NHS
Royal Berkshire
NHS Foundation Trust

# Knee replacement surgery

**This information has been produced to help you gain the maximum benefit and understanding of your operation. It includes the following information:**

- **Key points**
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- **Alternatives to total knee replacement**
- **Timing of surgery**
- **Risks of not operating**
- **Success rates of knee replacement surgery**
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## Key points

If you are considering having a knee replacement operation, remember these key points:

1. Knee replacement is an operation to remove the arthritic parts of the knee and replace them with an artificial joint made of metal and plastic.
2. It can either replace the whole joint, a total knee replacement (TKR) or just one part of it, unicompartmental arthroplasty (UCA), if only one part is arthritic.
3. The purpose of the operation is to reduce pain and improve function. It can also help to straighten the leg or correct a deformity.

## What are the benefits of this operation?

Knee replacement is recommended for people with arthritis of the knee who have got sufficient pain from the knee joint to make the risks of a major operation worth taking. All attempts must have been made to control the pain by other safer methods such as:

- painkillers
- anti-inflammatory drugs if tolerated
- the use of supplements such as chondroitin and glucosamine
- physiotherapy, exercise programmes and weight control.

All of these measures have been shown to help in a small degree and together may make a significant difference.

When pain from the arthritis of the knee becomes so severe that activities of daily life are restricted, walking is limited to a few hundred yards, independent existence is difficult and sleep

is disturbed, then most people will choose to have an operation.
There is no evidence that leaving an arthritic knee alone without surgery puts it at any particular risk but it is likely that the pain from the arthritis will worsen with time.

## We do not recommend a knee replacement in the following situations:

1. When there is active infection in or near the knee.
2. When there is very poor blood circulation in the leg.
3. When we feel the risks of the anaesthetic and operation are too high.
4. When the arthritis is early and pain is mild.
5. When a patient's expectations are too high, e.g. in people who are expecting that the surgery will allow them to return to vigorous sport or heavy manual work.

## Alternatives to total knee replacement

Unfortunately, there is no other operation for arthritis that is as good as a joint replacement.
If the leg is deformed, we can straighten it with an operation (osteotomy) which transfers the weight from the weak part to the healthier part of the knee joint. This is more suitable for younger people, particularly if they have a heavy manual job, and it can 'buy some time' before a knee replacement later in life.
Arthroscopic surgery (keyhole surgery) has no place in advanced arthritis, but is occasionally used to remove loose fragments of bone or tissue in the joint.
We also may use arthroscopy in younger patients to assess the arthritis fully, which can help decisions about which alternative treatments might be appropriate.

## Timing of surgery

There is no rule as to when surgery has to be done.
Surgery in older patients increases the risk of an anaesthetic complication and in younger patients (below 60) risks disappointment that the surgery has not fully restored normal knee function.
Most joint replacements last at least 15-20 years before they would need to be replaced.
There is no limit to the number of times we can redo a knee replacement, but each time we re-operate the risks go up and the possible benefits go down.
Pain is the deciding factor and patients, even in their teenage years, have had their knees replaced if the symptoms justify it and they fully understand the risks of revision (having to re-operate) and restriction of activity.
In older patients (Over 85) the risks of life-threatening problems rise to a significant level and surgery is often discouraged for this age group.

## Risks of not operating

There are no real risks of not having a joint replacement other than the pain might get worse with time, but if the operation is delayed for too long (after 85), it may mean that the possibility of surgery becomes less likely due to the increased risks.

## Success rates of surgery

Total knee replacement has been around for 20-30 years in its present form so most of the likely outcomes are understood.

80% (4 out of every 5) people get a satisfactory pain-free result which lasts 10 years or more.

The remainder of patients may feel that their knee is less painful, but do admit to being disappointed that their function level is not as high as they would like it, or they suffer a complication which reduces the benefit. A small percentage of cases are worse than before (see below under risks and complications).

## What happens when you decide to go ahead with the operation?

We will discuss the operation with you in detail and answer all your questions and queries, as best we can.

Your operation will take place within 12 weeks or so of the decision to go ahead and your name will be put on a scheduling list for a date.

However, it is essential before we commit you to a date that you are fit for the operation.

To ensure that your operation is a safe as possible we need to do a number of tests and checks. You may already be aware that you have some health problems and we may discover some on investigation. It essential you tell us your complete medical history and, in particular, what drugs you are taking (including non-prescription ones that you might be buying and using without your doctor's knowledge).

## Getting ready

### Pre-operative assessment

You will need to attend the Pre-Operative Assessment Unit. An assessment will take place to make sure that you are as fit as possible to have an anaesthetic. At this assessment a nurse will record your blood pressure, pulse, weight, height and lung function (peak flow). Blood samples will also be taken. You may also require an EGC (heart tracing) or x-ray. If you are not sufficiently fit the doctor and nurses will discuss with you how to improve your health so you can consider surgery at a later date.

They will give you advice on what you can do to prepare for surgery and ask you about your home circumstances so your discharge from hospital can be planned. If you live alone, have a carer or feel you need extra support, it is beneficial to arrange this prior to admission so that your discharge is not delayed. You may find the contact details at the end of this leaflet useful.

Take a list or the packaging of any medication you are taking. Some rheumatoid arthritis medications suppress the immune system, which can affect healing. For this reason, you may be asked to stop taking them before surgery. Your surgeon can advise you about alternative medications.

### Enhanced Recovery Information Group – 'Knee School'

You can prepare for the operation by staying as active as you can. Strengthening the muscles around your knee will aid your recovery. Keep up any gentle exercise, such as walking and swimming, in the weeks and months before your operation if you can. You will be invited to a group session (this may be virtual – via video) where you will be given vital information and exercises to aid a quick and safe recovery. It is important that you attend.

**Preparing for your hospital stay**

- Get informed. Find out as much as you can about what is involved in your operation.
- Arrange help. If you can, arrange for a friend or relative to be available to help you after you come home from hospital for a week to two as needed. A referral for rehabilitation will only be put in place if needed following review by a physiotherapist and occupational therapist after your operation.
- Sort out transport. Arrange for someone (either a friend or relative) to take you to and from the hospital. You will normally be in hospital for 2-4 days.
- Stock up. Buy food that is easy to prepare such as frozen ready meals, cans and basic foods, such as rice and pasta, or prepare your own dishes to freeze and reheat during your recovery.
- Before going into hospital, have a long bath or shower including washing your hair with the Octenisan wash provided at pre-operative assessment. If worn, please remove nail polish or false nails. This helps prevent unwanted bacteria coming into hospital with you and complicating your care.

**When you go into hospital**

- You will be admitted on the morning of the operation.
- It is important that you don't fast for a long period before your operation and that you eat and drink as normal the evening before your operation. As well as your evening meal you may be given four cartons of a lemon flavoured drink called *Nutricia Pre-op*®. This drink is specially designed to give your body nourishment and help you recover.
- For information on when to stop eating and drinking before your admission, please refer to the instructions in your letter and the 'Quick guide to coming into hospital for surgery' booklet.
- On the morning of your surgery you may be given two further cartons of this *Nutricia Pre-op*® drink and also be encouraged to drink clear fluids up until two hours before your surgery. The nursing staff on the unit will be able to tell you when this will be – please check with the nurse on your arrival.
- Remember sucking sweets or chewing gum is classed as food.
- **Please note:** patients with diabetes will not be given these drinks as they can raise your blood sugar.
- The surgeon and anaesthetist will usually come to see you again to discuss what will happen and give you the opportunity to ask any more questions. The side of your operation will be marked on your leg and you will be asked to sign a consent form (if this was not done in the pre-assessment clinic). Signing your consent form is your final undertaking that you fully understand what the process involves and this document forms an important part of that 'informed consent'. Some consultants run 'consent clinics' a couple of weeks before your admission. **You are encouraged to ask any questions at any time.**
- You will have to remove make-up, nail polish and jewellery. If you wear glasses or false teeth, these can be removed in the anaesthetic room.
- Although we try and be as accurate as we can in the timing of your surgery, operating lists are somewhat unpredictable because some surgery takes longer than expected and sometimes we need to change the order of patients. It is difficult for us to make promises as to timing but we do our best to keep you informed.

- A nurse or health care assistant will then escort you to theatre.

**Anaesthetic**

The operation can either be done under general anaesthetic (you are asleep) or under spinal anaesthetic (the leg is put to sleep with an injection in your back).

A modern general anaesthetic is normally given through a small needle in the back of your hand. You fall asleep immediately and your breathing is controlled by a tube in your mouth.

In a spinal anaesthetic, a small needle is placed into your back and local anaesthetic is used to block the nerves to the lower half of your body. You will be awake but sedated and your legs will be completely pain free and numb. The spinal block lasts about 3 to 4 hours, so you will remain numb for a short period after the operation. A longer acting painkiller is often put into the back, which gives background pain relief for up to 24 hours. This painkiller can make you a bit itchy, or sick.

These options will be discussed with you before the operation by the anaesthetist.

To prevent you being in pain post-operatively we use a variety of techniques, including simple drugs as well as temporary nerve blocks in your leg, which are sometimes done once you are asleep.

## About the operation

Total knee replacement is performed under a general (you are asleep) or spinal anaesthetic (the leg is put to sleep with an injection in your back). A vertical cut is made down the centre of the front of the knee, the knee joint is exposed and the arthritic ends of the bone are trimmed away with special tools and resurfaced with metal on both sides with a plastic ‘sandwich’ between. The plastic is made of a high density polyethylene and the metal is cobalt chrome. The back of the kneecap can be resurfaced but this is not necessary in all cases and depends on the individual and the surgeon’s preference. The joint replacement is cemented into place with bone cement, which gives an immediate grip and allows solid fixation straight away.

The skin incision is either closed with metal clips which will be removed twelve days later by the district or practice nurse or dissolvable stitches. A dressing is then applied which stays in place for up to ten days. No plaster is required.

## What are the side effects and risks of knee replacement surgery?

We define a side effect as an inevitable consequence of the operation but not necessarily of benefit to the patient. The obvious example being the scar, which will be about six to eight inches long down the front of the knee.

Another inevitable consequence of knee replacement surgery is some degree of numbness around the scar, which may be permanent. Because of this and the site of the scar, people’s ability to kneel after knee replacement varies. About 50% of people find they can manage it with some degree of comfort but it is never as easy as it was before the operation.

Knee replacement is a big operation with a number of rare but well recognised risks. The most serious and common are outlined below:

- **Infection:** A serious deep infection occurs in approximately 1% of cases although superficial minor infections around the scar are a little more common but usually do not lead to long-term trouble and can normally be managed with antibiotics alone.

In deep infection, the joint replacement almost always has to be removed and another one put in some time later. This is called a two-stage revision.

At the first stage the joint replacement is removed, the knee is washed out, and the infection tested so that we know which antibiotics to use. The antibiotics are then given either by mouth or by intravenous drip and treatment might need to continue for at least six weeks, and possibly a lot longer, depending on the type of infection and response to treatment. Treatment is monitored by blood tests which indicate whether or not the infection has been cleared.

As soon as there is no evidence of any infection the second stage of the operation is done in which a new joint replacement is put in place. However, even taking these precautions, the risks of a further infection are significant and the whole process might need to be repeated. The success of a two-stage revision is about 80/20, with a 20% chance of either replacing the joint again or having to treat the infection indefinitely with antibiotics.

In exceptional cases, the joint has to be fused and ultimately the whole limb is at risk from ongoing infection if it cannot be treated. The overall amputation rate after total knee replacement for a complication such as this is about one in one thousand.

- **Deep vein thrombosis and pulmonary embolus:** Deep vein thrombosis (DVT) is a relatively common complication after major lower limb surgery, particularly total knee replacement.

  It is caused by the blood clotting in the veins of the leg in the deep muscles and leads to pain and swelling of the leg, normally between ten days and six weeks after surgery but occasionally occurring sooner.

  Post-operative calf pain, tenderness and swelling are regarded as a serious risk and it requires immediate investigation and treatment. Normally, this can be done with simple ultrasound scanning and medication. If it occurs at home postoperatively, it needs emergency hospital treatment. It is not a situation to leave to the next clinic appointment.

  **The risks of deep vein thrombosis are:**

  - Long-term pain and swelling in the leg (the post-phlebitic syndrome) which may last indefinitely or
  - The clot can move from the leg into the lung, leading to pulmonary embolus. In extreme cases, this can be a cause of sudden death, but more often gives rise to chest pain and shortness of breath. Patients who develop a pulmonary embolus don’t always get the typical symptoms of calf swelling first (a silent DVT).
  - Because of the severe nature of deep vein thrombosis, we go to significant lengths to reduce its incidence by chemical means with drugs, and with pneumatic calf pumps which are used in the pre and post-operative period. We also aim to get patients mobile as quickly as possible after the operation.
  - Patients already on blood thinning medication, such as Warfarin, should temporarily stop taking this so that a more reversible form of treatment can be used during surgery. The Warfarin can be restarted a few days after the operation.

  Unfortunately, despite all precautions, it is not always possible to prevent every clot or pulmonary embolus.

- **Stiffness:** Stiffness is a well recognised complication of surgery. Our goal is to achieve at least 0 to 100 degrees of flexion (action of bending), which is well over a right angle bend and permits most normal activities. Sometimes, we fail to achieve this range of movement despite

appropriate surgery and physiotherapy.

There are a number of causes for stiffness, the most common of which is that the joint was particularly stiff before surgery, which means that movement is more likely to be restricted indefinitely. We hope to achieve 70 to 80 degrees of movement in the first few days after surgery and about 90 degrees by six weeks and if these milestones are not met, we would recommend a manipulation under anaesthetic (MUA) operation. This requires a general or spinal anaesthetic; it is not usually particularly painful and can often achieve the desired range of movement in the majority of cases. However, permanent stiffness is a recognised complication and can be the cause of an unsatisfactory result.

- **Persistent pain:** Persistent pain is a recognised complication occurring in about 5% (1 in every 20) patients and in a few cases leads to a disappointing result in the long term. There are many causes of this and, as knee replacement is done for pain relief, it is a complication that we take seriously.

  If the kneecap was not replaced this may be necessary as a later operation.

  We investigate persistent pain with X-rays, scans and blood tests. Normally we would initially check for infection and then consider loosening the prosthesis on the bone ends.

  However, in a few individuals, after an apparently successful knee replacement (from a technical point of view), the knee continues to be painful and gives a disappointing result without any easy solution.

## Rare and extreme risks

Other rarer complications include fracture at the time of surgery, circulation and/or nerve damage to the foot and lower leg, persistent swelling, instability of the knee and dislocation of the joint replacement.

The overall mortality (risk of dying) is 1 in 300, and is usually caused by a pulmonary embolus or heart attack soon after the operation.

The risk of complications leading to amputation of the leg is 1 in 1000.

## Your recovery

- You may be allowed to have a drink in recovery about 30 minutes after your operation and you will also be allowed to have food, depending on your condition.
- The staff will help you to get up and walk about as quickly as possible. In some cases, depending on the time you return to the ward, you may be up the same day as your operation.
- You can take full weight through the leg but it will be stiff and uncomfortable to bend. We will encourage you to bend your knee gently with suitable painkillers and with physiotherapy help.
- It is normal, initially, to experience discomfort while walking and exercising and your legs and feet may be swollen. You will be given a tablet to help prevent blood clots forming in your legs.
- A physiotherapist will teach you exercises to help strengthen the knee and explain what should and should not be done after the operation.

## Going home

You will usually be in hospital for around two to four days. A referral for rehabilitation will only be put in place if needed following review by physiotherapist and occupational therapist after your operation. You will be given a clinic follow up to ensure that your recovery is satisfactory and you are regaining your range of movement and we can be sure you are on target for a successful result. Clinic appointments vary slightly between surgeons but normally will be at six weeks. In young patients or complicated revision (re-operated) cases we may wish to see you on a long-term basis.

During the first month you will be seen by a physiotherapist.

From time to time we will be asking you to complete a simple questionnaire on how you are coping, which is a good way of assessing your progress and also allows us to make sure that we are achieving the standards we have set ourselves.

## Frequently asked questions and answers

***How soon will the pain go away?***

The pain that you may have previously experienced should go immediately, although you can expect to have a different form of pain from the operation, which although temporary, but may last several weeks.

***Is there anything I should look out for or worry about?***

After knee replacement surgery pain and swelling in the calf may be a sign of a blood clot (DVT) and requires immediate attention in A&E.

If you notice redness or discharge from the wound, you should contact the Outpatient Department on 0118 322 6938. This is an answerphone – leave a message and somebody will contact you.

***When can I drive again?***

You can usually drive again after about six weeks. Your surgeon can advise. It can be tricky getting in and out of your car at first. It is best to ease yourself in backwards and swing both legs round together. You must be able to perform an emergency stop easily.

***When can I go back to work?***

This depends on your job, but you can usually return to work between 6 and 12 weeks after your operation.

***Will I need another new knee?***

Total knee replacement is designed to last about 15-20 years but many are now lasting considerably longer. Our record holders have had their joint replacements for over twenty years but it is not unusual now for joints to start “loosening” at about twelve to fifteen years after the initial operation.

The polythene/plastic in the knee replacement slowly wears and the debris creates a very low-grade reaction which over many years seems to cause the bone to shrink away from the metal and leave the device loose within your bone. The first sign of loosening is usually that the knee symptoms start to come back, with pain and swelling around the joint replacement. X-rays and possibly scans will confirm the loosening situation.

If there are no overwhelming local problems such as infection, we would recommend re-doing the knee replacement. This is called revision total knee surgery. The second operation is

obviously rather bigger and the procedure is slightly less successful in terms of regaining the previous range of movement. However, in the majority of cases (80%) we are able to achieve a good result, nearly as pain-free and functional as the first procedure.
Contrary to popular belief, in theory there is no limit to how many times we can re-do a knee replacement. Our record holder has had four revision knee replacements but each time the technical challenges and complication rates are greater and the success rates correspondingly poorer.
If all is well one year after the operation the immediate complication risks are over and there is a 90% chance that there will be a pain-free and successful result for the next 10 years.
It is possible to get an infection in a total knee replacement later on. It is important if you are having unrelated surgery at the dentist or in hospital that you have the process appropriately 'covered' with antibiotics. Antibiotics are no longer recommended for routine minor dental work in joint replacements patients.

## On a final note

Although everyone worries about the genuine risks involved in joint replacement, in the vast majority of cases everything goes smoothly and the replacement will work successfully for at least ten years. The usual reason people return after surgery is that the other knee is giving them symptoms and they wish to have that one replaced

## Where to get further information

NHS Website www.nhs.uk/conditions/knee-replacement/

NHS Shared Decision Making sdm.rightcare.nhs.uk/shared-decision-making-sheets/osteoarthritis-of-the-knee/

British Association for Surgery of the Knee www.baskonline.com has a patient information section.

Berkshire Age UK offers a 'Home from hospital service'. Their service covers some of the Reading and Wokingham area. They can visit prior to your admission to assist in preparation before your surgery. For further information, you can contact them by phoning: 07887 878 664 or visit http://www.ageuk.org.uk/berkshire/our-services/home-from-hospital/

## Contacting us

If you have any concerns or problems following your discharge, you can contact the ward for general advice by telephoning:
Redlands Ward 0118 322 7485
Pre-operative assessment 0118 322 6546
Occupational Therapy Department 0118 322 7560

To find out more about our Trust visit www.royalberkshire.nhs.uk

**Please ask if you need this information in another language or format.**

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