

Explanation of Diagnosis and Procedure

The Knee Joint

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.



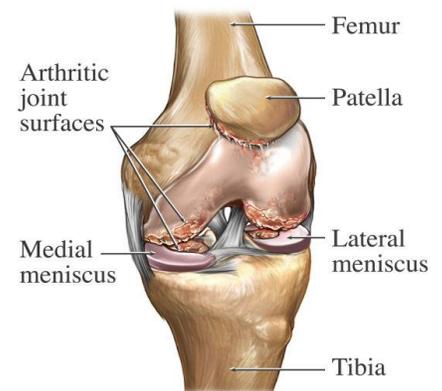
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A thin, smooth tissue liner called the synovial membrane covers all remaining surfaces of the knee. This membrane releases a special fluid that lubricates the knee, reducing friction to nearly zero in a healthy knee. Normally, all of these components work in harmony. However, 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.

- 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 or Management 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.

If your knee arthritis is confined to just one section of your knee, it is possible you could benefit from a unicompartmental knee replacement (also known as 'partial knee replacement'). This technique preserves the ligaments that are naturally a part of your knee joint. The prosthesis implant replaces only the damaged part of your knee. This procedure is less invasive than a total knee replacement.

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

Realistic Expectations About Unicompartmental Knee Replacement Surgery

An important factor in deciding whether to have partial knee replacement surgery is understanding what the procedure can and cannot do.

More than 90% of individuals who undergo unicompartmental knee replacement experience a dramatic reduction of knee pain and a significant improvement in the ability to perform common activities of daily living. However, partial knee replacement will not make you a super-athlete or allow you to do more than you could before you developed arthritis.

Following 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.

Preparing for Surgery

Once you have made the decision to proceed with surgery and have chosen a date for your knee replacement, it is time to start planning for the procedure and your recovery. It is best to prepare early. Arrangements should be made to meet with the following people before your surgical date:

- **Orthopedic Surgeon** - Your surgeon or PA will meet with you a few days before your scheduled surgery to finalize plans and answer any remaining questions you may have. The procedure, including risks and benefits, will be explained thoroughly to ensure complete understanding.
Primary Care Physician - We would like you to see your primary physician for medical optimization and clearance before your surgical procedure. Your primary doctor will review medical risk factors you have for surgery, discuss your medications, and make appropriate changes. Please call for an appointment with your primary physician after choosing a surgical date. You will need laboratory tests and other studies before surgery. If you have questions about what tests you need before surgery, our surgical schedulers can help you.
- **Hospital Care** - Most of these procedures are done as an outpatient. If you are admitted to the hospital, your primary physician is invited to assist in your care after surgery. If your doctor is not available at the hospital, a covering hospitalist doctor may see you.

- **Pre-anesthesia Interview** - A surgical nurse who is specially-trained to prepare you for surgery will talk with you within a week of surgery and answer any questions about anesthesia. The nurse will review your medical information, test results and preoperative orders to ensure you are medically ready for your surgical procedure.
- **Tests** - Several tests may be needed to help plan your surgery: blood and urine samples may be obtained.
- **Dental Evaluation** - Although the incidence of infection after knee replacement is very low, an infection can occur if bacteria enter your bloodstream. Treatment of significant dental diseases (including tooth extractions and periodontal work) should be considered before your knee replacement surgery.
- **Weight Loss** - If you are overweight, your doctor may ask you to lose some weight before surgery to minimize the stress on your new knee and possibly decrease the risks of surgery.
- **Urinary Evaluations** - A preoperative urological evaluation should be considered for individuals with a history of recent or frequent urinary infections. For older men with prostate disease, required treatment should be considered prior to knee replacement surgery.
- **Home Planning** - Recovery is a gradual process and made easier by planning ahead. Consider the following items in preparing for your return home before your surgical procedure:
 - ✓ Ask your spouse, children, friends or neighbors if they can assist you for a few weeks after your surgery.
 - ✓ To simplify cooking, prepare a few meals in advance and freeze them.
 - ✓ Place all kitchen utensils, bathroom supplies, wardrobe necessities in an easy to reach place so than you will not need to bend or reach to retrieve them.
 - ✓ Remove throw rugs and clutter from traffic paths.
 - ✓ Arrange your bedroom to allow extra space to get in and out of bed while using your walker, cane or crutches.
 - ✓ Place a sturdy chair, not a recliner, with a firm seat cushion and arms near a table for reading material, television remote, telephone, and other supplies you may want. It is also helpful to have a footstool to elevate and straighten your knee.
 - ✓ Ensure your safety during showering with a safety bar or hand rail in the shower and a bench or chair to sit on.
 - ✓ If you have a low toilet, a toilet seat riser with arms will make getting on and off the toilet much easier.
- **Medications**
 Tell your orthopedic surgeon about the medications you are taking. He or she will tell you which medications you should stop taking and which you should continue to take before surgery.

There are some medications that are important to stop before surgery. If you are taking any of the medications below, please discontinue them as indicated, unless otherwise discussed with your surgeon. Some medications cannot be stopped due to medical conditions; your surgeon and primary physician will address this.

- Aspirin and aspirin containing products: 10 days before surgery
- Non-Steroidal Anti-Inflammatory (NSAIDs): seven days before surgery
 This includes: Ibuprofen, Advil, Naprosyn, and Aleve
- This does NOT include: COX-II inhibitors such as Bextra or Celebrex

- Coumadin (Warfarin): usually five days before surgery. This needs to be discussed with your primary physician. For some patients, “bridge therapy” with low- molecular weight heparin injections (Lovenox) may be beneficial between the time you discontinue your Coumadin and the date of surgery. A blood sample may be drawn the morning of surgery to check your blood’s clotting ability.
- Steroids and Immunosuppressant’s (e.g. Prednisone, Arava, Enbrel, Methotrexate, etc.): Optimal to discontinue before surgery, but this will be discussed between you, your surgeon, and your primary physicians.
- **Stop Smoking**
If you are a smoker, we recommend you stop smoking before surgery and continue to not smoke until your wound is healed or give up smoking all together. Smoking affects your body in many negative ways, including: decreasing your body’s ability to heal your wound, fight infection, and prevent medical complications.
- **Change in Medical Condition**
If there is any change in your medical condition before surgery, such as fever, cough, vomiting, diarrhea, skin breakdown, or other concerns, please notify your primary physician and your surgeon.
- **The Night before Surgery: Do’s and Don’ts**
 - ✓ Do take a shower the night before surgery; lightly scrub your affected knee and entire leg with the chlorhexidine scrub that can be purchased at your local pharmacy. Wash the rest of your body with anti-microbial soap and water. Do not apply any lotion or ointments to the skin on your affected leg.
 - ✓ Do eat a light meal the night before surgery.
 - ✓ Do bring all of your medications in their bottles to show your nurse.
 - ✓ Do remove all nail polish.
 - ✓ Do bring your walker to the hospital before discharge to trial with the therapist.
 - ✓ Do NOT shave the area of surgery. If necessary, your surgeon will take care of it in the operating room.
 - ✓ Do NOT eat or drink anything after midnight. When you arise in the morning, you may take your morning medications with a small sip of water.
 - ✓ Do NOT bring any jewelry, cash, credit cards, or important items with you to the hospital. It is best these stay safe at home.
 - ✓ Do NOT take your own medications in the hospital unless specifically told to do so.

What to Expect at Surgery

Morning of Surgery

Complete your usual morning routine the day of surgery including taking your instructed medications with a small sip of water. It is best to leave your skin clean and not apply makeup or any heavy lotions. Arrive at the hospital at your instructed time, ready for surgery.

At the Hospital

You will be checked in by the surgical staff and brought to the preoperative area to prepare for surgery. Here you will be asked to change into a hospital gown with support stockings. All your personal items will be marked and placed in a bag for you after surgery.

Once you are dressed, your nurse will take a complete set of vitals including blood pressure, heart rate, temperature, respiratory rate, and oxygen level. An intravenous line will be placed to administer fluids into your vein. Because you have been fasting, your body will require fluid supplementation through this intravenous line. It is also an access to administer medications during and after surgery.

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 empty your bladder before going to the operating room.

There will be a designated area for your family and friends to wait while you are having surgery. A surgical communicator will be available to keep your family and friends aware of your progress. Your surgeon will contact them shortly after the completion of surgery.

Operating Suite

Once you have been prepared in the pre-operative area, you will be brought back to the operating suite. Here you will meet many faces, all whom play an important part in your surgery. The operating room personnel will help you onto the operating table and make you comfortable. Your surgeon's staff will be present to ensure proper positioning and to prepare your knee for surgery. Once the anesthesiologist starts your anesthesia, you will fall asleep. If you have chosen to receive a spinal instead of general anesthesia, this will be performed. You will then receive sedating medications to keep you relaxed.

Post-Anesthesia Care Unit

After your surgery has been completed, you will be transported to the post-anesthesia care unit (PACU). Here, the nursing personnel will place you on monitors to follow your blood pressure, heart rate, oxygen level, alertness, along with your pain level. An important part of the PACU is to ensure that you are comfortable and stable after surgery. Pain medications will be administered as needed through your IV line. Often patients are nauseated after surgery and your nurse can give you medications for this. You will receive oxygen through a facemask upon arrival and it will be removed as you become more alert. Warm blankets are available to keep you warm and comfortable.

Your family and friends will be notified of your progress in the PACU. Once the discharge criteria have been met and your nurse feels you are ready to leave the PACU, you will be discharged.

Care After Surgery

When you are feeling well enough to go home, you will be discharged. The nurse will review all issues including exercises, icing protocols, medication, and follow-up appointments.

Physical Therapy after Discharge

Therapy is an important aspect of your recovery after surgery. You need to concentrate on your therapy exercises a minimum of twice a day and attend therapy sessions three times a week the first few weeks after surgery. Walking is a great activity after surgery along with completing your range of motion exercises. Most patients will be referred for outpatient physical therapy, which takes place at a therapy center. Some patients may qualify for home physical therapy, in which a home health agency will come into your home to help you advance your therapy three times a week. The CORE Institute promotes outpatient physical therapy when at all possible.

We have our own physical therapy center which is set-up to help you achieve your therapy goals. We want you to get back to your normal daily activities.

Goal range of motion after knee replacement:

- 0 to 90° two weeks after surgery (minimum)
- 0 to 110° eight weeks after surgery (minimum)

What to Expect at Post-Operative Visit

- Make sure medications are effective and not causing problems
- Change your dressings
- Review the basic exercises again
- Review the operative findings, procedures, and photos
- Schedule follow-up visits and make sure you have all necessary notes and documentation for school or work

Issues and Problems

- **Expectations** - This is a very subjective and personal issue. Some individuals have unrealistic expectations as to the speed of recovery. We will be assessing your healing progression, but everyone is different. It is important to control the things you can, such as daily commitment to the exercise program which will help enormously.
- **Swelling in the knee** - Most procedures cause some swelling. Frequent icing and elevating the extremity can help.
- **Pain** - If it is unmanageable please call us.
- **Numbness** - Loss of function of foot or ankle and tremendous swelling of the leg rarely occur. If this happens please contact us immediately.

Medications

Pain Management

After surgery, it is normal to have pain or discomfort. You will have prescriptions for pain relieving medication. If your pain is not being relieved with the ordered medications, your surgeon should be notified. The goal is to control your pain so that you can begin aggressive therapy immediately after surgery and start on the road to recovery.

Diet

Once you are alert and feeling well, you may begin taking oral liquids such as ice chips and water. If you tolerate this without nausea, you can order a light meal the night of surgery or the following day. It is important to advance your diet slowly. If you do become nauseated or vomit, you should stop eating and notify your nurse who can administer medications to relieve this. Restart with liquids once you are feeling better. You must tolerate a regular diet before you leave the hospital.

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 your operative leg and a support stocking (TED hose) on both of your legs. On postoperative day five, 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) for the following six weeks.

A blood thinner will also be started after surgery to reduce your risk of blood clots. You will be discharged from the hospital on either 325 mg of aspirin twice per day or Xarelto (rivaroxaban), depending on your other medical conditions and your risk of blood clots. These medications are continued 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. Work on your exercises a minimum of three times a day and walk regularly after surgery. It is important to remain as active as possible. This is also good for your overall health.

Possible Complications and Instructions

The complication rate following partial 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.

Blood clots in the leg veins are the most common complication 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. 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. For many people with joint replacements and normal immune systems, the American Academy of Orthopedic Surgeons (AAOS) recommends antibiotic prophylaxis before dental work.

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 hip wound
- Drainage from the knee wound
- Increasing knee pain with both activity and rest

Although implant designs and materials as well as surgical techniques have been optimized, wear of the bearing surfaces or loosening of the components may occur. Additionally, although an average of 115° of motion is generally anticipated 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.

Please contact our office immediately if you feel you are experiencing any of these complications.

Recovery

The success of your surgery will depend in large measure on how well you follow your orthopedic surgeon's instructions regarding home care during the first few weeks after surgery.

- **Wound Care**

You will have stitches or staples running along your wound or a suture beneath your skin. The stitches or staples will be removed approximately 2 weeks after surgery. Avoid getting the wound wet until it has thoroughly sealed and dried. A bandage may be placed over the wound to prevent irritation from clothing or support stockings.

- **Diet**

Some loss of appetite is common for several weeks after surgery. A balanced diet, often with an iron supplement, is important to promote proper tissue healing and restore muscle strength. Be sure to drink plenty of fluids.

- **Activity**

Exercise is a critical component of home care, particularly during the first few weeks after surgery. You should be able to resume most normal light activities of daily living within 3 to 6 weeks following surgery. Some discomfort with activity and at night is common for several weeks. Your activity program should include:

- A graduated walking program, initially in your home and later outside
- A walking program to slowly increase your mobility and endurance
- Resuming other normal household activities
- Resuming sitting, standing, and walking up and down stairs
- Specific exercises several times a day to restore movement
- Specific exercises several times a day to strengthen your hip joint
- You may wish to have a physical therapist help you at home

Ongoing Care

A member of the surgical team would like to see you back two to three weeks after surgery for a wound check and staple/suture removal. At approximately eight and 16 weeks postoperatively, you will return for radiographs followed by an examination. If needed, your surgeon may ask you to return for a recheck at a time other than stated above. Each patient is an individual and may require a different follow-up schedule. Your first follow-up visit is usually arranged before surgery. If you did not receive an appointment or are unsure of your follow-up, please call our office.

Avoiding Falls

A fall during the first few weeks after surgery can damage your new knee and may result in a need for further surgery. Stairs are a particular hazard until your knee is strong and mobile. You should use a cane, crutches, a walker, or hand rails or have someone to help you until you have improved your balance, flexibility, and strength.

Your surgeon and physical therapist will help you decide what assistive aides will be required following surgery and when those aides can safely be discontinued.

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 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.