



YOUR GUIDE TO

MEDIAL LIGAMENT SPRAIN OF THE ANKLE

MUSCULOSKELETAL

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Introduction

Please take note of the following before starting any of the exercises in this guide:

- The information contained in this guide is intended to assist in managing your recovery.
- This guide is based on the latest medical research in the field and contains the best advice available to the best of our knowledge.
- This guide is complimentary to other medical services and is not intended as a substitute for a health care provider's consultation. Never disregard medical advice or delay in seeking advice because of something you have read in this guide.

● Many people have found quick and lasting relief from their pain by acting upon the information provided, but everyone decides for themselves what to do with this information. Should you doubt a particular exercise in your situation, please consult your health professional.

When consulting your health professional, it is wise to take this guide with you to show them.

The Ankle Joint

The ankle joint is a hinge joint formed between the tibia and fibula (bones of the lower leg) and the talus (a bone of the foot). It allows the foot to bend upwards (dorsiflexion) and downwards (plantarflexion). Two bones of the foot, the talus and calcaneus (heel bone) connect to form the subtalar joint which allows the foot to move from side to side (inversion and eversion).

The stability of the foot comes from the structural arrangement of the bones and the surrounding ligaments. Ligaments are bands of tissue that connect one bone to another and are very important in providing stability around a joint. The ligaments allow for motion of the bones at the joint, but only within certain ranges of motion. The outside of the ankle is stabilized by three small ligaments while the inside (medial) of the joint is stabilized by one strong ligament called the deltoid ligament which consists of a number of bands. The broad fan-shaped bands of the deltoid ligament serve to stabilize the inside of the joint, preventing over-pronation (flattening of the arch of the foot) and excessive eversion (outward turning of the sole of the foot).



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What is a medial ligament sprain of the ankle?

A sprain is an injury that occurs to a ligament and is caused by a sudden over stretching. The degree of overstretch will determine the severity of the injury and whether a complete rupture occurs. Because of the structure of the ankle and the strength of the deltoid ligament, the medial side of the joint is a lot more stable than the lateral side (outside). Medial ligament sprains therefore do not occur as frequently as lateral ligament sprains and account for less than 5% of all ankle sprains because of the considerable force required to damage the deltoid ligament.

Sprains can be divided into three groups depending on the severity of the injury and damage to the ligament.

Grade I Sprain: A Grade I (First Degree) sprain is the most common and requires the least amount of treatment and recovery. The ligaments connecting the ankle bones are often over-stretched and damaged microscopically, but not actually torn. The ligament damage has occurred without any significant instability developing.

Grade II Sprain: A Grade II (Second Degree) injury is more severe and indicates that the ligament has been more significantly damaged, but there is no significant instability. The ligaments are often partially torn.

Grade III Sprain: A Grade III (Third Degree) sprain is the most severe. This indicates that the ligament has been significantly damaged, and that instability has resulted. A grade III injury means that the ligament has been torn.

However, due to the strength of the medial ligament, grade I and II injuries are rare. A grade III injury is the most common and this is often accompanied by a fracture.

What causes medial ligament sprains?

Medial ligament sprains mostly occur in conjunction with another injury. Isolated medial ligament ankle sprains do however rarely occur and are caused predominantly by "everision" injuries in which the foot and heel buckle outward, away from the other foot. These injuries are usually due to a large external force, such as body contact, or in sport being tackled with the foot still fixed to the ground forcing it into excessive eversion and dorsiflexion (inwards and upwards movements). Occasionally, medial

ligament injuries may be seen in conjunction with a lateral ligament injury, especially if the injury to the lateral ligaments is severe. Most often tears of the medial ligament occur in conjunction with either an ankle fracture (located on the outer side of the ankle) or a sprain of the syndesmotoc ligaments (located just above the ankle). Injuries may also occur with a fracture to the bone on the inner side of the ankle (medial malleolus), talar dome (bone of the foot) or damage to joint surfaces.

What are the symptoms?

- Swelling and bruising on the inner, or medial side of the joint
- Feeling around the joint will reveal tenderness below the tibial bone (on the inside)
- Because of the uncommon nature of isolated deltoid ligament sprains, it is extremely important to thoroughly examine the entire ankle to assess for bony tenderness and injuries to other ligaments. It is also essential that the entire fibula (outer shin bone) be assessed for tenderness

What treatment can I receive?

X-RAY

Medial ankle sprains commonly occur in conjunction with an ankle fracture; therefore x-rays of the ankle should be obtained whenever a medial ankle sprain is suspected. If there is tenderness over the fibula bone higher up the leg, leg x-rays should be ordered to determine if a fracture has occurred. X-rays will also help to assess the syndesmotoc ligaments that hold the lower ends of the tibia and fibula bones together. If the syndesmotoc ligaments are injured, widening between these bones may be present.

MRI:

If the diagnosis of a medial ankle sprain is uncertain, an MRI scan may be performed. Unlike x-rays, which predominantly show bone, an MRI scan is able to reveal the ligaments, tendons, and cartilage of the ankle. If the deltoid ligament is injured, the scan will show either fluid within the ligament, stretching of the ligament, or a complete tear of the ligament.

Tears of the deltoid ligament that occur in conjunction with an ankle fracture do not need to be surgically repaired, despite the fact that the associated ankle or fibula fracture may need to be fixed with a plate and/or screws. In the vast majority of cases, the period of immobilization and restricted weight-bearing which is

required to heal the ankle fracture will be sufficient to heal the torn deltoid ligament.

The treatment of isolated tears of the deltoid ligament is more controversial as these injuries are so uncommon that few studies have been done to determine the best way to treat them. This is especially the case with more severe sprains. In most cases however, orthopedic surgeons agree that mild to moderate deltoid ligament sprains should be treated with a brace or cast, which is worn for several weeks. This serves to immobilize the joint allowing the ligament to heal, and weight bearing is increased as symptoms allow. In any cases of medial ligament injury it is important to consult with a doctor or allied health professional for a proper assessment of the joint due to the more serious injuries that are related to it. Initial management before you can get to see a doctor will be the same as that for any sprain injury which includes **R.I.C.E.** treatment immediately after the injury for the next 48-72 hours.

Rest: Try and take the pressure off the ankle until it has been assessed and fractures have been ruled out. You may not have much of a choice as weight bearing could be extremely painful

Ice: Ice should be applied for 10-15 minutes every 2 hours and should never be applied directly to the skin. If you do not have an ice pack, frozen peas provide a good substitute.

Compression: Use a brace or compression bandage to support the ankle and prevent further damage until treatment can be received. This will also help to control the inflammatory process and bleeding within the joint

Elevation: Try and keep the ankle raised to help control the inflammatory process and bleeding within the joint

PHYSIOTHERAPY

A physiotherapist will use treatments such as soft tissue mobilisation, deep friction massage, acupuncture, electrotherapy etc, which will all serve to aid in the recovery process of the ligament and help get you back to function as soon as possible after your injury. They will also be able to provide you with a rehabilitation programme to strengthen the joint and restore its proprioceptive function (awareness of your ankle joint in space), restore full function and prevent future injury from occurring.

Important: Try to limit immobilisation as much as possible as prolonged immobilisation can cause significant problems after ankle sprains

- Patients will feel better if placed in a cast or a walking boot, but this can lead to a stiff ankle, delay rehab, and make their ankle prone to re-injury if the immobilization is carried on for too long.

- Injured ankle ligaments will form scar tissue while healing. This scar tissue is tighter, and less organized when patients have their joint completely immobilized. When the ligaments scar excessively, normal movements can become painful, and the ankle can be prone to re-injury. The ligaments heal with tissue that is the appropriate length and of better quality when ankle movement is initiated earlier.

- Even if walking is painful out of a boot, patients should remove the boot several times a day to work on mobility exercises. It is important to discuss with your doctor or allied health professional what exercises you can do while still in a cast or boot.

What exercises should I do?

It is important that you are aware that this is a general exercise programme for medial ligament sprains of the ankle, which can be adjusted depending on advice that you have been given by your health professional on assessment. As already stated, it is essential that you

see your doctor or physiotherapist for any injury to the inside of the ankle as there could be other structures that are involved. Therefore only start this programme once you have got the all clear from your doctor or physiotherapist.

Exercises

- Keep all exercises in your pain free limits. **Trying to work in painful ranges will only prolong your recovery.**
- If you experience pain during any of the exercises, decrease the intensity of the exercises by:
 - decreasing the number of sets
 - decreasing the number of repetitions
 - decreasing the range of movement
 - decreasing the resistance

- Do all exercises slowly and breathe normally.
- Progress gradually according to your own level of comfort.
- Following exercise, stiffness or fatigue may result but should not last longer than 24 hrs. The symptoms of your injury should not be aggravated.

Exercises phase 1

This phase is focused on regaining range of movement and strength in the ankle. All exercises should be

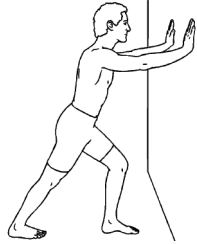
done in a pain free range of movement.

STRETCHES

- Repeat each of these stretches **3 times** (on both sides if necessary).
- Hold each stretch for at least **30 seconds**.

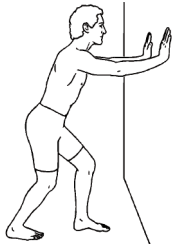
- Hold a steady stretch, **do not bounce**.

Exercises phase 1 (continued)



CALF STRETCH

Keeping back leg straight, with heel on floor and turned slightly outward, lean into wall until a stretch is felt in calf.



SOLEUS STRETCH

Keep the back leg slightly bent, with the heel on the floor and pointing in a straight line to the wall. Lean into the wall until a stretch is felt in the lower calf.

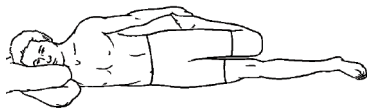


PLANTAR FASCIITIS STRETCH

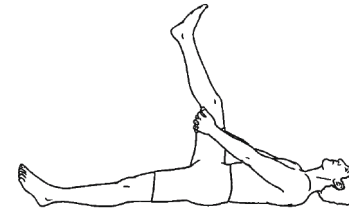
Stand with the ball of one foot on a stair. Slowly reach for the bottom of the step with your heel until a stretch is felt through the arch of your foot.

QUADRICEPS STRETCH:

Lying on your right side, your right arm extended up to cushion your



head, use your left hand to grasp your left ankle as you bend your left knee backwards. You should feel the stretch along the front of your thigh. It is important to keep the other leg bent at both the hip and the knee, so as not to hyperextend your back.

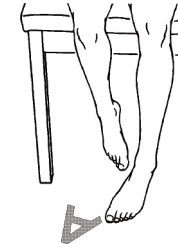


HAMSTRING STRETCH

Lying on back with one leg straight, raise the bent knee towards you and hold behind your knee. Now slowly straighten your knee until a stretch is felt in the back of the thigh.

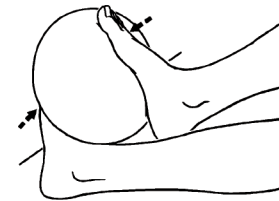
STRENGTHENING EXERCISES

- Follow the instructions within each exercise regarding sets and repetitions
- Always work in a pain free range of movement



ANKLE ALPHABET

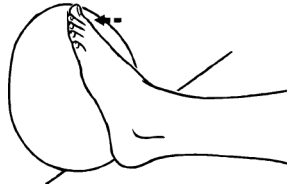
Using your ankle and foot, trace the letters of the alphabet. Perform the A to Z.



STATIC DORSIFLEXION

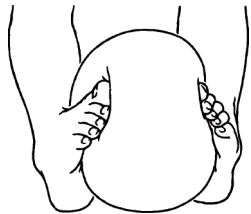
Place a rolled pillow between the feet, and squeeze your feet together. Hold for 10 counts and repeat 10 times

Exercises phase 1 (continued)



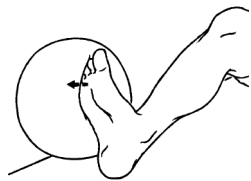
STATIC PLANTARFLEXION

Place a rolled pillow against the wall, and press your foot into the pillow. Hold for 10 counts and repeat 10 times



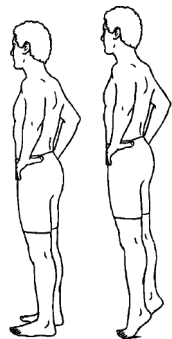
STATIC INVERSION

With rolled pillow between feet, press inner border of feet into pillow. Hold for 10 counts and repeat 10 times



STATIC EVERSION

Place a rolled pillow against the wall and press the outer border of foot into pillow. Hold for 10 counts and repeat 10 times



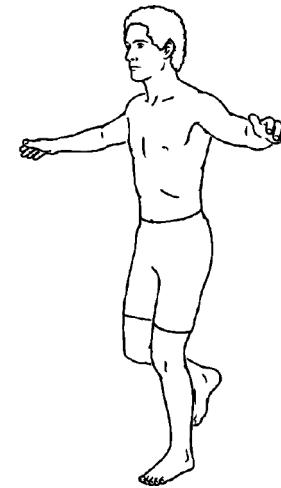
CALF RAISES

Supporting yourself against a wall, raise up onto your toes in the following manner: first onto your big toe, then onto the middle of your foot and then onto your little toe. Repeat this sequence 10 times. You may need to start this exercise in a seated position and gently rock onto your toes before progressing to a standing position.



TOWEL CRUNCHES

Sit on a chair with your feet on the end of a towel on the floor. Keep your heels on the floor, and use your toes to crunch the towel up. Keep doing this until you reach the other end of the towel and then start again. Repeat this for 5 towel lengths. (Progress by adding weight on the towel and then using one foot at a time).



STORK STANDING

- Balance on one leg for 30 seconds and repeat with the other leg.
- Repeat the above with your eyes closed.

If this is too painful at the start of the programme, start by sitting on a chair with your foot on a cushion and move your foot forwards and backwards, side to side on the cushion. Get your ankle used to the movements and taking pressure. Progress the above to standing on an unsteady surface, e.g. a cushion or a narrow piece of wood.

Exercises phase 2

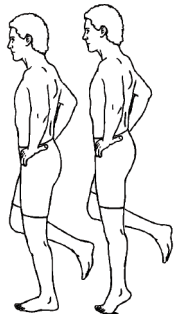
Phase 2 exercises can be started when you are able to do all the Stretching and Strengthening exercises in Phase 1 with no adverse effects and good control. Continue to work in a pain free range of motion, and continue to do the stretching

exercises of phase 1 with each exercise session. Only progress to doing the hopping and running exercise when you are pain free with all the static weight bearing exercises i.e. stork standing, lunging and stork stand pickup

STRENGTHENING EXERCISES

- Do **2-3 sets** of **10-15 repetitions** (or as directed in the exercise)
- Do each exercise within your **pain free range**.

- An **elastic/theraband** should be used for these exercises as shown in the pictures



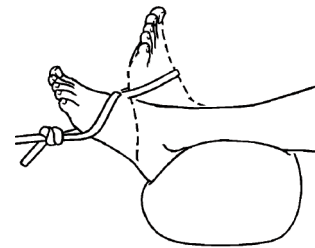
SINGLE LEG CALF RAISE

Standing on one leg and supporting yourself against a wall, raise up onto your toes in the following manner: first onto your big toe, then onto the middle of your foot, and then onto your little toe. Repeat this sequence 10 times. This can also be done over the edge of a step to get a greater range of movement.



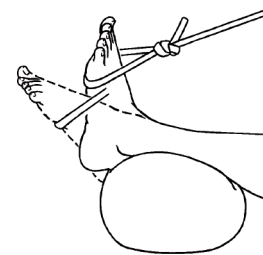
TOE RAISE

Standing with your feet shoulder width apart and a wall supporting your back. Now raise up onto your heels, pulling your toes towards your shins in the following sequence: first onto the outside of your heel, then the middle of your heel, and lastly the inside of your heel. Repeat this sequence 10 times.



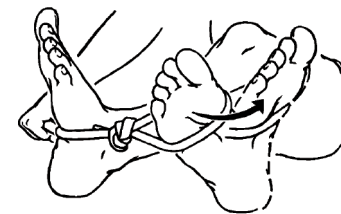
RESISTED DORSIFLEXION

With the tubing anchored to a fixed object, pull the foot towards your face. Return slowly to your starting position.



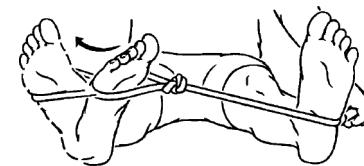
RESISTED PLANTARFLEXION

Whilst holding one end of the tubing and the other tied around your ankle, press the foot downwards. Return slowly to your starting position.



RESISTED INVERSION

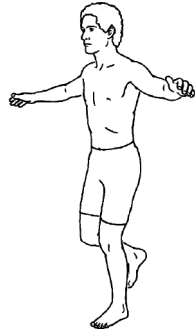
Cross your leg with the ankle you are exercising underneath. Anchor the tubing around the upper foot; slowly turn the lower foot inward.



RESISTED EVERSION

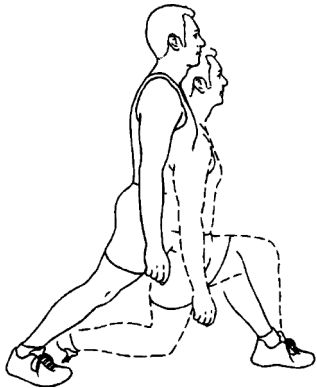
With the tubing around one ankle, slowly turn the foot outwards.

Exercises phase 2 (continued)



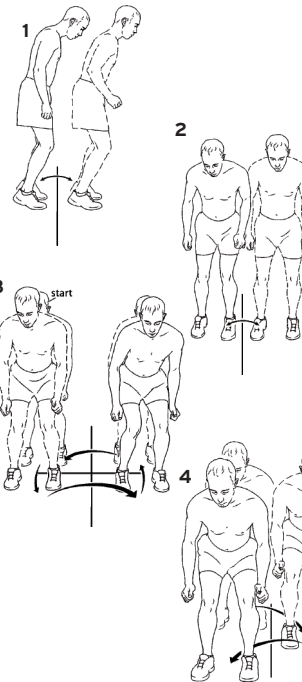
STORK STAND PICK-UP

Standing on one leg, with your weight on your heel, bend down to pick up a weight with the opposite hand ensuring that your weight stays on your heel, and that your knee goes down in line with your second toe. Also ensure that your knee and not your back does the bending work. Repeat 10 times on each leg (up and down is one repetition).



STATIC LUNGES

Place one foot in front of the other. Bend both knees together until you have a 90° bend in both. Ensure that your front knee does not go over your front foot when bending to 90°. Return to the starting position. Perform 1 set of 10 reps per leg (complete all 10 reps with the one foot forward before changing and starting with the other leg in front). Progress this exercise to stepping lunges (i.e. start with feet together and step into a lunge position) once you are pain free with the above. Again when you lunge down, make sure that both knees are at a 90° angle and then return to the starting position.



HOPPING

Hop from one point to another in the following manner

1. Forward and backward
2. Side to side
3. In a square (clockwise and anti-clockwise)
4. In a zig-zag, forwards and backwards

Repeat each sequence 10 times per leg. Start by hopping on both legs and progress this to hopping on one leg at a time.

RUNNING DRILLS:

These can be done once the above can be performed without pain and with good control. With the drills try replicating movements that you could do in your sport i.e. running forwards, backwards, side to side, sudden change of direction, zigzag running etc. Also try and change the pace as you do them i.e. sudden sprinting, sudden stopping.

Contact us

This guide is designed to assist you in the self-management of your injury/condition.

We are here to assist your recovery in the shortest but safest possible time. If you have any uncertainties or queries

regarding the information, please do not hesitate to contact us on:

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