

TOTAL KNEE RESURFACING

INFORMATION AND PROTOCOLS

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PREAMBLE

Over the last 10 years advances in surgical technique and joint design have meant that knee joint replacement has become a reliable and rewarding procedure, relieving pain and in many cases improving range of movement of a diseased joint with great success. What follows is some information and data on the particular joint or replacement you may receive as well as some information concerning the operation, rehabilitation and recovery.

HISTORY

Arthritis of the knee joint has caused many problems for surgeons since the beginning of orthopaedics. It has been difficult to successfully treat and until relatively recently knee surgery was regarded as a fairly risky undertaking with often quite poor or disappointing results. Some years ago it was common practise to remove the knee joint entirely and substitute a simple metal hinge inside the bone to allow the patient to bend the knee. This often resulted in failure and unfortunately gave knee surgery a poor reputation and standing amongst the general public.

Radical redesign of the materials and joint inserted into the knee however has improved beyond all recognition the results from this operation and now 95% of people undergoing knee joint replacement may expect good to excellent results if the operation is performed by a specialist knee surgeon.

KNEE JOINT DESIGN

The more recent designs of knee joint concentrate on replacing the worn bearing surface of the knee and to keep all the other natural components of the joint such as the surrounding ligaments, soft tissues and knee cap. This allows minimal removal of the patient's own tissues and just resurfaces the areas that are worn. As a result the knee is felt to move more naturally and results of these more modern prostheses are most satisfactory.

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FEMUR

The femur is shaped to resemble the real bearing surface of the end of the thigh bone and is a complex design made of a type of stainless steel which is tolerated by the body's own natural tissues. The tibia is resurfaced by a platform of metal on the top of which is situated a bearing surface made of plastic. This in many ways resembles the cartilages that are naturally in a normal knee joint.

The plastic is made of a specially designed high density polyethylene and allows the bearing surface of the femur to move upon it.

The type of knee joint I routinely employ is manufactured by Johnson & Johnson Ltd and is known as a PFC. This type of knee design I employ because it provides extremely reliable and safe results. Additionally, it has a long follow up and good track record in excess of 12 years. These studies indicate that the knee performs well in many cases in excess of 12 and 15 years.

Occasional patients are suitable for a mobile bearing knee which is similar to the fixed bearing knee described above but the articulating plastic layer is able to pivot or slide depending on the movements of the patient's knee. This is a more recent development and is theoretically planned to improve patient knee movement and joint wear. Because of the different design of this prosthesis, however, not all patients are suitable for implantation with this joint.

PRE-ASSESSMENT

You will be called to the hospital prior to your operation for assessment of your physical health. This ensures that you are fit and medically well to undergo surgery and there will be no problems with the administration of anaesthetic or other treatments. Samples of blood and urine are taken and the heart and lungs are assessed and checked to ensure all is well. Please ensure that any X-rays taken of the knee or chest are brought with you to the hospital on the day of surgery. These are essential for the planning and execution of the joint replacement.

THE OPERATION

On the day of operation you will be seen by myself and my anaesthetist prior to surgery. The operation to resurface the knee may normally take one and a half hours, although more time may be required if the operation is difficult or complex.

Following surgery, you will be returned to the ward and will note that there will be a dressing on the knee consisting of a white bandage. There will be some discomfort after the operation and painkilling drugs are given during the procedure. If you do have discomfort, however, please alert a member of the nursing staff as all patients are

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prescribed painkilling drugs which should be used to reduce discomfort. Pain control is vital to ensure you are able to co-operate with physiotherapy over the few days of your hospital stay.

RECOVERY

Day 1

On the morning following surgery blood samples will be taken to ensure all is well following the operation. Occasionally patients may require a transfusion of blood following the operation. X-rays are taken in the morning to ensure that the knee prosthesis is correctly and accurately situated. These will be shown to you during your hospital stay. The small soft plastic tube draining excess fluid from the knee will be gently removed at lunchtime and during this day you will be visited by myself and a physiotherapist.

Day 2-5

During the subsequent stay on the ward the aim is to achieve full straightening of the knee, the ability to bend the knee to a right angle (90°) and to promote wound healing and reduction of swelling and discomfort.

The physiotherapist will visit regularly to encourage muscle exercises to allow the knee to be moved more fully.

You may fully weight bear through the knee and initially the physiotherapist will supervise you in the use of crutches and walking exercises. Movement out of bed is encouraged and progressively the physio will increase the bending angle of the knee during this period. Initially mobilisation will take place on crutches with the supervision for trips around the room and for toilet visits, but subsequently these walks will become longer down the corridor and before discharge all patients will be confident and safe in ascending and descending stairs. The physiotherapist will instruct and help you in achieving muscular co-ordination and strengthening of the knee during this period. Active participation is required for this and thus the pain and discomfort you may have must be controlled with painkillers to allow you to help the physiotherapist get the knee moving again.

Most people require 5 days to achieve a 90° bend with full extension of the knee, safe walking and good stair climbing. Patients are discharged home day 3-5 providing the physiotherapist and nursing staff are happy that all arrangements have been made for the safe and secure return to your own place of residence.

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REHABILITATION

Recovery from knee surgery is said to be a little more difficult and slightly more prolonged than that following other major joint replacements. This is thought to be because the knee movements are much more complex than those of the hip.

Initially, the knee will be a little stiff and I would encourage you to actively bend and straighten the knee gradually increasing your activity and walking distance in the first few weeks following surgery. The physiotherapist will continue her treatment in out patients and will be offering further advice and exercises to allow you to improve the function of the joint. These physiotherapy visits will be arranged prior to your discharge from hospital if subsequent physiotherapy is required.

A follow-up appointment with myself will take place approximately 6 weeks following surgery and by this time most patients are feeling a little more confident and have improved their walking distance and stability. Rates of individual progress vary however, and depending on the extent of the original arthritis some patients will proceed faster than others.

If all is well at the 6 week appointment, I then normally see patients in approximately 6 months to ensure that a full range of movement has been achieved, that the knee is working well and normal walking has been recovered with or without a stick for stability.

Further improvement is known to occur up to a year following joint replacement.

RESULTS

Results from the more modern type of knee resurfacing are available over the last 12 to 15 years. They indicate as previously stated that about 95% of people experience good or excellent relief from pain and improvement of function and the knee joint itself apparently has a reliable life of between 12 to 15 years. After this period, as with all things mechanical, the plastic insert between the two metal surfaces of the prosthesis begins to wear down and the discomfort of the original arthritis may be experienced by the patient.

At this point it will be necessary to revise the knee, that is remove the worn replacement and substitute a new knee prosthesis in its place. This procedure carried out by a knee specialist is now well recognised and will provide a further relief of pain for another 10 years if required.

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COMPLICATIONS

As with any demanding or major joint surgery, there may be complications which hopefully are of a minor nature.

Some patients occasionally suffer problems with wound healing and the scar on the front of the knee which is approximately 8" long sometimes takes a little time to heal and will exhibit some bruising.

Sometimes patients suffer some problems in achieving bending of the knee and this often is related to the severity of the arthritis before surgery. Every assistance and help will be given by the physiotherapist to achieve full function of the knee.

The most serious complication is that of infection. The knee prosthesis is an artificial insert into the human body and therefore it is possible for bacteria that may arise in the bloodstream to infect the joint. This causes pain within the knee replacement and in the most serious cases requires the removal of the knee prosthesis with its subsequent replacement a few weeks later.

This serious complication occurs in less than 1% of patients in my practice and is be minimised by the use of antibiotics during the implantation procedure and the use of antibiotics subsequently if it is apparent there is any infection in the foot or knee. Any extensive dental procedures that may require intra-oral surgery should be covered by antibiotics also and your dentist should be made aware of the fact that you have a joint replacement.

HELP AND ADVICE

Should you have any questions regarding knee surgery or be concerned regards pain or swelling in the post operative period please feel free to contact the person on any of the numbers listed below:

Nursing Staff on Nursing Unit 2	02380 775544 Ext 372
Physiotherapy Department	02380 775544 Ext 348
Bernice Allison, Professor Barrett's Secretary	02380 776877