Understanding
Total Knee Replacement Surgery
What is a knee joint?

Knee is a complex joint that connects thigh bone (femur) to the leg bone (tibia). In addition to that, knee cap (patella) articulates with femur.

Normally, joint surfaces are lined with very fine articular cartilage, which ensure movement with minimum friction. There are also other specialised structures inside the knee like the meniscus, which help in knee motion and act as shock absorbers.

What causes knee pain?

If for any reason the cartilage gets worn out, the surface of the joints become rough and movement may become painful.

Joint cartilage usually wears out because of the ageing process, leading to osteoarthritis. Wearing out can also be caused by different forms of arthritis, such as rheumatoid arthritis, post injury arthritis, etc.

How is knee pain treated?

In early stage of knee arthritis, pain can usually be controlled with weight reduction, physiotherapy and mild medication.

During end stage arthritis, when degeneration or arthritis advances too much, there is severe decrease in joint space and consequently significant amount of pain while walking, getting up from chair, and sometimes even while resting. In such a scenario, surgery may be required to replace the knee.

What is knee replacement?

Knee replacement is a misnomer. It is better to describe it as knee resurfacing or knee arthroplasty.

The procedure involves removal of worn out cartilage along with a bit of bone. Then with special tools (jigs), a shape is created to properly fit in an implant. Special bone cement is used to fix the implant to the bone.

Implants help the joint move with very low friction, almost like the original joint. They are metallic on one side and special plastic on the other. At BLK, implants from various international companies are available and only the best are used for such procedures.

How to prepare for surgery?

- Patient and surgeon must make sure that patient doesn’t have any source of infection in the body, such as skin boils, dental, urine and chest infection
- If patient is taking blood-thinning medicines, the doctor should be informed. These medicines may have to be stopped a few days before surgery
- If patient has any other medical issues such as diabetes, hypertension, asthma, hypothyroidism, etc., ensure that the doctor takes appropriate measures to control the same before surgery

What is the surgery process?

- Patient is admitted one day prior to surgery
- Relevant investigations are done
- Patient is seen by a member of the anaesthesia team
- Knee replacement is usually done under epidural anaesthesia (injection on the back to make the legs numb). This avoids certain problems associated with general anaesthesia
- Patient discusses choice of anaesthesia with the anaesthetist – epidural or general
- Patient should mention if there are other medical issues such as diabetes, hypertension, asthma, etc. so that a physician can be consulted
- Patient shouldn’t eat or drink anything after midnight. Eight hours of fasting is necessary before surgery
- Shower should be taken in the morning and legs cleaned with soap and water. Legs are not shaved in the room. If required, it is done in the operation theatre
- Couple of tablets may be given in the morning – if required, they’re to be taken with a small sip of water
- Patient is shifted to preoperative area about an hour before being taken to the operation theatre
- After the operation patient is kept in recovery ward for 4 to 6 hours and then sent back to the room or ICU as necessary
- Following surgery, a bulky dressing is done around the knee, with a small tube (drain) to collect any blood oozing out of the operated knee
- The drain will be removed 24 to 48 hours after surgery

Use of navigation / computer assistance / MIS surgery

Navigation may not be required in routine knee replacement. It may be more useful if there are deformities in thigh or leg bones. In routine cases, available jigs are extremely good and accurate.

Where long incisions were used previously, we now utilize appropriately small incisions with the help of MIS jigs.

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Circulation exercise
- Patient should start moving foot and ankle up and down as many times as possible to regain power in the legs. This should be carried out throughout the hospital stay. It helps pump the blood up and prevent complications like thrombosis (blood clot in the veins).
- Upper limb and deep breathing exercises are recommended.
- Patient can shuffle around in bed within the limits of pain. He or she can take half turns and sit on first post-operative day.

Pain relief
- Adequate treatment is given for pain relief. This may be in the form of epidural pump, patient control analgesia (PCA) and a mix of certain drugs. Patient should inform when in pain. The BLK Pain Management Team is there to offer assistance at any given time.

Walking
- Patient is made to stand with the help of a walking frame 24 to 48 hours after surgery and is encouraged to start walking. This can help in preventing complications like thrombosis.

Discharge from hospital
- Patient may be ready for discharge from the hospital 3 - 5 days after surgery in case of single knee replacement, and 5 – 7 days if both knees are operated.

DVT prevention
- Adequate measures are taken for prevention of thrombosis, such as DVT pump (pressure cuff around the calf), certain drugs and early mobility.

Short-term precautions
- Temperature should be monitored. Doctor to be informed if it goes above 100.5 degree Fahrenheit.

Long-term precautions
- Antibiotic cover should be taken while undergoing any dental / surgical procedures. Doctor should be kept informed.
- High impact exercise such as jumping, running etc. should be avoided.
- Doctor to be informed if there’s pain, swelling or instability.

Care at home
- The toilet seat at home should have a high commode attachment or a high commode chair should be used.
- Physiotherapy should be done regularly to facilitate walking, knee bending and strengthening of muscles around the knee.
- Cold compress should be applied around the knee.
- Patient should be mobilized as much as comfortably possible.

What are the risks / complications of the procedure?
- All surgical procedures and anaesthetics carry some risks, particularly if there are other medical problems or patient is overweight. Our team has been trained to make sure such risks are minimized and the treatment is carried out safely. However, there are some specific risks related to knee surgery that patients need to be aware of. Chances of immediate complications are less than 2%.

- **Superficial infection**: Sometimes despite the strictest precautions, infections can occur.
- **Deep infection**: May occur early post operation or much later. Therefore, it is recommended to promptly treat infection that may develop in any part of the body.
- **Deep Vein Thrombosis (DVT)**: Despite taking precautions to try and prevent blood clot (thrombosis) formation in the veins of the leg post surgery, it still remains a common risk after knee replacement surgery. Rarely, these clots can dislodge and travel through the heart to the lungs. This is known as pulmonary embolism which can cause serious complications in rare cases.
- **Loosening of the prosthesis (new joint)**: This is a risk common to all artificial joints. It is caused by weakening of the bond between the new joint and the bone. Although it is expected that the new knee will last for many years, it can become loose earlier than expected, particularly if the patient is grossly overweight, damages the joint by falling on it, or returns to a hectic work schedule in a hurry. If the joint does come loose then it’s usually possible to replace it with another one - although this is a more complicated operation with greater risks involved. With newer implants, it is common to see knee replacements last more than 15 years.
Q. Do I need knee replacement?
A. It depends on the extent of pain and difficulty in walking. Advice is given after analyzing X-ray findings. It is you who’s suffering from pain and you are as much a part of decision making as your doctor.

Q. Do I need computer assisted or navigation / MIS for my knee replacement?
A. For routine knee replacement, available jigs are extremely good and accurate. Only in cases of complex deformities of thigh and leg bone that computer aided assistance may be required.

Computer navigation is an evolving technology and needs time to achieve perfection in all cases.

While long incisions were made earlier, nowadays we utilize smaller incisions with the help of MIS jigs.

Q. Can I get both knees operated at the same time?
A. It depends on how badly both knees are affected and how sound is your medical status. Knee replacements for both knees can be performed in one sitting.

Q. Is knee replacement painful?
A. There are modern methods available for pain relief, such as continuous epidural anaesthesia, patient controlled anaesthesia (PCA) and a mix of certain drugs that can control pain very effectively.

Applying cold compresses around the knee also helps in reducing swelling and pain.

Q. Can I get full bending (flexion) of knee after surgery?
A. There are reports in the media that some knee implants are capable of giving high flexion or full bending of knee. The degree of movement achieved depends on your mobility status before surgery, your weight and good technique of surgery.

Surgery is likely to increase your knee movements partially. Implants can only absorb high stress associated with full movement.

Q. Can I sit cross-legged on the floor?
A. Knee replacement implants are bonded to the bone with bone cement. Even though most patients are able to sit cross-legged, it is not recommended. Preventing excessive stress on the bond increases the life of the implant significantly.

Q. Do I need physiotherapy?
A. Physiotherapy is important in achieving early mobility and good knee movement. Physiotherapy starts immediately after surgery. You may need physiotherapy for 4 - 6 weeks. This can be organized at your home or a nearby clinic.

Q. How frequently do I need to visit the hospital?
A. You are required to visit the hospital 10 days after surgery for stitch removal. After that you may be asked to return in 2–4 weeks to track your progress. Subsequent visits are required only after 3 months and 1 year of surgery - unless medical condition dictates otherwise.

Q. Is knee replacement detected by a metal detector?
A. Yes. You should collect a credit card shaped certificate from the orthopaedic office certifying that you’ve had knee replacement. This can be shown to the security staff.

How soon does a patient recover from surgery?

After single knee replacement, patient can stand with assistance of a physiotherapist, 1–2 days after surgery and start moving with the help of a walking aid.

Patient can use toilet seat (raised) 3 – 4 days after surgery.

By the time patient gets home, he or she should be able to go to toilet independently with the help of a walking aid.

Patient will need to use crutches or walking frame for 4 – 6 weeks.

It will take 8 – 12 weeks to achieve full benefits of surgery.

In case both knee replacements were done together, the recovery process is a little slower but same principles would apply in this condition as well.

Frequently asked questions

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