

CRYSTAL CLINIC[®]
ORTHOPAEDIC CENTER



Planning for Knee Arthroscopy



How Does a Normal Knee Work?

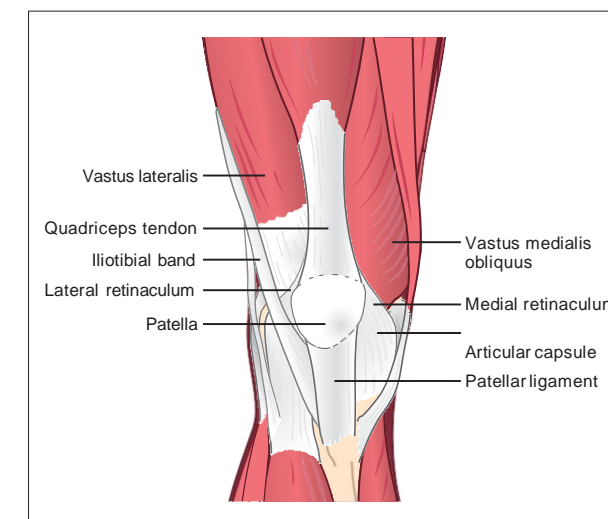
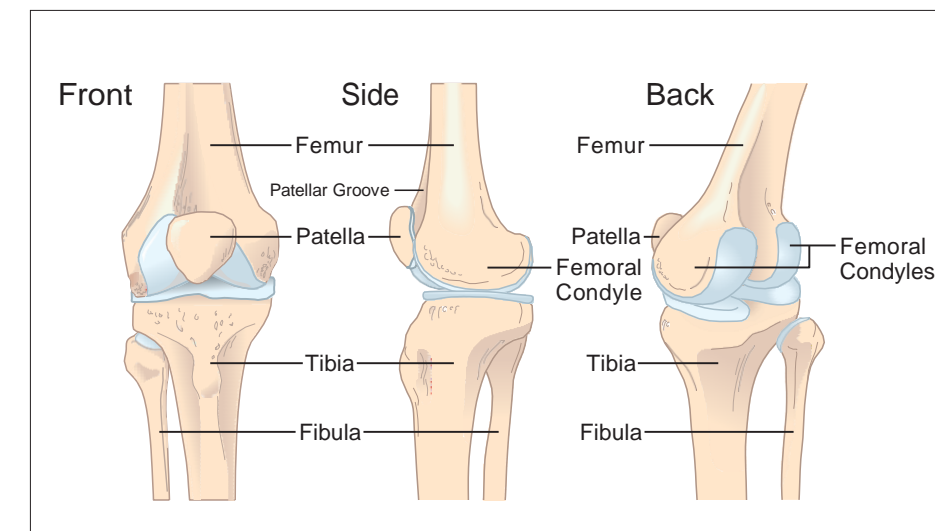
It is often said that the knee is the largest joint in the body. In essence, this is true, but the knee itself is actually comprised of four separate joints—one that joins the patella (the kneecap) and the femur (the thighbone), two joining the tibia (the shinbone) to the femur, and one connecting the tibia and the fibula (a smaller bone in the lower leg).

Due to the knee's complexity and the fact that it is a weight-bearing joint, it is more likely to be injured than any other joint in the body. The injury can occur in any of the knee's different components.

Bones

The femur has two rounded knobs on the end where it articulates, or comes in contact with the tibia. These are called the femoral condyles. The surface of the tibia on which they rest is the tibial plateau. This is divided into two halves: the lateral tibial plateau (the outer side), which is the half furthest from the other knee, and the medial tibial plateau (the inner side).

- The smaller joint connecting the fibula to the side of the tibia is a static joint, meaning that unlike the other joints in the knee, it moves very little.



Muscles

The muscles in the front of the thigh are called the quadriceps. There are four of them, which is where their name comes from—"quadriceps" means four-headed in Latin. To straighten the knee, you contract these muscles. The muscles in the back of the thigh are the hamstrings. When these contract, the knee bends.

Getting to Know Your Surgical Team

Dr. Frangiamore is fellowship-trained orthopaedic surgeon who specializes in disorders of the shoulder, knee, elbow and all sports-related injuries. As a sports medicine surgeon, he has provided medical care for professional and world-class athletes, serving as a team physician for the Cleveland Guardians baseball organization, and the U.S. Ski and Snowboard Association, Premiere Lacrosse League, and the Premier Soccer League.

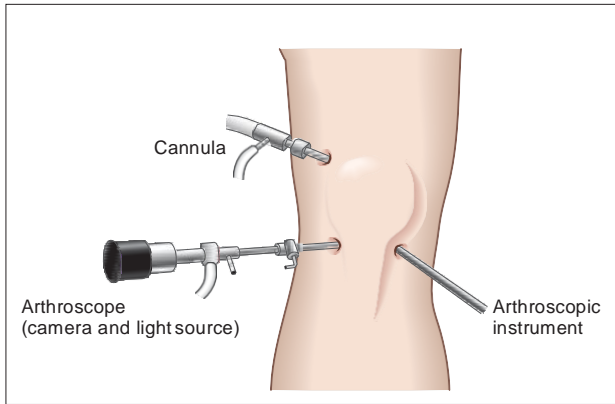
Dr. Frangiamore has written numerous articles and book chapters related to his extensive research on shoulder, knee and sports-related injuries and surgical management of these conditions; which have earned him several accolades and awards. He has traveled throughout the U.S. and internationally to present his work. Through the use of advanced open and arthroscopic surgical techniques, Dr. Frangiamore focuses on restoring damaged joints, ligaments and bones through minimally invasive techniques to keep his patients active and healthy.



Sal Frangiamore, M.D.

What Is Arthroscopy?

Arthroscopic surgery is a minimally invasive surgical procedure performed through small incisions to visualize and treat ligament, tendon, cartilage or meniscal injuries that occur within the joint.



The word arthroscopy comes from two Greek words, “arthro” (joint) and “skopein” (to look). The term literally means “to look within the joint” or operations in a less invasive manner.

Using an arthroscope, Dr. Frangiamore makes a small incision in the patient’s skin and then inserts pencil-sized instruments that contain a small lens and lighting system to magnify and illuminate the structures inside the joint. Light

is transmitted through fiber optics to the end of the arthroscope that is inserted into the joint.

By attaching the arthroscope to a miniature television camera, Dr. Frangiamore is able to see the interior of the joint through this very small incision rather than a large incision needed for surgery. This is a great way for surgeons to view the cartilage, ligaments and other areas that might need repair. When indicated, corrective surgery is performed with specially designed instruments that are inserted into the joint through accessory incisions.

Because the surgery is performed through small incisions, patients experience a quicker recovery, with less post-operative pain. Patients also are able to return home sooner—often the day of the procedure.

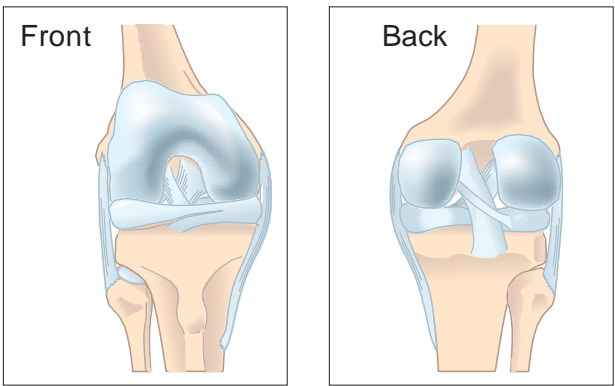
After arthroscopic surgery, the small incisions are covered with a dressing. Patients are moved from the operating room to a recovery room. Many patients need little or no pain medications.

Before being discharged, patients are given instructions about care for their incisions, what activities they should avoid, and which exercises they should do to aid their recovery. During the follow-up visit, the surgeon will inspect their incisions; remove sutures, if present; and discuss their rehabilitation program.

The amount of surgery required and recovery time will depend on the complexity of a patient’s problem. Occasionally, during arthroscopy, the surgeon may discover that the injury or disease cannot be treated adequately with arthroscopy alone. The extensive “open” surgery may be performed while the patient still anesthetized, or at a later date after he or she has discussed the findings with the surgeon.

What are the potential benefits of arthroscopic surgery?

- Less pain following the procedure
- Lower risk of complications
- Shorter hospital stay
- Outpatient surgery option
- Quicker recovery
- Less scarring



Ligaments

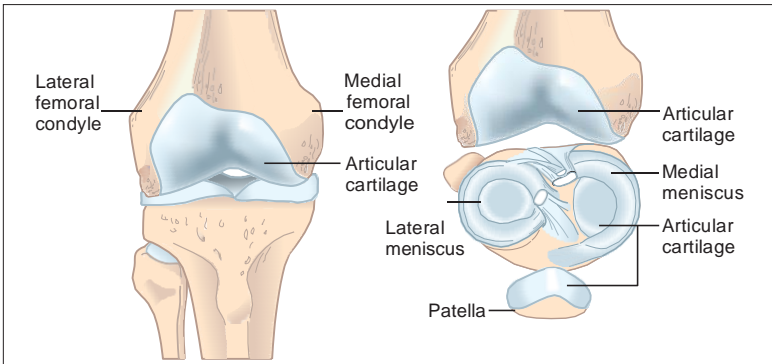
Ligaments are the strong bands of tissue that keep the ends of bones connected. There are four major ligaments in the knee. The medial collateral ligament (MCL) and the lateral collateral ligament (LCL) are on the sides of the knee and prevent the knee from moving too much in a side-to-side direction.

- The anterior cruciate ligament (ACL) and posterior cruciate ligament (PCL) are in the front and back, respectively. These regulate the front-to-back bending of the knee.

Tendons

Tendons are like ligaments, but connect muscles to bones. The quadriceps and hamstring muscles each have tendons that connect to the bone beneath. The largest tendon in the knee is the patellar tendon, which connects the patella to the tibia.

- When ligaments in the knee are torn or ruptured, tendons are sometimes used as grafts to replace the damaged ligament.

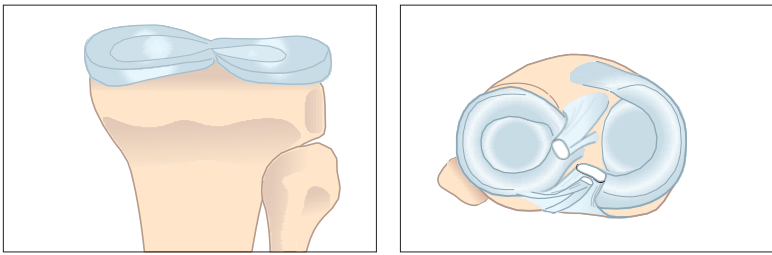


Articular cartilage

Articular cartilage is a tough, rubbery, shiny material that covers the ends of bones. About a quarter-inch thick, it serves to absorb shock while providing a smooth surface to facilitate motion. When healthy, this system provides a mechanism that has almost no friction, so the joint can bend freely.

Meniscus

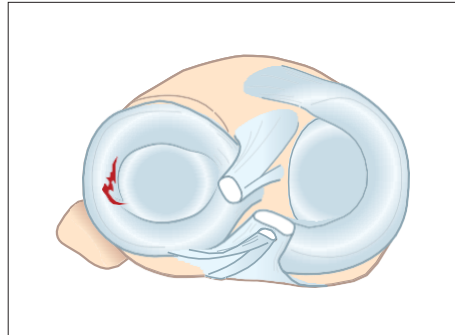
The menisci are rubbery, crescent-shaped sections of fibrocartilage around the bone to fill the space between the round femur and the flat tibia. They primarily serve to preserve the knee by absorbing shock and spreading stress around the joint, while also providing a softer, smoother surface to protect the articular cartilage from wear.



Bursae and synovial fluid

The bursae are fluid-filled sacs that act as a gliding surface to reduce friction between the bones, tendons and muscles. They are filled with synovial fluid, a thick liquid that acts as a lubricant inside the joint.

Types of conditions that Dr. Frangiamore manages with arthroscopic surgery:



Removal or repair of a torn meniscus

A torn meniscus can catch, similar to a hang nail, which causes extreme pain, immobility and inflammation to the surrounding tissue

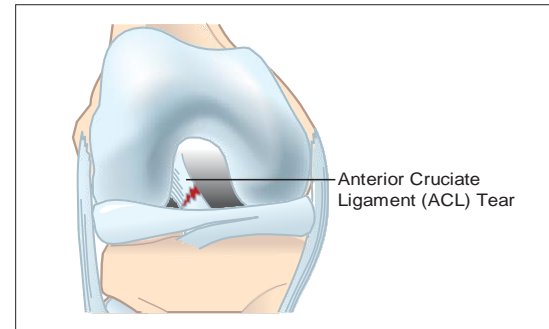
Removal of inflamed synovial tissue

Inflamed tissue causes your knee to swell on and off, which results in pain and limits your ability to move the knee

Trimming of damaged articular cartilage

Damaged cartilage can cause catching, similar to a hang nail, which causes pain and swelling

Visit sportsmed.org/AOSSMIMIS/Members/Patient/Surgical_Animations/Members/Patient/Surgical_Animations.aspx?hkey=f5e7e0a0-4a57-4ed8-ac0b-d8b42b19965e to see surgical animations of many of these procedures.



Reconstruction of a torn anterior cruciate ligament

Knee instability with pivoting after an injury

Removal of loose fragments of bone or cartilage

Treatment of patella (kneecap) problems

Thinning of the cartilage causes pain in the front of your knee when you go up and down stairs, due to irregular friction of the patella bone and the groove in the femur that it glides in

Your Arthroscopic Knee Surgery

- Almost all arthroscopic surgery is done on an outpatient basis. Dr. Frangiamore's administrator will contact you about the specific details for your surgery. You will be asked to arrive at the hospital an hour or two prior to your surgery. You will go through the standard preoperative routine as previously mentioned.
- Once in the operating room, you will be positioned so that your surgeon can easily adjust the arthroscope to have a clear view of the inside of your knee. This usually requires a device which holds your operative knee in place and another to place your other leg in a comfortable position.
- Once you are positioned, the surgical team will remove hair, if needed, and then spread an antiseptic solution over your knee to clean the skin. They will cover the area of your thigh above your knee with sterile drapes.
- To begin the procedure, Dr. Frangiamore will make a few small incisions, called "portals," in your knee. A sterile solution will be used to fill the knee joint and rinse away any cloudy fluid. This helps to see the structures inside your knee clearly and in great detail.
- Fluid flows through the arthroscope to keep the view clear and control any bleeding. Images from the arthroscope are projected on the video screen showing the inside of your knee and any damage.
- Once the problem is clearly identified, other small instruments are inserted through separate incisions to perform specific tasks. Specialized instruments are used for tasks like shaving, cutting, grasping, suture passing, and knot tying. In many cases, special devices are used to anchor stitches into bone. Incisions will be closed with stitches that will be buried under the skin or removed at your first post-operative visit. Incisions will be covered with a waterproof dressing.
- You will then be moved to the recovery room. Usually, you will be ready to go home in one or two hours. You should have someone with you to drive you home. **Please see the post-operative instruction section for more details.**

Expectations After Arthroscopic Surgery

- Although arthroscopy can be used to treat many problems, you may have some activity limitations even after recovery. The outcome of your surgery will often be determined by the degree of injury or damage found in your knee, which is difficult to assess prior to surgery.
- Sometimes, especially when you have preexisting cartilage damage, your outcome will be influenced SIGNIFICANTLY by your rehabilitation and recovery, and you may be advised to find a low-impact alternative form of exercise.
- Physical exercise and rehabilitation will play an important role in your final outcome. A formal physical therapy program also may add something to your final result.
- It is reasonable to expect that by 4-6 months post operatively, you should be able to engage in most of your former physical activities as long as they do not involve significant high-impact activities, your post-operative rehabilitation protocol will guide you through this and should be followed at the discretion of your treating therapist.
- If your job involves heavy work, such as a construction laborer, you may require more time to return to your job than if you have a sedentary office job.

Ultimately, you are responsible for adhering to the rehabilitation protocol. Your satisfaction after surgery will depend on your dedication to your rehabilitation regimen. It will be worth it in the end and will give you the best chance for you to return to the active lifestyle you desire!

