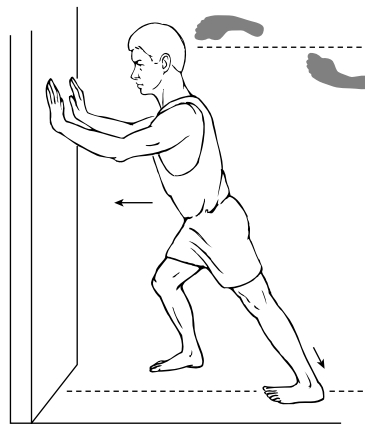
RANGE OF MOTION • Ankle Inversion

1. Sit with your _____ leg crossed over the other.
2. Grip the foot with your hands as shown and turn the sole of your foot upward and in so that you feel a stretch on the outside of the ankle.
3. Hold this position for _____ seconds.
4. Repeat exercise _____ times, _____ times per day.



RANGE OF MOTION • Ankle Eversion

1. Sit with your _____ leg crossed over the other.
2. Grip the foot with your hands as shown and turn the sole of your foot upward and out so that you feel a stretch on the inside of the ankle.
3. Hold this position for _____ seconds.
4. Repeat exercise _____ times, _____ times per day.



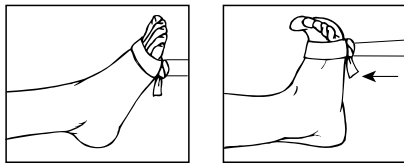
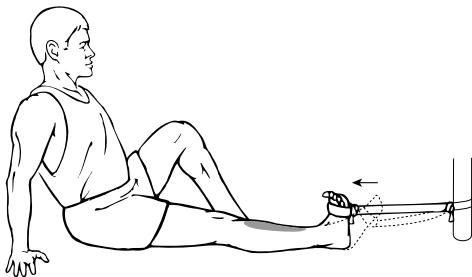
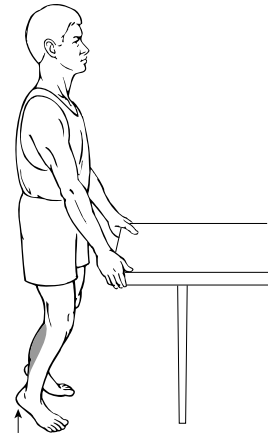
STRETCH • Gastrocnemius

1. Stand **one** arm length from the wall as shown. Place calf muscle to be stretched behind you as shown.
2. Turn the **toes in** and **heel out** of the leg to be stretched.
3. Lean toward wall leading with your waist, allowing your arms to bend. **Keep your heel on the floor.**
4. First do this exercise with the knee straight, then bend the knee slightly. **Keep your heel on the floor at all times.**
5. Hold this position for _____ seconds.
6. Repeat exercise _____ times, _____ times per day.

> STRENGTHENING EXERCISES • Tarsal Fracture

These are some of the *initial* exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- Strong muscles with good endurance tolerate stress better.
- Do the exercises as *initially* prescribed by your physician, physical therapist, or athletic trainer. Progress slowly with each exercise, gradually increasing the number of repetitions and weight used under their guidance.

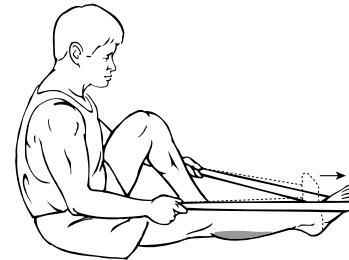


STRENGTH • Dorsiflexors

1. Attach one end of elastic band to fixed object or leg of table/desk. Loop the opposite end around your foot as shown.
2. Slowly pull the foot toward you. Hold this position for ____ seconds. Slowly return to starting position.
3. Repeat exercise ____ times, ____ times per day.

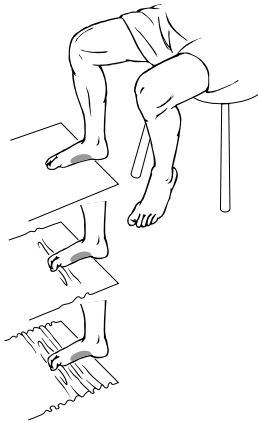
STRENGTH • Plantarflexors

1. Stand with feet shoulder-width apart. Hold on to counter or chair if necessary for balance.
2. Rise up on your toes as far as you can. Hold this position for ____ seconds.
3. Complete this exercise using only one leg if it is too easy using both legs.
4. Repeat exercise ____ times, ____ times per day.



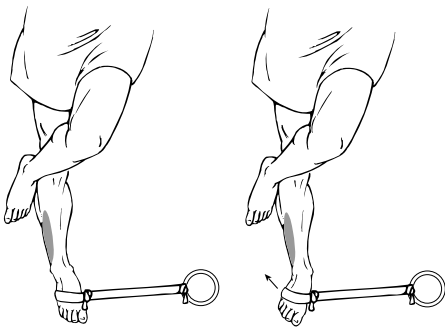
STRENGTH • Plantarflexors

1. Loop elastic band around foot as shown. Pull the band toward you with your hands.
2. Push your toes away from you slowly. Hold this position for ____ seconds. Slowly return to starting position.
3. Repeat exercise ____ times, ____ times per day.



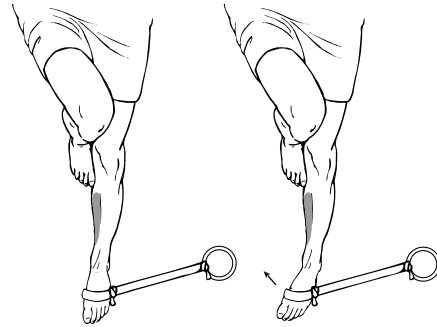
STRENGTH • Towel Curls

1. Sit in a chair and place a towel on a noncarpeted floor. Place your foot/toes on towel as shown. (You may also stand to do this exercise rather than sit.)
2. Curl/pull towel toward you with your toes while keeping your heel on the floor. Move towel with toes only. Do not move your knee or ankle.
3. If this is too easy, place a light weight (book, hand weight, etc.) at the far end of the towel.
4. Repeat exercise _____ times, _____ times per day.



STRENGTH • Ankle Eversion

1. Attach one end of elastic band to fixed object or leg of table/desk. Loop the opposite end around your foot.
2. Turn your toes/foot outward as far as possible, attempting to pull your little toe up and outward. Hold this position for _____ seconds.
3. Slowly return to starting position.
4. Repeat exercise _____ times, _____ times per day.



STRENGTH • Ankle Inversion

1. Attach one end of elastic band to fixed object or leg of table/desk. Loop the opposite end around your foot.
2. Turn your toes/foot inward as far as possible, attempting to push your little toe down and in. Hold this position for _____ seconds.
3. Slowly return to starting position.
4. Repeat exercise _____ times, _____ times per day.

Notes:

(Up to 4400 characters only)

Notes and suggestions