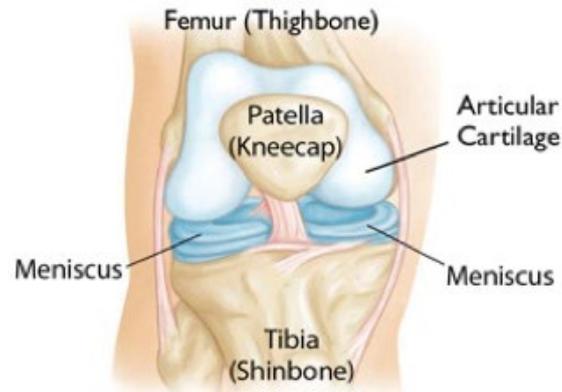


KNEE REPLACEMENT - PATIENT INFORMATION

✚ OVERVIEW

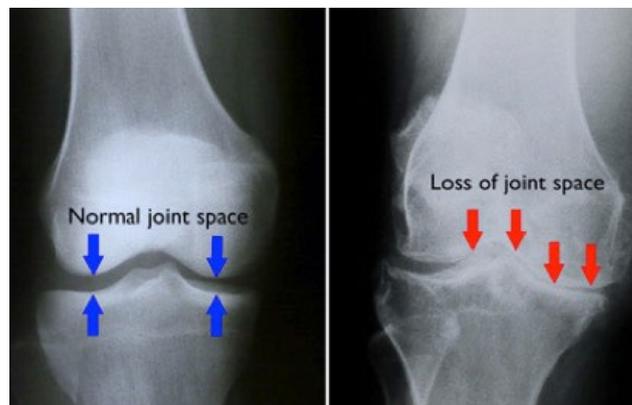
The technology around this procedure is constantly advancing. New prostheses and techniques continue to improve outcomes of the surgery and longevity of the implant. According to the 2015 Joint Replacement Registry data, there were 44 000 knee replacements performed in the country last year. The current 14 year revision rate is 7%. This means that 7% of replacements have needed to be redone 14 years after the initial procedure. The main reason for this is loosening of the replacement.

✚ ANATOMY



The knee joint is made up of the end of the thigh bone (femur), the top of the shin bone (tibia) and the knee cap (patella). These three bones are normally covered by articular cartilage which does not have pain receptors and is a smooth gliding surface. As you lose articular cartilage, bone is exposed. The bone does contain pain receptors and is not as smooth as cartilage. As such you start to feel pain and the joint does not move as freely. In addition, in the setting of arthritis, your body produces extra bone at the margins of the joint (osteophytes) which can then impinge and be a source of pain and also prevent motion.

No procedure we have available currently can regenerate large areas of cartilage inside the knee.



The knee is held stable by the surrounding muscles, ligaments and tendons of the knee. These structures are involved in the arthritis process (to an extent) but are retained to make the knee stable and to allow it to move freely.

✚ WHAT IS MY KNEE REPLACEMENT IS MADE OF?

Your knee replacement usually consist of 3 or 4 components:

1. Femoral component: this is typically made from cobalt chrome. It comes in a wide variety of sizes and the knee replacement I use has a gender option available to allow for more accurate sizing and bone coverage. The femoral component may be either cemented or non-cemented and this decision is made predominantly on bone quality and patient age
2. Tibial tray: this is made from titanium and is available in a variety of sizes
3. Ultra-high molecular weight polyethylene spacer
4. Patella button: used selectively based on your pain history and the appearance of the knee cap cartilage during surgery

✚ WHY HAVE A KNEE REPLACEMENT?

A knee replacement is designed to relieve pain and improve function and mobility. The first step is to confirm that the knee is the source of the pain. In most circumstances this is straightforward based on the history, examination and X-ray findings. Different conditions may warrant a knee replacement including:

1. osteoarthritis of the knee
2. other forms of knee arthritis: rheumatoid, post-traumatic
3. osteonecrosis (bone breakdown secondary to altered blood flow)

I generally recommend a knee replacement when the following conditions are met:

1. hip is confirmed as the source of the pain
2. medically fit and optimized for surgery
3. pain is preventing activities like walking or bike riding
4. pain is interfering with sleep
5. the pain no longer responds to simple pain killers like paracetamol or anti-inflammatories)

While there is no specific age limit for a knee replacement if the above criteria are met, I will encourage a more prolonged course of non-operative management in young patients (<55). I do take weight into consideration before discussing a knee replacement as a BMI above 35 is associated with a higher risk of infection. In this scenario we will involve other health professionals including a dietician and also consider referral to a bariatric surgeon before embarking on joint replacement.

Other options prior to considering a joint replacement include:

1. high viscosity injections into the knee
2. offloading braces
3. knee realignment operations

✚ WHAT CAN'T I DO AFTER MY KNEE REPLACEMENT?

Your new knee replacement is a mechanical structure and with time the surfaces will wear. Excessive activity or being overweight may speed up this wear and cause you knee to loosen prematurely. I advise against running, jogging and other high impact activities. Low impact activities like walking, hiking, bike riding and swimming are encouraged to maintain general fitness and a healthy weight.

✚ PREPARING YOUR HOME

Several modifications can make your home easier to navigate during your recovery. The following items may help with daily activities:

1. safety bars or handrails in your shower or bath
2. handrails along stairs
3. a stable chair for your early recovery with a firm seat cushion (that allows your knees to remain lower than your hips), a firm back, and two arms
4. a raised toilet seat
5. a stable shower bench or chair for bathing
6. long-handled sponge and shower hose
7. a sock aid, and a long-handled shoe horn
8. removal of all loose carpets and electrical cords

✚ PREPARING YOURSELF FOR SURGERY

One of the major concerns after joint replacement is infection and any potential sources of this need to be considered and treated before your operation. Some medical conditions and medications may also predispose to infection. Factors to consider:

1. major dental surgery and dental abscesses
2. skin infections and skin breeches including ulcers
3. urinary infections (we will check your urine prior to surgery)
4. optimizing your diabetes control (poor BSL control promotes infection)
5. ceasing smoking
6. timing of disease modifying drugs for rheumatoid arthritis

Medications that predispose to bleeding need to be ceased where possible. This includes such medications as some anti-inflammatories, aspirin, warfarin, plavix, iscover, xeralto and others. Please let me know if you take these and we will discuss if, or how, it is safe for you to stop them.

If you take strong opiod pain killers to control your pain it is advisable to try and reduce the dose of these medications in the weeks leading up to your surgery. It makes the management of your post-operative pain more effective.

One of the common complications of knee replacement surgery is deep venous thrombosis or DVT. I try to reduce the risk of this by careful attention to your hydration, minimizing surgical time and blood loss, and the use of chemical (aspirin or clexane) and mechanical compression prophylaxis. Things you can do pre-op to reduce your risk of DVT at the time of surgery include: ceasing smoking and losing weight. Please advise me if you have travelled overseas within 6 weeks of your planned surgery or if you have a past history of DVT or PE.

✚ WHAT HAPPENS ON THE DAY OF SURGERY?

You will be given your admission time to the hospital by my staff in the days leading up to your operation. You are required to fast (no food) for a minimum of 6 hours before your scheduled surgery. Generally speaking if you are booked for surgery I will advise you to not eat from the time you wake up in the morning. If your surgery is booked for the afternoon you may have a very early breakfast, finishing before 6am. You can drink water up until 3 hours before your planned surgical start time.

Please present to the admissions counter of the hospital. From here you will be taken into the theatre complex where the nursing and administration staff will complete your admission and take down your medical history. You will be given a hospital gown.

When it is getting close to your surgical start time you will be taken into the anaesthetic bay where you will meet the anaesthetist. Generally a drip will be placed in your arm at this point. I will come and say hello to you there, mark the limb that we will operate on, and answer any questions you have.

From there you are wheeled into theatre for the surgical procedure to begin. The type of anaesthesia you have is dependent on several factors. I generally perform hip replacement surgery under a spinal anaesthetic and sedation. Please ask me if you have any questions or concerns regarding this.

After the surgery is completed you will be taken to recovery where your pain will be assessed and treated and you will wake from the anaesthetic. Once you are alert you will be transferred to the ward. Your family members and friends can visit you at this point.

The entire process takes several hours, even though the surgical time itself is much less than that. If you wish, I will endeavor to call your chosen contact person after the surgery to let them know how the surgery went.

✚ YOUR HOSPITAL STAY

The usual hospital stay varies from 2 nights to 4 nights. If you require more extensive physiotherapy a longer stay or rehabilitation may be required.

The day after surgery you will get a blood test and an X-ray. You will walk with the help of the physiotherapist. The physio will also talk you through the things you can and can't do in the recovery period. Most of these recommendations are aimed at mitigating your risk of dislocation.

For you to be discharged you must be able to:

1. safely get yourself from the bed to the bathroom and back
2. control your pain with tablets
3. lift your leg off the bed keeping it straight + bend your knee to 90 degrees

✚ WHAT HAPPENS AFTER DISCHARGE?

It is safe for you to return home in a normal vehicle. No ambulance transfer is required as a rule. I recommend you sit in the passenger seat at the front of the vehicle with the seat as far back as it can go and in a reclined position.

On returning home I encourage the use of a crutch, stick or other walking aid until you feel very safe on your feet and are not at risk of falling. Continue with the straightening exercises 3-5 times daily, and the bending exercises 3-5 times daily. If you are going to be seated for long periods of time, continue to wear your compression stockings. If you are mobilizing and remaining active you do not need to wear these stockings during the day.

Some regular ice on the wound can help with swelling and discomfort.

I would encourage you, as your pain tolerates to wean you pain medication in the following order:

1. First aim is to cease use of opioids such as endone or targin. On discharge you are normally written up for targin twice daily. As you feel your pain settling, halve the night time dose – these tablets can safely be split. A few days later, halve the morning dose. As the pain settles further, cease the night time dose and then aim to cease the morning dose. I prefer you to be off opioid medication altogether after 2-4 weeks.
2. Once you have managed to wean the opioids you can then wean the anti-inflammatory (Mobic).
3. Cease paracetamol last.

If you take pain medication for other ailments this protocol may need to be altered.

For the first 4 weeks after the surgery I encourage you to sleep on your back. If this is not feasible and you need to sleep on your side this is safe but you should place a pillow between your legs.

You should arrange to see your physiotherapist at about the 2 week mark post surgery and you will need to see them weekly for approximately 6 weeks after that.

✚ WHAT COMPLICATIONS DO I NEED TO WATCH OUT FOR?

1. DVT and PE

One risk of joint replacement surgery is the risk of deep vein thrombosis. The symptoms of a DVT include (but are not limited to) swelling in the calf and leg (which is also normal after a THR), an ache in the calf, or a heavy feeling in the leg. If you are experiencing this I will generally arrange an ultrasound of the calf veins. A DVT can also lead to pulmonary embolus (PE) where a clot lodges in the veins of the chest. This can cause symptoms of chest pain, shortness of breath, cough and a fast heart rate. If you are experiencing these symptoms please let me know. If your chest pain or shortness of breath is severe you should dial 000 and attend your nearest emergency department.

My DVT management generally consists of:

1. Chemical prophylaxis: I predominantly use 300mg of aspirin a day for 6 weeks. In people who are high risk for DVT I may consider the use of other agents such as clexane or xeralto. I do not use these medications as a first line agent as they may be associated with a higher infection risk and do not reduce the risk of other cardiovascular events which may occur post operatively. Once you have managed to wean the opioids you can then wean the anti-inflammatory (Mobic).
2. Mechanical prophylaxis: while you are in hospital I will utilize the use of compression stocking and sequential compression devices (SCDs).
3. An important part of managing your DVT risk is early activity and walking.

2. Infection

A deep infection is a serious complication. Signs of infection include:

1. worsening redness around the wound or discharge from the wound
2. pain that is progressively getting worse instead of better
3. fevers or sweats (please check your temperature and contact if $>38^{\circ}$)

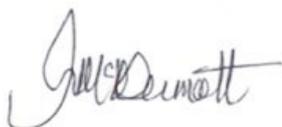
If you have these concerns please contact the rooms and I will likely arrange a blood test and plan to see you. If anyone, such as your local doctor, suggests that you need tablet antibiotics because of concerns you may have a wound infection then I need to see your wound as soon as possible and before you start the antibiotics.

A common cause of infection following hip replacement surgery is from bacteria that enter the bloodstream during dental procedures, urinary tract infections, or skin infections. Following a hip replacement please advise your dentist prior to any procedures where bleeding in the mouth is likely to be encountered. Also please see your general practitioner if you develop skin infections or abscesses as early treatment with antibiotics is essential.

Ultimately, knee replacement surgery is a reliable, but not risk free, procedure that is effective in relieving pain from an arthritic joint. If the small (but potentially significant) risks of surgery are outweighed by the disability and pain you are experiencing then surgery may be offered.

This information is not exhaustive and if you have further questions I would be happy to answer them.

Regards,



Luke McDermott.