

# LISFRANC'S FRACTURE-DISLOCATION AND MID-FOOT SPRAIN



## ■ ■ ■ Description

Lisfranc's fracture-dislocation is an injury to the middle part of the foot such that the ligaments of the mid-foot are sprained, with or without loss of normal alignment of the bones and joints and with or without fracture (broken bones). The mid-foot bones, ligaments, and muscles are of key importance in shock absorption, force transmission, and maintenance of the arch of the foot.

## ■ ■ ■ Common Signs and Symptoms

- Sharp pain, especially with standing or walking on the injured foot
- Tenderness, swelling, and bruising at the injury site
- Numbness or paralysis from swelling in the foot, causing pressure on the blood vessels or nerves (uncommon)

## ■ ■ ■ Causes

This injury is usually the result of a direct blow, a twisting injury, or landing wrong on the foot and ankle. It may occur when your foot is planted and flexed on your toes and someone lands on your heel or when another player is standing on your foot as you fall back and are pulling your foot away.

## ■ ■ ■ Risk Increases With

- Participation in contact sports, sports that require jumping and landing (basketball, volleyball), or sports in which cleats are worn on shoes and sliding occurs
- 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:
  - Foot and ankle strength and flexibility
  - Cardiovascular fitness
- For participation in jumping (basketball, volleyball) or contact sports, protect vulnerable joints with supportive devices, such as wrapped elastic bandages, tape, braces, or high-top athletic shoes; for sports that require cleats or spikes on the athletic shoe, use cleats or spikes of appropriate length for the sport and the turf or field conditions.
- Wear proper protective equipment and ensure correct fit.

## ■ ■ ■ Expected Outcome

With appropriate treatment and normal alignment of the bones and joints of the mid-foot, return to sports is attainable; however, it may require a minimum of 8 to 12 weeks. Residual pain and stiffness of the mid-foot are not uncommon after this injury.

## ■ ■ ■ Possible Complications

- Prolonged healing or recurrent dislocation if activity is resumed too soon
- Nonunion (fracture does not heal)
- Malunion (heals in a bad position)
- Chronic pain, stiffness, or swelling of the foot
- Excessive bleeding in the foot, causing pressure and injury to nerves and blood vessels (rare)
- Unstable or arthritic joint following repeated injury or delayed treatment
- Future surgery to fuse the joints of the mid-foot due to chronic pain or stiffness

## ■ ■ ■ General Treatment Considerations

If the bones are in appropriate alignment (position) and the sprain is mild, 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. Later, a stiff-soled shoe and arch support (orthotic) may be required. Immobilization by splinting, bandaging, casting, or bracing for 2 to 8 weeks is usually recommended to protect the joint while the ligaments heal. For severe sprains, dislocations, and fractures that are displaced (not in appropriate alignment), surgery is recommended to restore and maintain the joint to its normal position. The foot is usually immobilized for variable amounts of time (depending on the severity of injury) after surgery. 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. These may be done with or without the assistance of a physical therapist or athletic trainer.

## ■ ■ ■ Medication

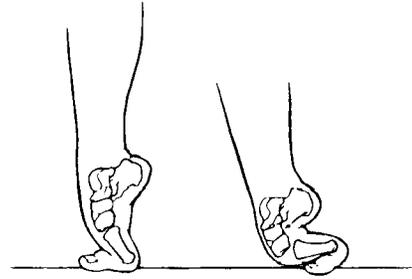
- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (do not take within 7 days before surgery), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.
- Strong pain relievers may be prescribed as necessary. Use only as directed.

## ■ ■ ■ Heat and Cold

- Cold is used to relieve pain and reduce inflammation. 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.
- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak.

■ ■ ■ **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)



**Figure 1**

From Andrews JR, Harrelson GL, Wilk RE: Physical Rehabilitation of the Injured Athlete, 2nd ed. Philadelphia, WB Saunders, 1991, p. 317.

**EXERCISES**

➤ **RANGE OF MOTION AND STRETCHING EXERCISES • Lisfranc's Fracture-Dislocation and Mid-Foot Sprain**

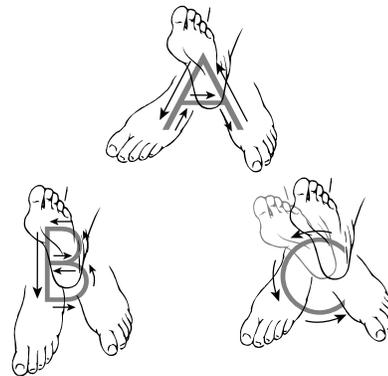
These are some of the *initial* exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. *The bottom of your arch should be supported for any stretching exercise that is done with the foot on the floor. Your arch may be supported by folding up a small face cloth and placing it under the arch.* 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.



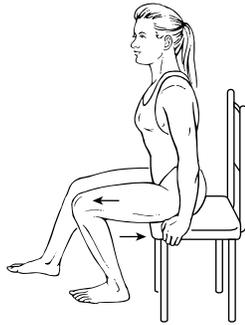
**RANGE OF MOTION • Active Dorsi/Plantar Flexion**

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.



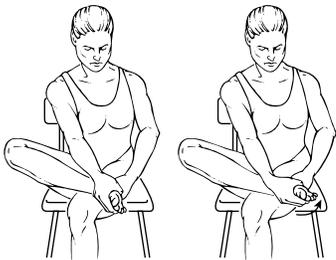
**RANGE OF MOTION • Ankle Alphabet**

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.



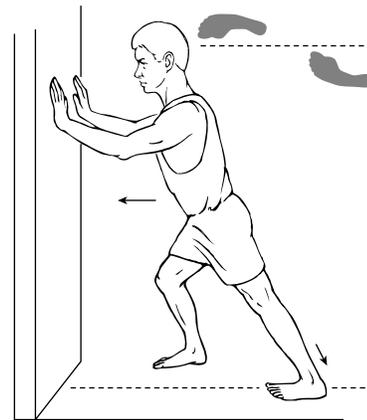
**RANGE OF MOTION • Ankle Inversion**

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 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.



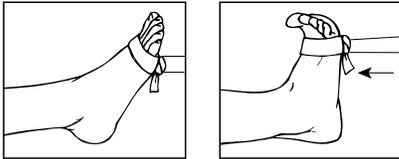
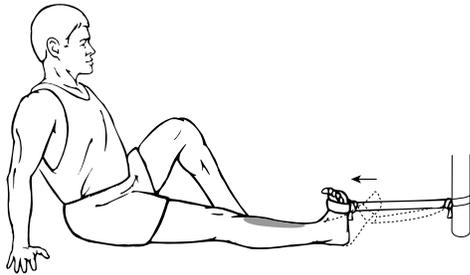
**STRETCH • Gastrocnemius**

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** • Lisfranc's Fracture-Dislocation and Mid-Foot Sprain

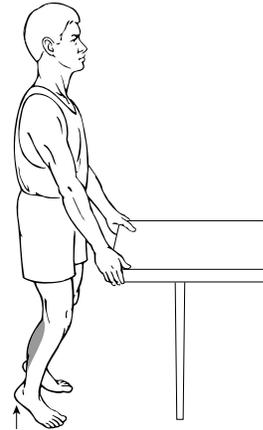
These are some of the *initial* exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- 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.



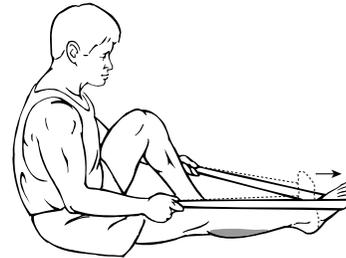
**STRENGTH** • Dorsiflexors

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.



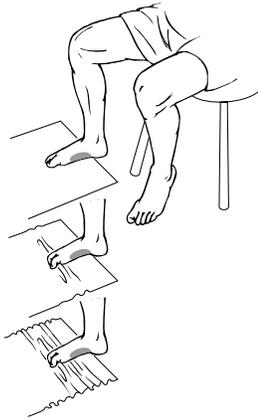
**STRENGTH** • Plantarflexors

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.



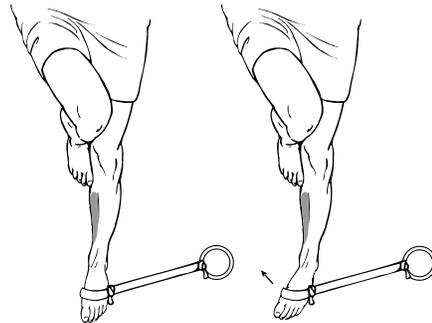
**STRENGTH** • Plantarflexors

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.



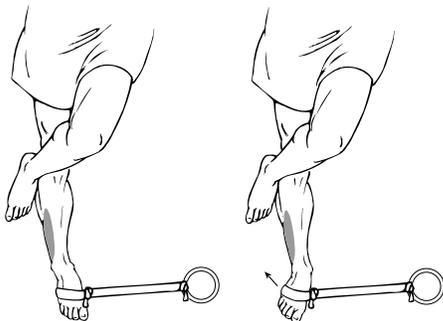
**STRENGTH • Towel Curls**

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 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.



**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.

Notes:

(Up to 4400 characters only)

Notes and suggestions