The Knee Foundation
Office Suite 7
Hillcairnie
St Andrews Road
Droitwich
Worcestershire
WR9 8DJ

Tel: 01905 776676 Fax: 01905 776676
www.kneefoundation.com
admin@kneefoundation.com

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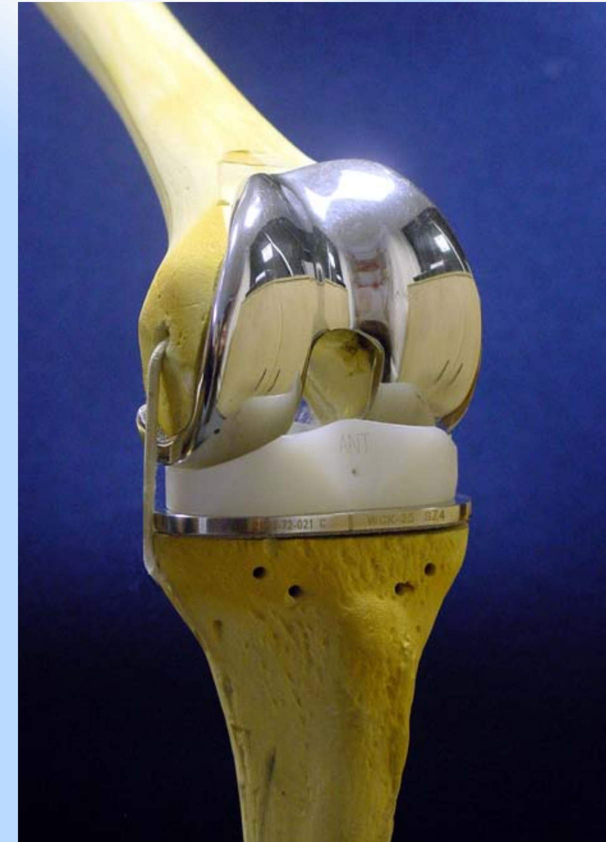
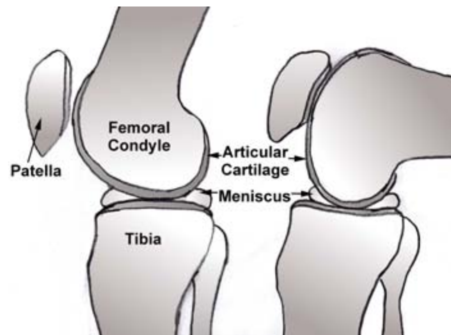


Guide to Knee Replacement

Your Knee

The knee joint is a complex structure designed to allow normal function whilst withstanding the huge stresses we put through it during everyday activities and sport. The main weight bearing part of the joint is formed between the two rounded 'condyles' on the end of the femur (the thigh bone) and the flatter top surface of the tibia (the shin bone).



The kneecap (patella) is situated at the front of the knee and is shaped to sit and glide in the groove on the front of the femur (trochlea). The patella acts as a pulley, improving the efficiency of the quadriceps muscle on the front of the thigh.

Articular (hyaline) Cartilage:

This cartilage covers the ends of all bones in the body where they form mobile joints. It has a very smooth surface, keeping friction to a minimum during movement. If you look at an X-ray of the knee, it appears that there is a space between the bones – this is because an X-ray will only show bone – the apparent space is in fact occupied by the articular cartilage covering the surface of both bones and the meniscal cartilages. The joint space should look even however, in advanced stages of arthritis, the space becomes narrowed and irregular as the quality and depth of cartilage is reduced and the menisci degenerate.

2. Infection: This is a serious, although fortunately very rare complication. The operating theatre features a special air flow unit to minimise the risks of infection and you will also be given antibiotics at the time of your surgery. However, if infection does occur, treatment can be difficult and often involves further surgery to revise the joint replacement.
3. Wear: All joint replacements are subject to wear. This can either manifest as thinning of the plastic bearing of the joint prosthesis, or as loosening of the prosthesis within the bone. Modern joint replacements have a long life expectancy, (usually greater than 15 years) but the exact rate of wear depends on your weight and the demands you place upon your joint. If significant wear or loosening occurs, the joint replacement may require revision.

Summary:

Arthritis of the knee is a common problem which can be severely debilitating. Joint replacement is now a common and very successful procedure enabling many people to return to a normal, pain-free lifestyle.

Finally, remember that your operation is only the beginning - work hard, listen to advice and be sensible, then you will reap the benefits of your new knee and improved function in the minimum of time.

If you are worried:

Do not hesitate to contact us if you have any queries or are unsure about procedures. Even if you feel something is trivial we would rather you speak to us than worry, a nurse or physio is usually available but if not they will always call you back.

Short flights: Preferably wait until 6 weeks after surgery

Long haul flights: Wait until at least 3 months.

These guidelines are recommended because of the increased risk of thrombosis following surgery.

Sports & hobbies:

Replacement joints are not designed for very active sports but you should be able to swim, cycle, hike, play golf and bowls, and possibly ride.

If you have a uni-compartmental knee replacement you may be able to participate in slightly more activities such as leisure tennis and gentle skiing.

Work:

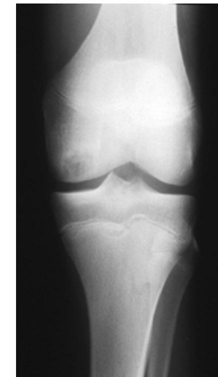
The amount of time you will require off work is largely dependant on the job you do. Remember that rest is important in the early weeks and your knee may be 'irritable' (that is, it may react if you overdo things) for up to 3 months. Office workers may be able to return after a few weeks – the deciding factor here may be how you get to work. If you are on your feet all day then you may require up to 3 months. It is obviously beneficial if you can initially go back to shorter working hours and are able to build up gradually.

Risks & complications:

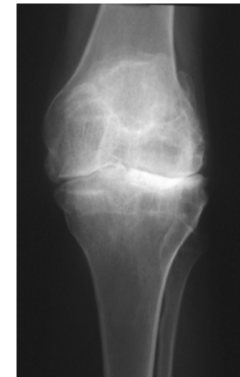
Significant complications are unusual after joint replacement surgery and the vast majority of patients are delighted with the outcome. However, as with all surgical procedures, occasional problems can arise.

1 Thrombosis: Blood clots can develop in the legs following any surgical procedure. Precautions are taken against this; most patients wear elastic support stockings and in some cases, low dose heparin is prescribed. Your early mobilisation will also help to minimise risk.

normal knee



reduced joint space



What is a Knee Replacement?

A knee replacement is an artificial joint usually made from plastic and metal.

Why is it necessary?

Sometimes, for a variety of reasons, the cartilage in the joints can become soft, cracked or flaky - this could be after direct injury or simply degeneration which unfortunately affects us all as we get older.

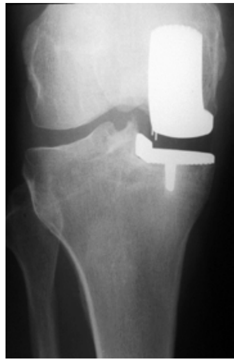
The articular cartilage does not readily heal itself and, when damage is severe, often the only answer is to have a joint replacement. This type of surgery is now very common in the hip, knee, shoulder and hands.

The worn out surfaces of the joint are removed, and replaced by an artificial joint which is usually made of stainless steel or titanium with a high density polyethylene bearing in between. The joint may be cemented in place, but some prostheses (artificial implants) do not need to be cemented.

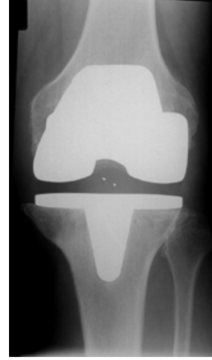
Different types of knee replacement

If the damage is confined to just one side of the knee (the inside or outside) you may have a *unicompartmental* joint replacement (UKR), this procedure

replaces the damaged side but the undamaged half of the knee remains intact.



UKR



TKR

- A *total* replacement (TKR) is necessary if both sides of the knee are damaged or one side and behind the kneecap.
- Sometimes the back of the kneecap is replaced with a 'patella button' made of polyethylene, this is often done at the time of TKR.
- Nowadays, if damage only affects the joint between the trochlea (on the end of the femur) and the kneecap, it is possible to have *patello-femoral resurfacing,* thus leaving the weight bearing joint surfaces intact.

Prior to Surgery

Pre-operative Assessment:

You may be asked to attend the clinic for x-ray and blood tests prior to admission. At this time you will also to see the clinic nurse and physiotherapist, who will be happy to answer any questions you may have regarding your operation, hospital stay or rehabilitation

The physiotherapist will explain the importance of exercise in the post operative rehabilitation phase, and will teach you some exercises which you

Things to avoid:

All surgical procedures carry a small risk but common sense will keep this to a minimum.

- Movement is good - so is rest - gradually increase your daily activity, exercising "little and often" rather than for a long time, occasionally. Do not stay in one position for too long - you may feel stiff when you try to move.
- When walking, try to avoid twisting on your leg - if you have to turn - step around rather than twist. If you have to go on a long journey, break at regular intervals.
- If you develop an infection anywhere, (on the skin, in the mouth or the bladder etc), contact your doctor immediately - he will probably give you antibiotics - remember also to tell your dentist that you have an artificial joint if you require major dental work.
- If you have a fall or repeatedly bang or twist the joint and things don't feel right, or if you have persistent pain, clicking or instability then please do contact the clinic. You will be seen quickly and examined to make sure all is well.
- Excess weight does put a lot of strain through the joint - so try to avoid putting on weight and lose some if necessary.

Travel:

You will find that your knee will feel stiff if it is held in one position for too long, this will gradually reduce with time but will be the case, to some extent, for many months.

If you have a long car journey allow plenty of time so that you can break the journey approximately every 1½ hours.

Discharge from Hospital

It is usual to stay in hospital for 5 - 7 days after your operation, during which time you will gradually become more mobile and independent. This may be as short as 3 - 5 days if you have a unicompartmental or patello-femoral replacement.

By the time you are ready for discharge you will be confidently walking with crutches or two sticks and will be able to safely negotiate stairs.

You may be required to attend physiotherapy as an outpatient. If you live a long way from Droitwich it may be advisable to see if you can find a reputable chartered physiotherapist nearby before surgery - the clinic physiotherapist will make sure that all your details are passed on when you are discharged.

Most patients make rapid progress in the first few weeks, however it is common for this to slow, usually at around 4-6 weeks. Many people describe reaching a plateau – don't get depressed if this happens – it is normal, soon passes and improvement moves on again.

The healing process inside, directly around the new joint will take many months to complete, but you will notice gradual improvement in strength and stability. Initially you may feel "aching", particularly at night, but this again will gradually diminish. By approximately 3 months you will be largely back to normal activities but improvement continues for at least 1 year.

Driving:

Driving is usually possible as soon as you have good control of your foot on the pedals - and can transfer easily from one to the other- this is commonly between four to eight weeks but varies from patient to patient.

should practice regularly before your operation. This will make it much easier for you to mobilise afterwards and give you something positive which you can do for yourself.

Exercise:

It is important that you keep exercising, the better your movement and strength before surgery, the easier you will find it afterwards. Do not be tempted to place a pillow under your knee for comfort – the soft structures at the back of the knee can become very tight making it difficult to fully straighten the knee after your operation.

General health:

- If you smoke, try to stop or cut down. There is evidence to show that stopping several weeks before a general anaesthetic reduces your chances of getting complications. Smoking also definitely slows down the healing process.
- If you are overweight, losing weight also reduces the risk of complications and will make mobilisation easier.

Medication:

Be sure to let the clinic know about any medication you are taking prior to admission.

You will be given antibiotics for a variable time after your operation.

Considerations for your arrival home:

When you are discharged you will initially be expected to continue with a similar daily routine as in hospital - that means plenty of rest as well as time spent on your exercises. There is a fine line between doing too much exercise and too little and you have to find a balance. Too much activity, especially

standing, will cause your knee to swell; this can have a detrimental effect on your progression.

- If you live alone you will need some help initially with cooking, shopping and housework. Depending on your age and fitness level you may also need help bathing and dressing. If you make suitable arrangements before you come into hospital then you will not be worried.
- If you live a distance from the clinic it is advisable to think about your rehabilitation. You will require physiotherapy for a few weeks – try to make contact with a reputable practitioner close to your home, before admission. On discharge any relevant information will be passed to your physiotherapist.

Your Hospital Stay

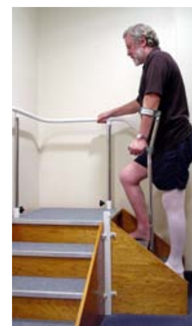
What to Wear:

Comfortable loose clothing is recommended whilst in hospital. You may prefer to get dressed during the day, in which case shorts, a tracksuit or comfortable skirts are ideal. Remember to bring a swimsuit with you in case you get the opportunity to go into the brine pool.

Pain Relief:

You may have a nerve block at the time of surgery which will give complete pain relief for up to 16 hours, after which simple painkillers are usually all that is required.

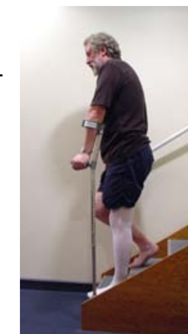
You are likely however, to have some discomfort but you will be given regular pain control. It is important for you to discuss this with the nursing staff, pain which is tolerable while you are at rest may increase when you are up and about and uncontrolled pain will slow your recovery.



Going up –

Step up with the unaffected leg first, then bring the operated leg and the crutch up to it.

Going down –



Put the crutch and your operated leg down first, then bring the unaffected leg down to it.

Your physiotherapist will advise when you are ready to start attempting stairs normally. This will be after approximately 2 – 4 weeks for going up, but going downstairs is more difficult and will take a little longer.

Your Wound:

Most surgery wounds are stitched with soluble thread, below the skin. The skin is then held with steristrips - this means that it is unlikely that you will have any stitches to be removed. Occasionally traditional sutures or staples are used but these remove easily. The wound usually takes eight to fourteen days to fully heal and after this time all dressings can be removed. If you are going in the brine pool a special waterproof dressing is applied until the wound is fully healed.

Showering & Bathing:

Providing you have a waterproof dressing there is no reason you cannot take a shower or bath. While in hospital the nursing staff will help you but once home be careful not to slip if you are in the shower – a stool would be helpful. A bath is good providing you can safely get in and out.

These exercises can be done standing – hold onto a firm support such as the end of the bed while in hospital:

- Heel raises: stand with your feet a small distance apart, lift up onto your toes and slowly down again. Repeat 10 times.

- Stand with your feet flat and a small distance apart. Bend your knees a small distance – keep your feet flat on the floor – and straighten up again. Repeat 10 times. NB this should only be a small bend, if you try to bend too low you will aggravate your knee.

General advice:

Initially you should sit with your leg elevated for the majority of the time - perhaps 45' every hour. You can put your leg down for the remaining 15' and sit with your knee bent. As you progress and swelling settles you will be able to increase the time with your leg down. You should also get up and walk regularly – you will get stiff if you stay in any one position for too long.

Tackling Stairs:

If you have a handrail use it and one crutch / stick. Initially go up and down just one stair at a time.

The day of your operation

You may be issued with a pair of white (T.E.D.) stockings which you will have on when you wake up after your operation. These serve two functions:-

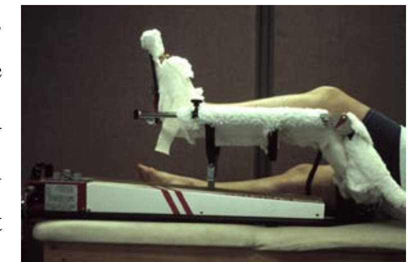
1. As a preventative measure to reduce the risk of thrombosis.
2. To help control swelling around the joint and in the leg.

Cuffs are sometimes fitted around your feet – these are called 'foot pumps' and are also a preventative measure against thrombosis. They will be removed as soon as you are mobile.

When you wake up you may also have a drip in your arm and drains coming from the operation site. Both will be removed in 1 - 2 days. Removal of the wound drain may cause some discomfort, but this should be minimal.

Breathing exercises: It is advisable to take 3-4 deep breaths and cough every hour whilst you are recovering from the anaesthetic – this helps to clear any build up of mucus.

CPM (continuous passive movement):



Soon after you wake up from your operation, your leg may be placed on a "CPM" machine This machine will slowly bend and straighten the knee and will remain in situ until the next morning. Most patients find it quite comfortable. Use of the machine helps to keep swelling down, gets your circulation moving and prevents the knee from becoming stiff.

Mobilisation & Physiotherapy

Day 1:

It is important to move about as soon as possible. The physiotherapist will get

you out of bed to stand and begin to take weight through the new joint. If your balance is good you may take a few steps and sit out in a chair for a short while. You will be asked to practice the exercises which you have been taught, regularly throughout the day.

Day 2 onwards:

Progression from now on is largely dependant on you. You will be encouraged to walk and exercise regularly to regain movement, strength and independence, but rest in between is equally necessary.

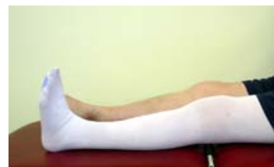
When you are ready you will be given crutches or sticks to use instead of a frame, and when confident you will find that you only need to use one around the house. It is advisable to continue with at least one stick and preferably two when out, for about six weeks.

Initial exercises:

Your physiotherapist will show you how to do exercises and will explain how many and how often you should do them. As a general guideline exercise should be little and often i.e. 5 minutes exercise every hour is better than 30 minutes in one go.

These exercises can be done on the bed or sitting in the chair with the leg supported:

- Briskly move your feet up and down from the ankles – this should be done regularly, especially while you are less mobile, to increase the circulation in your legs.
- Static Quadriceps: brace the knee as straight as you can, tightening the thigh muscle and pulling the foot towards you – hold for a count of 10 and then relax. This is to work the thigh muscles.



- Bend your knee by sliding your foot up the bed. Initially you can hold under your thigh to help pull the leg towards you but try to use your leg muscles as much as possible.

These exercises can be done while sitting in the chair:

- Place a slippery board under your feet – bend your knee by sliding your foot towards you – try to get it bent to a right angle. Once you can do that you can progress and try to pull the foot back under the chair a little way.

- Practice lifting your foot off the floor until you can hold your leg straight out in front.
  Hold for 5 seconds – lower slowly and relax.

- Extension stretch: It is very important that you are able to fully extend (straighten) your knee – your knee is designed to be straight when standing, if not, undue stress is placed on the joint. To help you achieve full extension as soon as possible after your operation we recommend that you spend 5 -10 minutes in a stretch position, at least 5 -6 times a day. You can do this while on the bed or sitting, with just your heel supported.