

Total Knee Replacement: A Guide for Patients

Produced by the British Association for Surgery of the Knee
and the British Orthopaedic Association

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KNEE ARTHRITIS

If your knee is affected by severe arthritis or injury, it may be painful and difficult to perform simple activities such as walking, climbing stairs or sitting comfortably for long periods. You may even feel the pain lying down. In Britain, 1 in 5 patients over the age of 65 have some form of arthritis and in 1 in 20 of these the knee is the most severely affected joint.

Osteoarthritis can develop for the following reasons

- age degeneration
- rheumatoid arthritis or other inflammatory joint disease
- trauma which can damage the joint
- after some birth defects and growth disorders

HOW THE NORMAL KNEE WORKS

The knee is the largest joint in the body. It is the hinge between the lower part of the thighbone (femur) and the upper part of the shinbone (tibia). A smooth layer of cartilage called articular cartilage covers these areas. In addition the kneecap (or patella) is covered by articular cartilage on its under surface and slides in the groove on the front of the femur. There are multiple ligaments joining the two bones together, reinforced by strong muscles and tendons at the back and the front of the joint (see appendix).

Damage to the joint surfaces and the destruction of the cartilage covering the ends of the bone is called arthritis. These surfaces become rough and uneven and the joint cannot move smoothly causing pain and loss of full movement.

NON-SURGICAL TREATMENT

The initial treatment may include drugs to reduce pain and inflammation, changing activity levels, weight reduction advice (if applicable), using walking aids, physiotherapy, and injections for pain relief. However, if these are not successful in controlling the symptoms, a total knee replacement may be considered. This operation resurfaces the knee joint by removing damaged bone and cartilage from the lower end of the thigh bone, the upper end of the shin bone and often the back of the kneecap (patella). These surfaces are replaced with metal and plastic implants, allowing knee motion and function, relieving pain and correcting any deformity.

KNEE REPLACEMENT

Knee replacement surgery (arthroplasty) has a high rate of success in relieving pain and restoring mobility. Today 95 out of every 100 knee replacements are successful and even at 10 to 15 years after the operation, will still be giving good service. Some knee replacements have lasted 25+ years.

If the replacement becomes loose, breaks or gets infected, another operation may be necessary. This is called a revision knee replacement. The replacement may last longer in lighter people and in older people who put less demand on the materials.

IS TOTAL KNEE REPLACEMENT RIGHT FOR YOU?

Your general practitioner (GP) and orthopaedic surgeon may advise knee replacement surgery in the following cases:

- Severe chronic pain in the knee that limits everyday activities such as walking, going up and down stairs, getting out of a chair, as well as pain at rest, especially at night. The knee may be stiff and swollen and an x-ray confirms arthritis.
- Failure to get relief from non-steroidal anti-inflammatory drugs, corticosteroid injections or physiotherapy. Most patients who undergo knee replacement are aged between 60 and 80, but this may also be the best treatment for patients younger or older than this.

THE DECISION TO HAVE TREATMENT

The decision to have your knee replaced should only be made after discussion with the orthopaedic surgeon whose team is going to carry out the operation. Your surgeon will discuss benefits and risks of treatment, and will emphasise that surgery cannot be guaranteed to meet all expectations and that there are risks associated with surgery. There must be a realistic expectation by the patient about what the operation can achieve and, whilst over 90% of patients have dramatic reduction in pain, the operation will not allow a high level of athletic activities and in particular some high impact sports.

THE ORTHOPAEDIC ASSESSMENT

Your assessment may include:

- A medical history, when your surgeon gathers information about your general health
- Physical examination with assessment of knee movement, stability and strength
- X-rays to confirm the diagnosis, MRI only in special situations

Your surgeon will assess the results of these and after discussion, may advise other treatments, leaving total knee replacement as the last resort of a treatment plan.

Knee replacement is not usually recommended for patients who are severely overweight, who have severe arterial disease in the legs, an infection in the knee, in the lower leg or in the skin, or who have any severe neurological problems, such as Parkinson's disease.

MEDICAL HISTORY

Be sure and disclose all health problems and any medication, in particular:

- allergic reactions to antibiotics, anaesthetics, latex, nickel or other drugs
- prolonged bleeding or excessive bruising
- previous problems or a family history of blood clots in the legs or lungs
- recent or long-term illnesses
- gout
- diabetes
- psychological or psychiatric illnesses
- poor healing and scar formation

Your current medication will be reviewed so please take all medications with you to your consultation. You will be advised which drugs you can take before your surgery and which should be stopped.

SMOKING

Smoking increases surgical and anaesthetic risk and impairs healing. Patients are advised to stop smoking at least three weeks before surgery.

PRE-OPERATIVE EVALUATION

Many hospitals carry out pre-operative evaluation with nurses or physiotherapists involved, and often the surgeon and anaesthetist will see you on that occasion. In some cases social and home discharge planning is undertaken in order to ensure that your home is ready for you to return with your new joint. These can include safety bars, handrails, a stable chair, toilet seat riser, shower bench and advice in adjusting all loose carpets and cables in the home.

THE ANAESTHETIC

Knee replacement can be done under a general, or a spinal anaesthetic that numbs the lower body and legs. Ask the anaesthetist for sedation if you do not wish to stay awake during the procedure. Occasionally there are side effects from anaesthesia. Your anaesthetist will need a full list of your existing medications and allergies.

THE OPERATION

In Britain most patients are admitted the day of surgery. Your surgeon will make an incision down the front of your knee - long enough for them to see exactly what they are doing. All the blood vessels, muscles and nerves will be protected during surgery and special tools will be used to remove the surface of the bone. The replacement joint will be implanted after shaping the bone to form a tight fit with the new joint. In most cases bone cement is used to fix the new joint in place (cemented). Sometimes the implant is coated with a special material that allows bone to grow on to its surface to fix the joint (uncemented prosthesis). The wound is closed with internal stitches to keep all the ligaments and muscles secure, and clips, stitches, special tape or surgical glue on the skin.

NATIONAL JOINT REGISTRY (NJR)

All patients in the UK who have a knee replacement are asked to allow their data to be entered into a national database. This helps monitor the outcome of knee replacements nationally and helps improve the results of this surgery. You are not required to have your details in this registry and your care will not be affected in any way if you decide not to allow this.

RECOVERY

Following total knee replacement, you will be transferred from the operating theatre into the recovery area where there may be several other patients. You will be here for up to 2 hours while most of the anaesthetic wears off. You will be given oxygen and pain killing drugs, usually through an intravenous line or drip.

If you have had a spinal anaesthetic you may not be able to feel your legs when you wake up. A special catheter may be introduced into the bladder to drain off the urine if you are unable to pass urine yourself.

Your pain and discomfort may be quite severe in the first few days, but the nurses and anaesthetic team will usually be able to give painkillers such as short and/or long acting morphine to reduce the pain to acceptable levels. You may be given elastic socks to wear to prevent thrombosis (blood clots) in your legs.

EXERCISE

An exercise programme is an important part of recovery. This starts with gentle exercises in your hospital bed. In some cases a special machine may be used. Patients are normally encouraged to get out of bed with the help of physiotherapy as soon as possible, usually on the day of surgery. Your hospital stay is likely to be three days to a week, unless there are special problems. Further physiotherapy and exercises at home may be prescribed. In the early stages you will need crutches or a walking frame, as muscle strength may take some time to recover.

Your external stitches or clips are usually removed at your GP's office after 10 to 14 days. If your surgeon uses surgical glue no suture removal will be needed.

REHABILITATION

Most patients can begin physical therapy immediately after surgery. A physiotherapist will give you a booklet of exercises to do at home to increase movement and reduce swelling in the first two or three weeks. In the first two or three weeks using ice, frozen peas or gel packs to cool the joint and reduce swelling is important, as is doing any prescribed exercises. A frame, crutches or a stick may be needed for several weeks to help with walking. Older patients may need to use a walking aid for longer periods.

During the first few weeks stretching and strengthening the muscles remain goals of treatment. As strength and motion improves, you may be instructed on other activities such as distance walking, cycling and swimming. These should restore your feeling of wellbeing.

You may need to take between six and twelve weeks off work depending on your job. It is useful to discuss your return to work with your employer before your surgery.

In most cases you will not be able to drive for six weeks. Discuss any earlier release to drive with your surgical team.

Patients are encouraged to resume an active lifestyle a few weeks after a total knee replacement, but are strongly advised against activities that produce high impact such as running and jumping. Sports such as golf, cycling, swimming and walking are encouraged. Other acceptable activities include bowling, croquet, doubles tennis, table tennis and ballroom and line dancing.

COMPLICATIONS OF KNEE REPLACEMENT SURGERY

There are risks following knee replacement surgery. Complications can occur that may have permanent effects, which is why the operation is only undertaken when all other methods of treatment have failed. Surgeons do not usually outline every single complication, but they will point out the most serious ones. Serious complications occur in less than two in every 100 patients. Less serious complications can occur more often, but usually get better.

a/ General risks of surgery

Possible complications include:

- pain around the wound/knee - ask for adequate pain relief if needed
- nausea – often from the anaesthetic
- heavy bleeding from the surgical site (a blood transfusion may be required)
- thickened, raised scars – these can be very itchy and unsightly in the early stages but usually will settle down and are not a serious threat to the wound healing
- sometimes the stitches or clips closing the wound come apart causing the wound to open
- allergies to anaesthetic agents, antiseptic solutions, suture materials or dressings

- very rarely there may be a complication of anaesthesia and surgery such as blood loss, heart attack, heart failure, stroke or kidney failure.

b/ Specific Risks of Knee Replacement

i/ Infection

Infection around the new joint occurs in about one in every 100 patients and can be very serious. It can occur immediately or many months after the operation. Infection can spread from any part of the body. To help prevent this, antibiotics are given before and after surgery. You may need to take antibiotics during any other subsequent surgery. Sometimes an operation to clean out the knee may be required.

Occasionally the infection may be resistant to treatment and a second operation may be needed to remove the knee replacement. Once all the infection has been effectively treated, a third operation may be performed to fit a new knee. In very rare cases amputation is required.

ii/ Thrombosis and Pulmonary Embolism

Blood clots can form in the deep veins of either leg. This can be life threatening or fatal if they break away from the vein wall and travel in the bloodstream to block the arteries to the lung. Prevention in the form of elastic socks, injections, tablets or special leg pumps is used. You should wear the elastic socks provided by the hospital as prescribed.

iii/ Loosening/Breakage

The new joint may become loose where the metal or cement meets the bone. This can cause pain and eventually another operation may be needed.

Rarely, the artificial joint may break and another operation would be needed.

iv/ Scarring, Stiffness and Swelling

Heavy scarring after surgery may restrict bending your knee. To release the scars and improve movement the surgeon may need to manipulate your knee.

Swelling is common after surgery and may take several months to settle. Occasionally it may be necessary for your surgeon to drain fluid off with a needle. This is usually done in sterile environment (such as an operating theatre) to prevent infection.

v/ Nerve and Artery Injury

In very rare cases, a major nerve in the leg may be damaged, leading to poor or no leg movement. Most nerve injuries recover well, often completely. Uncommonly, nerve damage may be permanent, leading to permanent numbness and/or weakness of the foot. One of the major arteries near the knee may be injured and require further surgery.

vi/ Skin

A numb area of skin, usually on the outer side of the wound, is quite normal and most of this will recover with time.

vii/ Amputation

Rarely, complications due to a severely impaired blood supply, arterial damage or overwhelming infection may lead to amputation of the leg above the knee. The risk is greater for patients who are elderly or in poor general health. The overall risk is 1 patient in 6,000.

FINALLY

Report to your doctor or the medical staff any of the following:

- temperatures higher than 38.5°C/102°F, fever, sweating, shivering or chills
- severe pain or tenderness
- heavy bleeding from the incision
- redness around the incision that is spreading
- increasing pain or stiffness of the knee
- loss of mobility after a fall with increased pain
- any concerns regarding the surgery
- swelling and pain in the calf or ankle of either leg

BOA Patient Liaison Group

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