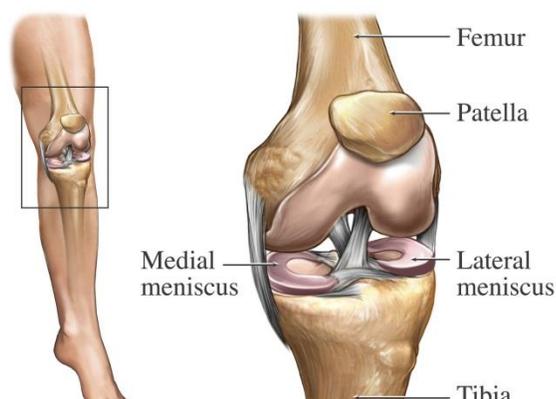


### Explanation of Diagnosis and Procedure

The knee is the largest joint in the body. Normal knee function is required to perform most everyday activities. The knee is made up of the lower end of the thighbone (femur), which rotates on the upper end of the shin bone (tibia), and the kneecap (patella), which slides in a groove on the end of the femur. Large ligaments attach to the femur and tibia to provide stability. The long thigh muscles give the knee strength.

### **Normal Knee Anatomy**

The joint surfaces where these three bones touch are covered with articular cartilage, a smooth substance that cushions the bones and enables them to move easily.



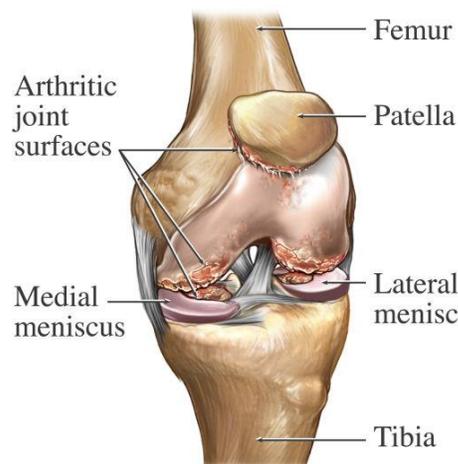
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All remaining surfaces of the knee are covered by a thin, smooth tissue liner called the synovial membrane. This membrane releases a special fluid that lubricates the knee, reducing friction to nearly zero in a healthy knee. Normally, all of these components work in harmony. But disease or injury can disrupt this harmony, resulting in pain, muscle weakness, and reduced function.

### **Knee with Arthritis**

The most common cause of chronic knee pain and disability is arthritis. Osteoarthritis, rheumatoid arthritis, and traumatic arthritis are the most common forms of this disease.

- Osteoarthritis usually occurs in people 50 years of age and older and often in individuals with a family history of arthritis. The cartilage that cushions the bones of the knee softens and wears away. The bones then rub against one another, causing knee pain and stiffness.
- Rheumatoid arthritis is a disease in which the synovial membrane becomes thickened and inflamed, producing too much synovial fluid that overfills the joint space. This chronic inflammation can damage the cartilage and eventually cause cartilage loss, pain, and stiffness.
- Traumatic arthritis can follow a serious knee injury. A knee fracture or severe tears of the knee ligaments may damage the articular cartilage over time, causing knee pain and limiting knee function.



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### **Treatment Options**

Conservative treatments such as non-steroidal anti-inflammatory medications, physical therapy and weight loss are recommended as first line treatments. **Physical therapy** can treat stiff and weak joints by improving knee motion and strength. Oral medications such as **anti-inflammatories** improve pain by decreasing the inflammation in the joint associated with arthritis.

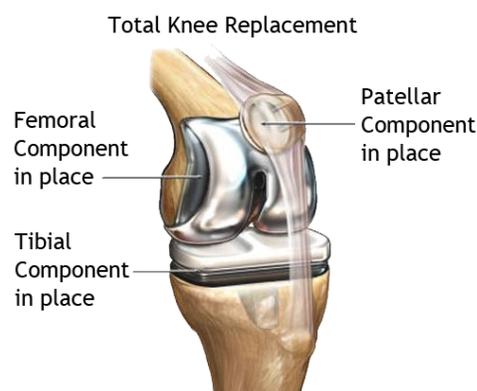
More invasive treatments include intra-articular or joint injections. Some patients may benefit from a **steroid injection**, which is a powerful anti-inflammatory medication that can relieve a patient of their arthritic symptoms for two to six months, on average. Patients with mild to moderate arthritis may be candidates for **Supartz injections**. This is a series of weekly injections into the knee joint. The thick substance, hyaluronic acid, is a chemical naturally found in the joint tissues and synovial fluid. It improves the quality of the fluid in the knee joint to increase its lubricating effect.

When non-surgical treatment doesn't help or if the arthritis is advanced, a **joint replacement** is considered.

### The Surgical Procedure

During surgery, the diseased bone ends of the femur and tibia are cut away and replaced by a smooth metal covering. A plastic liner is placed between the metal components acting like a shock absorber. The arthritis on the back of the patella is also removed and replaced with a small piece of plastic.

All the metal and plastic components are fixed into place with special bone cement, allowing the patient to walk on the surgical knee immediately after surgery.



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### Realistic Expectations About Knee Replacement Surgery

An important factor in deciding whether to have total knee replacement surgery is understanding what the procedure can and cannot do. More than 90% of individuals who undergo total knee replacement experience a dramatic reduction of knee pain and a significant improvement in the ability to perform common activities of daily living. However, total knee replacement will not make you a super-athlete or allow you to do more than you could before you developed arthritis. After surgery, you will be advised to avoid some types of activity, including jogging and high-impact sports, for the rest of your life.

With normal use and activity, every knee replacement develops some wear in its plastic cushion. Excessive activity or weight may accelerate this normal wear and cause the knee replacement to loosen and become painful. With appropriate activity modification, knee replacements can last for many years.

### Surgical Risks and Possible Complications

The complication rate following total knee replacement is low. Serious complications, such as a knee joint infection, occur in fewer than 2% of patients. Major medical complications such as heart attack or stroke occur even less frequently. Chronic illnesses may increase the potential for complications. Although uncommon, when these complications occur, they can prolong or limit full recovery. Other risks include temporary or permanent injury to the nerve and blood vessels, and need for revision surgery.

Blood clots in the legs are one of the most common complications of knee replacement surgery. Your orthopedic surgeon will outline a prevention program, which may include periodic elevation of your legs, lower leg exercises to increase circulation, support stockings, and medication to thin your blood.

Although implant designs, materials, and surgical techniques have improved, wear of the bearing surfaces or loosening of the parts may occur. Additionally, although an average of 115° of motion is generally expected after surgery, scarring of the knee can occasionally occur, and motion may be more limited, particularly in patients with limited motion before surgery. In some cases, patients may notice a small change in limb length. Finally, although rare, injury to the nerves or blood vessels around the knee can occur during surgery. Discuss your concerns thoroughly with your orthopedic surgeon prior to surgery.

### Preparing for surgery

- **Medical Evaluation:** In preparing for surgery, you may be asked to have a complete physical examination done by your primary care doctor before your surgical procedure. This is necessary to assess your health and identify any conditions that can interfere with surgery or recovery. Additional approval for surgery may be needed if you also receive medical care from a specialist such as a cardiologist or urologist.
- **Tests:** Several tests may be needed to help plan your surgery: blood and urine samples may be tested and an electrocardiogram and chest x-rays may be ordered.
- **Medications:** Tell your orthopedic surgeon about the medications you are taking including over-the-counter medications. Your orthopedist or your primary care doctor will let you know which medications you should stop and which you should continue taking before surgery.
- **Weight Loss:** If you are overweight, your doctor may ask you to lose some weight before surgery to minimize the stress on your joint and possibly decrease the risks of surgery.
- **Dental Evaluation:** Although infections after knee surgery are not common, an infection can occur if bacteria enter your bloodstream. Because bacteria can enter the bloodstream during dental procedures, you should consider getting treatment for significant dental diseases (including tooth extractions and periodontal work) before your total knee surgery. Routine teeth cleaning should be delayed for several weeks after surgery.
- **Urinary Evaluations:** Individuals with a history of recent or frequent urinary infections should consider a urological evaluation before surgery.
- **Social Planning** You will need some help with tasks such as cooking, shopping, bathing, and laundry in the weeks following your surgery. Please arrange for help with these tasks. If you live alone and require additional help, please tell your surgeon before surgery.

### **To Do List:**

- Stop blood thinning medications before surgery as instructed by your surgeon. Be sure to consult with your primary care doctor before stopping any medications.
- Stop all weight-loss medications and herbal supplements 14 days before surgery.
- Notify your physician if you develop a cold, fever, or other infections before surgery.

### **The Night before Surgery**

- Eat a light meal the night before surgery.
- Pack your hospital bag including the following: two loose fitting tops or T-shirts, photo identification, your walker for trial with Physical Therapist, Insurance information, advanced directives (if you have them), eyeglasses, shaving items, dentures and denture cream, deodorant, CPAP machine (or any other device you use every day), toothbrush/toothpaste, tennis shoes and socks, books, magazines or activity books to keep you entertained during your stay, and two pair elastic waist shorts.

### The Day of your Surgery:

- Wash from the neck down with a clean washcloth and the chlorhexidine scrub or wipes that will be given to you. Caution: Avoid eyes, nose, mouth and genital areas.
- Brush your teeth the morning of surgery, but be careful not to swallow any water.
- Wear comfortable loose-fitting clothes that are easy to take on and off.
- Take only the medications approved by your surgeon with a small sip of water.
- Bring your pre-packed hospital bag with your personal items.

### Do Not:

- Do not shave the area of surgery. Your surgeon will prepare the incision area for you.
- Do not eat or drink anything eight hours before your scheduled surgery time. Typically eat or drink nothing after midnight the night before your surgery. Your surgery may be cancelled if you eat or drink anything within eight hours of your surgery time.
- Do not smoke after midnight. Smoking can irritate the lungs and contribute to nausea and reduce your body's ability to fight infection.
- Do not bring any jewelry, cash, credit cards, or other valuables.
- Do not bring or take your own medications during your stay in the hospital unless specifically told to do so.
- Do not wear make-up, hairpins, lotions, powder, or perfume.

### At the Hospital

You arrive at the surgery registration area where you are checked in. All your insurance information is verified and you will be escorted to the preoperative area. You will change into a hospital gown and support stockings. All your personal items will be marked and placed in a bag for safe-keeping, to be returned to you after surgery.

Once dressed, your nurse will take a complete set of vitals including blood pressure, heart rate, temperature, respiratory rate, and oxygen level. An IV (intravenous) line will be placed to administer fluids. This line provides fluids and medications to your body during and after surgery. You may find that you are asked to repeat information several times or be asked the same questions throughout your stay. This is for your safety. Every team member is dedicated to making your safety of primary importance.

A member of the anesthesia team will meet with you in the preoperative area. They will discuss with you the available types of anesthesia, recommendations, and answer any questions you may have.

Before being transported to the operating room, your surgeon will mark your operative site. It is also a good idea to use the bathroom before going to the operating room.

There will be a designated area for your family and friends to wait while you are having surgery. They will be updated on the surgery. Your surgeon will contact after the surgery.

### Breathing

After surgery, it is important to exercise your lungs. You will be given an incentive spirometer upon arrival to the hospital floor and shown how to use it. Take a slow, deep breath in, hold it for a few seconds and then breathe out. You should feel your lungs expanding. The spirometer will help you monitor the volume of air you are taking in. Work on increasing this volume daily. It is important to exercise your lungs frequently throughout the day. You will be encouraged to use your incentive spirometer 10 times every hour that you are awake.

### **Circulation**

It is important to promote circulation after any surgery, especially after orthopedic surgery. This will help decrease your chance of forming a blood clot. Immediately after surgery you will have a surgical dressing on the leg that has been operated on and a support stocking (TED hose) on your other leg. On postoperative day two, your surgical dressing will be removed and your new dressing held in place by a TED hose. You should wear your support stockings (TED hose) throughout your hospital stay and for the following six weeks.

Another circulatory aid is a compression device, which will also be used after surgery. The sequential compression device (SCD) is a sleeve that wraps around your lower leg, and inflates to help circulation. When you are resting in bed, the SCD should be used. If you have discomfort, tingling or numbness, immediately notify your nurse.

A blood thinner will also be started after surgery to reduce your risk of blood clots. Starting the day after surgery, you will receive aspirin. This will continue while you are in the hospital. You will be discharged from the hospital on either 325 mg of aspirin twice a day. You may require a stronger medication such as Coumadin, Lovenox, or Xarelto, depending on your other medical conditions and your risk of blood clots. You will take this medication for six weeks, or until you have returned to an active lifestyle.

An easy way to help prevent blood clots is to increase your circulation with activity. After surgery, work on your exercises a minimum of three times a day and walk regularly. It is important to remain as active as possible. This is also good for your overall health.

### **Physical Therapy**

You will receive therapy instructions before your hospital discharge. You need to do your therapy exercises as recommended by your therapy team and attend all of your scheduled therapy sessions. The more energy you put into your rehabilitation, the better the results. Contact your therapist or surgeon at any time with questions.

We encourage you to exercise daily and follow your therapy program as prescribed by your therapy team. Please discuss the types of activities you enjoy with your therapist. Your therapist will let you know when it is safe for you to start those activities again.

Avoid any activities that are high impact, or involve heavy lifting until you are cleared by your therapy team.

### **Recovery**

The success of your surgery will greatly depend on how well you follow your orthopedic surgeon's instructions for home care during the first few weeks after surgery

After surgery do the following:

- Participate in a regular light exercise program to maintain strength and mobility
- Take special precautions to avoid falls and injuries
- Notify your dentist about your orthopedic surgery and discuss whether you need to take antibiotics before any dental procedures
- See your orthopedic surgeon for all scheduled follow-up appointments and periodic checkups.

### **Avoiding Problems After Surgery**

#### **Blood Clot Prevention**

Follow your orthopedic surgeon's instructions carefully to minimize the potential risk of blood clots, which can occur during the first several weeks of your recovery.

Warning signs of possible blood clots include:

- Pain in your calf and leg that is unrelated to your incision
- Tenderness or redness of your calf
- Swelling of your thigh, calf, ankle, or foot

Warning signs that a blood clot has traveled to your lung include:

- Shortness of breath
- Chest pain, particularly with breathing

Notify your doctor immediately if you develop any of these signs.

#### **Preventing Infection**

The most common causes of infection following knee replacement surgery are from bacteria that enter the bloodstream during dental procedures, urinary tract infections, or skin infections. These bacteria can lodge around your prosthesis.

Following your surgery, you may need to take antibiotics prior to dental work, including dental cleanings, or any surgical procedure that could allow bacteria to enter your bloodstream.

Warning signs of a possible knee replacement infection are:

- Persistent fever (higher than 100°F orally)
- Shaking chills
- Increasing redness, tenderness, or swelling of the knee wound
- Drainage from the knee wound
- Increasing knee pain with both activity and rest

Notify your doctor immediately if you develop any of these signs.

#### **How Your New Knee Is Different**

You may feel some numbness in the skin around your incision. You also may feel some stiffness, particularly with excessive bending activities. Improvement of knee motion is a goal of total knee replacement, but restoration of full motion is uncommon. The motion of your knee replacement after surgery is predicted by the motion of your knee prior to surgery. Most patients can expect to be able to almost fully straighten the replaced knee and to bend the knee sufficiently to climb stairs and get in and out of a car. Kneeling is usually uncomfortable, but it is not harmful. Occasionally, you may feel some soft clicking of the metal and plastic with knee bending or walking. These differences often diminish with time and most patients find them to be tolerable when compared with the pain and limited function they experienced prior to surgery.

#### **Questions**

The CORE Institute is dedicated to your outcome. If any questions or concerns arise, please call The CORE Institute at 1.866.974.2673.