

# A New Knee Joint



# What is in this booklet?

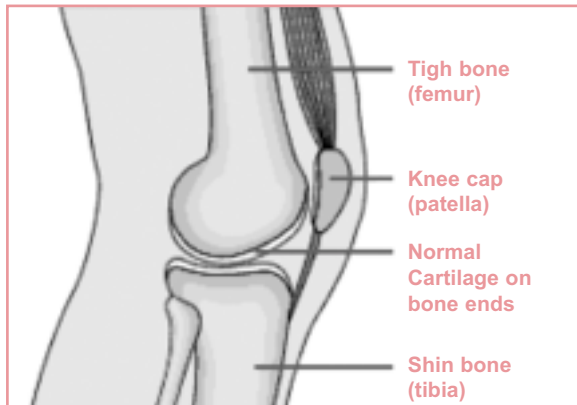
The aim of this booklet is to answer questions that may be in your mind if you are considering having a knee replacement. The information has been arranged so that it should be easy to find the topics which most concern you.



### Do I need a knee replacement?

The decision to replace a knee will involve weighing up the risks of the operation and the benefit you will get if the operation is done. Essentially, if the knee is bad enough and not responding to medication then it needs replacing.

The decision is easy if you are suffering severe pain and can't walk far, especially if you are older. Most people having a knee replacement are over the age of 70. Putting off the operation if you have severe arthritis could allow the muscles to become weaker, make the knee more stiff and deformed and will reduce the chance of success. On the other hand, if you are young, you may not wish to undergo such a major operation and your doctor may advise you to alter your lifestyle, particularly by losing weight. If you are under the age of 50 you are highly likely to need a further operation later in life and a second operation is not usually as good as the first.



Side view of a normal knee joint

### What can I expect from a knee replacement?

About 90% of replacement knees last for more than 10 years. They are at least as good as hip replacements. However, there are many factors which determine the success of a knee replacement and people's expectations vary greatly. Most people have very little pain after the first 6 months but, even for those who do, it usually improves over two years. Most people have very little difficulty washing or drying all over and find it much easier to use public transport after a knee replacement. Most people are able to walk with little pain for 30 minutes; unfortunately this remains difficult for some people and their mobility remains limited and they may need a walking stick. The improvement in walking also helps the heart and lungs and people are generally fitter a year after surgery. It is not usually possible to kneel after the replacement, because the scar runs over the front of the knee and would be painful to kneel on.

Before a knee replacement, giving way of the knee is a common symptom, but only 1 in 8 people are troubled by this after surgery. You should find it easier to do household shopping but 1 in 3 people still find this difficult. Before a knee replacement most people cannot use stairs except with considerable difficulty. This usually improves after knee replacement, but 1 in 5 people still have great difficulty or find it impossible. For younger people, a knee replacement will probably not be comfortable enough to get back to heavy manual work.

It takes longer to get over a knee replacement than a hip replacement. Do not expect your knee to bend fully, especially if it was stiff before. So you will probably still have some difficulty doing things which make the knee bend a lot, like getting in and out of a car.

### What happens before the operation?

Most hospitals will invite you to a pre-operative assessment clinic. You will usually be assessed by a nurse to check that you are fit enough to cope with the operation. The nurse will:

- take blood samples to check you are not anaemic (full blood count)
- take biochemistry measurements (urea and electrolytes) to check that your liver and kidneys are working properly
- do a heart tracing (ECG) to check your heart.

This visit will give you the opportunity to ask questions about the hospital admission a week or two later. Some hospitals provide a physiotherapist or occupational therapist with whom you can discuss your concerns.

### What happens in hospital?

You are usually admitted to hospital a day before the operation, but this will vary from hospital to hospital, and depending on how healthy you are. On the day of admission you will be visited by the nurses, the anaesthetist, and a member of the surgical team. Your leg will be marked to indicate where you need surgery and the consent form for surgery will be checked. You will be wheeled on a trolley to the operating room and a nurse and the anaesthetist will make further checks.

#### **The anaesthetic**

A very small plastic tube will be placed in a vein, usually on the back of your hand. This tube is used to inject drugs for relaxation, sleep and pain control, and antibiotics to prevent infection. The anaesthetist will discuss, and decide with you, which is the most appropriate anaesthetic in your case. You may be given a

general anaesthetic, in which case you will fall asleep. But there may be medical reasons to use a spinal anaesthetic or an epidural anaesthetic. In these, a needle is inserted in your back to freeze the body from the waist down. Another approach is to use a nerve block, along with a general anaesthetic. In this case, while you are asleep, the anaesthetist will inject the nerves in the thigh, which will take away pain in the leg for the first day after surgery.

#### **The operation itself**

This usually takes between one and two hours. The surgeon will make the cut through the front of the knee. Many surgeons use a tourniquet (a tight band) around the thigh during the operation. This reduces blood flow around the knee and makes the operation easier. The wound is closed either with absorbable stitches, removable stitches or clips depending on the surgeon's preference.

#### **After the operation**

Before going back to the ward you will spend some time in the recovery room. You may be given more fluids and drugs such as painkillers through the tube in your arm. If necessary a blood transfusion will be given. Many surgeons use plastic tube drains from the knee for the first 24 hours to remove blood which could otherwise cause excess bruising around the knee. The knee will be covered by dressings. If your anaesthetist has used a spinal anaesthetic or a nerve block then you will not have pain nor very much feeling at all in your legs while resting in the recovery room. If you have had both knees replaced you will be less mobile at first and it is probable that you will awake with a catheter, that is a plastic tube inserted into the bladder to drain urine. If there is a risk of weak ligaments or poor wound healing you may well

wake up with a brace or plaster on your leg. This will help the knee heal for the first few days or weeks. Some surgeons use a continuous passive motion (CPM) machine which is a frame in which the thigh and leg rests. Your leg is strapped to this frame and an electric motor gently bends and straightens the knee and gradually increases the movement day by day. But these machines are no substitute for your own efforts because you have to get the muscles going.

Something will usually be done to reduce the risk of a blood clot forming in the leg (thrombosis) and breaking off and travelling to the lung (see the section 'What are the main risks of the operation?'). The most common technique is using foot pumps. These are special sandals which are strapped to your foot, in which a pneumatic device presses every few seconds against the sole of the foot. This pushes the blood out of the foot and through the veins back to the heart. Some surgeons use thromboembolic stockings (TED stockings). These stockings squeeze the veins in the leg to reduce the risk of clotting. Some surgeons use chemicals such as heparin which are injected just beneath the skin (subcutaneously).

### What is the new joint and how does it work?

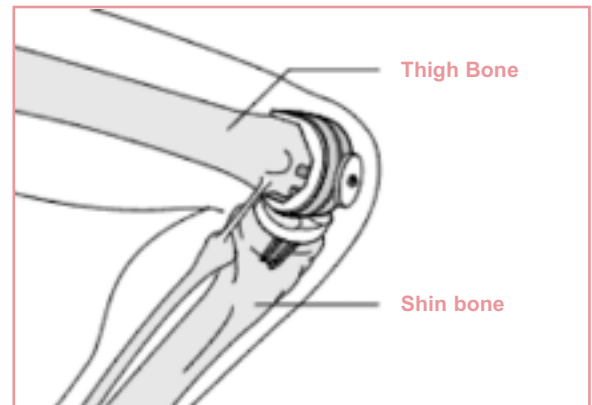
Your natural knee feels like a hinge joint but it actually moves in a complex arc. This allows your leg to twist and move sideways.

The slippery cartilage on the ends of the thigh bone and the shin bone allows the bones to move easily against each other. The knee is also held together by fibrous bands (ligaments) which keep the bones in the right position.

Severe arthritis damages the cartilage so that it becomes thin and may wear away completely in

places. The bones then rub against each other and themselves become worn.

To replace the knee joint, the surgeon removes the worn out ends of the bones and replaces them with metal and plastic. These materials have been successfully tried and tested for many years. The end of the thigh bone (femur) is replaced by a single curved piece of metal. The top end of the shin bone (tibia) is replaced by a flat plate of metal. Plastic is fixed to this flat plate to act like cartilage and help the bones move easily. The fibrous bands (ligaments) which keep the knee stable are also often damaged by the arthritis and some are usually removed during the operation to gain access to the bone ends. With the new joint, it is the interlocking shapes of the metal and plastic replacement parts which give the knee its stability.



**A total knee replacement - the type of artificial joint shown here is known as (Semi-Constrained)**

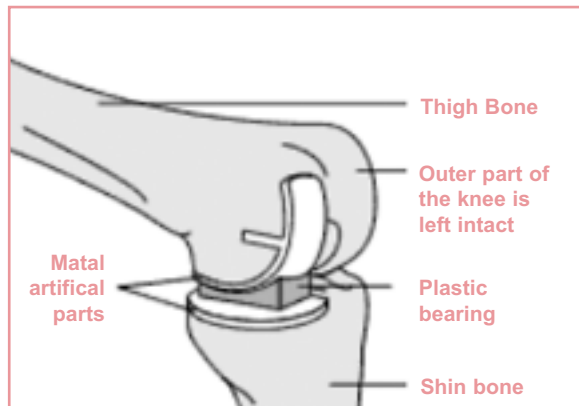
The diagram above shows the usual design of a new knee joint. This is a 'total' knee replacement – meaning that both sides, or compartments, of the knee

joint are replaced – and the type is called a semi-constrained type. The surgeon will pick the most appropriate design of replacement knee for you. The choice will depend on you, the condition of your knee and the past experience of the surgeon.

Another type of knee replacement is shown below. This is a half knee (or uni-compartmental) replacement, which may be used if the disease has affected only one side of the joint. This joint is suitable for some people and involves less extensive surgery, which means a quicker recovery. An example of this is the Oxford knee, shown below.

Opinion is divided almost equally between surgeons whether to replace the back of the knee cap (patella) or leave it alone.

The components of a knee replacement are usually cemented into the bone to give immediate fixation,



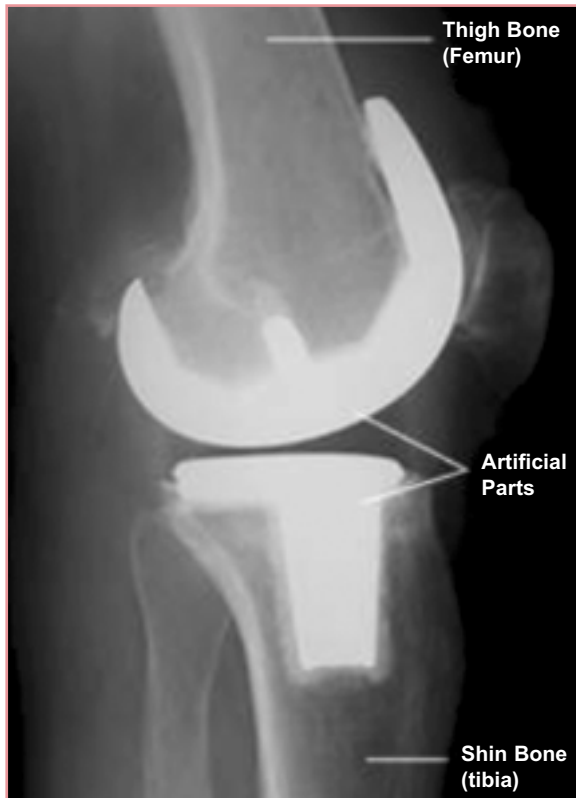
**A half knee replacement (or uni-compartmental replacement). The type shown here is called a 'three component' type, also known as the Oxford knee**

although some joints are uncemented by design. As the bone is cut and the ligaments released to put in the new joint, the surgeon can also put right any 'bow leg' or 'knock knee' deformity of the knee.

### What happens after the operation?

During the first 24 hours after surgery your pain will be controlled by the drugs or injections prescribed by the anaesthetist. Many hospitals provide patient-controlled analgesia (PCA) in which you yourself can press a button to receive a painkilling dose just when you need it. After the first day it is likely that the various plastic tubes for fluids, medication, and drainage will be removed. Now the physiotherapist and nurses will be able to get you up so that you can start walking. Within a day or two you will be sitting on the side of the bed and you will be encouraged to bend and straighten your knee.

Everyone is different and some people progress faster than others. If you had good muscles before surgery and your knee is not very bruised, you will be up and about walking without anyone for support, but using a frame or two crutches, within three or four days. But do not be discouraged if you cannot achieve this because everyone varies. Your muscles may be weaker and your knee a bit more bruised, in which case it will take a little longer to gain proper control of your knee. This is especially likely if you have rheumatoid arthritis. The surgeon may actually encourage you to rest your leg for a longer period because of this. Some patients are a little too over-enthusiastic and cause more bruising by being too active. The physiotherapist and surgeon will then advise you to slow down a little! The main priority is to make sure that the wound heals properly in the first two weeks.



An x-ray of a replacement knee joint (side view) showing the two artificial parts securely attached to the bones

### When can I leave hospital?

Between 7 and 14 days after the operation it is very likely that you will be able to walk along the corridor without help, just using a frame or crutches for support. You will be able to go to the bathroom and back without a nurse, and be able to manage steps and stairs independently. There is usually no reason why you cannot then go home. If there are sutures (stitches) or clips to be removed, these can be taken

out either in the hospital or at home by a visiting nurse or in the out-patient clinic by about two weeks after surgery. If you are having difficulty, the occupational therapist will be able to advise you about dressing and bathing aids, and other ways to allow you to be more independent.

### The first few weeks at home

You should cancel all major commitments for the first 6 weeks after a knee replacement because the knee is bound to be sore and you will most probably need two crutches or at least one walking stick. You will also need painkillers because exercise will be painful and every day you will need to carry out exercises to build up the muscles and recover the range of movement. Good supportive outdoor shoes (not slippers) are best worn in the early days to help your walking. You do not have to sleep in a special position after knee surgery. About 6 weeks after the operation it is likely that you will be seen again in the clinic. At this stage most people who were driving before surgery will once again be able to drive. If you were using one stick before the operation, you will probably no longer need it. If you were using two sticks or a frame you will probably now only need one stick. You will probably be able to go out from your home independently 6 weeks after surgery and return to light office work. If your work involves a lot of standing and some light lifting you will not be ready until about three months after surgery.

### What are the main risks of the operation?

Total knee replacement is a major operation and has risks. There are the risks of complications at the knee joint itself. For example, in 1 in 10 patients the healing of the wound takes longer than normal, requiring dressings from a nurse and possibly an extra week in

hospital. Or, a wound infection may occur, requiring antibiotics, but a deep wound infection is very rare. However, if a deep wound infection happened it might need further 'revision' surgery. Very occasionally the new knee joint will need to be removed altogether, and in the very worst situation you might be left with a poorly functioning or non-functioning leg.

There are also the general risks of having a major operation. Most people come through surgery without a problem and the risks of a stroke, a heart attack or death are very low (the risk of death is less than 1 in 100). But surgery to the lower limbs can sometimes cause a blood clot to form in a leg vein (venous thrombosis). If this happens, more pain and swelling of the leg may occur. This is usually a temporary problem. Very rarely, part of the clot breaks off and is carried through the blood stream to the lungs. In the lungs it causes pain in the chest and difficulty breathing. It is usually treated successfully with drugs (warfarin) and oxygen therapy. However, if it becomes stuck in a blood vessel in the lungs (pulmonary embolism) this is much more serious. It may cause sudden breathlessness or collapse, or even sudden death. Fortunately this complication is very rare with a replacement knee joint operation.

## Troubleshooting

### My knee is still painful

Occasionally the knee pain does not settle down within the first four weeks. If this happens, talk to your physiotherapist or family doctor. They will recognise potential problems and advise you. You may need a little rest from the exercise or more painkillers to allow you to exercise. Further investigations may be needed,

but in most cases you will simply need reassurance – the bruising can take time to settle.

### My knee is still stiff

Sometimes the knee becomes very stiff in the weeks after the operation for no apparent reason. The harder you try to exercise the knee, the more stiff and more painful it becomes. Again, talk to your physiotherapist or your GP. A few days without exercises – just resting the knee – may make all the difference.

Occasionally, if your knee is not progressing well at about 6 weeks, your surgeon may feel it best to 'manipulate' your knee. This means coming back into hospital for a day or two. Under a short anaesthetic, the surgeon will put your knee through a normal range of motion to break down any internal scarring (adhesions). This usually makes the knee move satisfactorily again. However, you need to have realistic expectations. If you had a knee that was very stiff before surgery, you are not likely to be fully mobile after knee replacement. Most often your knee will continue to improve for up to 6 months after the operation. Even after that, there is likely to be some further, though less dramatic, improvement for up to two years.

### Can an artificial knee be replaced with another one?

Yes, it can. If a replaced knee wears out (this will usually be after more than ten years) then it can be replaced with another replacement. This 'revision' operation is more difficult than the first and may need to be done in a special unit. The old joint and any cement used has to be removed and replaced with a different joint, and this takes longer. Many patients have had successful revision surgery and some have had three or more replacement joints.

## Glossary

**Anaesthetic** – a drug which removes sensation.

**Epidural anaesthetic** – this term is used to describe an injection given around the area of the spinal nerves to anaesthetise the lower half of the body. The full name is epidural blockade.

**Oxygen therapy** – oxygen gas given through a mask or tube in your nose to increase the amount of oxygen in your blood and to ease your breathing.

**Prosthesis** – an artificial body part. An artificial knee joint is one example.

**Revision surgery** – when the same operation has to be repeated. This might be done, for example, if an artificial joint has worn out or come loose after a number of years, or, less commonly, if there is an infection around a newly fitted joint.

The Information in this leaflet has kindly been supplied by:



## Research

Arthritis Ireland is continuing to fund research into arthritis in Ireland. The long term aim is to find a cure for the disease, but along the way research projects funded increase our understanding of the disease and so improve treatment given. Arthritis Ireland has invested over €850,000 in arthritis research projects and has plans to increase this as funding allows.

Research progress may appear to be slow to arthritis patients waiting for a cure, but because of well-designed scientific research remarkable advances have been made in our understanding of the basic disease mechanisms and of potential therapeutic approaches. Research benefits people with arthritis in a number of different ways. By improving our understanding of the causes of arthritis, the diagnosis may be more clearly established and newer and more specific treatment programmes can be developed. Research may also improve the quality of life for people with arthritis by helping to develop better physical aids and improved surgical treatments.

An active research agenda fosters interest in arthritis among health care workers and so helps to keep the brightest and the best of our medical and science graduates in Ireland.

# RESPONSE FORM

Arthritis Ireland is supported almost entirely by voluntary contributions and does not receive government funding. Please support our work in a very real way by becoming a member. You can do so by completing this form and returning it to us at:

Arthritis Ireland, 1 Clanwilliam Square  
Grand Canal Quay, Dublin 2.  
T: 01 661 8188 Email: [info@arthritisisireland.ie](mailto:info@arthritisisireland.ie)  
Web: [www.arthritisisireland.ie](http://www.arthritisisireland.ie)

## When you join you will receive

- A specially commissioned lapel pin
- One year membership to Arthritis News (quarterly publication)
- “Move it or loose it” exercise book
- Regular updates on forthcoming events

## I would like to lend my support by becoming a member of Arthritis Ireland:

I attach a cheque/postal order €30.00 made out to Arthritis Ireland, to become a member.

I would also like to make a donation of

€

(PRINT IN BLOCK CAPITALS)

**Name:**

**Address:**

**Tel:**

You may also use your credit card by phoning

**01 661 8188**