

## Arthroscopic Surgery

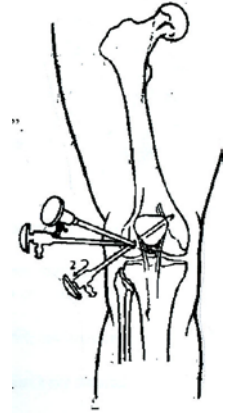
### What is arthroscopy?

Arthroscopy is a surgical procedure that orthopedic surgeons use to visualize, diagnose and treat problems inside of a joint.

The word arthroscopy comes from the Greek words, “arthro” (joint) and “skopein” (to look). The term literally means “to look within the joint”.

In an arthroscopic examination, the doctor makes a small incision in the patient’s skin and 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 camera, The doctor is able to see the interior of the joint through this very small incision rather than the large incision needed for conventional “open” surgery.

The television camera attached to the arthroscope displays the image of the joint on a television screen, allowing the doctor to look, for example, throughout the knee—at cartilage and ligaments, and under the kneecap. The doctor can determine the amount and type of injury, and then repair or correct the problem, if it is necessary.



### Why is arthroscopy necessary?

Diagnosing joint injuries and disease begins with a thorough medical history, physical examination, and usually X-rays. Additional tests such as MRI, or CT scan also may be needed. Through the arthroscope, a final diagnosis is made which may be more accurate than through “open” surgery, X-ray studies or MRI alone.

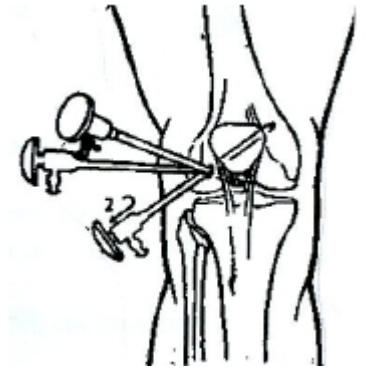
Disease and injuries can damage bones, cartilage, ligaments, muscles and tendons. Some of the most frequent conditions found during arthroscopic examination of joints are:

- **Inflammation**  
Synovitis—inflamed lining (synovium) in knee, shoulder, elbow or ankle.
- **Injury** – acute and chronic  
Shoulder – rotator cuff tendon tears, impingement syndrome, and recurrent dislocations.  
Knee – meniscal (cartilage) tears, chondromalacia (wearing or injury of cartilage cushion), and anterior cruciate ligament tears with instability.
- **Loose bodies of bone and/or cartilage**  
knee, shoulder, ankle and elbow

Although the inside of nearly all joints can be viewed with an arthroscope, six joints are most frequently examined with this instrument. These include the knee, elbow, shoulder, ankle, hip and wrist. As engineers make advances in electronic technology and orthopedic surgeons develop new techniques, other joints may be treated more frequently in the future.

### How is arthroscopy performed?

Arthroscopic surgery, although much easier in terms of recovery than “open” surgery, still requires the use of anesthetics and the special equipment in a hospital operating room or outpatient surgical suite. You will be given a general, spinal or a regional anesthetic, depending on the joint or suspected problem. A small incision (about the size of a buttonhole) will be made to insert the arthroscope. Several other incisions may be made to see other parts of the joint or insert other instruments.



When indicated, corrective surgery is performed with specially designed instruments that are inserted into the joint through the accessory incisions.

Initially, arthroscopy was a simple diagnostic tool for planning standard open surgery. With the development of better instruments and surgical techniques, many conditions can be treated arthroscopically.

For instance, most meniscal tears in the knee can be treated successfully with arthroscopic surgery.

Some problems associated with arthritis also can be treated. Several disorders are treated with a combination of arthroscopic and standard surgery.

- Rotator cuff repair
- Repair or resection of torn cartilage from the knee or shoulder
- Reconstruction of the anterior cruciate ligament of the knee
- Removal of inflamed lining (synovium) in the knee, shoulder, wrist and ankle
- Repair of torn ligaments
- Removal of loose bone or cartilage in the knee, shoulder, elbow, ankle and wrist

### What happens after arthroscopy?

After arthroscopic surgery, the incisions will be covered with a dressing. You will move from the operating room into the recovery room. Some patients need little or no pain medication, although it is not uncommon to have pain if an injury was treated.

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

The amount of surgery required and recovery time will depend upon the complexity of your problem. Occasionally, during arthroscopy, the doctor may discover that the injury or disease cannot be treated adequately with arthroscopy alone. The “open” surgery, if

previously agreed, can be performed while you are still anesthetized, or at a later date after you have discussed the findings with the doctor.

### **What are the possible complications?**

Although uncommon, complications do occur occasionally during or following arthroscopy. Infection, phlebitis (blood clots of a vein), excessive swelling or bleeding, joint stiffness damage to blood vessels or nerves, and instrument breakage are the most common complications, but occur in far less than 1 percent of all arthroscopic procedures.

### **What are the advantages?**

Although arthroscopic surgery has received a lot of public attention because it is used to treat well-known athletes, it is an extremely valuable tool for all orthopedic patients and is generally easier on the patient than open surgery. Most patients have their arthroscopic surgery as outpatients and are home several hours after surgery.

### **Recovery after arthroscopy**

The small puncture wounds take several days to heal. The operative dressing can usually be removed the morning after the surgery and adhesive strips can be applied to cover the small healing incisions.

Although the puncture wounds are small and the pain in the joint that underwent arthroscopy is minimal, it takes several weeks (6-8, sometimes longer) for the joint to maximally recover. A specific activity and rehabilitation program may be suggested to speed your recovery and protect your future joint function.

It is not unusual for patients to go back to work or school or resume daily activities within a few days. Athletes and others who are in good physical condition may in some case return to athletic activities within a few weeks.

*Remember, though, that people who have arthroscopy can have many different diagnoses and preexisting conditions, so each patient's arthroscopic surgery is unique to that person. Recovery time will reflect that individuality. It is very rare that your recovery will be the same as that of a friend or family member who also had "arthroscopic surgery".*

## REHABILITATION AFTER ARTHROSCOPIC KNEE SURGERY

This protocol is a guideline for your **rehabilitation after arthroscopic knee surgery**. You may vary in your ability to do these exercises and to progress to full resumption of your previous activity. Please call the doctor if you are having a problem with your knee or the physical therapy line if you need clarification of these instructions.

### Phase one: The first week following surgery

#### Goals:

1. Control pain and swelling
2. Maintain knee motion
3. Activate the quadriceps muscles

#### Guidelines and Activities:

1. The **novocaine** that is put in your knee at the time of surgery lasts six to eight hours. Begin taking the pain medication when you start feeling sensation return. The knee will be painful for several days after the arthroscopy.
2. You can bear full weight and **walk** on the leg unless otherwise instructed by The doctor. In some instances, crutches can be used for a period of time if walking is uncomfortable.
3. Remove the outer **bandage** when you get home and apply cold directly to the knee. Change the bandages whenever needed.
4. Gently **move** the knee (flexion and extension) as much as you can to prevent stiffness. Do not place a pillow under the knee for comfort. This can lead to knee stiffness
5. Apply **cold** to reduce pain and swelling. Use ice on the knee 20 minutes/on and 20 minutes/off for the first day when awake. Then apply cold as often as needed for 15 to 20 minutes at a time for the next several days. Place a towel or cloth between the skin and the ice to prevent skin injury.
6. You may **shower** and get your incision wet. Do not soak the incision in a bathtub or Jacuzzi until the stitches have been removed.
7. Take an **aspirin** each morning.
8. You can wear an **elastic stocking** (TED) below the knee to prevent leg swelling, and do at least 10 ankle motion exercises each hour to control swelling and to help prevent phlebitis (blood clots in the veins).

## Exercise Program:

**QUADRICEPS SETTING** - to maintain muscle tone in the thigh muscles (quadriceps) and straighten the knee.



Lie on your back with your knee extended fully straight as in figure. Tighten and hold the front thigh muscles making the knee flat and straight. If done correctly, the kneecap will slide slightly upward toward the thigh muscles as the muscles contract. The tightening action of the quadriceps should make your knee straighten and be pushed flat against the bed or floor.

Hold for five seconds for each contraction. Do 20 repetitions whenever you think about it (many times a **HEEL PROP**- to straighten (extend) the knee. Lie on your back with a rolled up towel under your heel or sit in a chair with the heel on a stool as shown in the figure. Let the knee relax into extension (straight). If the knee will not straighten fully, you can place a weight (2 to 5 pounds) on the thigh, just above the kneecap.

Try to hold this position for **5 minutes, three times a day. While maintaining this extended position, practice quadriceps setting.**



**HEEL SLIDES** - to regain the bend (flexion) of the knee.

While lying on your back, actively slide your heel backward to bend the knee. Keep bending the knee until you feel a stretch in the front of the knee. Hold this bent position for five seconds and then slowly relieve the stretch and straighten the knee. While the knee is straight, you may repeat the quadriceps setting exercise.

Repeat exercise 20 times, three times a d



**SITTING HEEL SLIDES** -to regain the bend (flexion of the knee).

While sitting in a chair, slide the heel backward as if trying to get the foot underneath the chair. Hold five seconds and slowly relieve the stretch by sliding the foot forward. You can help with the opposite foot if necessary. Repeat exercise 20 times, three times a day.



**ANKLE PUMPS** - move the foot up and down to stimulate circulation in the leg.

Do at least 10 ankle pump exercises each hour.



## **OFFICE VISIT**

Please return to see the doctor approximately **one week to ten days** after your surgery. At this time, your sutures will be removed and your progress will be checked.

## REHABILITATION AFTER ARTHROSCOPIC KNEE SURGERY

### Phase Two: 2 to 6 weeks after surgery

#### Goals:

1. Protect the knee from overstress and allow healing
2. Regain full motion
3. Regain full muscle strength

#### Activities:

1. You can bear weight and walk on the leg as you are able. Try to avoid limping and walk with a heel - toe pattern. Avoid walking for long distances for 4 to 6 weeks after surgery.
2. Continue to ice the knee to reduce pain and swelling. Ice the knee three times a day for 15 to 20 minutes. Always place a towel or cloth between the skin and the ice to prevent skin injury.
3. Leave the small strips of tape (steri-strips) in place. They will gradually loosen and fall off as you move the knee and shower. You can wrap an elastic bandage (ace) around the knee, if necessary, to control swelling.
4. Do not place a pillow under the knee for comfort. This can lead to knee stiffness.

#### Exercise Program

The following exercise program should be followed as directed by the doctor or the physical therapist. If the exercises can be performed easily after the first week, then an ankle weight may be used to increase the resistance of the exercise and build strength. Start with 1 pound and add 1 pound per week until you reach 5 pounds.

Do the exercises daily for the first week, and then decrease to every other day when using ankle weights.

You may ride the stationary bicycle daily for 20 to 30 minutes.

Avoid using stair-stepper machines, deep knee bends and squats or any exercise that causes crunching, clicking or pain at the kneecap.

At 6 weeks after surgery, you may gradually resume your previous activities if you have full range-of-motion, full strength and no swelling.

## **STATIONARY BICYCLE**

Utilize a stationary bicycle to move the knee joint and increase knee flexion.

If you cannot pedal all the way around, then keep the foot of your operated leg on the pedal, and pedal back and forth until your knee will bend far enough to allow a full cycle. Most people are able to achieve a full cycle revolution backwards first, followed by forward. You may ride the cycle with no resistance for 20 to 30 minutes a day. Set the seat height so that when you are sitting on the bicycle seat, your knee is fully extended with the heel resting on the pedal in the fully bottom position. You should then actually ride the bicycle with your forefoot resting on the pedal.



**QUADRICEPS SETTING** - to maintain muscle tone in the thigh muscles and straighten the knee.

Lie on your back with the knee extended fully straight as in figure. Tighten and hold the front thigh muscle making the knee flat and straight. If done correctly, the kneecap will slide slightly upward toward the thigh muscle. The tightening action of the quadriceps should make your knee straighten and be pushed flat against the bed or floor. Hold 5 seconds for each contraction. Do 20 repetitions three times a day until you can fully straighten your knee equal to the unoperated side.



**HEEL PROP**- to straighten (extend) the knee.

Lie on your back with a rolled up towel under your heel or sit in a chair with the heel on a stool as shown in the figure. Let the knee relax into extension (straight). If the knee will not straighten fully, you can place a weight (2 to 5 pounds) on the thigh, just above the kneecap.

Try to hold this position for **5 minutes, three times a day. While maintaining this extended position, practice quadriceps setting.**



**HEEL SLIDES** - to regain the bend (flexion) of the knee.

While lying on your back, or assisting with a towel, actively slide your heel backward to bend the knee. Keep bending the knee until you feel a stretch in the front of the knee. Hold this bent position for 5 seconds and then slowly relieve the stretch and straighten the knee. While the knee is straight, you may repeat the quadriceps setting exercise. Continue this exercise until you can fully bend your knee equal to the unoperated side. Repeat 20 times, three times a day.



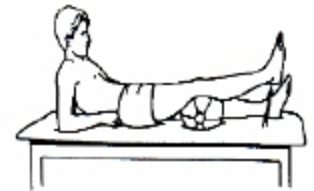
### **STRAIGHT LEG LIFT**

Tighten the quadriceps muscle so that the knee is flat, straight and fully extended. Try to raise the entire operated limb up off of the floor or bed.  
If you are able to keep the knee straight raise the limb to about 45 degrees, pause one second and then lower slowly to the bed. Relax and repeat.  
If the knee bends when you attempt to lift the limb off of the bed, **do not** do this exercise. Keep trying to do the quadriceps setting exercise until you can lift the limb without letting the knee bend. Repeat 20 times.



### **SHORT ARC LIFT**

With the knee bent over a rolled up towel or blanket, lift the foot so that the knee fully straightens. Hold the knee locked in extension for 5 seconds, then slowly lower. Repeat 20 times.



### **STANDING HAMSTRING CURL**

Stand facing the wall, using the wall for balance and support. While standing on the unoperated limb, bend the knee of the operated side and raise the heel toward the buttock. Hold this flexed position for one second. Slowly lower the foot back to the floor. Keep the thighs aligned as illustrated. Repeat 20 times.



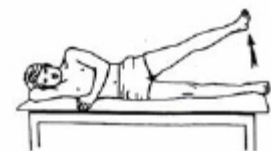
### **STANDING TOE RAISE**

Stand facing a wall, hands on the wall for support and balance. Keep the knees extended fully. Tighten the quadriceps to hold the knee fully straight. Raise up on 'tip-toes' while maintaining the knees in full extension. Hold for one second, then lower slowly to the starting position. Repeat 20 times.



### **HIP ABDUCTION**

Lie on your unoperated side. Keep the knees fully extended. Raise the operated limb upward to a 45 degree angle as illustrated. Hold one second, then lower slowly. Repeat 20 times.



### **OFFICE VISIT**

No further office visits are necessary unless you are experiencing problems.



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