

Total knee replacement



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 **DePuy**
Orthopaedics Inc.



Knee pain

When debilitating pain, accompanied by stiffness, swelling and limited motion in your knee keep you from your daily activities, it may be time to consider total knee replacement. The development of total knee replacement technology began more than 30 years ago. Each year, more than 500,000 people in the United States undergo knee replacement surgery to help ease pain and stiffness and restore mobility.¹

The most frequent cause of discomfort and chronic knee pain is arthritis, which is the leading cause of disability in the United States. In fact, it's estimated that 1 in 5 people in the United States has arthritis, and two-thirds are under the age of 65.²

Of the more than 100 types of arthritis, the following three are the most common causes of joint damage:

Osteoarthritis is a disease which involves the wearing away of the normal smooth joint surfaces. This results in bone-on-bone contact, producing pain and stiffness.

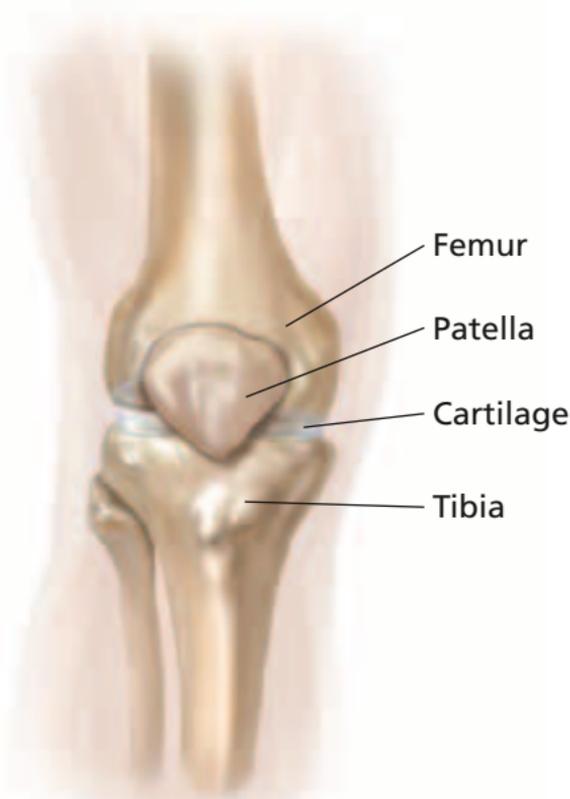
Rheumatoid arthritis is a systemic disease because it may attack any or all joints in the body. It affects women more often than men and can strike young and old alike. With rheumatoid arthritis, the body's immune system produces a chemical that attacks and destroys the synovial lining covering the joint capsule, the protective cartilage and the joint surface, causing pain, swelling, joint damage and loss of mobility.

Trauma-related arthritis, which results when the joint is injured, is the third most common form of arthritis. It also causes joint damage, pain and loss of mobility.

The knee joint

The knee is the largest joint in the body. It is commonly referred to as a “hinge” joint because it allows the knee to flex and extend. While hinges can only bend and straighten, the knee has the additional ability to rotate (turn) and translate (glide).

The knee joint is formed by the shin bone (tibia), the thigh bone (femur) and the kneecap (patella). The end of each bone is covered with a layer of slick cartilage, which cushions and protects the bone while allowing smooth movement. If damaged, the cartilage cannot repair itself.



Healthy knee

Tough fibers, called ligaments, connect the bones of the knee joint and hold them in place, adding stability and elasticity for movement. Muscles and tendons also play an important role in keeping the knee joint stable and mobile.

Knee replacement

When medications, physical therapy and other conservative methods of treatment no longer relieve pain, total knee replacement surgery may be considered. Your surgeon will help you decide if the pain and loss of movement is severe enough that you should undergo the procedure.



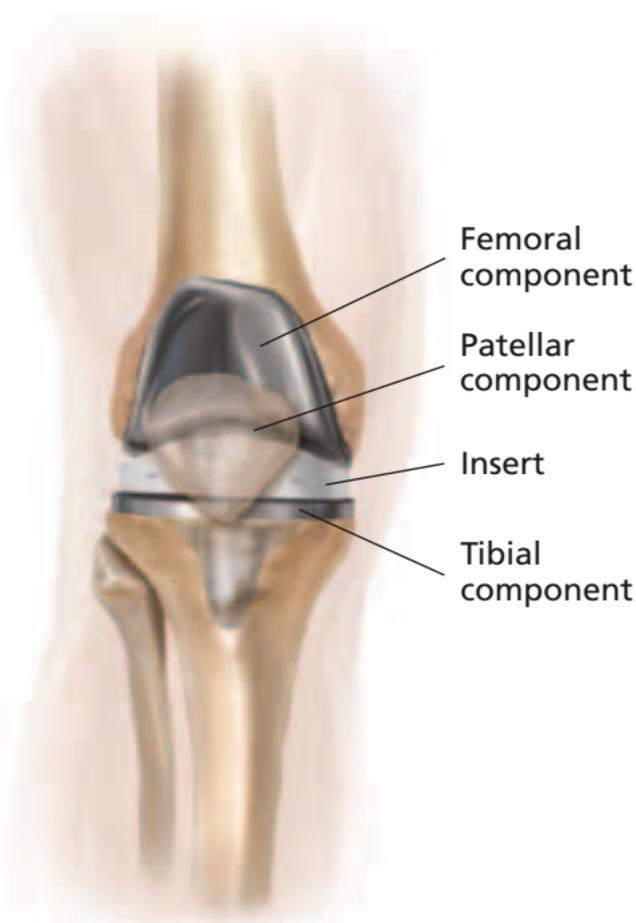
Arthritic knee

Your orthopaedic surgeon can replace your arthritic knee with total knee implants, which have been shown to provide long-term relief.

In general, 90% to 95% of patients are satisfied with the outcome of their total knee replacement, and in some designs, 95% of the knee replacements are still in use after 10 to 15 years.³

In total knee replacement (or arthroplasty), the diseased surfaces of the bones are replaced with implants called prostheses.

The femoral (thigh) component is made of metal and covers the end of the thigh bone.



Total knee replacement

The tibial (shin bone) component is made up of both metal and polyethylene (medical-grade plastic) parts that cover the top end of the tibia.



The metal forms the base of this component, while the polyethylene is attached to the top of the metal. That polyethylene “insert” serves as a cushion—a smooth gliding surface between the two metal components (see illustration).

The third component, the patella or kneecap, may be all polyethylene or a combination of metal and polyethylene.

The components may be cemented to the bone or, in some cases, inserted without cement to allow bone tissues to grow into the three-dimensional porous coating of the device.

The total knee replacement is inserted through an incision and the new components are stabilized by your ligaments and muscles, just as they are in your natural knee.

Your knee evaluation

Your knee evaluation will begin with a detailed questionnaire. Your medical history is very important in determining whether surgery is necessary and medically safe. It helps the surgeon understand your pain, limitations in activity and the progression of your knee problem.

After your history is taken, a physical exam is performed. The range of motion of your knee is measured, your legs are evaluated for conditions such as bowlegs or knock-knees, and your muscle strength is analyzed. The surgeon will observe how you walk, sit, bend and move. X-rays will be taken of your knee joint.

A small amount of fluid may be taken from your knee joint to check for infection.

After your initial orthopaedic evaluation, the surgeon will discuss all possible alternatives to surgery. If the X-rays show severe joint damage and no other means of treatment has provided relief, total knee replacement surgery may be recommended.

Surgery

To prepare yourself for surgery, you may be asked to do a number of things, including lose weight and/or stop smoking (if applicable). It is essential that you tell your surgeon about any medications or supplements you are taking. Bring a list of all medications and dosages, including over-the-counter medications to your appointment. Your doctor may want you to donate your own blood ahead of time for a possible transfusion during surgery.

What to expect after surgery

It is normal to feel pain and discomfort after surgery. Be sure to inform the nurse of your pain.

Your leg will be supported and elevated on one or two pillows to help your circulation and stretch your muscles. Under the direction of your surgeon, you will be asked to move your ankle to promote circulation and prevent stiffness in your ankle joint.

The nurse will help you find comfortable positions and encourage you to do the ankle exercises.

After 24 hours, you should begin to drink fluids regularly, according to your surgeon's directions.

Physical therapy

Your surgeon will recommend and supervise your knee rehabilitation program, which typically begins 24 hours after surgery. Isometric exercises (tightening muscles without moving the joint) will begin while you are still in bed. You will be instructed to do these exercises a number of times per day. You will be encouraged by the physical therapist to move your ankle and other joints so that you will remain strong.

These exercises will help you regain strength and mobility. The therapist will teach you the safest methods for getting in and out of bed or a chair, on and off the toilet and other ways to protect your joint while you recover.



Right leg example

Example of how to properly sit while using crutches. Note: The leg must be kept straight.

The day after surgery, you will probably begin walking and exercising your knee joint. The exercises will probably be done twice daily. While in the hospital, the physical therapist will assist you when getting out of bed, standing up, or learning to use a walker or crutches. Your walking distance will gradually increase.

Range-of-motion exercises typically begin on your first day after surgery. Through progressive daily exercises, you may achieve about a 90-degree bend in the knee joint by the time you leave the hospital.



Examples of knee extension exercises

Bending your knee during the exercises may be painful. Pain medication taken before therapy will make the exercises more comfortable. Ice packs, hot packs and other treatments may also help.

The therapist will monitor your daily progress and inform your surgeon.

Progress

Knee replacement typically requires a hospital stay of three to five days. Depending on your progress, you could gain independence within one week after surgery. The hospital may provide an elevated chair and elevated toilet, both of which should make it easier to sit. At home, you will need a firm chair with arms.

The therapist will teach you how to dress, get out of bed without help and use a walker or crutches.

You will continue strengthening exercises in preparation for your return home. It is important for you to follow your surgeon's directions throughout your rehabilitation. Arrangements will be made for follow-up visits with your surgeon. It is not uncommon to still experience some pain. The full recovery period normally lasts three to six months.

Home care

Just prior to your discharge, you will receive instructions for your at-home recovery.

Once you arrive home, one of the first things you should do is call the surgeon and make an appointment for a follow-up visit.

Look for any changes around your incision. Contact your surgeon if you develop any of the following:

1. Drainage and/or foul odor from the incision.
2. Fever (temperature about 101 degrees F or 38 degrees C) for two days.
3. Increased swelling, tenderness, redness and/or pain.





Take time to adjust to your home environment. It is normal to feel frustrated, but these frustrations will soon pass. It is OK to take it easy.

Medication/pain control

It is normal for you to have some discomfort. You will probably receive a prescription for pain medication before you go home. If a refill is needed, please call your surgeon's nurse at least five days before you run out of pills. Please contact your surgeon if you have increased discomfort or pain.

Resuming activities

Since recovery is different for each person, your surgeon will inform you when you can resume activities such as returning to work and driving a car.

You may resume sexual activity at any time as long as you keep all knee precautions in mind.

As you heal, it's important to remain active—but don't overdo it. It generally takes three to four months before you can begin low-impact activities such as walking, golfing, bowling and swimming. Jogging, high-impact aerobics and contact sports should be avoided. Although your new knee is made of durable materials, it is still vulnerable to wear and tear. As you progress, ask your surgeon for guidance on activities.

Please seek advice on future activities from your orthopaedic surgeon.

Important safety information

As with any medical treatment, individual results may vary. The performance of a knee replacement depends on your age, weight, activity level and other factors. There are potential risks, and recovery takes time. People with conditions limiting rehabilitation should not have this surgery. Only an orthopaedic surgeon call tell if knee replacement is right for you.



Special instructions

You may be seen six weeks, five months and one year after your surgery. Your surgeon may request to see you once a year after the first year, even if you are not having problems.

Any infection must be promptly treated with proper antibiotics because infection can spread from one area of the body to another through the bloodstream. Every effort must be made to prevent infection in your implant. You should always tell all your doctors (including dentists) that you have a knee replacement. If you are to have dental work performed, please call your surgeon prior to having this work done. Your surgeon will most likely prescribe an antibiotic for you. Antibiotics must be used before and after any medical or dental procedure—a precaution that must be taken for the rest of your life.

This brochure is intended to give you some helpful information about knee replacement and guide you through some of the reasons you may want to consider surgery. You should talk with your surgeon if you have specific questions.

References

- ¹ Federal Centers for Disease Control and Prevention (CDC), 2006.
- ² Arthritis Prevalence: A Nation in Pain. Arthritis Foundation web site. Available at: http://www.arthritis.org/media/newsroom/media-kits/Arthritis_Prevalence.pdf. Accessed December 18, 2008.
- ³ Arthritis Foundation web site. Available at: <http://ww2.arthritis.org/research/Bulletin/vol51no11/kneearthroplasty.asp>

For more information, visit www.kneereplacement.com

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