

ACL Injury:
A Patient's Guide



- Frequently asked questions on injury, surgery and recovery
- Preoperative and postoperative guidelines

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What is an ACL Tear?

The ACL (anterior cruciate ligament) is one of the main stabilizers of the knee. It is a strong ligament inside the knee that allows you to turn, cut, twist, and pivot. There may be other structures in your knee that are injured at the same time as your ACL. These include your meniscus (a cartilage cushion inside your knee), other ligaments, or the smooth articular cartilage covering the ends of the bone. Your treatment plan will be influenced by the combination of structures involved, your current activity level, and your activity goals. The final plan of care will be decided by you and your healthcare team.

What are the symptoms of an ACL injury?

The majority of ACL tears are complete tears or ruptures that occur when an individual makes a sudden cut or turn with feet planted in sports. Hyperextension of the knee can also cause rupture of the ACL. The most frequent symptoms are: hear/feel pop in the knee, cannot return to game, swelling in the knee, pain with bending the knee, feeling unstable in the knee like it will give way.

Knee Anatomy

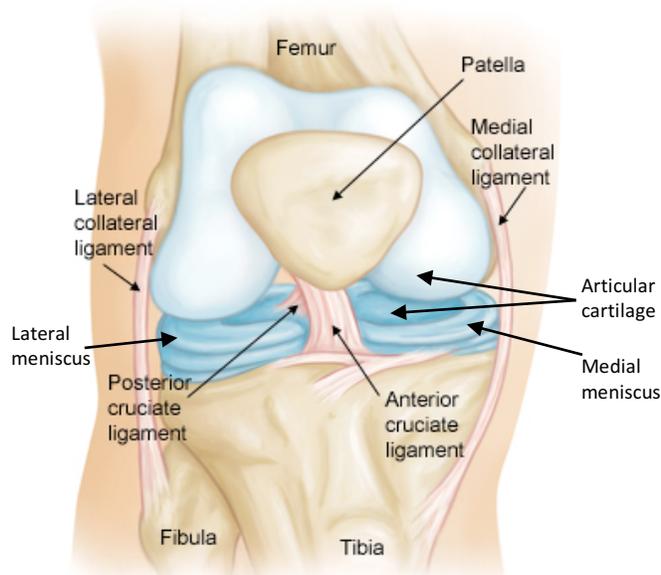


Image credit: <http://orthoinfo.aaos.org/topic.cfm?topic=a00550>

The knee is like a frictionless hinge. This hinge is held together by 4 ligaments. The smooth gliding surface is the articular cartilage on the ends of the bone (like rubber on a tire). The meniscus or bushings are designed to decrease the force or load on the articular cartilage. Injuries that are effectively treated by arthroscopic surgery include meniscus tears, loose bodies, ligament injuries, and small cartilage injuries. Your physician can discuss in more detail your findings and treatment strategy. Please note that debridement of arthritis of the knee (fraying of the tire rubber) is by itself not an effective surgical treatment strategy.

Treatment Options for ACL Tear

Non-Operative Approach

The immediate goal after an ACL tear is the same regardless of treatment options: normal walking, near full motion and strength, and reduced swelling.

Some people who tear their ACL in an occasional recreational activity may choose to have only physical therapy without surgery. People who decide not to have surgery usually don't have a very active lifestyle or participate in sports that require a lot of cutting/pivoting. Most people with this type of lifestyle will be able to function normally without having surgery to reconstruct their ACL.

Active individuals often question whether they should have surgery or wear a knee brace. Research has shown that custom and off-the-shelf braces do not protect against further knee injury in athletes. If you choose to wear a brace, please discuss with Dr. Hagen the risks of additional knee injuries and the type of brace to be worn.

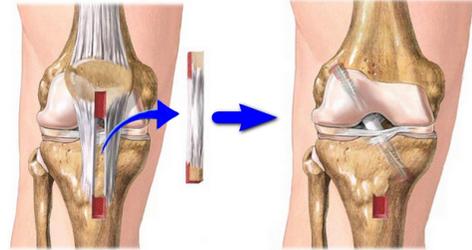
Operative Approach

Patients that participate in cutting and pivoting sports like football, soccer, basketball, etc. -- especially at a competitive level -- usually elect ACL reconstruction. ACL reconstruction has been shown to prevent re-injury or tearing of your meniscus cartilage and articular cartilage. This is especially important if you are young and active. A small percentage of athletic patients with guided physical therapy can participate in sports without ACL surgery, but how to identify these individuals is unknown.

Surgical Techniques

As current techniques to repair (suture together) the torn ACL fibers are not effective, another piece of tissue (graft) is chosen by you and your doctor to place within your knee as the new ACL. Autograft means your own tissue. These choices included your patellar tendon (the central 1/3 of the tendon from your knee cap to your leg bone [tibia], including a small piece of bone from both the knee cap and tibia), or 2 of your hamstring tendons. Allograft tissue comes from a donor. These tissues can be either patellar tendon or other soft tissue (most commonly hamstring or Achilles tendon).

In younger more active patients, especially those in competitive sports, either autograft (patellar tendon or hamstring) is the best choice. Allografts should be avoided because of a 3-fold higher failure rate in these patients. As a patient is older, there is less of a difference in failure and allograft can provide a benefit of less pain after surgery (because there is no pain from where the graft tissue would be taken). Research on patellar autograft versus hamstring autograft has found no difference in outcomes – rather, the surgical technique and patient’s rehabilitation are most important to optimize results.



Dr. Hagen will perform the operation through an arthroscope. The skin incisions are only for the harvest of the graft, or to drill tunnels at the site of the ACL. The graft is placed within the tunnels and fixed by a variety of choices to provide immediate stability prior to healing.

What are the possible complications of surgery?

The risk of complications after ACL surgery is very low. However, with any arthroscopic surgery there are risks including, but not limited to:

- bleeding
- infection
- nerve injury
- blood vessel injury or blood clot
- joint stiffness
- cartilage damage from surgery
- broken bone
- complications from anesthesia

Specifically for ACL surgery, there can be numbness in the front of the knee near the incisions. This numbness may be permanent. There is a less than 0.5% risk of a serious complication (blood clot, broken bone, death from anesthesia).

Can I tear my ACL again after surgery?

The risk of graft re-tear depends on your age and activity level. Overall, this risk is about 5% in 2 years. This risk increases if you do not follow the therapy guidelines after surgery.

How do I prepare for ACL surgery?

If you will be having surgery, you should have a preoperative evaluation with a physical therapist (PT) who will be a member of the treatment team responsible for your care after surgery. During the preoperative rehabilitation you will be instructed on how to walk as normally as possible, decrease swelling in your knee, get your knee straight all the way, and bend your knee as far back as possible. If you can already do these things you may not need to see a therapist beforehand, although we recommend finding someone you like before surgery so that you can have your postoperative PT appointment already arranged.

Goals of preoperative PT:

- 1) Decrease swelling
- 2) Increase range of motion
- 3) Improve gait so you can walk without a limp
- 4) Increase strength in the leg
- 5) Educate you on postoperative exercises
- 6) Educate you on crutch walking.

The **Treatment Team** consists of:

- Your physical therapist
- The physician assistant (Travis Fann, PA-C)
- The surgeon (Dr. Hagen)
- Possibly an athletic trainer

Your PT team will discuss these things with you and show you exercises that will help you get ready for surgery and make your postoperative therapy easier.

Preoperative Requirements

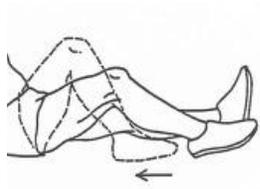
Prior to your surgery you may be instructed to perform a series of exercises in order to build your strength and maintain normal motion. This will greatly help your recovery process after surgery. Please perform all the following 1-2 times per day, and 3 sets of 10 repetitions for each exercise. Ideally before surgery you can:

- 1) Walk without a limp. (Unless you have been instructed by Dr. Hagen to stay on crutches due to the extent of your knee injury.)
- 2) Be able to bend the knee at least 120 degrees.
- 3) Have minimal swelling. This can be achieved with frequent elevation of the leg and use of an ice pack for 15-20 minutes 3-5 times per day.

Exercises to help you achieve your motion:

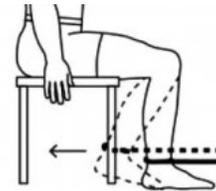
Heel Slides

Slide heel
back as far as
possible



Seated flexion

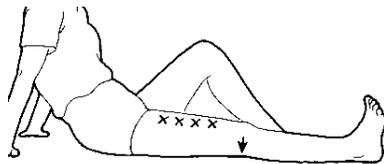
Slide heel
back, bending
the knee



Exercises to help you stay strong:

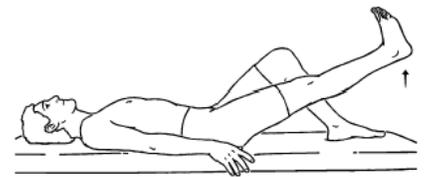
Quad sets

Tighten
quad, push
knee down



Straight Leg Raise

Lift leg as
demonstrated



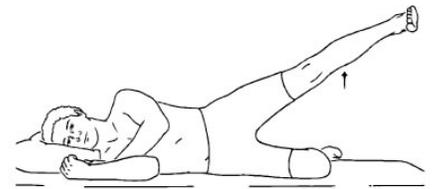
Adduction

Lift leg as
demonstrated



Abduction

Lift leg as
demonstrated



Other Preoperative Instructions

Before surgery you will need a physical examination, usually performed by our physician assistant, Travis. We may also order bloodwork, chest x-ray, or heart EKG to make sure you are healthy enough for surgery. If you are a woman of childbearing age we may recommend a urine pregnancy test before surgery as anesthesia can cause health problems in an unborn child. You will also meet with the nursing staff at the clinic to go over your preoperative instructions. This includes medicines to avoid before surgery, fasting guidelines, shower instructions, and transportation. They can also help you with short term disability forms, insurance forms, and return to work forms.

Postoperative Care

After surgery you will be given a written instruction sheet, pictures of your surgery, a prescription for therapy, and a copy of physical therapy guidelines. This information should answer most of the questions you may have during your recovery. You will be going to PT after your surgery. This can be as soon as during the week after surgery. During this visit you will be instructed on “Phase 1” exercises, wound care, and how much weight you should place on your operated leg. In addition, your therapist will ask you to help set your goals for rehabilitation.

If you have an ACL reconstruction without meniscus repair, you will be allowed to weight bear when you are able to feel your leg again after surgery. If you have a meniscal repair or cartilage work along with your ACL reconstruction you will be on crutches longer and may receive a knee brace, as guided by Dr. Hagen.

The entire rehabilitation process will take at least 6 months (if you have a revision ACL surgery or meniscus/cartilage repair, expect the rehabilitation to go even slower). During the early phase of your rehabilitation you will be closely monitored. As you progress, you will be able to do more exercises on your own. If you have any questions concerning your rehabilitation process, they should be directed to your treatment team.

Follow-up:

You will be seen by Travis, our physician assistant, at 1-2 weeks after surgery for a wound check and removal or trimming of stitches. You will be seen by Dr. Hagen at 6 weeks after surgery. Timing and length of additional follow-ups will be determined by your progress.

FREQUENTLY ASKED QUESTIONS

When can I drive?

You should not drive while you are using narcotic medications. If your surgery is on the left side and your car has an automatic transmission, you may drive in about 1-2 weeks. If your surgery is on the right side (or if your car is manual transmission), it may be 4-6 weeks before you are able to drive. This will be tailored for each individual – you must be off of your crutches and have good control of your leg before you can drive.

When can I go on an airplane?

There is a risk of blood clot after any lower extremity surgery and this is increased during air travel. It can also be uncomfortable to sit on an airplane after surgery. We recommend waiting until at least 2 weeks after surgery for any flight. If you have necessary travel, please inform Dr. Hagen. If you are able to take Aspirin (325 mg), we may recommend taking one tablet twice a day on the day before, the day of, and the day after your flight. While on the plane you should get up and walk around every hour to keep a blood clot from forming.

When can I return to normal activities?

Work/School: Most patients return to desk work or school in about 1-2 weeks. If your job requires physical activity, it may take much longer (weeks or months) depending on the nature of your job and type of surgery. Even if you have a desk job, the first few weeks after surgery may be uncomfortable for prolonged sitting.

Sports: The length of time to return to sport will greatly vary between each individual. Your physical therapy exercises and activity modifications will be reviewed and adjusted at each postoperative visit. Controlled running usually begins around 3 months. Do not expect to return to your sport before 6 months.

General recovery: A rehabilitation program can start as soon as the day after your surgery. Expected recovery timelines will be made more specific, depending on what exactly was seen and done during surgery. It takes 6 months or more for your knee to “completely” recover and for the graft to heal solidly. Listen to your PT and don’t try to rush the biology of healing.

How do I schedule surgery? What if I have additional questions?

Please call our surgery scheduler, Kirsten Halloran, at (206) 598-3484.