

**Your multiligament repair
(excluding posterior cruciate ligament)**

Physiotherapy Information for patients and carers

Trauma and Orthopaedics Department



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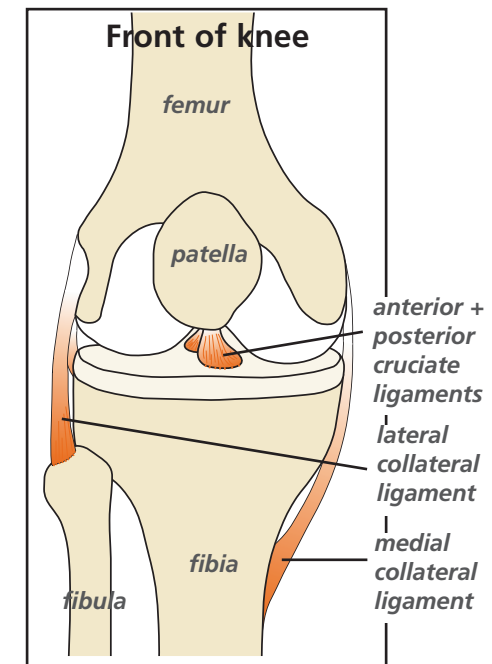
This information is for patients undergoing a multiligament reconstruction operation at St George's Hospital. It explains:

- what the operation involves
- answers to some of your questions about multiligament reconstructions
- exercises to be carried out under the guidance of a physiotherapist.

What are the Knee ligaments?

There are four main ligaments (fibrous bands of tissue) in the knee. The ACL (anterior cruciate ligament) and PCL (posterior cruciate ligament) are two of these ligaments. They hold the bottom of the femur (thigh bone) to the top of the tibia (shin bone). At the knee, the ACL prevents the shin bone from moving too far forwards, and the PCL prevents the shin bone from moving too far backwards.

This forms a strong attachment in the middle of the knee joint. The MCL (medial collateral ligament) and LCL (lateral collateral ligament) are the other two ligaments of the knee. They hold the sides of the femur to the sides of the tibia. The MCL stops the knee from moving too far inwards, and the LCL stops the knee moving too far outwards.



What is the role of these ligaments?

The ACL and PCL help to control the following movements of the knee

- twisting
- accelerating (speeding up)
- decelerating (slowing down)
- side to side

The MCL and LCL help to control the following movements of the knee

- side to side
- twisting

All ligaments also provide information regarding balance and co-ordination (they tell the brain where your leg is in space and what position it is in).

How do they reconstruct my knee ligaments?

The aim of the reconstruction is to replace the damaged ligaments with autografts (pieces of tissue or tendon from elsewhere in your body) that work in the same way as the ligaments that are being replaced. The surgeon removes tendon (the tissue that attaches muscle to bone), usually from the hamstrings (the muscles on the back of the thigh) or the patella (knee cap) tendon. These grafts are then used to replace the damaged ligaments.

In a knee joint where significant damage has been sustained, there may not be enough tissue or tendon available to do

Any questions?

If you have any questions or worries about your recovery or rehabilitation, please ask your consultant at one of your clinic appointments, or your physiotherapist.

Generally you will not proceed to this stage until you:

- are pain free
- have full range of movement at the knee joint
- are free of swelling.

Phase 4

Months three to six

The goals of this phase are:

1. Continue optimal strength training, including dynamic and rotational movements of the knee
2. Continue to maximise your proprioception (balance)
3. Prepare for return to sport.

Phase 5

From six months onwards

The goals of this stage are:

1. Specific training for the sports that you do
2. Continued rehabilitation to ensure you have returned to all your normal activities

Phase 6

From nine months onwards

Specific training for the sports that you do

You will need clearance from your physiotherapist and consultant before returning to non contact sports - this is usually acceptable at around five to six months. You can also start breaststroke swimming at this stage. Between nine to 12 months, depending upon your progress, you will be able to return to contact sports.

the autograft. In these situations, with the consent of the patient, an allograft may be used. An allograft is where tendon is harvested (removed) from a human donor and is then used to replace the damaged ligaments.

A brief overview of what is involved in the operation

The procedure is normally done arthroscopically (key hole surgery). Your surgeon will also need to make other small incisions (cuts) around your knee. The surgery involves making drill holes through the tibia into the knee joint, and from inside the joint into the femur. The grafts are then passed through these holes so that they each lie in the correct position through or around the joint. The grafts are then secured at each end with a screw or button.

How important is rehabilitation following multiligament reconstruction?

In order for your surgery to be successful you have to be committed to follow the instructions and exercises during your rehabilitation. Without the proper rehabilitation you will not reach your desired level of strength, co-ordination and balance. These things are important for day-to-day functioning of the knee.

What does the rehabilitation process involve?

The process is divided into five phases (these are explained later in the leaflet). Each phase is guided by your physiotherapist and consultant. You will have follow-up physiotherapy after you leave the hospital. It is important to remember that this leaflet is only a guide to your rehabilitation. Rehabilitation may differ for each individual.

Are there any activities I should not do after my operation?

In general the following time frames apply:

- **Driving:** follow your consultant's advice about driving. Generally after surgery, you should not drive for six weeks or until you are confident that you could perform an emergency stop without discomfort. Please contact your insurance company to inform them of your operation and let them know if you are still wearing a knee brace.
- **Swimming:** not for six weeks, (but breast stroke can only be done after five to six months).
- **Jogging:** not for three months.
- **Cycling:** discuss this with your physio at your appointment.
- **Contact sport:** not for six to nine months depending on your progress.

Phase 2

Out patient physiotherapy – weeks two to six

The goals of this stage are to:

1. Continue to protect your operated knee
2. Encourage full weight bearing
3. Prevent joint stiffness
4. Progress back to your usual activities
5. Progress your mobility so that you do not need to be dependent on your elbow crutches to walk
6. Retrain proprioception (balance and co-ordination)
7. Improve muscle strength, endurance and control
8. Maintain general fitness.

Phase 3

Weeks 6 to 12

The goals of this phase are to:

1. Regain full range of movement through specific exercises given to you by your physiotherapist
2. Continue to promote functional activities
3. Progress to more demanding balance exercises
4. Increase muscle work and control throughout your range of movement
5. Increase confidence in the knee
6. Maintain general fitness.

Going downstairs

Place your crutches in one hand and hold the rail with the other hand, then;

- the crutches go first
- the operated leg goes second
- the good leg goes last



When can I return to work?

This will depend on the nature of your job and the progress you make. It can be discussed at your follow-up appointments.

Rehabilitation programme

Introduction

You will often be seen before your operation by a physiotherapist who will:

- teach you how to use your crutches
- go through the exercises with you.

Phase 1

Immediately after your operation

From this phase onwards you should be regularly doing the exercises. Your physiotherapist will guide you through the exercises.

The goals of this phase are to:

1. Protect your new ligaments:

You will be given elbow crutches to walk with to help protect your knee, there is more information about this on page 11. You may be given a brace for your knee, if you are, we will give you advice on when to wear it.

2. Minimise any inflammation (swelling):

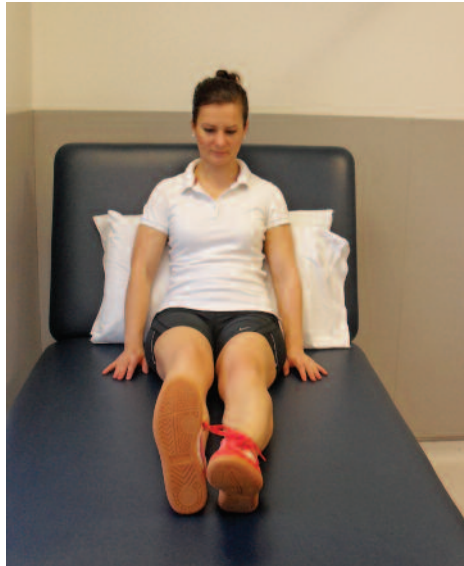
This is very important during phase 1. If swelling continues it can inhibit knee movement and muscle control. It can be reduced by:

- spending time with your leg elevated (raised on pillows when resting).
- using ice packs (place ice in a plastic bag, wrap in a damp tea towel and place on the knee for up to twenty minutes, four times a day). Ensure you check your skin regularly for excessive redness or blisters; if this happens remove the ice pack.

3. Promote circulation:

- The exercise you need to do to aid your circulation can be done when you are lying or sitting.
- Move both feet briskly up and down, or alternatively move them in a circular direction.

Repeat 20 times an hour.



4. Improve muscle strength and restore your knee movement, aiming for full extension (straightening) and more than a 90 degree (right angle) flexion (bend):

Good functioning of the knee depends on its strength and range of movement. The muscles around the knee help to support the joint so it is important to start strengthening them early. It is also particularly important that your knee is able to bend and straighten as far as the knee brace will allow.

Climbing stairs

Going upstairs

Place your crutches in one hand and hold the rail with your other hand, as shown in the picture.

- the good leg goes first
- the operated leg goes second
- the crutches go last



5. Promote early mobility:

To begin with you may only be allowed to put half of your weight through your operated leg. You will be provided with elbow crutches to use following your operation to make walking more comfortable and to minimise the weight going through your leg. A physiotherapist will teach you how to walk with crutches and if needed will show you how to go up and down the stairs.

The exercises you need to do are:

Heel hangs

- In sitting, place your foot on a rolled up towel- leave the knee unsupported. You should feel a stretch at the back of your knee.
- Relax in this position for five to ten minutes.



Repeat three or four times during the day

Knee Flexion in lying

- When lying or sitting on the bed, bend your knee, sliding your heel along the bed.
- You can make it easier by gently pulling your thigh towards you with your hands. Keep your heel on the bed as you slide the leg straight again.

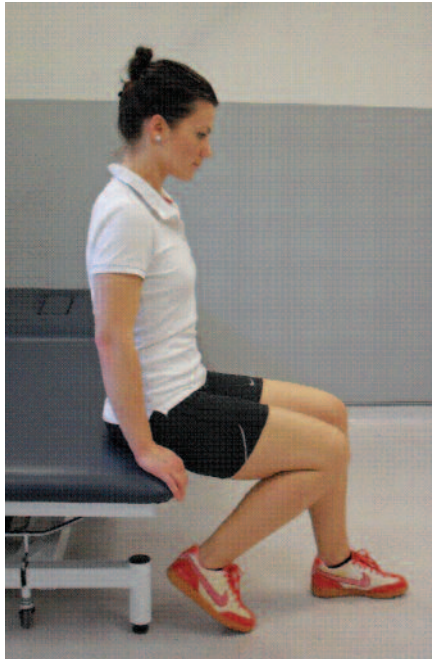


Repeat 15 times

Knee Flexion in sitting

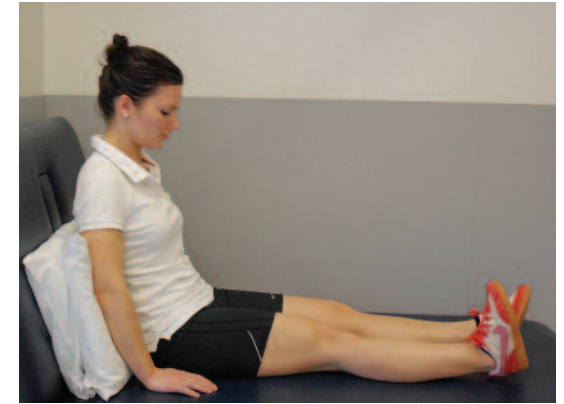
- Sit on a chair or on the edge of the bed.
- Slide the foot of your operated leg as far backwards as possible. If you find this difficult you can use your other foot to help gently push the operated side further back.

Repeat 15 times



Quadriceps (thigh) squeezes

- Sit with your legs stretched out in front of you. Push the back of the knee down into the bed, making the knee as straight as the knee brace will allow. You should feel tightening of the quadriceps (thigh muscle).

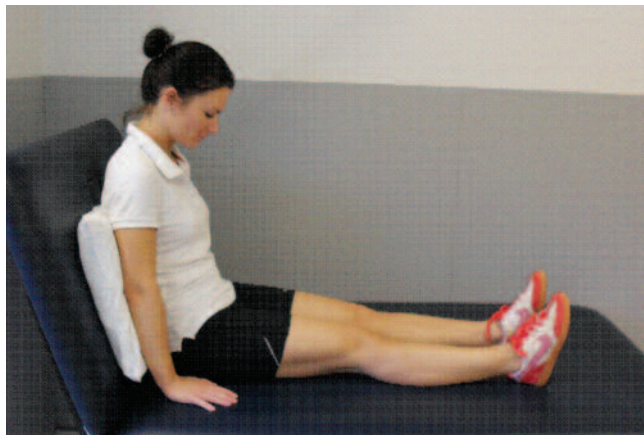


Hold for 10 seconds Repeat 10 times.

Gluteal (bottom) squeezes

In lying or sitting, clench your buttocks together as hard as you can.

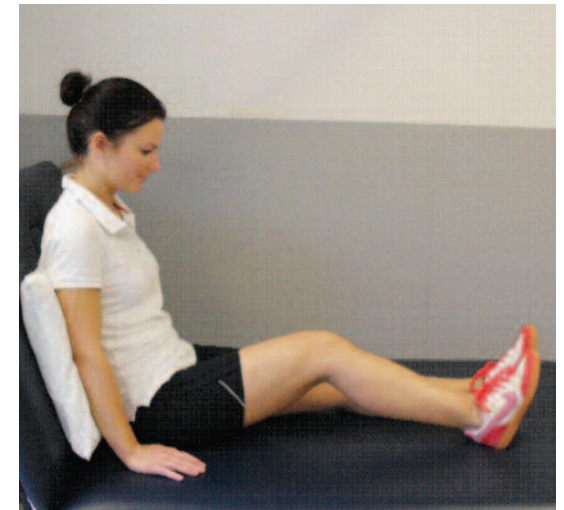
Hold for 10 seconds



Repeat 10 times.

Squeezing quadriceps and hamstrings together

- Sit on the edge of the bed or a chair, bend your knee.
- This exercise is designed to contract both your quadriceps and hamstrings. Do this by trying to push your heel into the floor and by pulling the heel backwards at the same time. You should feel the front and back of your thigh tense (tighten up).



Hold for 10 seconds Repeat 10 times