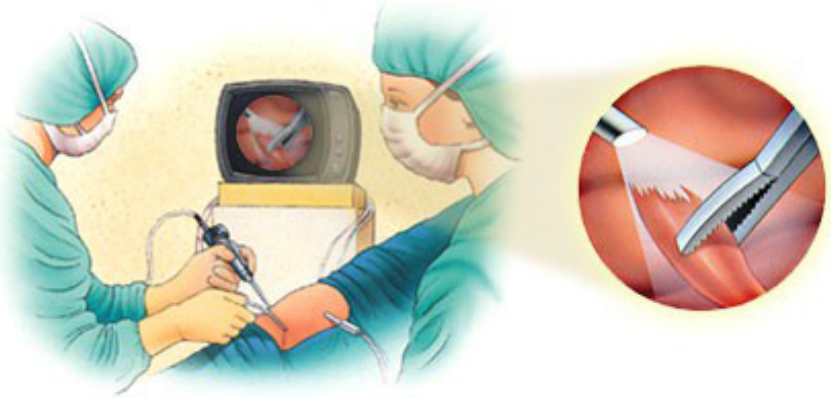
Knee Arthroscopy



(Key-hole surgery)

Sports, work injuries, arthritis, or weakening of the tissues with age can cause wear and inflammation, resulting in pain and diminished knee function.

Arthroscopy can be used to diagnose and treat many of these problems. By providing a clear picture of the knee, arthroscopy can also help the orthopaedic surgeon decide whether other types of reconstructive surgery would be beneficial.

Almost all arthroscopic knee surgery is done on an outpatient basis for healthy patients. Usually, you will be asked to arrive at the hospital an hour or two prior to your surgery. Do not eat or drink anything after midnight the night before your surgery.

Arthroscopy can be performed under local, regional, or general anesthesia. Local anesthesia numbs your knee, regional anesthesia numbs you below your waist, and general anesthesia puts you to sleep. The anesthesiologist will help you determine which would be the best for you.

The orthopaedic surgeon will make a few small incisions in your knee. The surgeon will then insert the arthroscope to properly diagnose your problem, using the image projected on a monitor to guide the arthroscope. If surgical treatment is needed, the surgeon can use a variety of small surgical instruments through another small incision. The procedure usually lasts 45 minutes to 1 1/2 hours.

At the conclusion of your surgery, the surgeon may close your incisions with a suture or paper tape and cover them with a bandage.

You will 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.

Potential postoperative problems with knee arthroscopy include infection, blood clots, and an accumulation of blood in the knee. These occur infrequently and are minor and treatable. Other temporal squeals may include swelling, limited ability to walk and do sports, and diminished sensation in the knee region.

Warning Signs

Call immediately if you experience any of the following:

1 Fever
2 Chills
3 Persistent warmth or redness around the knee
4 Persistent or increased pain
5 Significant swelling in your knee
6 Increasing pain in your calf muscle

Reasonable Expectations After Arthroscopic Knee 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. For example, if you damage your knee from jogging and the smooth articular cushion of the weightbearing portion of the knee has worn away completely, then full recovery may not be possible. 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 six to eight weeks you should be able to engage in most of your former physical activities.

A return to intense physical activity should only be done under the direction of your surgeon

Hamstring Muscle Strain

The hamstrings are the muscles at the back of your thigh. These muscles help to straighten (extend) the leg at the hip and bend (flex) the leg at the knee. A "pulled" hamstring is a strain or tear in the muscles or tendons.

Anyone can experience hamstring strain, but most people at risk for this injury are:

Adolescent athletes who are still growing
Professional athletes (football, soccer, skating, or running)
Runners or sprinters
Dancers
Older athletes whose exercise program is primarily walking

Causes

Hamstring injuries are easier to prevent than cure. But to understand what causes a hamstring injury, you first have to know how muscles work.

How Muscles Work

All muscles work in pairs to perform a task. One set of muscles shortens (contracts) to exert force, while the other set of muscles relaxes. The hamstring muscles, located at the back of the thigh, work with the quadriceps muscles in the front of the thigh. When you bend your leg, the hamstring muscles contract and the quadriceps muscles relax. Conversely, when you straighten your leg, the quadriceps muscles contract and the hamstring muscles relax.

Strains and Tears

When one muscle group is much stronger than its opposing muscle group, the imbalance can lead to a strain. This frequently happens with the hamstring muscles. The quadriceps muscles are usually much more powerful, so the hamstring may become fatigued faster than the quadriceps. A fatigued muscle cannot relax as easily when its opposing muscle contracts, leading to strains.

Muscle strains are overuse injuries that result when the muscle is stretched without being properly warmed up. It's like pulling a rubber band too long. Eventually, the rubber band will either lose its shape or tear apart. The same thing happens with muscles.

Hamstring strain in young people often occurs because bones and muscles do not grow at the same rate. During a growth spurt, the bones may grow faster than the muscles. The growing bone pulls the muscle tight, and a sudden jump, stretch, or impact can tear the muscle away from its connection to the bone.

Sometimes, a muscle that tears away from a bone will pull a piece of bone with it. This is called an avulsion injury. If the hamstring tears near the hip, where it attaches to the pelvis, it may pull a piece of hip bone (ischium) away. This is a serious injury that may require surgery to reattach the muscle.

Diagnosis

Hamstring injuries are usually readily apparent.

Mild strains may involve a simple tightening of the muscle that you can feel.
More severe injuries may result in a sharp pain in the back of the thigh, usually in full stride.
A rupture or tear may leave you unable to stand or walk. The muscle may be tender to the touch, and it may be painful to stretch your leg. Within a few days after a tear, bruising may appear.

Treatment

Remember RICE (Rest, Ice, Compression, Elevation), and you will know the immediate treatment protocol for many sports-related injuries, including hamstring pulls or strains.

A brief period in a knee splint may be prescribed.

If the muscle is completely torn, surgery may be necessary to repair and reattach it. No treatment is complete without proper rehabilitation to strengthen and stretch the muscle.

Prevention

The best way to prevent a hamstring injury is to stretch before and after an activity. Weak or tight hamstrings can contribute to low back pain, so doing exercises to strengthen and stretch the hamstrings may also reduce your risk of low back pain.

Sit down and straighten your left leg. The sole of your right foot should rest next to the inside of your straightened leg. Lean slightly forward and touch your foot with your fingers. Keep your left foot upright with the ankle and toes relaxed. Hold for 30 seconds. Repeat with right leg.

Knee Arthroscopy

If you have persistent pain, catching, or swelling in your knee, a procedure known as arthroscopy may help relieve these problems.

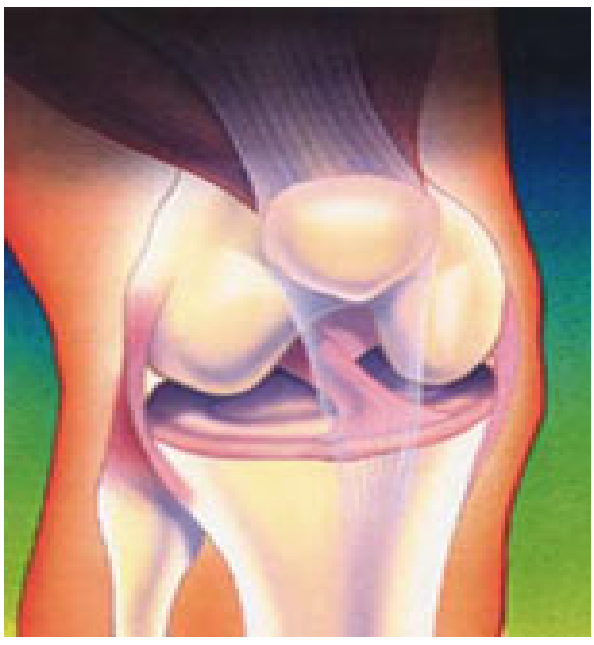
Arthroscopy allows an orthopaedic surgeon to diagnose and treat knee disorders by providing a clear view of the inside of the knee with small incisions, using a pencil-sized instrument called an arthroscope. The scope allows transmission of an image of your knee through a small camera to a television monitor. The image allows the surgeon to thoroughly examine the interior of the knee and determine the source of the problem. During the procedure, the surgeon also can insert surgical instruments through other small incisions in your knee to remove or repair damaged tissues.

With improvements of arthroscopes and higher resolution cameras, the procedure has become highly effective for both the accurate diagnosis and proper treatment of knee problems.

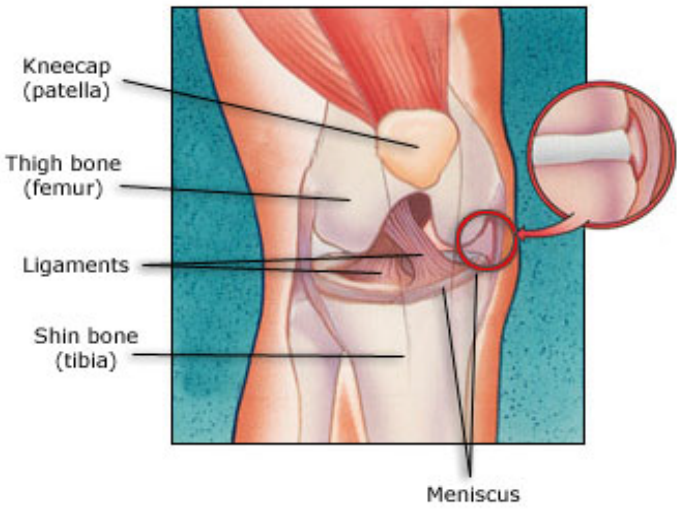
Anatomy

The knee is the largest joint in the body, and one of the most easily injured. It is made up of the lower end of the thigh bone (femur), the upper end of the shin bone (tibia), and the knee cap (patella), which slides in a groove on the end of the femur. Four bands of tissue-the anterior and posterior cruciate ligaments and the medial and lateral collateral ligaments-connect the femur and the tibia and provide joint stability. Strong thigh muscles give the knee strength and mobility.

The surfaces where the femur, tibia, and patella touch are covered with articular cartilage. Articular cartilage is a smooth substance that cushions the bones and enables them to



glide freely. Semicircular rings of tough fibrous cartilage tissue, called the lateral and medial menisci, act as shock absorbers and stabilizers.



The articular cartilage cushions the knee joint.

The bones of the knee are surrounded by a thin, smooth tissue capsule lined by a thin synovial membrane. The synovium releases a special fluid that lubricates the knee, reducing friction to nearly zero in a healthy knee.

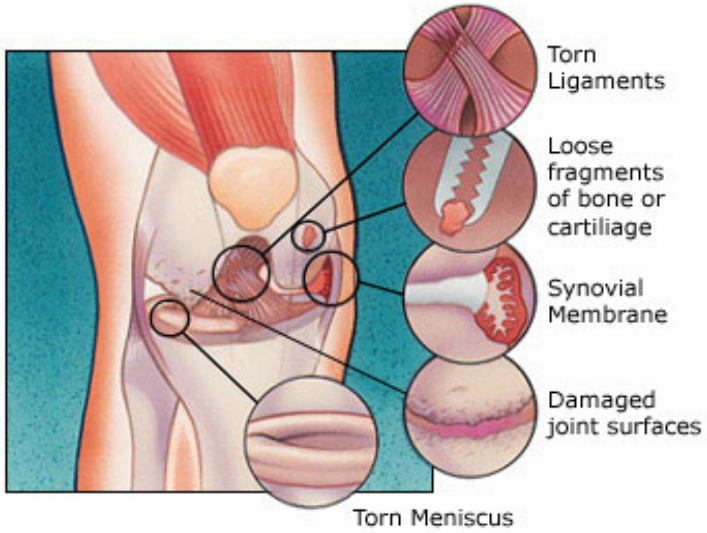
Knee Problems

Normally, all parts of the knee work together in harmony. Sports, work injuries, arthritis, or weakening of the tissues with age can cause wear and inflammation, resulting in pain and diminished knee function.

Arthroscopy can be used to diagnose and treat many of these problems:

Problems in the knee joint that usually can be seen with an arthroscope.

Torn meniscal cartilage.



Loose fragments of bone or cartilage.
Damaged joint surfaces or softening of the articular cartilage, known as chondromalacia.
Inflammation of the synovial membrane, such as rheumatoid or gouty (crystalline arthropathy) arthritis.
Abnormal alignment or instability of the kneecap.
Torn ligaments, including the anterior and posterior cruciate ligaments.

By providing a clear picture of the knee, arthroscopy can also help the orthopaedic surgeon decide whether other types of reconstructive surgery would be beneficial.

Is Arthroscopy for You?

Your family physician can refer you to an orthopaedic surgeon for an evaluation to determine whether you could benefit from arthroscopy.

Signs that you may be a candidate for this procedure include swelling, persistent pain, catching, giving way, and loss of confidence in your knee. When other treatments, such as the regular use of medications, knee supports, and physical therapy, have provided minimal or no improvement, you may benefit from arthroscopy.

Most arthroscopies are performed on patients between 20 and 60 years of age. Patients younger than 10 years of age and older than 80 years of age have benefited from the procedure as well.

The Orthopaedic Knee Evaluation

The orthopaedic knee evaluation usually consists of a medical history, a physical examination, and X-rays.

During the medical history, your orthopaedic surgeon will gather information about your general health and will ask you about your symptoms.

A physical examination will be done to assess the motion and stability and muscle strength of the knee as well as the overall alignment of the leg.

X-rays will be done to evaluate the bones of the knee. Your orthopaedic surgeon may also arrange for you to undergo magnetic resonance imaging (MRI) to provide more information about the soft tissues of your knee. An MRI uses magnetic sound waves to create images. They are not X-rays. Blood tests may be obtained to determine if you have arthritis.

Your orthopaedic surgeon will review the results of your evaluation with you and discuss the best methods to further diagnose your knee problem. Other diagnostic tests may be indicated, such as magnetic resonance imaging (MRI).

Treatment options include medications or surgical procedures, such as arthroscopy.

Your orthopaedic surgeon will explain the potential risks and complications of knee arthroscopy, including those related to the surgery itself and those that can occur after your surgery.

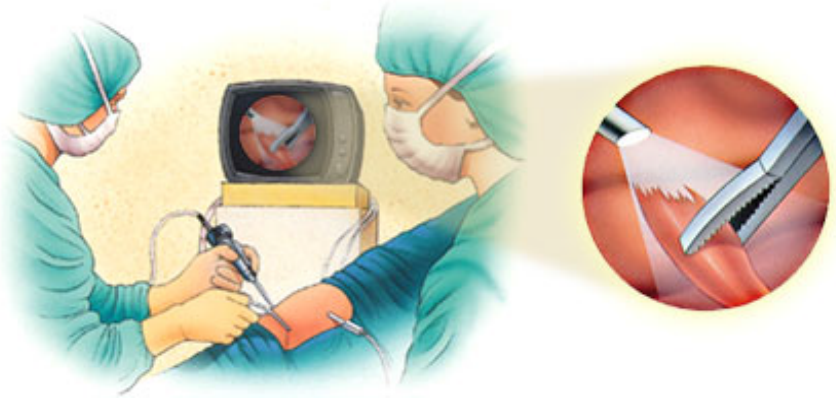
Preparing for Surgery

If you decide to have arthroscopy, you may be asked to have a complete physical examination with your family physician before surgery. This will assess your health and rule out any conditions that could interfere with your surgery.

Before surgery, tell your orthopaedic surgeon about any medications or supplements that you are taking. You will be informed which medications you should stop taking before surgery.

Tests, such as blood samples or a cardiogram, may be ordered by your orthopaedic surgeon to help plan your procedure.

Arthroscopic Surgery of the Knee



Almost all arthroscopic knee surgery is done on an outpatient basis for healthy patients. Your hospital or surgery center will contact you about the specific details for your surgery. Usually, you will be asked to arrive at the hospital an hour or two prior to your surgery. Do not eat or drink anything after midnight the night before your surgery.

After arrival, you will be evaluated by a member of the anesthesia team. Arthroscopy can be performed under local, regional, or general anesthesia. Local anesthesia numbs your knee, regional anesthesia numbs you below your waist, and general anesthesia puts you to sleep. The anesthesiologist will help you determine which would be the best for you.

If you have local or regional anesthesia, you may be able to watch the procedure on a monitor, if you wish.

The orthopaedic surgeon will make a few small incisions in your knee. A sterile solution will be used to fill the knee joint and rinse away any cloudy fluid, providing a clear view of your knee.

The surgeon will then insert the arthroscope to properly diagnose your problem, using the image projected on a monitor to guide the arthroscope. If surgical treatment is needed, the surgeon can use a variety of small surgical instruments (e.g., scissors, clamps, motorized shavers, or lasers) through another small incision.

This part of the procedure usually lasts 45 minutes to 1 1/2 hours.

Common treatments with knee arthroscopy include:

Removal or repair of torn meniscal cartilage.
Reconstruction of a torn cruciate ligament.
Trimming of torn pieces of articular cartilage.
Removal of loose fragments of bone or cartilage.
Removal of inflamed synovial tissue.

At the conclusion of your surgery, the surgeon may close your incisions with a suture or paper tape and cover them with a bandage.

You will 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.

Your Recovery at Home

Recovery from knee arthroscopy is much faster than recovery from traditional open knee surgery. Still, it is important to follow your orthopaedic surgeon's instructions carefully after you return home. You should ask someone to check on you that evening.

Swelling

keep your leg elevated as much as possible for the first few days after surgery. Apply ice as recommended by your orthopaedic surgeon to relieve swelling and pain.

Dressing Care

You will leave the hospital with a dressing covering your knee. You may remove the dressing the day after surgery. You may shower, but should avoid directing water at the incisions. Do not soak in a tub Keep your incisions clean and dry.

Your orthopaedic surgeon will see you in the office a few days after surgery to check your progress, review the surgical findings, and begin your postoperative treatment program.

Bearing Weight

After most arthroscopic surgeries, you can walk unassisted. Your orthopaedic surgeon may advise you to use crutches, a cane, or a walker for a period of time after surgery. You can gradually put more weight on your leg as your discomfort subsides and you regain strength in your knee. Your surgeon may allow you to drive after a week.

Exercises to Strengthen Your Knee

You should exercise your knee regularly for several weeks following surgery to strengthen the muscles of your leg and knee. A physical therapist may help you with your exercise program if your orthopaedic surgeon recommends specific exercises.

Medications

Your orthopaedic surgeon may prescribe antibiotics to help prevent an infection and pain medication to help relieve discomfort following your surgery.

Complications

Potential postoperative problems with knee arthroscopy include infection, blood clots, and an accumulation of blood in the knee. These occur infrequently and are minor and treatable.

Warning Signs

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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. For example, if you damage your knee from jogging and the smooth articular cushion of the weightbearing portion of the knee has worn away completely, then full recovery may not be possible. You may be advised to find a low-impact alternative form of exercise.

An intercollegiate or professional athlete often sustains the same injury as a weekend recreational athlete, but the potential for recovery may be improved by the over-development of knee muscles.

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.

A return to intense physical activity should only be done under the direction of your surgeon.

It is reasonable to expect that by six to eight weeks you should be able to engage in most of your former physical activities as long as they do not involve significant weightbearing impact. Twisting maneuvers may have to be avoided for a longer time.

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 job.