Outcomes of Total Knee Replacement from North Sydney Orthopaedic Research Group

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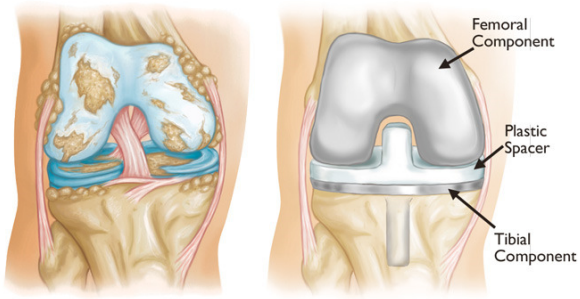
INTRODUCTION

With arthritis, the weight bearing surfaces of the knee joint become worn away. They are no longer smooth and free running and this leads to stiffness and pain as the thigh bone (femur) grinds on the shin bone (tibia). A total knee replacement replaces these surfaces with plastic and metal. The femoral replacement is a smooth metal component, which fits snugly over the end of the bone. The tibial replacement is in two parts, a metal base sitting on the bone and a plastic insert, which sits between the metal base on the tibial and femoral component.



NSORG PATIENT REPORTED OUTCOMES OF TOTAL KNEE REPLACEMENT

Since June 2015 the surgeons of the North Sydney Orthopaedic Research Group have been routinely collecting pre-op, 6 and 12 month patient reported outcomes on all patients having hip or knee replacement. As at June 2017 outcomes have been completed on 644 patients preoperatively, 426 at 6 months and 289 at 12 months after total knee replacement surgery.

Satisfaction

90% of patients reported that they would have the same procedure again under the same circumstances at both 6 and 12 months. Patients reported to be satisfied or very satisfied with the outcome of their surgery in 85% at 6 months and 89% at 12 months after surgery. At 12 months 8% reported neutral satisfaction and 4% were disappointed.

Pain

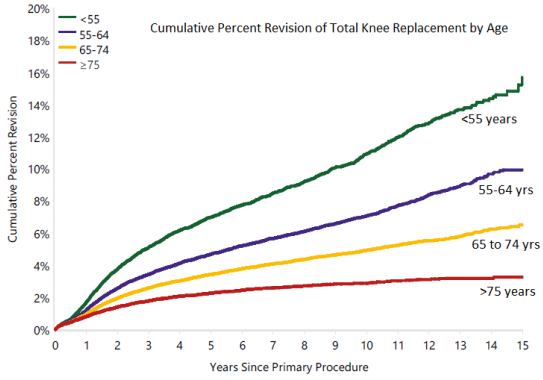
Pain scores (out of 100) improved from a mean of 45 before surgery to 80 at 6 months and 86 at 12 months. No or only mild pain with walking was reported by 11% of patients before surgery, 93% at 6 months and 96% at 12 months. We note that most patients continue to experience gradual but consistent improvement in pain, function and satisfaction over the full 12 months of follow up.

Activity Level

A subgroup of 160 patients were enrolled in a study where daily steps were recorded using a wrist worn activity monitor. At 6 months after surgery mean daily step count had improved by 130% over their preoperative level, and 70% of patients were more active than they were before surgery.

RESULTS FROM THE AUSTRALIAN NATIONAL JOINT REGISTRY

The Australian Joint Registry tracks every knee replacement that is performed in Australia for further surgery that is required. There were 494,571 knee replacements reported to the Registry as at 2016.



After knee replacement the percentage of patients that have not had any revision surgery was 96% at 5 years, 95% at 10 years and 93% at 15 years. This bodes well for the long term survival of modern knee replacements. Age has been identified as the most important patient factor that influences the risk of revision. The younger the patient, the higher the risk of revision.

NORTH SYDNEY ORTHOPAEDIC & SPORTS MEDICINE CENTRE

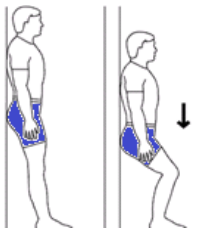
HOW TO PREPARE FOR YOUR SURGERY

You will need to attend the Mater Hospital preadmission clinic before your surgery. At this time you will be assessed by an Anaesthetist. If you live remotely this can be organised over the telephone. You should also inform your Surgeon and Anaesthetist of any allergies, medical conditions or previous treatments as this may affect your operation. You will also meet the nursing staff and physiotherapists to discuss your admission and treatment.

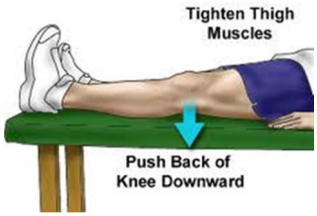
You should stop arthritis tablets for one week prior to surgery as they increase bleeding. Take only panadeine or panadol for pain relief during this period. Please notify your Surgeon and Anaesthetist in advance if you are taking any anticoagulants (blood thinners), hormone tablets or suffer from diabetes.

You must contact our office before you go into hospital if there is any evidence of pimples, ulcers or broken skin around the area to be operated on OR if you have a cold, cough or infection evident.

Some simple exercises can be beneficial in improving the strength of your knee before surgery, which may assist your post operative recovery. Use of a stationary exercise bike is encouraged. Some other simple exercises are shown here. You may benefit from an appointment with a physiotherapist if you would like a more personalized program.

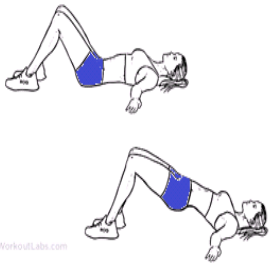


Wall squats from 0-90^0 of knee flexion.



Quads Set

Exercise Bike



Bridging

WHAT TO EXPECT IMMEDIATELY AFTER SURGERY

You are usually admitted to hospital on the morning of the surgery. The staff at the hospital will call you and let you know your admission time. You will need to take all relevant x-rays, current medications and their prescriptions.

On the day of surgery your surgeon will see you immediately before your operation. He will take this opportunity to draw (mark with a pen) on your leg. This is to ensure the correct leg is operated on. An anaesthetic will be administered in theatre. This may be a general anaesthetic (where you will be asleep) or a spinal block (where the area to be operated is completely numbed). You must discuss this with the anaesthetist.

After you are anaesthetised, your skin will be cleaned with anti-septic solution and covered with sterile drapes. An incision (cut) will be made down the middle of the knee of about 20cm in length. The knee joint, which is now visible, can be cut and the knee cap (patella) pushed to one side. From here, the ends of the thigh bone (femur) and leg bone (tibia) are cut using a special bone saw. Often the underside of the knee cap is removed. Using measuring devices, the new artificial knee joints are fitted into position. When your surgeon is satisfied with the position and movements of the knee, the tissue and skin can be closed with stitches (sutures). The sutures are dissolvable and do not need to be removed but the wound will remained covered until healing is complete (around 10 days).

When you wake up, you will have a padded bandage around the knee. If you have pain, it is important that you tell somebody. You will go for an X-ray the day after the operation and will be encouraged to stand and take a few steps. Physiotherapy involves exercises to improve the strength of the muscles and regain the range of motion of the knee. On the first day after surgery your physiotherapist will begin to assist you to get out of bed and walk a small distance. This will be progressed over a few days, till you are independently mobile. The exercising and mobilising of the knee will cause some discomfort and swelling, however this is normal, and is just part of the healing process. If pain is preventing you from exercising effectively, you should discuss this with your nurse. An ice pack will be given after the bandages are removed and should be used regularly to help reduce the pain and swelling in your knee. The swelling normally takes many weeks to months to subside which causes a tight feeling in the knee.

You will stay in hospital for about 3-5 days and then be discharged either to your own home, or a rehabilitation hospital. The rehabilitation is organised after your surgery by the hospital staff.

RISKS & COMPLICATIONS OF TOTAL KNEE REPLACEMENT

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All procedures carry some risks and complications.

COMMON: (2-5%)

Pain: the knee will be sore after the operation. If you are in pain, it is important to tell the nursing staff so that medicines can be given. Pain will improve with time. Rarely, pain will be a chronic problem & may be due to any of the other complications listed below, or, for no obvious reason. Rarely, some replaced knees can remain painful. Pain reduction following joint replacement is estimated to be up to 90-95% from its preoperative levels.

Bleeding: A blood transfusion or iron tablets may occasionally be required (~5%). In order to minimise the risk of blood loss, your haemoglobin & iron levels will be assessed preoperatively. If these levels are low, then they will be corrected prior to surgery to minimise the risk of transfusion. Blood transfusions are very safe, with the Australian Blood Bank now quoting a risk of less than 1 in 1million chances of contracting HIV or hepatitis.

DVT:(deep vein thrombosis) is a blood clot in a vein (~5%). The risks of developing a DVT are greater after any surgery (especially bone surgery). DVT can pass in the blood stream and be deposited in the lungs (a pulmonary embolism – PE). This is a very serious condition which affects your breathing. Blood thinning agents will be administered at the time of anaesthetic & for 6 weeks postoperatively. The mechanical methods include calf pumps & stockings to keep blood circulating around the leg. The single most effective means of limiting DVT is getting mobile as quickly as possible.

Knee stiffness: may occur after the operation, especially if the knee is stiff before the surgery. Manipulation of the joint (under general anaesthetic) may be necessary

Prosthesis wear: With modern operating techniques and new implants, knee replacements last many years. The plastic bearing is the most commonly worn part. According to the Australian Orthopaedic Association National Joint Replacement Registry, the failure rate of knee replacements is approximately 0.5% per year. At 14 years, the cumulative revision rate is 7.2%.

LESS COMMON: (1-2%)

Infection: This is possibly the most serious complication following joint replacement. There are several patient risk factors which increase the rate of infection such as obesity, diabetes, psoriasis and other skin conditions, active infection in a remote site (not your hip or knee), smoking, Rheumatoid arthritis, immunosuppression, previous surgery on the joint to be replaced, steroids, extreme age and poor nutrition.

Surgically, every effort is made to mitigate the risk of infection due to the seriousness of its development. This includes maximizing your health prior to surgery with the assistance of a physician if required. Any skin abrasions or active infections at the time of surgery will result in your surgery being postponed. You will be administered antibiotics before, during and after surgery. The surgery will be undertaken with a minimum number of staff to reduce the traffic in the theatre with special ventilation called laminar flow. Each member of the surgical team will wear a "space suit" to reduce the risk of cross contamination. Despite this infections still occur. The wound site may become red, hot and painful. There may also be a discharge of fluid or pus. This is usually treated with antibiotics and an operation to washout the joint may be necessary. In rare cases, the prostheses may be removed and replaced at a later date. The infection can sometimes lead to sepsis (blood infection) and strong antibiotics are required.

RARE: (<1%)

PE: a Pulmonary embolism is the spread of a blood clot to the lungs & can affect your breathing.

Altered wound healing: the wound may become red, thickened and painful (keloid scar)

Joint dislocation: if this occurs, the joint can usually be put back into place without the need for surgery. Sometimes this is not possible, and an operation is required, followed by application of a knee brace

Nerve Damage: efforts are made to prevent this, however damage to the small nerves of the knee is a risk. This may cause temporary or permanent altered sensation around the knee. There may also be damage to the Peroneal Nerve, and this may cause temporary or permanent weakness or altered sensation of the lower leg. Changed sensation to the outer half of the knee may be normal.

Fracture: bone may be broken when the prosthesis is inserted. This may require fixation.

Blood vessel damage: the vessels at the back of the knee may rarely be damaged.

Death: This very rare complication may occur after any major surgery & any complication.

I have read & understood the procedure, risks and complications. I recognise this list of complications is not exhaustive but covers the major complications. I have also asked any questions and raised any immediate concerns I might have which have been answered to my satisfaction and understanding. I understand that I will have the opportunity to discuss the details of the anaesthesia with an anaesthetist before the procedure.

Signature……Print Name……Date……

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COMMONLY ASKED QUESTIONS AFTER KNEE REPLACEMENT

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Q. Anaesthetic?
A. Either general or spinal anaesthesia – discuss with your Anaesthetist at the preadmission clinic.

Q. Duration of operation?
A. One knee: 1-2 hours, two knees: 2-3 hours.

Q. Length of stay in hospital?
A. 5-7 days.

Q. Do I need rehabilitation after my surgery?
A. Yes, this is an essential part of recovery. This can be as an inpatient at the location of your choice or an outpatient. The rehabilitation is organised after your surgery by the hospital staff.

Q. Driving a car?
A. Avoid for 6 weeks after a RIGHT total knee replacement. Avoid for 2 weeks after a LEFT total knee replacement (when driving an automatic car).

Q. How long does it take for the swelling to go away?
A. It can take 3-6 months before the size of the knee returns to normal. The knee may also feel slightly warm for this period.

Q. How long will the new knee last?
A. Based on the data from total knee replacements from National Joint Registries, 10% fail after 10 years, 40% after 20 years.

Q. What is the prosthesis made of?
A. The metal component of the prosthesis is made from cobalt chrome and the lining from high density polyethylene.

Q. How long do I need off work?
A. This depends largely on the type of work you do. After the time in hospital you may need a few weeks to recover and settle down before returning to light duties. Work requiring a great deal of moving around should not be attempted for 6-8 weeks.

Q. When can I travel?
A. Short trips can be performed whenever you feel able. You should avoid planning international or long distances travelling until after 6 weeks from surgery.

Q. Can I kneel following the surgery?
A. There are 3 main reasons why patients are unable to kneel following total knee replacement surgery.

1: Following the surgery there is a scar down the knee and this can often be painful when kneeling on it.

2: Following the surgery, there is an area on the outside part of the knee which is usually numb. Kneeling on a numb patch of skin can often result in damage to the skin and potential risk of infection. This is why kneeling is best avoided, unless kneeling on a soft surface that is clean.

3: Following a total knee replacement, a full range of motion is usually not obtained, and it is therefore difficult to get down and get up from a kneeling position. Patients are allowed to kneel following the surgery if they can do it and put up with the above issues.

Q. Can I play sport following my total knee replacement?
A. Sporting activities following total knee replacement surgery do put increased loads through the total knee replacement. More vigorous sports that involve running and pivoting, obviously, apply increased loads than walking. Taking up sports following a total knee replacement that have not been performed for many years is usually not recommended. Resuming sports, following a total knee replacement, that have been performed in the days leading up to the total knee replacement surgery should be allowed, within reason. These sports should be discussed with your surgeon to establish a reasonable time frame for them to occur. Returning to golf, doubles tennis, sailing, or lawn bowling usually can be managed after 8 weeks and an appropriate rehabilitation program has been completed.

Q: Do I need antibiotics for dentistry in the future?
A: Not necessarily. After joint replacement current evidence suggests that routine use of antibiotics for all dental procedures is not indicated. Rather this decision should be based on the expected associated risk of infection associated with the procedure. For routine non surgical dental treatments, including extractions no antibiotics are required, unless otherwise indicated.

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