

Introduction

The knee is the largest joint in our body. It is one to the most easily injured joints. Knee problems can occur from injury, aging, “wear and tear,” or disease, such as arthritis.

Arthritis causes joint pain, stiffness, and swelling. It can affect the cartilage in the knee joint. Cartilage is a very tough, shock absorbing material that covers the ends of many of our bones. The cartilage forms a smooth surface and allows the bones in our joints to glide easily during motion. Arthritis can cause the cartilage to wear away. Loss of the protective lining can cause painful bone on bone rubbing.

While the symptoms of knee arthritis may be tolerated with some medications and lifestyle adjustments, for many, knee replacement is the only way to reduce pain, restore function, and improve the quality of life. Knee Replacement Surgery, also called Knee Arthroplasty, involves removing the damaged portion of the knee and replacing it with artificial implants called prosthetics. Knee Arthroplasty is the most common type of joint replacement surgery. It is highly successful for relieving pain and restoring joint function.

Anatomy

The knee is one of the most complex joints in our body. The knee is composed of three bones. The femur, or thighbone, is positioned on top of the tibia, the larger leg bone. The patella, our kneecap, glides in a groove on the end of the femur. Ligaments connect our knee bones together. Ligaments are strong tissues that provide structure and allow motion. Large muscle groups in our thigh give the knee strength and stability.

Two cartilage disks, called menisci, are located on the end of the tibia. The cartilage forms a smooth surface and allows our bones to glide easily during motion. The menisci also act as shock absorbers when we walk or run.

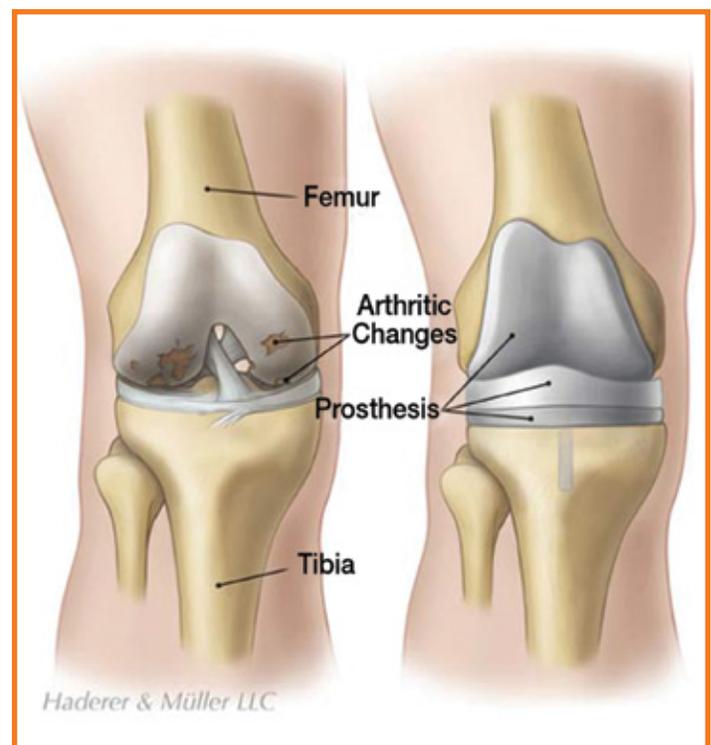
A thin smooth tissue capsule covers the bones in our knee joint. A thin synovial membrane lines the capsule. The synovium secretes a thick liquid called synovial fluid. The synovial fluid acts as a cushion and lubricant between the joints, allowing us to perform smooth and painless motions.

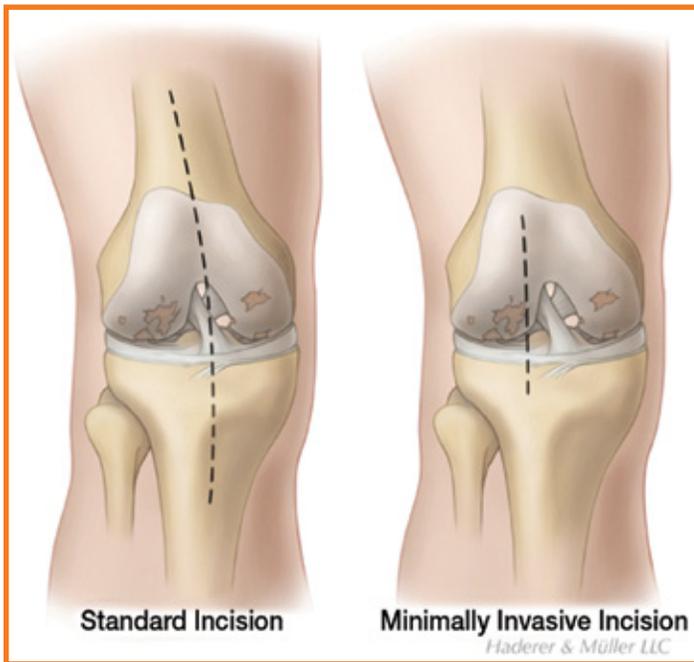
Causes

Arthritis is the most common cause of knee pain, stiffness, and swelling. Arthritis can occur for many reasons, including aging, “wear and tear,” injury, disease, and developmental abnormalities in the knee structure. There are over 100 different types of arthritis. Osteoarthritis, Post-Traumatic Arthritis, and Rheumatoid Arthritis are types of arthritis that frequently develop in the knee.

Osteoarthritis is the most common type of arthritis. It tends to develop as people grow older. Osteoarthritis can result from overuse of the knee during sports or work. Osteoarthritis causes the articular cartilage covering the end of the bones to gradually wear away, resulting in painful bone on bone rubbing and disrupted movement.

Rheumatoid Arthritis is one of the most serious and disabling types of arthritis. Rheumatoid Arthritis can affect people of all ages, but most frequently occurs in women and those over the age of 30. It is a long-lasting autoimmune disease that causes the synovial membrane to become inflamed, which then attacks the cartilage. This damages the articular cartilage and leads to pain and stiffness.





Post-Traumatic Arthritis can develop in individuals of all ages after a serious knee injury. A knee fracture or severe torn ligaments can damage the cartilage over time. This can cause knee pain and limit function.

Symptoms

The main symptom of severe knee arthritis is moderate to severe pain. Your pain may occur while you are moving or resting. It may even keep you awake at night. Your knee may feel swollen, stiff, or unstable. It may look like it angles inward or outward, instead of being straight.

It may be difficult to move or bend your knee. Your knee pain may eventually limit your everyday activities, including walking, stair climbing, and getting in and out of chairs. Medications, rest, and physical therapy may provide little relief from the pain of severe knee arthritis.

Diagnosis

Your doctor can diagnose arthritis by conducting a physical examination. You will be asked about your medical history, symptoms, and level of pain. You may be asked to perform simple knee movements to help your doctor assess your muscle strength, joint motion, and knee alignment. Blood tests and other laboratory tests may identify what type of arthritis you have.

Your doctor will order X-rays to see the condition of your bones and to identify areas of arthritis. Your doctor may order Magnetic Resonance Imaging (MRI) scans or a bone scan. A MRI is used to obtain more detailed images of the ligaments and cartilage. A bone scan identifies the location of abnormal growths in a bone.

A bone scan requires that you receive a small harmless injection of a radioactive substance several hours before your test. The substance collects in your bones in areas where the bone is breaking down or repairing itself. X-rays, MRIs, and bone scans are painless.

Treatment

As your arthritis progresses and becomes more severe, medications, rest, and physical therapy may fail to relieve your symptoms. Your pain and immobility may cause you to limit your activities and lifestyle. Knee Arthroplasty or replacement is recommended when non-surgical treatments do not provide relief of your symptoms.

Surgery

Knee Arthroplasty

Knee Arthroplasty involves removing your damaged joint and replacing it with an artificial one. This is an inpatient procedure. You will most likely be admitted to the hospital on the day of your Arthroplasty and stay there for several days. In most cases, you will be required to donate your own blood prior to the surgery so you can be transfused during or after the procedure, if necessary.

The most common types of anesthesia for the surgery are general anesthesia or spinal anesthesia. The general anesthesia will put you to sleep for the procedure. The spinal anesthesia will numb your body from the waist down, while you remain awake. Additional sedation is usually given. Your doctor will help you decide which anesthesia is best for you.

Your knee will be placed in a bent position for your surgery. Your surgeon will make a six to twelve inch incision on the side of your patella (kneecap). Your patella and thigh muscles will be moved aside to allow your surgeon access to your joint. Your surgeon will remove your damaged bone, cartilage, and connective tissue. Your knee joint will be replaced with an artificial joint.

There are many types of artificial knee joints. Your surgeon will choose the most appropriate one for you, depending on your age, weight, activity level, and overall health. Nearly all of them consist of three components. The new piece for the end of your femur is made of highly polished metal. The tibial component, for the top of your leg, is made of metal and plastic. The patellar part is made of plastic and fits inside of your kneecap. The artificial pieces may or may not be cemented in place. The artificial joint will allow you to perform most of the pain-free movements that you used to be able to do.

Recovery

You may stay in the hospital for two or three days following your Knee Arthroplasty. You will receive pain medication to make you feel as comfortable as possible. Your doctor may use several methods to prevent blood clots and swelling.

Your doctor may prescribe blood thinning medication and special support stockings. You should keep your leg elevated and move or pump your foot and ankle. Your doctor may prescribe compression boots and a Continuous Passive Motion (CPM) Machine. Compression boots are inflatable leg coverings that are attached to a machine. They work to gently squeeze your legs to aid blood circulation. A Continuous Passive Motion (CPM) Machine will move your leg in a cycling motion while you are in bed. The CPM Machine is helpful to improve circulation, decrease swelling, and restore movement in your knee.

Walking and knee movements are very important to your recovery. Exercising will begin immediately after your surgery. You will probably begin physical therapy the day after your surgery. At first, you will need to use a walker or crutches while standing and walking. Your physical therapist will help you with walking and show you how to go up and down stairs. You will also learn ways to exercise to strengthen your knee.

An occupational therapist can show you ways to dress and bathe within the realm of your movement restrictions. You may require a stay in a rehabilitation center for a short time after you are released from the hospital. Your therapists can also recommend durable medical equipment for your home, such as a raised toilet seat or a shower chair. The equipment may make it easier for you to take care of yourself as you heal and help to prevent further injury.

The success of your surgery will depend, in part on how well you follow your home care instructions during the first few weeks following surgery. You may need a little help from another person during the first few days at home. If you do not have family members or a friend nearby, talk to your physician about possible alternative arrangements. You should be able to resume most of your regular activities in three to six weeks after your procedure. Overall, the majority of people experience a dramatic reduction of knee pain and the ability to resume functional activities after Knee Arthroplasty.

Precautions

It is important that you adhere to your exercise program and safety precautions when you return home. You should stay as active as possible, but remember not to overdo it. You should notice a steady improvement in your strength and endurance over the next six to twelve months.

It is also important to avoid falling. Your therapists can suggest ways to prevent falls in your home. This may simply mean removing throw rugs and making sure that your walking path is free of cords or clutter. You should also continue to use the durable medical equipment as advised.

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vermontorthoclinic.org



VERMONT ORTHOPAEDIC CLINIC

3 Albert Cree Drive, Rutland, VT 05701

802.775.2937 • 800.625.2937