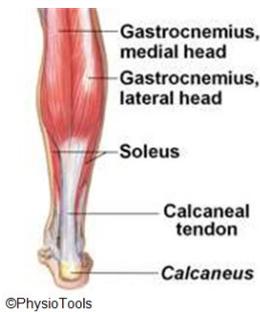

Calf Muscle Injury

Introduction

The purpose of this information leaflet is to provide you with advice and exercises to help you to self-manage your injury and improve strength, flexibility and function in the calf muscle as well as your balance and overall function to help return your calf back to normal.



What is a Calf Muscle Injury?

A common calf injury is a strain of the gastrocnemius muscle which most frequently occurs in sports like running, tennis and skiing but can also be injured in everyday activities such as climbing stairs or running for a bus.

Middle-aged athletes with tight calf muscles taking part in physical activity are commonly affected by this injury; however, unlucky everyday circumstances can also be responsible. It is caused when the calf muscle is suddenly forcibly lengthened and overstretched against its own contraction.

The tear can occur centrally or on either side of the muscle. The degree of this strain is graded from one to three.

Grade 1: A mild strain where only a few of the muscle fibers are strained. This usually takes 1-3 weeks for recovery. Often this grade of strain has little pain and does not impair functional activity.

Grade 2: A moderate strain where more muscle fibers are torn but there is not a complete rupture. This usually takes 4-8 weeks for recovery and the individual can feel significant pain and loss of normal function of the calf muscle due to pain.

Grade 3: A severe tear where most of the muscle fibers are torn and can cause a complete rupture of the muscle. This usually takes 8-12 weeks recovery depending on the severity.

Achilles Tendon Rupture

An audible “pop” or “snap” may also occur and this could be due to a rupture of the Achilles tendon that goes into the back of the heel. In this instance you need to go straight to A+E.

Common symptoms of a calf muscle injury

A calf strain injury may cause immediate pain and the sensation of being struck or kicked on the back of the calf. There may be bruising or swelling that develops over the following 24 hours.

The area around the injury may be tender, and rising up onto the toes or stretching out the calf may be painful. Initially walking may be difficult as weight-bearing through the injured leg can be painful. Continuing sports training with an untreated minor strain can cause an increase in pain leading to a more severe strain or rupture.

How is this condition diagnosed?

Scans / x-rays are not usually needed unless there is a suggestion of a complete rupture of the tendon. In this case, an ultrasound scan may be used.

How can I treat my calf injury?

Physiotherapy - Guidelines for the Rehabilitation Program

Healing of a calf muscle usually takes about 6-8 weeks however everyone recovers from injury at different rates. The rate of healing of your muscle will depend on how severe your injury is as well as any other medical problems you may already have.

However a totally ruptured calf muscle or Achilles tendon (Grade 3 rupture) can take a lot longer (between 3 and 6 months) depending on the severity of the injury. It will also depend on the potential Orthopaedic management.

As healing gets underway, it is important to begin a series of exercises to gently stretch the calf muscle so that it heals back to its full length.

These exercises will help restore normal function and movement in your lower limb and reduce the risk of further injury.

The exercises in the program should be done daily.

Visit YouTube and watch the short video '**Load vs Capacity and Injuries**' (BJSM). (www.youtube.com/watch?v=Hrp1_v4Dr3g) It will help explain the principles of the rehab program below.

Remember

Seek medical attention immediately if:

- You suddenly develop for no obvious reason a red, hot, tight swollen calf that can be tender to touch.
- The pain and swelling increase despite resting your calf.
- You have continuing problems with the functional use of your calf / leg.

If pain and swelling persist and your injury is not recovering, please seek medical advice or contact TIMS.

Phase 1: (Day 1 – Day 9 post injury)

Initial Management - (48-72 Hours)

When dealing with grade 1 and grade 2 strains:-

Goals:

- Control the inflammation
- Control the swelling and pain

This can be managed with the R.I.C.E.P approach to treatment.

R - Rest

Initial rest helps prevent further injury and enables the healing process to begin. For a few days reduce the amount of walking you do and gently exercise your calf regularly within pain limits to avoid stiffness. Avoid forceful and stressful activity such as running and jumping at this stage of your recovery.

I – Ice

Ice can help reduce the pain around the calf muscle. Use a damp cloth and a bag of frozen peas (which you can re-use several times by re-freezing but do not eat them after doing this) or some crushed ice cubes in a damp towel. Put the ice pack on your injured calf muscle for 10-15 minutes every couple of hours for the first few days after the injury, then use the ice pack 3 times a day until the swelling goes down.

C – Compression

Compression bandages can be useful at this acute stage to provide both support and compression to the swelling which will help with the pain. They can be purchased over the counter from chemists and most supermarkets. Make sure you do not wear any form of compression device on your calf at night.

E – Elevation

Try and keep the injured calf raised for the first few days after injury. This helps to decrease the swelling and pain.

P – Painkillers

Painkillers such as Paracetamol and Ibuprofen, if taken regularly, can help with your pain and allow you to move your calf more easily. Get advice from a local pharmacist or your GP on what pain relief medication is appropriate for you to take.

Recovery Exercises: (Day 4 - 9 post injury)

Goals:

- Reduce pain
- Full pain-free range of movement
- Resume normal walking

Precautions:

- **Avoid dynamic weight-bearing on injured leg until normal walking pattern is achieved.**

Guidelines:

- Continue using ice after exercise.
- Continue with compression bandage if required and beneficial.
- If allowed, take anti-inflammatory medication as needed.
- Partial weight bearing walking with crutches and heel wedge if required.

Remember this program is just a guideline. You may progress more rapidly or slowly through the program as guided depending on your pain.

Range of movement and stretching program (Day 4 - 9)

Do not overstretch into pain.

Hold stretches for approximately 5 seconds and repeat 4 times.
Perform the exercises every three hours each day as comfortable.

[Video](#)



Calf Stretch 1

Long sitting with arm support. Feet resting against a wall.

Pull your toes and front of foot away from the wall keeping the heel on the wall. Feel the stretch in the back of your calf.

©Physiotools

[Video](#)



Calf Stretch 2

Long sitting with arm support. Feet resting against a wall.

Push your toes into the wall, as if to try and push the wall away. Feel the muscles of your calf tightening.

©Physiotools

Active ankle range of movement (Day 4 - 9)

[Video](#)



Active Ankle

Lying on your back or sitting.

Bend and straighten your ankles briskly. If you keep your knees straight during the exercise you will stretch your calf muscles.

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ABC letter writing

Moving only the foot and the ankle write the alphabet out using the big toe as a pencil. Build up to making the letters as large as possible.

Strengthening Program (Day 4 - 9)

[Video](#)



Knee Straightening in Sitting

Sit up straight on a sturdy chair, so that your feet are supported on the floor.

Bend your ankle and straighten your knee using your front thigh muscles. In a controlled manner, return to the starting position.

©Physiotools

[Video](#)



Towel Toe Curls

Stand or sit with your foot on a towel.

Curl your toes and crumple up the towel.

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[Video](#)



Heel Raises

Sit.

Bend and straighten your ankles.

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General mobility / cardiovascular program (Day 4 - 9)

[Video](#)



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Walking with crutches / sticks

Place your crutches / sticks forward.
Place your affected leg between the crutches.
Step forward with your healthy leg.

Sit to stand with crutches

To sit down remove arms out of the crutches and hold both on one side and sit.

To stand up hold crutches on one side and rise up placing your arms through the crutches to hold.

[Video](#)



©Physiotools

Walking up stairs

Stand close to the stairs. Hold onto the handrail with one hand and the crutches with the other hand.
First take a step up with your healthy leg.
Then take a step up with your affected leg.
Then bring your crutch up on the step.

Always go one step at a time.

[Video](#)



©Physiotools

Walking down stairs

Stand close to the stairs. Hold onto the handrail with one hand and the crutches with the other hand.
First put your crutch one step down.
Then take a step with your affected leg.
Then take a step down with your healthy leg, onto the same step as your affected leg.

Always go one step at a time.

Once you have progressed through Phase 1 satisfactorily, progress to Phase 2:

Phase 2: (Day 9 - 21 post injury)

Criteria for progression to Phase 2:

- No pain and swelling at rest.
 - Full pain-free active range of movement.
 - Normal walking without crutches.
-

Goals:

- Full pain-free passive range of movement.
- Normal walking pattern with varying speed and on uneven surfaces.
- Pain-free muscle strengthening.

Precautions:

- **Avoid activity that gives moderate to severe pain.**

Range of movement and stretching program (Day 9 - 21)

Do not overstretch into pain.

Hold stretches for approximately 20 – 30 seconds and repeat 10 times aiming to complete 2 – 3 sets each day as comfortable.

[Video](#)



©Physiotools

Standing Calf Stretch

Stand in a walking position with the leg to be stretched straight behind you and the other leg bent in front of you. Take support from a wall or chair.

Lean your body forwards and down until you feel the stretching in the calf of the straight leg.

[Video](#)



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Standing Soleus Stretch

Stand in a walking position with the leg to be stretched behind you. Hold on to a support.

Bend the leg to be stretched and let the weight of your body stretch your calf without lifting the heel off the floor.

Strengthening Program (Day 9 - 21)

Hold for approximately 3 – 5 seconds and repeat 10 times aiming to complete 2 – 3 sets each day as comfortable.

[Video](#)



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Exercise band dorsiflexion

Sit on the floor or on a chair. Put a rubber exercise band around your foot.

Pull your foot up towards your body, and then gently return to starting position.

[Video](#)



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Exercise band plantar flexion

Sit on the floor or on a chair. Put a rubber exercise band around your foot.

Point your toes towards the floor. Slowly return to starting position.

[Video](#)



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Double Heel Raise

Stand.

Push up on your toes.

[Video](#)



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Half Double Leg Squat

Stand leaning with your back against a wall and your feet about 20 cm from the wall.

Slowly slide down the wall until your hips and knees are at right angles. Return to starting position.

Balance and co-ordination program (Day 9 - 21)

[Video](#)



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Single leg standing

Standing on the one leg lift the other leg off the floor and try to balance. You can do this in front of a mirror to make sure your knee keeps in line with your big toe.

5 minutes of practice and repeat 2 – 3 times each day as comfortable.

[Video](#)



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Tandem walking

Walking slowly along a line, placing one foot heel to toe in front of the other, as if on a tightrope, try to keep to the line.

Along a 10m line repeat 10 times aiming to complete 2 – 3 sets each day.

General mobility / cardiovascular program (Day 9 - 21)

Video



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Static bike

With the bike seat placed at an appropriate height, cycle with no resistance gently to build up the active movement in your calf. Make sure that your leg is at no point in the revolution completely straight.

5 – 20 minutes aiming to complete 1 – 2 times each day.



©PhysioTools

Swimming

As there is no weighted resistance in the pool it allows you to work at strengthening your legs and cardiovascular system without risk of injury reoccurrence from impact. The heat from the pool also has a therapeutic effect through loosening off tight tissues and encouraging the muscles to relax.

15 – 20 minutes once a week.

Video



©Physiotools

Step ups

Stand in front of a 20 - 40 cm step.

Place one foot onto the step and stand up onto this following with your other foot. Step down with your first foot and follow with your other foot to return to a standing position. Start off gently and gradually increase the pace as able.

Repeat for 2-3 minutes aiming to complete 1-2 times each day.

Once you have progressed through Phase 2 satisfactorily, progress to Phase 3:

Time to revisit: YouTube.com '[Load vs Capacity and Injuries](#)'

When progressing into these last 3 Phases of rehabilitation **please refresh yourself with the above YouTube video.**

Phase 3 - Phase 5: (Day 22 onwards post injury)

Criteria for progression to Phase 3:

- No pain and swelling with light activity.
 - Full pain-free active and passive range of movement.
 - Normal walking pattern with varying speed and on uneven surfaces.
-

Goals:

- Begin moderate to advanced strengthening.
- Pain-free weight bearing strengthening.
- Increase physical activity level gradually.

Precautions:

- **Avoid activities that give moderate to severe pain.**

Guidelines:

- Progress to normal activity.
- Try intermittent hopping on the injured leg.
- Progress walking distances and gradually increase speed
- Once you can power walk, start to jog (as pain allows).

It will be safe to progress onto the next phase when you have:

- Full strength back in your calf.
- Full active range of movement in the knee and foot (i.e. you can move your affected leg as well as you could prior to your injury).
- You are able to walk briskly without pain or swelling.

Once you have progressed through Phase 3 satisfactorily, progress to Phase 4:

Phase 4:**Criteria for progression to Phase 4:**

- No pain and swelling with advanced activity.
- Pass score on functional return to sport test.

Goals:

- Full range of movement, strength, balance and proprioception.
 - Prevention of re-injury.
 - Pain-free return to sport.
-

Guidelines:

- Return to sport as tolerated, gradually building up intensity and duration of training sessions.

Once you have progressed through Phase 4 satisfactorily, progress to Phase 5:

Phase 5:

Criteria for progression to Phase 5:

- Normal function during activities of daily living.
- Ability to comfortably sit on back of heels.
- Uneventful participation in low risk activities (i.e. running, swimming, golf, low-impact aerobics).

Goals:

- Single-leg hop which is just about equal compared with the uninjured leg.
- Just about equal muscle power and endurance is obtained compared with other leg.
- No pain or swelling.
- Aim to return to sport.

Precautions:

- **Avoid returning to sport before you are physically and mentally ready.**

You may feel some mild discomfort during these exercises but if you feel an increase in pain, then seek medical advice or contact your physiotherapist before continuing.

For further information

Please email ghnt.newcastlegatesheadtims@nhs.net, ring on **0191 2138800** or visit our website at: www.tims.nhs.uk which provides online guidance and support on managing your musculoskeletal (MSK) condition effectively.

The NHS website also provides trusted online information and guidance on all aspects of health and healthcare to help you manage your condition and/or inform your choices about your health: www.nhs.uk.

Useful links

The Patient Advice and Liaison Service (PALS) can offer on-the-spot advice and information about the NHS. You can contact them on freephone **0800 032 02 02** or e-mail northoftynepals@nhct.nhs.uk.



**Tyneside
Integrated
Musculoskeletal
Service**

TIMS is a partnership between Newcastle upon Tyne Hospitals NHS Foundation Trust and Gateshead Health NHS Foundation Trust

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