

Knee Replacement Surgery

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Knee Replacement Surgery

Surgery Overview

Joint replacement involves surgery to replace the ends of bones in a damaged joint. This surgery creates new joint surfaces.

In knee replacement surgery, the ends of the damaged thigh and lower leg (shin) bones and usually the kneecap are capped with artificial surfaces lined with metal and plastic. Usually, doctors replace the entire surface at the ends of the thigh and lower leg bones. Doctors usually secure knee joint components to the bones with cement.

Doctors are working on ways to replace just the damaged parts of the knee joint. This is sometimes called partial joint replacement. Unicompartmental replacement is one example of partial knee replacement. It replaces just the inner knee surfaces or the outer knee surfaces, depending on where the damage is. Another partial replacement is called a patellofemoral replacement. In this surgery, the end of the thigh bone is replaced, and an artificial surface is used to line the back of the kneecap.

In knee replacement surgery (See figure in appendix) , doctors remove the damaged cartilage and replace it with new joint surfaces in a step-by-step process.

Joint changes caused by osteoarthritis may also stretch and damage the ligaments that connect the thighbone to the lower leg bone. After surgery, the artificial joint itself and the remaining ligaments around the joint usually provide enough stability so that the damaged ligaments are not a problem.

Doctors often use general anesthesia for joint replacement surgeries. This means you'll be unconscious during surgery. But sometimes they use regional anesthesia, which

means you can't feel the area of the surgery and you are sleepy, but you are awake. The choice of anesthesia depends on your doctor, on your overall health, and, to some degree, on what you prefer.

Your doctor may recommend that you take antibiotics before and after the surgery to reduce the risk of infection. If you need any major dental work, your doctor may recommend that you have it done before the surgery. Infections can spread from other parts of the body, such as the mouth, to the artificial joint and cause a serious problem.

What To Expect After Surgery

Right after surgery

You will have intravenous (IV) antibiotics for about a day after surgery. You will also receive medicines to control pain, and perhaps medicines to prevent blood clots. It is not unusual to have an upset stomach or feel constipated after surgery. Talk with your doctor or nurse if you don't feel well.

When you wake up from surgery, you will have a bandage on your knee and probably a drain to collect fluid and keep it from building up around your joint. You may have a catheter, which is a small tube connected to your bladder, so you don't have to get out of bed to urinate. You may also have a compression pump or compression stocking on your leg. This device squeezes your leg to keep the blood circulating and to help prevent blood clots.

Some surgeons recommend that you spend time in a continuous passive motion machine (CPM) to help keep your knee flexible. The machine has a cradle for your leg and is fitted to your leg length and joint position. The amount it bends your knee is adjustable. You may already have a CPM slowly bending and straightening your knee when you wake up after surgery. A review of studies shows that CPMs do not make a big difference in increasing the amount that the knee will bend or straighten. But some doctors still recommend them for certain people.¹

Your doctor may teach you to do simple breathing exercises to help prevent congestion in your lungs while your activity level is reduced. You may also learn to move your feet up and down to flex your muscles and keep your blood circulating.

The first few days

You will probably still be taking some medicine. You will gradually take less and less pain medicine. You may continue medicines to prevent blood clots for at least ten days after surgery.

Most people who have knee replacement surgery start to walk with a walker or crutches the day of surgery or the next day. And most people can bear weight on the knee if it is comfortable.

A physical therapist will help you gently bend and straighten your knee. Your therapist

will also begin some simple exercises to help strengthen your leg muscles.

Rehabilitation (rehab) after a knee replacement is intensive. The main goal of rehab is to allow you to bend your knee at least 90 degrees—enough to do daily activities, such as walking, climbing stairs, sitting in and getting up from chairs, and getting in and out of a car. Most people can get considerably more bending than 90 degrees after surgery. But one of the things that affects how much bend you get after surgery is how much bend you had before surgery. To get the most benefit from your surgery, it is very important that you take part in physical therapy both while you are in the hospital and after you go home from the hospital.

Most people go home within a few days to a week after surgery. Some people who need more extensive rehab or those who don't have someone who can help at home go to a specialized rehab center for more treatment.

Continued recovery

After you go home, watch the surgery site and your general health. If you notice any redness or drainage from your wound, tell your surgeon. You may also be advised to take your temperature twice each day and to let your surgeon know if you have a fever over 100.5°F (38.1°C).

Rehab typically continues after you go home from the hospital until you are able to function more independently and you have recovered as much strength and range of motion in your knee as you can. You will continue to work on increasing the amount you can bend your knee and on building strength and endurance. Total rehab after surgery will take several months.

You will have an exercise program to follow when you go home, even if you are still having physical therapy. You should also take a short walk several times each day. If you notice any soreness, try a cold pack on your knee and perhaps decrease your activity a bit, but don't stop completely. Staying on your walking and exercise program will help speed your recovery.

Your doctor may recommend that you ride a stationary bicycle to strengthen your leg muscles and improve your knee bending. Swimming is also a good exercise after knee surgery, after your stitches or staples are removed and you are able to go in the water.

Living with a knee replacement

Your doctor may want to see you from time to time for several months or more to monitor your knee replacement. Over time, you will return to most of your presurgery activities.

Controlling your weight will help your new knee joint last longer.

Stay active to help keep your strength, flexibility, and endurance. Your activities might include walking, swimming (after your wound is completely healed), dancing, golf (don't

wear shoes with spikes, and use a golf cart), and bicycling on a stationary bike or on level surfaces.

For at least 2 years after your surgery, your doctor may want you to take antibiotics before dental work or any invasive medical procedure. This is to help prevent infection around your knee replacement. After 2 years, your doctor and dentist will decide whether you still need to take antibiotics. Your general health and the state of your other health conditions will help them decide.

Why It Is Done

Doctors recommend joint replacement surgery when knee pain and loss of function become severe and when medicines and other treatments no longer relieve pain. Your doctor will use X-rays to look at the bones and cartilage in your knee to see whether they are damaged and to make sure that the pain isn't coming from somewhere else.

Doctors may not recommend knee replacement for people who:

- Have poor general health and may not tolerate anesthesia and surgery well.
- Have an active infection or are at risk for infection.
- Have osteoporosis (significant thinning of the bones).
- Have severe weakness of the quadriceps muscles at the front of the thigh.
- Have a knee that appears to bend backward when the knee is fully extended (genu recurvatum), if this condition is due to muscle weakness or paralysis.
- Are severely overweight (replacement joints may be more likely to fail in people who are very overweight).

Some doctors will recommend other types of surgery if possible for younger people and especially for those who do strenuous work. A younger or more active person is more likely than an older or less active person to have an artificial knee joint wear out. People who are very overweight are also more likely to have an artificial knee joint wear out from the extra stress on the joint.

Doctors usually don't recommend knee replacement surgery for people who have very high expectations for how much they will be able to do with the artificial joint (for example, people who expect to be able to run, ski, or do other activities that stress the knee joint). The artificial knee allows a person to do ordinary daily activities with less pain. It does not restore the same level of function that the person had before the damage to the knee joint began.

How Well It Works

Most people have much less pain after knee replacement surgery and are able to do many of their daily activities more easily.

- The knee will not bend as far as it did before you developed knee problems, but the surgery will allow you to stand and walk for longer periods without pain.
- After surgery, you may be allowed to resume activities such as golfing, riding a

bike, swimming, walking for exercise, dancing, or cross-country skiing (if you did these activities before surgery).

- Your doctor may discourage you from running, playing tennis, squatting, and doing other things that put a lot of stress on the joint.

The younger you are when you have the surgery and the more stress you put on the joint, the more likely it is that you will eventually need a second surgery to replace the first artificial joint. Over time, the components wear down or may loosen and need to be replaced.

Your artificial joint should last longer if you are not overweight and you do not do hard physical work or play sports that stress the joint. If you are older than 60 when you have joint replacement surgery, the artificial joint will probably last the rest of your life.

People who have a partial knee replacement may have less pain. But in one study they were not as satisfied as people who had a total knee replacement.²

Risks

Risks from knee replacement surgery include:

- **Blood clots.** People may develop a blood clot in a leg vein after knee joint replacement surgery. Blood clots can be dangerous if they block blood flow from the leg back to the heart or move to the lungs. Blood clots occur more commonly in older people, people who are very overweight, people who have had blood clots before, and people who have cancer.
- **Infection in the surgical wound or in the joint.** Infection is rare in people who are otherwise healthy. People who have other health problems, such as diabetes, rheumatoid arthritis, or chronic liver disease, or those who are taking corticosteroids are at higher risk of infection after any surgery. Infections in the wound usually are treated with antibiotics. Infections deep in the joint may require more surgery. And in some cases the doctor must remove the artificial joint.
- **Nerve injury.** In rare cases, a nerve may be injured around the site of the surgery. It is more common (but still unusual) if the surgeon is also correcting deformities in the joint. A nerve injury may cause tingling, numbness, or difficulty moving a muscle. These injuries usually get better over time and in some cases may go away completely.
- **Problems with wound healing.** Wound healing problems are more common in people who take corticosteroids or who have diseases that affect the immune system, such as rheumatoid arthritis and diabetes.
- **Lack of good range of motion.** How much you can bend your knee after surgery depends a lot on how much you could bend your knee before surgery. Some people are not able to bend their knee far enough to allow them to do their regular daily activities, even after several weeks of recovery. If this happens, the doctor may give you a medicine to relax your muscles and then gently force your knee to bend further. This may loosen tissues around the joint that are preventing you from bending it.
- **Dislocation of the kneecap (patella).** This is an uncommon complication of

knee replacement surgery. If this happens, the kneecap may move to one side of the knee, and it will "pop" back when you bend your knee. This may not be painful, but it may make the knee feel unstable, and it may be uncomfortable. Dislocation of the kneecap interferes with the way your thigh muscles (quadriceps) work, and it usually needs to be treated with surgery. In some cases, the knee replacement surgery must be completely redone if the dislocation is caused by a problem with the way the components in the knee line up.

- **Fracture of the kneecap (patella).** The kneecap could fracture either because of a fall or while you are using the knee normally. This complication is very uncommon. It may be seen in people who can bend the knee almost normally and can easily climb stairs and get up from chairs. Doctors usually can treat a fractured kneecap without surgery.
- **Instability in the joint.** The knee may be unstable or wobbly if the replacement components are not properly aligned. You may need a second surgery to align the components correctly so that your knee is stable.
- **The usual risks of general anesthesia.** Risks of any surgery are higher in people who have had a recent heart attack and those who have long-term (chronic) lung, liver, kidney, or heart disease.

What To Think About

Continued exercise (swimming, walking) is important to your general well-being and muscle strength. Discuss with your doctor what type of exercise is best for you.

You may donate your own blood to use during surgery if needed. This is called autologous blood donation. If you choose to do this, start the donation several weeks before the surgery so that you have time to donate enough blood and rebuild your blood volume before surgery.

If you need more than one joint replacement surgery, such as both knees or a knee and a hip, talk to your doctor about guidelines that may help you and your doctor decide in which order to do the surgeries.



Arthritis: Should I Have Knee Replacement Surgery?

Complete the surgery information form (PDF) to help you prepare for this surgery.

References

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Credits for Knee Replacement Surgery

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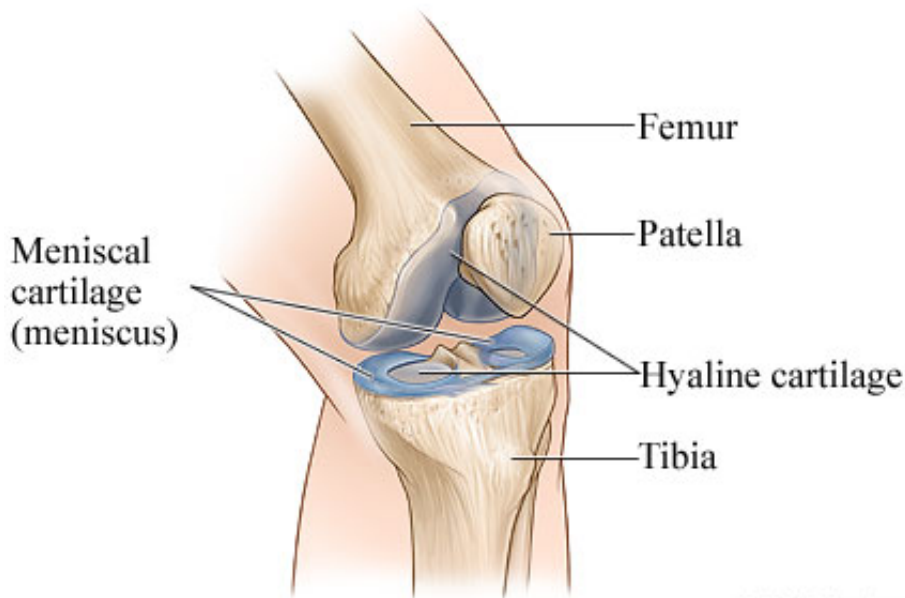
Appendix

Topic Images

Figure 1

Normal knee joint



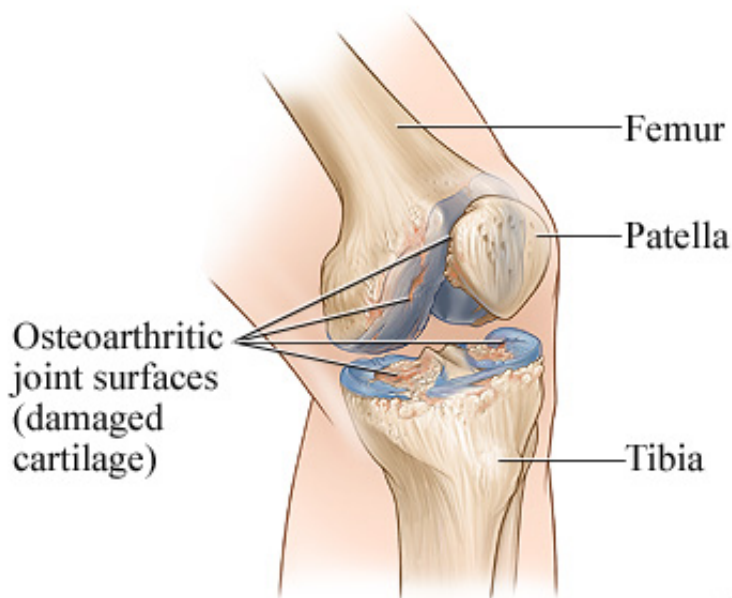


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Inside a normal knee joint, thick cushioning (cartilage) covers and protects the ends of your bones. This is called hyaline cartilage. Another type of cartilage, called meniscal cartilage or meniscus, acts like a shock absorber between the bones and keeps the knee joint stable by spreading out the load evenly across the joint. The two menisci (plural of meniscus) protect and cushion the surface of the joint and the ends of your bones.

Figure 2

Osteoarthritis of the knee



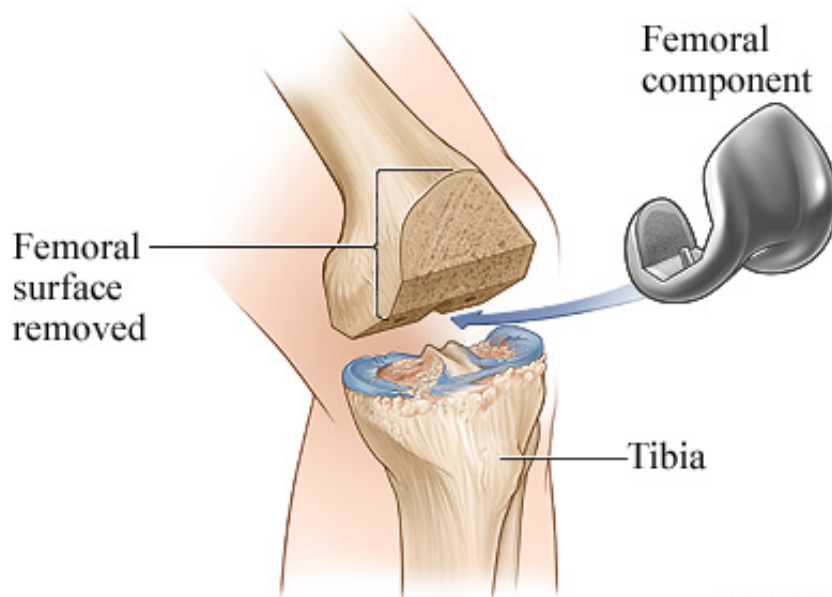
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In osteoarthritis, the cartilage that protects and cushions the knee joint breaks down over time. As the cartilage wears down, the bone surfaces rub against each other.

This damages the tissue and bone, causing pain. Osteoarthritis is common in the knee joints.

Figure 3

Femoral component is placed

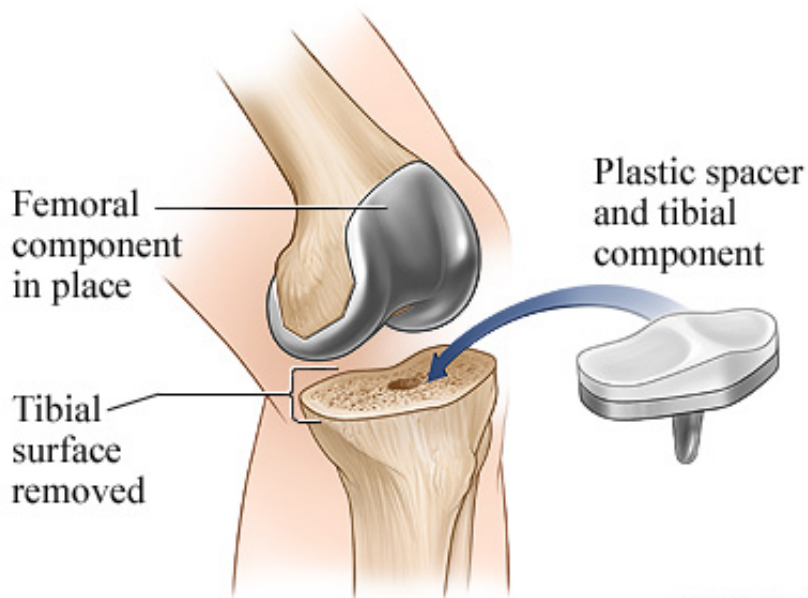


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Removal of damaged cartilage from the lower end of the femur and placement of the femoral component

Figure 4

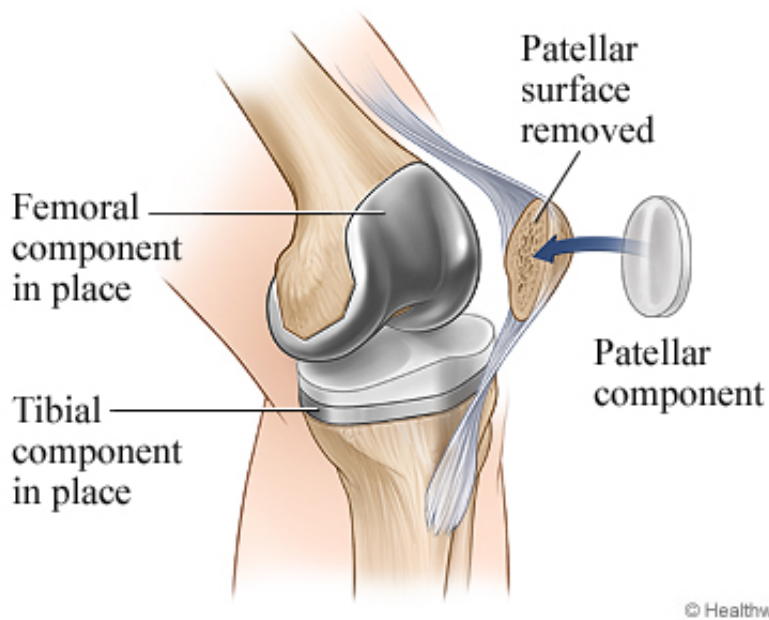
Tibial component is placed



Removal of damaged cartilage from the upper end of the tibia and placement of the tibial component

Figure 5

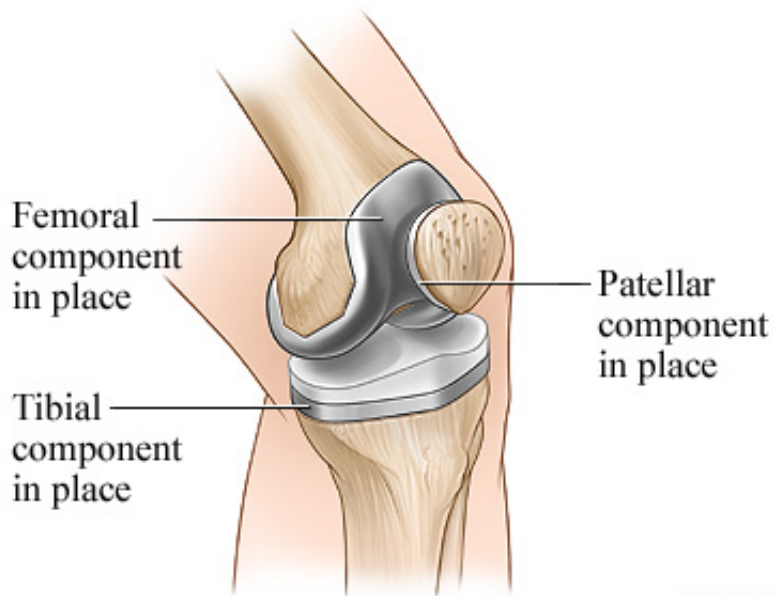
Patellar component is placed



Removal of damaged cartilage from the patella and placement of the patellar component

Figure 6

Knee replacement surgery is complete



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Completed knee replacement

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