

Orthopaedics and Trauma

A guide to total knee replacement

This form of surgery is a successful and widely used method of treatment when the knee joint has been damaged as a result of disease or injury. People who have had the operation find that they have little or no pain afterwards and their knee functions normally again. Although there are certain risks involved, as with any surgical procedure, the results are good, if you obey the rules.

We hope that having read this booklet, you will feel more informed about your operation. However, there will be opportunity when you are in hospital to ask specific questions.

Advice before the operation

- Stop smoking – smoking increases the risk of complications after surgery. If your chest is 'bad' the anaesthetist may cancel your operation.
- Try to lose some weight – being overweight makes the operation more difficult and increases the risk of complications from surgery.
- Practise the exercises in this booklet twice a day. This will help to prepare your knee for the surgery. If you have night-time pain, place a pillow between your knees when lying on your good side, to ease it.
- Please drink plenty of fluid the day before the operation e.g. water, fruit juice, milk, tea, coffee.
- Aim for a well balanced diet including fresh fruit and vegetables.

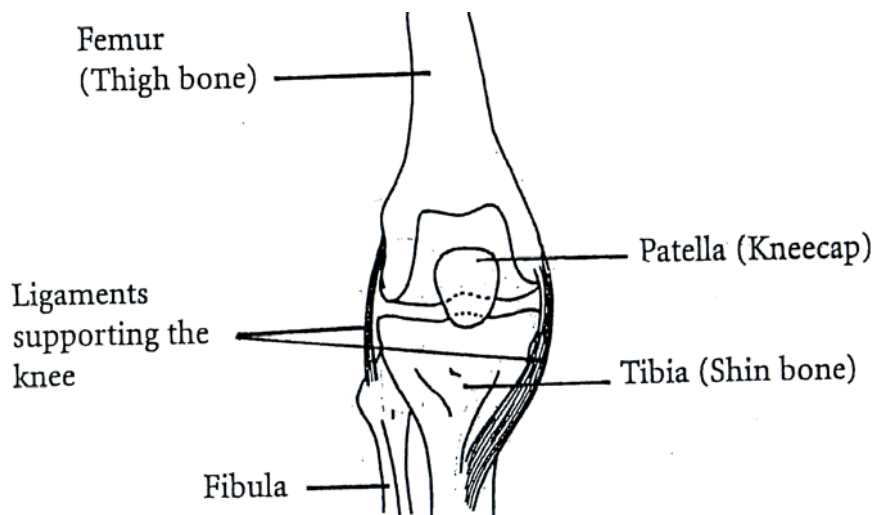
Background

Design of the normal knee joint

The knee joint is formed by the meeting of the two major bones of the leg, the thigh bone (femur) and the shin bone (tibia) forming a hinge. Over the centre of the hinge, the kneecap (patella) is held in place by muscles and tendons.

The points at which these bones come into contact are known as the articular surfaces, which are normally covered in cartilage.

The joint contains synovial fluid allowing smooth movement.



Strong muscles in the thigh allow the knee to bend (flex) and straighten (extend).

When is a total knee replacement indicated?

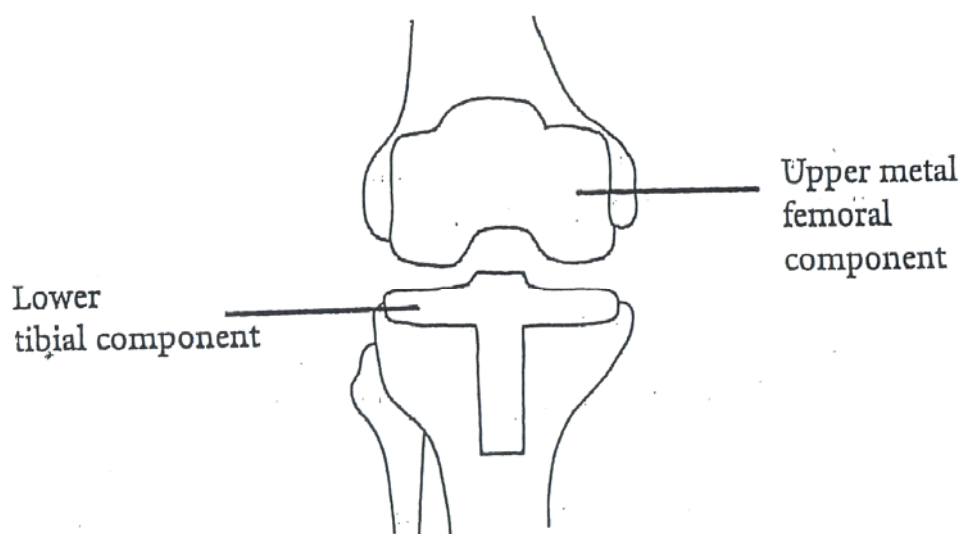
There are a large number of diseases and injuries which can damage the knee to the point where it becomes painful or will not function properly.

A total knee replacement is normally only considered if other alternatives have not been successful or are unsuitable. Thus, the outstanding indications for surgery are **pain** and **loss of movement** severe enough to limit the basic functions of daily living, or significantly affect recreational activities.

Types of knee replacement

- Total knee replacement – cemented
This involves an upper and a lower component made of metal, separated by a plastic insert. Occasionally a plastic component is fitted to the kneecap if this is also damaged.
- Total knee replacement – un-cemented
This is often used in younger patients, allowing bone growth around the components.
- Oxinium knee replacement-cemented, this may be used for the younger active patient.
- Unicompartmental (half a knee replacement).
This is used if only one side of the knee joint is worn.

Diagram of the replacement joint (prosthesis)



Before your operation

Admission day/day of operation

- You are usually admitted on the same day that you have your surgery.
- You will be admitted to a pre-operation ward. Following the operation you will be moved to the orthopaedic ward.
- Any belongings you have with you on admission will be transferred to the orthopaedic ward while you are in theatre.
- When you arrive on the ward you will be shown to your bed.
- There is no need to change into your night clothes.
- You may be seen by several members of the team looking after you. It is important therefore that you do not leave the ward without informing a member of staff.
- You will be allowed to eat up to six hours before your operation; you will be allowed to drink clear fluids up to three hours before the operation. After that you will not be allowed anything to eat or drink.
- You will be helped to get ready for the operation by the nurse.
- You will wear a theatre gown. Please remove all underwear, jewellery, nail varnish, dentures, hearing aids etc.
- You may be required to wear anti-embolic stockings: these help to prevent blood clots.

The operation

The surgeon will make an incision (cut) normally down the middle of the knee, approximately 13 cm long.

Ligaments, tendons and muscles will be moved to the side to reveal the bones of the joint. The worn parts of the knee are then removed and replaced with synthetic components. The knee is then closed using clips/sutures/stitches.

Younger patients may require another operation later in life as artificial knees do not last forever.

After your operation

- When you wake up you will be lying in bed on your back with your leg straight.
- It is important not to put a pillow under your knee as this will cause your knee to bend and make it more difficult to straighten.
- You will have a large bandage around your knee.
- There will be one or two drains/tubes coming from your knee, to drain any excess blood to help reduce bruising and swelling.
- This blood may be filtered and given back to you.
- You will have a drip in your arm: this is to give you fluid until you can drink normally. You will be allowed to drink as soon as you feel like it.
- You may require a blood transfusion immediately after your operation or in the next few days following your operation.
- It is important to start your exercises as soon as you wake up.
- The bandage and drains will be removed within 24 hours of the operation.
- You will be expected to get dressed in lightweight day clothes on the first day after your operation.
- Expect a hospital stay of two to five days.

Planning your discharge from hospital

At Addenbrooke's we are committed to delivering a safe, high quality service in a caring environment. As part of this service this leaflet is intended to help you, your carer, your relative and friends understand how your discharge takes place. We need to work together to ensure that this happens as efficiently and smoothly as possible, therefore, it is imperative that families/carers are involved in this process.

After your surgery, you can expect to go home usually after two to five days and continue your rehabilitation, it is important that you return home as quickly as possible.

- It is well researched that patients do better in their own homes with familiar surroundings.
- Expedient discharge ensures there is less risk of acquiring infections in hospital.

We will start planning for your discharge before you arrive. This means that we can begin to:

- Assess what your needs are likely to be when you are medically fit to leave hospital.
- Involve relevant staff who can help in meeting those needs if necessary (such as social worker, occupational therapist, physiotherapist, district nurse).
- Make arrangements for equipment or services which need to be in place when you are ready to leave hospital.
- Make sure that you are given any information, help or advice that is needed to aid your recovery.

Our staff will work with you and your carer or relatives, in order to discuss your discharge with you. We expect to discharge you back to your normal place of residence and ask that you discuss any concerns you may have as soon as possible.

These may include your safety at home, managing your personal care or domestic arrangements, your ability to move around and any equipment you may need.

You will be given an expected date for discharge based on when your treatment will be completed this is usually two to five days after your operation. It is important that everyone involved is aware of the date so that we can all work towards it, and that the necessary arrangements can be made. These may include:

Transport home

- Patients are expected to arrange their own transport; family vehicles are suitable for this purpose.
- The district nurse or practise nurse will see you after discharge to remove any clips or stitches.

Precautions following a knee replacement

These precautions will help protect your new knee. It is very important that you understand the importance and the need to comply.

Otherwise there may be an increased risk of complications, such as:

- thrombosis (blood clots)
- infection
- loosening of the knee
- fracture
- dislocation

In the early stages after the operation the knee joint structures are weak and require time for healing and strengthening.

Gentle exercises as shown by the physiotherapist, will teach you to move your new knee correctly; this will restore strength to the joint. These exercises need to be continued for six months after the operation. See page 1

Dos and Don'ts

- Do not cross your legs (knees or ankle)
- Keep well rested – do not let yourself become over tired
- Sit on chairs with arms – the arms make it easier for you to push up into a standing position.
- Move to the edge of the chair before you stand up. Keep the operated leg in front while getting up.
- **Do not** jump.
- **Do not** kneel on your operated leg.
- **Do not pivot** on either leg.
- Avoid heavy lifting.
- Watch your weight.
- Take regular, daily, gentle exercise.
- Continue with your knee-strengthening exercises for six months after the operation.
- Go for a walk every day, increasing the distance as you get stronger.

If in doubt phone your GP, nurse, physiotherapist or Occupation Therapy.

Occupational therapy

You may need to have some simple equipment on loan for a short period of time, to help you to be independent at home. We strongly advised you to plan ahead before you come into hospital. Have the fridge/freezer/larder well stocked.

Think in terms of easy meals, particularly for the first couple of weeks.

Arrange for a friend or relative to help with the shopping and household chores.

Physiotherapy following a total knee replacement

Chest physiotherapy

Immediately after your operation breathing exercises are important to help blow anaesthetic gases out of your lungs and move any secretion that may have settled on your chest. Breathing exercises are particularly important if you suffer from a chest condition such as asthma or bronchitis.

Breathing exercises

- Take three or four deep breaths in through your nose and out through your mouth, expanding the lower part of your chest, aiding movement of secretions to the top of your lungs, THEN
- Cough from your chest not your throat

Continue this every hour that you are awake after your surgery

Circulatory exercises

If you are inactive, your circulation slows down and the blood becomes 'sticky'. It may then form a clot

(thrombus). This can be prevented by vigorously pumping the muscles and therefore increasing the circulation. See exercises one and two in this booklet.

Do these exercises every hour that you are awake after surgery.

Physiotherapy regime

Whilst each patient is individual, the following is a physiotherapy plan of events following total knee replacement. Your physiotherapist will discuss your own plan with you.

Day of operation and day one post-operation

- Begin circulation and breathing exercises.
- Exercises one to six can be commenced (see exercise section).
- Ice can be used 20 minutes at a time to decrease swelling and pain. Take pain killers regularly.
- Begin walking with the help of elbow crutches. You are usually allowed to put as much weight as you wish through the knee.
- You may sit out in a chair.
- You may rest your leg on a stool provided that you have not had a hip replacement on the same side.

Day two post-operation

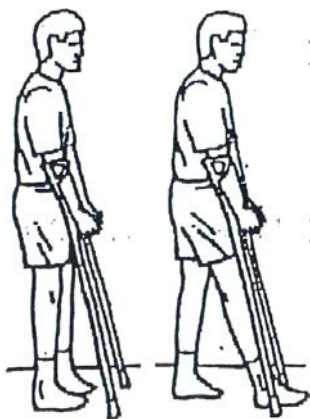
- Increase walking distance.
- Begin exercise seven and eight.
- Work hard to increase your knee bend and muscle strength.

Day three and four post-operation

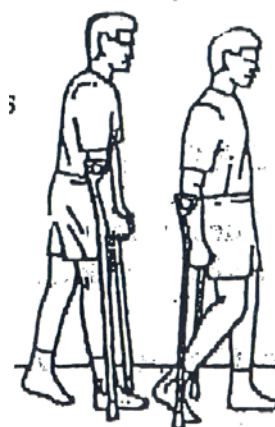
- Normally ready for discharge.
- You should be able to mobilise (move around) independently with walking aids.
- Negotiate step and stairs if required.
- Understand how to get in and out of a car. (See diagrams following).
- Be independent getting on and off the bed.

Walking with crutches/sticks

1. Place your crutches/sticks forward



2. Place your affected leg between the crutches and step forward with your healthy leg.



Getting in and out of the car

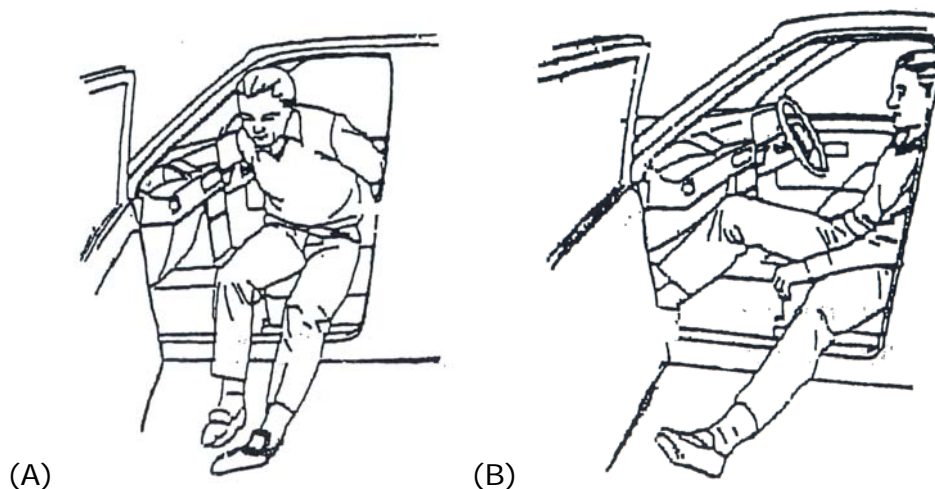
To get into the passenger seat:

Ask the person driving you to ensure the car is on the level and not too near the kerb (for example at least one foot away from the curb). Try to get the seat back as far as possible and slightly reclined.

Open the passenger door, position yourself as close to the seat as possible with your back against the car.

Lower yourself down onto the seat, push your bottom well back (A).

Then bring your legs one by one into the car, so you are facing forwards (B)



After you have left the hospital

- Physiotherapy may be arranged for you by your physiotherapist at your local hospital if necessary (or in your own home in certain circumstances)
- Continue all your exercises at home four times a day, progressing the number of repetitions until 30 is reached.
- Lie flat for half an hour each day to stretch your knee.

Guidelines for activities

At Six weeks you can

- Drive a car, if you are fit and well and fully in control of the car.
- Progress to sticks if you have not already done so.

At Six to twelve weeks you can

- Gradually try walking without all walking aids.
- Attempt sexual intercourse (with care).
- Start swimming, so long as the wound is fully healed. Do not jump or dive. Start gently and do not overtire yourself.
- Ride a bike, if you can do so comfortably.

Twelve weeks onwards

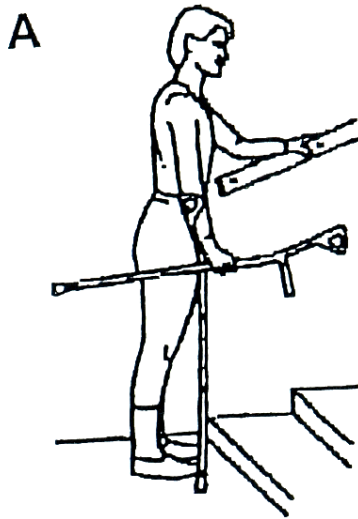
- Return to sedentary work
- Discuss the return to heavy manual work with your consultant
- Return to gentle non-contact sport.

Pain – This varies greatly from patient to patient. Many people are pain free at six weeks, for others recovery continues throughout the year.

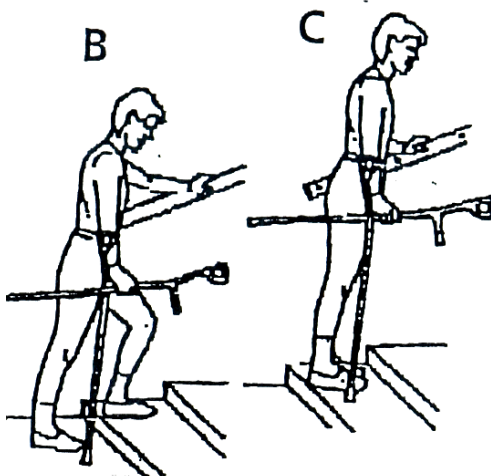
This information relates to routine operations. Recovery time varies from one individual to the next.

Instructions for using the stairs

Walking up the stairs



Stand close to the stairs. Hold on to the handrail with one hand and hold the crutch/crutches with the other hand.



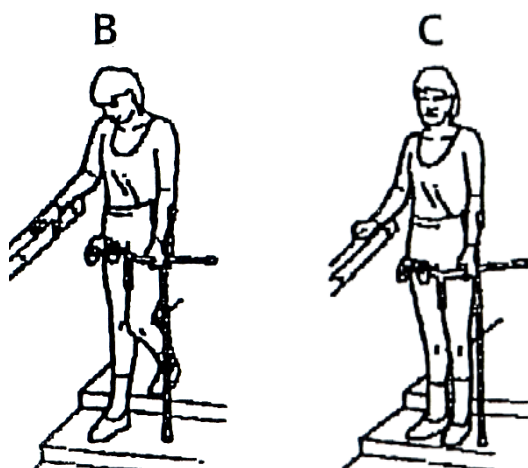
Step up with your un-operated leg (B). Then take a step up with your operated leg (C). Bring your crutches up to the same steps as your feet.

To go downstairs



Stand close to the stairs. Hold onto the handrail with one hand and the crutch/crutches with the other hand (A).

First put your crutch one step down (B). Then take a step down with your operated leg (C).



Then step down with your un-operated leg, onto the same step as your operated leg (C).

Anti- embolic stockings

During your stay in hospital you will be wearing anti-embolic stockings. These should be worn all the time for the first four weeks after your operation or until you are back to your normal level of mobility. They should be removed daily to wash and dry your feet. At the same time you should check that the skin is in good condition.

You may need someone to help you to get your stockings on and off.

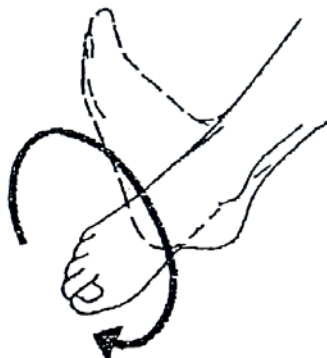
Exercises following total knee replacement (TKR)



1. Lying on your back or sitting

Bend and straighten your ankles briskly. Keep your knees straight during the exercise, so that you stretch your calf muscles.

Repeat 10 times every hour.



2. Sitting or lying

Rotate your ankle. Change directions.

Repeat 10 times every hour.



3. Lying on your back with leg straight.

Bend your ankles up towards you and push your knees down firmly against the bed. Hold for five seconds and then relax.

Repeat 10 times.



4. Lying on your back with a slippery surface under your leg

Bend and straighten your hip and knee by sliding your foot up and down the slippery surface.

Repeat 10 times.



5. Lying on your back

Exercise your operated leg by pulling the toes up, straightening the knee and lifting the leg, 20cms off the bed. Hold for approximately five seconds, and then slowly relax.

Repeat 10 times.



6. Lying on your back put a rolled towel under the operated knee.

Pull your foot and toes up, tighten your thigh muscle and straighten the knee (keep knee on the roll). Hold for approximately five seconds and slowly relax.

Repeat 10 times.



7. Sitting.

Bend your knee
Repeat 10 times



8. Sit on a chair

Pull your toes up, tighten your thigh muscles, and straighten your knee. Hold for approximately five seconds and slowly relax your leg.
Repeat 10 times.

You should practise all these exercises with both legs.

Contact Details

Ward C8 – 01223 217279

ward physiotherapist – 01223 216104

ward occupational therapist – 01223 216880

Nurse Practitioner – 01223 596183



We are currently working towards a smoke free site. Smoking is only permitted in the designated smoking areas.

For advice and support in quitting, contact your GP or the free NHS stop smoking helpline on 0800 169 0 169

Help with this leaflet:



If you would like this information in another language, large print or audio format, please ask the department to contact Patient Information: 01223 216032 or patient.information@addenbrookes.nhs.uk



Document history

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