HSS

Your Pathway to Recovery

Surgery for ACL Injuries

Volume 4
Second Edition
Patient Education Series

Your Pathway to Recovery

Surgery for ACL Injuries

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The HSS Approach to ACL Surgery

At HSS we believe that patient and family education is a critical component of providing excellent patient care. Therefore, we designed this book to help guide you through your ACL surgical journey from beginning to end. Its objectives are three-fold:

1. To help prepare you for your surgery and hospital experience.
2. To optimize your participation in the ACL surgery processes while in the hospital.
3. To prepare you for initiating and maximizing your recovery at home.

Because HSS does so many ACL procedures each year, we have "ACL Teams". They consist of orthopaedic surgeons, physician's assistants, anesthesiologists, physical therapists, registered nurses and research scientists. These teams are at the forefront of research, surgical techniques, rehabilitation and nursing care for ACL injuries. In an atmosphere that nurtures your well-being, **your team** will employ the best technological and educational strategies which are appropriate for **your ACL** with the goal of returning you to your pre-injury activity level as quickly and safely as possible.

This book is your team's general guide to your ACL surgery, and then, to initiating rehabilitation afterwards. However, not all ACL patients have precisely the same conditions or needs. Therefore, your physician, physical therapist, or nurse may make changes or additions to this book. **Their changes take precedence.**

You will help achieve your optimal recovery from your surgery **by becoming an active, helpful part of the HSS team**, before, during and after surgery. Of course, the long range benefit of your surgery depends very much on the success of your continuing rehabilitation at home. Therefore, we expect that you will continue to practice what your team has taught you long after you have left us.

This book structures your participation from this moment forward. Therefore, it is extremely important that you and your home care helper(s) read this book carefully now, and then refer to it as you progress through the various phases of ACL rehabilitation.

Sincerely,

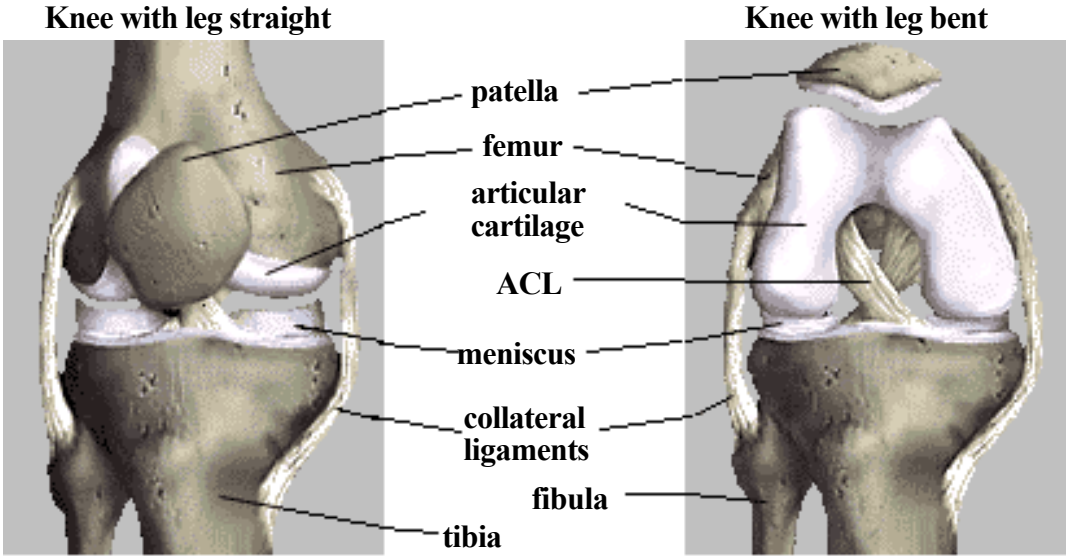
Your HSS ACL Team

What is the ACL and the ACL Injury?

A system of ligaments attaches bone to bone, holding the knee joint together and providing stability throughout a wide range of movements. Two collateral ligaments provide stability to the sides of the knee; two cruciate ligaments provide front-to-back and rotatory stability.

What is the ACL?

The ACL is the Anterior Cruciate Ligament, one of the two ligaments in the center of the knee. One end is attached to the femur (thigh bone) and the other end is attached to the tibia (shin bone). This ligament helps hold the femur and tibia in proper position to each other as the knee joint articulates. This ligament plays an important role in providing stability to the knee joint for everyone, but it is especially important for persons engaged in activities which place greater stress on the knee joint, such as extreme rotation, sudden changes in direction or jumping. These illustrations look at the knee from the front.

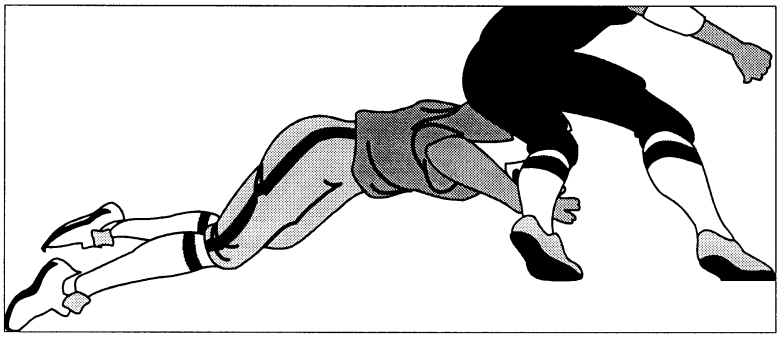


Typical ACL injuries: The typical ACL injury is usually described as a "tear", which may be partial or complete. The tear may be in the central area of the ACL or at or near either end, with the ACL actually torn away from the bone, or torn away and taking a piece of bone with it. Because, as you can see in the illustration, the ACL is "hidden" inside the knee joint, precise diagnosis is not "quick and easy". However, after physical examination and further diagnosis by X-ray and/or MRI, your physician will be able to describe the specific nature of your ACL injury to you. (Occasionally, an arthroscopic examination may be necessary for a complete diagnosis.)

Associated injuries: The event which injured your ACL may have also caused other injuries, especially a torn meniscus and/or collateral ligaments. For maximum benefit, these may require repair at the same time as your ACL. On occasion, these additional injuries may not become apparent until during your actual ACL surgery. In this case, your surgeon will make the indicated repairs along with the ACL.

ACL Injuries: Cause and Effect

The Cause: ACL injuries are commonly caused by twisting and/or by hyperextension of the knee. This injury can happen by falling, slipping or an accident. However, an ACL injury is common in many sports that place extreme forces on the knee joint, including volleyball, basketball and skiing. In addition, an ACL injury can occur in contact sports, where it is frequently caused by a direct blow to the outside of the knee when the foot is planted. Thus participants in sports, such as football, soccer, rugby and lacrosse, are vulnerable. Of course, an ACL injury can also happen in a wide variety of occupations...especially those involving active physical work.



The Effect: As you have learned, the immediate effect of an ACL injury can be pain, swelling, instability of the knee joint and difficulty walking. Unlike some other body parts, the ACL will not readily heal itself. Even with treatment by physical therapy and bracing, partial or all of the instability resulting from the ACL injury may remain. Therefore, without surgical intervention, many individuals are unable to participate in their desired functional activities at the pre-injury level.

Furthermore, there may be subsequent consequential problems. For example, continuing instability may eventually cause significant damage to the meniscus, the shock absorber in the knee joint which lies between the tibia and the femur, leading to pain and further limitation of movement. In addition, for some persons, the ACL injury may eventually lead to osteoarthritis in the knee.

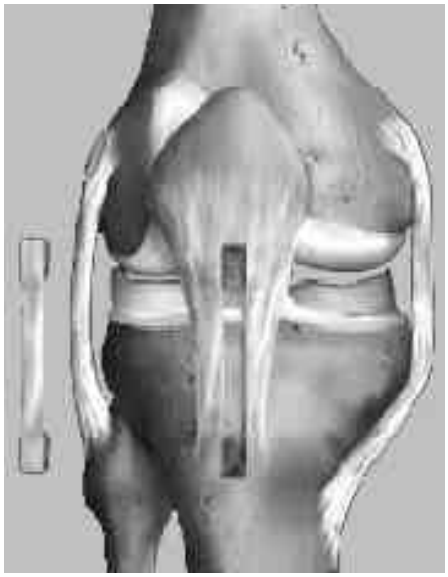
Therefore, early surgical reconstruction is frequently recommended for persons who want to return to higher levels of activity for personal, sports, or vocational reasons.

How Your ACL Reconstruction Is Performed

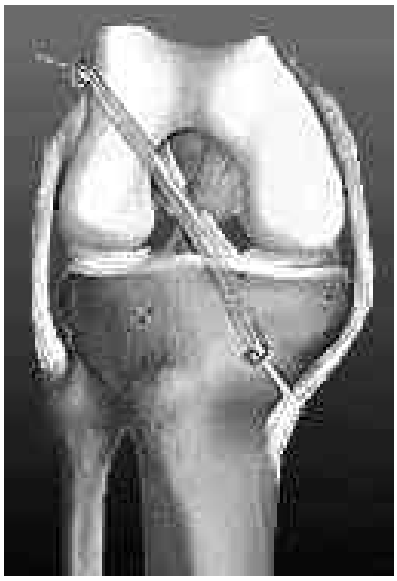
To help provide you with perspective on ACL reconstruction, four methods are described here. Your orthopaedic surgeon will determine the most advantageous procedure for reconstruction of your own ACL injury and will discuss the selected method with you.

Using part of the patella tendon: Use of the central one-third of the patella tendon (shown left, below) is a common way of reconstructing an ACL injury. The patellar tendon graft is "harvested", as below. Then "bone plugs" (pieces of bone) fix the graft in place (shown right, below).

This shows the piece of the patella tendon "harvested" through a small incision in the front of your knee.



"Bone plugs" (one from the patella and one from the tibia) are used to fix the patella tendon graft in place.



Using part of the hamstring tendon is a second type of procedure for reconstructing the ACL. As above, the section is "harvested" and secured in position.

Using an allograft (donor tissue) is a third method for performing the reconstruction. The fourth method of reconstruction uses a **synthetic ligament**. However, to date, synthetic ligaments have not proved to be superior to the other methods.

The usual surgical method is arthroscopy. The arthroscope, which is inserted into the knee joint through 3 to 5 small incisions, enables your surgeon to see the ACL damage on a television-type monitor and frequently, to reconstruct it with use of minute instruments inserted through the incisions. However, depending upon your specific ACL and associated injuries, your surgeon may elect to operate through a large incision. Your surgeon can describe the procedure selected for your ACL reconstruction in detail.

Pre-Operative Preparation

Your Pre-Operative Training Program

At HSS, we have learned that a patient who understands the entire course of ACL treatment will be less apprehensive, and thus be able to progress more rapidly and efficiently. Therefore, before your day of surgery, we will hold a "Pre-Operative Training Program" with you.

- The Pre-Op Program introduces you to key elements of your post-operative plan of care, so that you will recognize and absorb them better when they are formally introduced after your surgery.
- The Pre-Op Program will help shorten your stay in the hospital after surgery.
- The Pre-Op Program contributes strongly to reaching your functional goals sooner, such as restoring range of motion and leg strength.

Your Pre-Operative Training Session will include:

- Fitting a post-operative brace by a member of our prosthetics orthotics department.
- Demonstration of a post-operative cryotherapy (cold therapy) device which reduces pain and swelling.
- Performing a knee ligament laxity test.
- Instruction in proper sizing and use of crutches.
- A "hands-on" demonstration of your initial post-operative exercise program. Unless instructed otherwise, this is the program beginning on Page 18. Please study it now.

Pre-Operative Exercises, if prescribed:

Your physician may require you to follow a pre-operative exercise program which will enhance your rehabilitation after surgery. If required, this program will be given to you individually, and thus is not included in this book.

Start thinking about your questions now!

You are encouraged to ask questions regarding any aspect of your pre- and post-operative plan of care. **Please make note of them here:**

Your Pre-Operative Checklist

So that your trip to HSS for ACL surgery will go smoothly, you must carry out all the instructions on this checklist before your entry into the hospital:

- **Pre-operative Testing:** Within 10 days of your surgical procedure you must have tests done, as ordered by your physician. They may include blood and urine tests, X-rays, MRI's and, if you are over 50 years old, a cardiogram. The pre-testing may be done at HSS or an outside medical facility. If done at HSS, a registered nurse will request information about your health and tell you what to expect and how to plan for your surgery. If not done at HSS, all test results should be faxed to your surgeon's office for review as soon as possible. (Record FAX number here_____.)

For 10 days before surgery stop taking asprin, or anything that contains aspirin, and all anti-inflammatory medications (i.e. Alleve, Advil, Motrin, Ibuprofen, Voltaren, Naprosyn, Feldene, Celebrex, Vioxx, etc.), as well as nutritional supplements, such as Vitamin C, Ginseng, Ginko, Biloba, Garlic and Ginger. If you have questions, please contact your physician's office.

- **Obtain the cryotherapy (cold treatment) device** which your physician recommends. Take notes here:_____

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- **Discuss pain management with your physician**, if you have concerns or questions.
- **A Registered Nurse will call** you between 3 PM and 7 PM the day before your scheduled surgery (or on Friday, if scheduled for Monday) to tell you your time and place to arrive at HSS; to discuss your specific preparations for surgery; and to answer any questions you may have. If you have not heard from the nurse by 7:00 pm the day before your scheduled procedure, please call at 212-606-1154 or 212-606-1326; and tell them you are waiting for your pre-surgical phone call.
- **Follow fasting instructions** provided by the nurse during your telephone conference. Normally patients are not allowed to eat or drink anything after 12:00 midnight prior to surgery. If you are on medications for other medical problems, you will be advised what to take on the morning of surgery with sips of water. If you are a diabetic, do not take any medication for it, unless instructed by your medical physician.
- **Wear loose, comfortable easy-off/easy-on clothing and shoes**. You might want to wear or bring shorts, loose zipper pants or sweat pants to the hospital.

Pre-Operative Checklist, continued

- **Arrange for your escort and transportation home**. You can not drive yourself! Your surgery will be cancelled unless this arrangement is clearly established when you arrive at HSS.
- **Leave all valuables at home**, including jewelry, money and credit cards.
- **Review your post-operative exercises**...they begin on Page 18. Practice them, if you can. If your physician has given you exercises to strengthen your leg/knee before your surgery, do them faithfully according to instructions.
- **What arrangements for your physical therapy** at home do you need to make? Review this with your surgeon. Because going for physical therapy may require travel by car you will be better off if you learn about the rehabilitation facilities, their location and hours and financial requirements before your surgery.
- **First 48 hours at home:** If at all possible, arrange for someone to stay with you at home, or to be available for at least 48 hours in order to assist you with activities of daily living.

Do you have questions about these Pre-Operative Instructions, or want to make notes? You can jot them down here.

Introduction to Anesthesia

Prior to your surgery your anesthesiologist will see you to review your physical condition and to discuss the type of anesthesia you will receive. Most patients undergoing ACL surgery have regional anesthesia. Today, approximately 98% of all ambulatory surgical procedures are carried out with the use of regional anesthesia. The alternative of general anesthesia is rarely used.

Overview of regional anesthesia: These four terms help clarify how regional anesthesia relates to your ACL operation:

Anesthesia: the partial, or total loss of sensation in a body area or the whole body.

Anesthetic: the agent (drug) that induces anesthesia.

Local anesthetic: an anesthetic applied directly to a specific location, providing anesthesia (loss of sensation) to that immediate area.

Regional anesthetic: An anesthetic which produces anesthesia (loss of sensation) in the given region or area of your body containing the surgical site; in this case, in your leg requiring ACL surgery. The regional anesthetic is applied remotely in a specific location (your spine for ACL surgery) where it "blocks" a group of nerves that otherwise would carry sensations of pain from the ACL surgery site.

Regional anesthesia is preferred over general anesthesia, which provides total loss of sensation in the whole body and also causes uncomfortable side effects, such as nausea, vomiting, sore throat and "hangover". It also requires a longer recovery time after surgery.

With regional anesthesia you will be more comfortable following surgery and can expect a smooth transition to your post-operative treatment of pain. It almost always leads to an earlier discharge from the hospital; thus its widespread use in ambulatory surgery.

Your regional anesthesia procedure

- **IV line inserted:** Before administering any regional anesthetic it is necessary to have an intravenous (IV) line in place. Your IV line provides a route for fluids, medications, and antibiotics, as necessary, and also for sedatives, including the one used for your initial sedation.
- **Initial sedation:** Before receiving the injection for regional anesthesia you will be mildly sedated (via the IV) to reduce possible anxiety and tension, and to minimize pain from the local injection which paves the way for application of the regional anesthetic.
- **Administering regional anesthesia:** The goal is to ensure that you feel no discomfort from administration of the regional anesthetic which will anesthetize your ACL leg.

(continued, next page)

Your Regional Anesthesia Procedure, continued

- **Administering regional anesthesia, continued:** First, a very small amount of a local anesthetic is injected in your lower spine. Then a tiny tube called a catheter is inserted. This is usually performed while you lie on your side or in a sitting position. Because of the initial sedation and local anesthetic, you will feel very little discomfort as this is done. The regional anesthetic (a combined spinal/epidural anesthetic for ACL) is then injected through the catheter. You will gradually lose feeling in your legs and be unable to move them until the anesthesia wears off after surgery. Shortly thereafter, you will be moved to the operating room.
- **What to expect during surgery with regional anesthesia:** You may hear the surgical team talking. A "curtain" will prevent you from seeing those at the surgical site, but you will see your anesthesiologist or others monitoring your condition. They may ask you how you feel. You may be able to talk or ask questions yourself, if you choose. In any event, you will not feel the surgical procedure.
- **If you are having arthroscopic surgery:** You may have the option of watching the arthroscopic surgery on the same TV monitor used by the surgeons. However, it is never possible to watch non-arthroscopic or "open" surgery.
- **Choosing to "sleep":** If you would be like to be completely unaware of the surgical procedure, tell your anesthesiologist when he/she first talks to you. You will be given a sedative through your IV line. You will wake up in the recovery room while your regional anesthesia wears off.
- **Your recovery:** In the recovery room your anesthesiologist and the recovery room team will monitor your safe transition from effects of anesthesia to readiness to go home. They will make sure that you can: (1) walk without feeling dizzy or lightheaded; (2) urinate without difficulty; (3) tolerate food and fluid; and (4) manage your pain.
- **Transition to pain medication after regional anesthesia:** Because the level of sedation and anesthesia are kept at the necessary minimum, you will be awake soon after surgery. The recovery room staff will give you pain medication for the initial discomfort as the anesthesia wears off. A cryotherapy device, which applies cold to control pain and swelling, and a brace will be put in place. However, virtually all ACL surgeries result in significant pain after the regional anesthesia finally wears off. Therefore, your surgeon will give you a prescription for a pain medication which you should get filled as soon as possible at your local pharmacy.
- **Don't try to "tough it out" with pain:** Take your pain medication before the pain becomes severe. You will rest more comfortably and be better able to carry on with your assigned exercise program, and the other physical activities which your surgery permits.

Your Day of Surgery

When you arrive at the HSS main lobby, the receptionist at the information desk will direct you to the operating room floor where your ACL surgery will be performed. The admitting assistants will complete your admission process and give you an I.D. bracelet. You and your designated companion (and other family members) will remain in the waiting area until you are called to the pre-surgical unit. they may stay in a nearby Family Waiting Room.

- **In the pre-surgical unit** you will be greeted by the nursing staff and change into a hospital gown. Your clothes and personal possessions will be labeled and held by the staff. If your surgery is in the Ambulatory Surgery Center (1st Floor), you will have a locker. Next, your temperature, pulse, respiration and blood pressure will be taken. Your knee will be shaved and washed with antiseptic soap.
- **When you are ready for surgery**, your medical team will introduce themselves to you. These include the nurse, physician's assistant, anesthesiologist, and assisting physicians. They will discuss aspects of your health, explain the procedures and answer any questions you may have.
- **"Sign your site."** Prior to surgery, your surgeon will sign his or her initials on the knee to be operated on. Two other team members will also confirm the site before surgery.
- **An intravenous infusion (IV) will be started.** The IV line provides a route for fluids, medications, and antibiotics, as necessary, and also for sedatives.
- **The anesthesiologist will see you** prior to surgery in order to review your physical condition and discuss the anesthesia you will receive. Regional anesthesia, which is normally used for ACL surgery, is fully reviewed on the previous two pages.
- **Initial sedation:** You will be mildly sedated (via the IV) to reduce possible anxiety and tension and to minimize pain from the regional anesthetic injection which follows.
- **Injection for regional anesthesia:** The regional injection is administered after the initial sedation, followed by a local anesthetic to ensure that you will feel no pain or discomfort. You will gradually lose feeling in your legs. Shortly thereafter, you will be removed to the operating room.
- **In the operating room:** During surgery you may remain awake or be sedated. If awake, you may hear the operating team, answer questions about how you feel, and talk if you wish. When surgery is complete you will move to the recovery room.
- **In recovery room:** The nursing staff and your anesthesiologist will monitor your return to full awareness. You will receive pain medication for any discomfort as the anesthesia wears off. A cryotherapy device, which applies cold to control pain and swelling, and a brace will be put into place.
- **At the proper time, the IV will be removed.**
- **When ready, you will begin the activities outlined on the next page**.
- **You will also receive a detailed instruction sheet from your physician.**

Post-Operative Program before Going Home

Many ACL patients go home the day of surgery, but some require an overnight stay in the hospital. This may be decided in advance, but sometimes your physician's post-surgery observation of your physical condition may make an overnight stay advisable. You will be informed while in the recovery room.

When the Recovery Room staff and you feel you are ready, you will begin the series of activities which will prepare you for going home. These activities are important preparation for your successful rehabilitation of your ACL injury at home.

- When you are ready, the cryotherapy device will be removed from your knee.
- The physical therapist will instruct you on: putting on and taking off the brace; how to lock and unlock it; and when to use it, which, at first, will be all the time.
- The physical therapist will assist you in getting up and instruct you in using crutches. Your crutches will help keep weight off of your ACL leg in accordance with your designated weight bearing status which will be discussed with you.
- You will begin walking with crutches, the brace locked out straight, and bearing some weight on your ACL leg, according to your physician's instructions.
- The physical therapist will ask you to demonstrate the exercises in Your Home Exercise Program (Page 18), which you should have already practiced.
- You may be given written instructions from the nurse to follow post-operatively. Prescriptions for pain medication will be provided, and you will be asked to make an appointment with your physician 10-14 days later.
- When ready, you will get dressed and go home! You will not be allowed to leave without someone to accompany you home. So plan accordingly.

Using Cryotherapy during Rehabilitation

You may already know the value of applying "cold" to injuries. But the ultimate proof is watching professional athletes "ice down" on the bench or in the locker room at half time or after the game. For many of them, their very careers depend upon it.

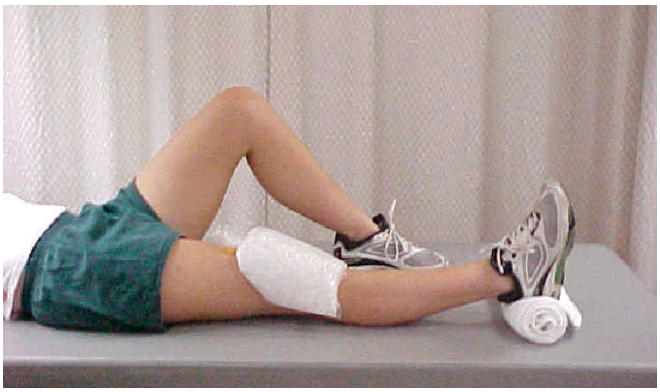
Cryotherapy, the use of cold to treat your ACL reconstruction, is an important element of your post-operative rehabilitation. Cryotherapy can help decrease pain while reducing swelling and inflammation.

It may be in the form of ice wrapped in bags or towels, commercial cold packs or cold compression cuffs. You will receive instructions in cryotherapy treatment. Please obtain your cryotherapy equipment in advance and put it in the freezer so that it will be ready for you when you come home.

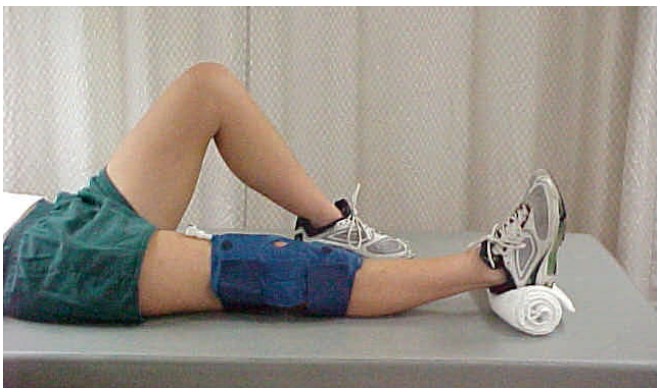
Begin using it as soon as possible after you arrive home! (Do not apply heat directly to your knee, as it may increase swelling and inflammation.)

You will probably find cryotherapy useful for many weeks to come. And then, months or years later, you may do something that causes your ACL area to flare up. Apply your cold as soon as possible while you decide if something additional is required.

An ice pack covering the area from above the knee to well below. The towel helps to keep the knee straight.



A compression cuff in use. Again, the towel keeps the knee straighter than you can do it by yourself.



At Home with Your ACL Reconstruction

You will be consciously "managing your ACL" for months; and if engaged in active sports, for years to come. How long you must consciously focus on your ACL will depend upon your personal goals, your general physical condition, and the nature of your ACL reconstruction. The most critical period is the first few days and weeks, as you move toward resuming your goals. You will be guided by your physician and, when in physical therapy, by your physical therapist. On this and the following pages are instructions for managing your ACL reconstruction until you see your physician on your first follow-up visit. There you will receive new and/or additional instructions.

Medications, take as prescribed: (Please put your "reminder" notes here.) _____

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- Do **not** drink alcoholic beverages or take street drugs when taking pain medications.
- Take pain medication 20-30 minutes before performing exercises, if the exercises are painful. You can expect some discomfort at first, which will lessen as time goes on.
- **Do not drive a car** or operate heavy machinery when taking pain medications.

Common post-operative reactions

As you might expect, your body will react to your ACL reconstruction in one or more ways. These are typical:

- Low grade fever (100.5°F) for a week.
- Small amount of blood or fluid leaking from the surgical site.
- Bruising and discoloration of entire leg.
- Mild numbness close to the wound site for 6-9 months.

Please accept these reactions as normal, but **be ready to call your physician if any of the items in the box at the right occurs**. (If you are unable to reach your physician and the symptoms persist, please go to the nearest hospital emergency room, but contact your physician afterwards.)

When to call your physician:

- Fever of 100.5°F persists after one week or is much higher during the first week.
- Progressively increasing pain. (Pain should steadily decrease.)
- Excessive bleeding.
- Reddened or painful calf.
- Persistent nausea and vomiting.
- Excessive dizziness.
- Persistent headache.
- Your anesthesia injection site is inflamed (reddened, swollen or oozes blood or fluid).

Your Initial Home Activities

Your initial home activities are focused on the combination of: (1) proper care and management of your ACL reconstruction; (2) performing necessary exercises; and (3) your becoming comfortable with your ACL during this important period of care. Your physician may provide you with instructions that supplement, or change the ones here.

Surgical site care

- Keep surgical area clean and dry at all times. Do not put tight clothing over it.
- Keep the dressing in place, but clean and change it as directed by your physician. To do this, carefully remove your brace, keeping your ACL leg supported by your calf or foot; do not let the lower leg dangle. Afterwards, put the brace back on before getting up or moving around.
- Leave the steri-strips in place (although they may fall off on their own).
- Your sutures and remaining steri-strips will be removed during your first post-operative visit with your physician.
- **Showering:** You must shower with your brace on until told otherwise by your physician. You may shower with a knee cast cover (available at surgical supply stores) or a plastic bag over the brace. Secure the top so no water can enter.

Pain management

- Apply cryotherapy to your knee for 20-30 minute intervals at least three times a day, or as instructed by your physician.
- Take your pain medication as prescribed by your physician. Take it before the pain becomes too severe. It will help reduce the pain sooner. **In the event that the pain medication does not work, or you are experiencing unpleasant side effects, do not hesitate to call your physician's office.** (Remember, if you are taking pain medication, you should AVOID alcoholic beverages).
- Take your pain medication 20-30 minutes before doing your exercises, until you feel you can do them without the medication. Try them "without" every day or two.

When sleeping or sitting

- Keep your leg straight and elevated. If sitting, use a stool. When sitting or in bed, place a pillow or two under your calf or ankle, **never under the knee**.

Using your crutches on stairs

- Upstairs: Your "good" leg goes first; then your "ACL" leg; then the crutches.
- Downstairs: Crutches go first; then your "ACL" leg; then the "good" leg. Or both the crutches and the "ACL" leg can go together.

Managing Your Knee Brace

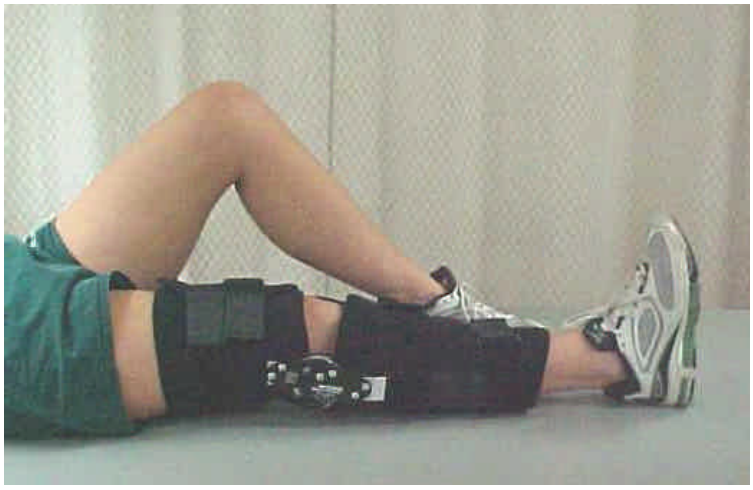
How well you manage your knee brace is a critical component of successful and earlier return to normal knee function. You will "manage it" better, if you remember its purpose at all times. Primary objectives of your brace are to protect your new ACL by:

- Keeping your knee properly aligned during a variety of activities as the ACL heals.
- Providing protection for your knee until your muscle strength increases.
- Protecting the surgical site and the patella donor site, in case you should fall.

HSS uses several types of knee braces for ACL reconstruction. Most have hinges that you can lock and unlock in the extended (leg straight) position. You will probably have this type. It is extremely important that you understand how to correctly put on the brace, how to align the hinges with the knee joint, how to remove it, and to know when to use it locked or unlocked.

Your initial "at home" brace instructions

- Initially, you must wear your brace locked at zero degrees at all times to keep your leg straight, until your physician allows knee motion.
- Wear it at night in bed according to your physician's orders.
- Hinges should remain at level of the knee.
- Straps may be loosened when you are not actively moving around; then tightened for active use.
- Initially, walk with your brace locked straight, with and without crutches, until your physician allows knee motion.



Brace in position, locked straight

Use of your brace in various activities: Follow the above instructions until your first post-operative visit, unless your physician or physical therapist modifies them. At your first visit, your physician will review your progress and provide new instructions accordingly. If you are in physical therapy, your therapist may also provide guidance. When in doubt about how or when to use your brace for a given activity, ask one of them for guidance.

Note: Although providing some initial protection, bracing for selected activities after ACL reconstruction is becoming less utilized. With time, most patients will be brace-free for most or even all activities. Consult your physician before terminating your brace on

an activity for which it was recommended.

Your Home Exercise Program

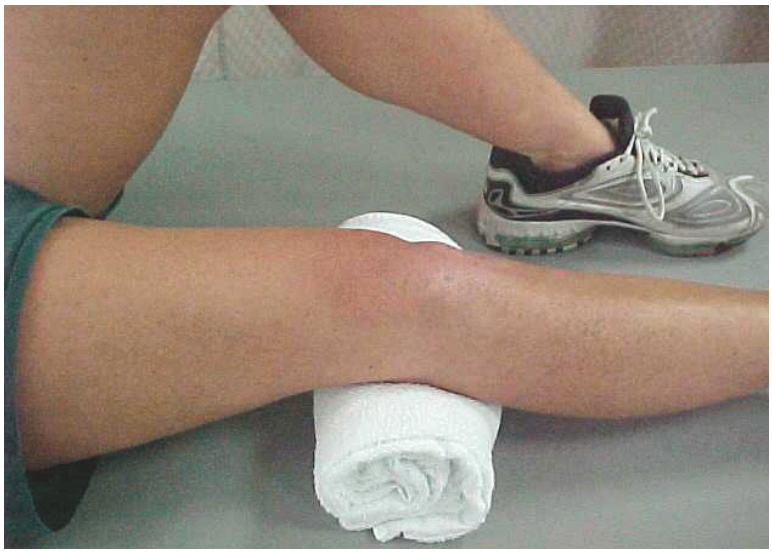
Without question, your speed of recovery to your normal, desired range of motion and leg strength will depend upon how faithfully you follow your assigned exercise regime. It will have several phases related to weight bearing, developing leg/knee strength, and range of motion. Each phase will be initiated at the proper time by your physician or physical therapist. **Note:** Your exercises should not cause progressive, increasing pain. If this occurs, discuss it with your therapist and alter your exercise program accordingly.
(You can, of course, take pain medication before exercising to cope with initial pain.)

Unless told otherwise, your initial home exercise program is illustrated here.

NOTE: Your brace should be off for all the exercises, except for Leg Raising, as shown on the opposite page.

Quad Sets:

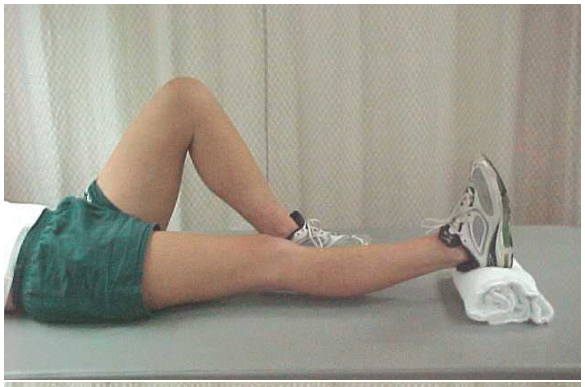
- Lie on your back with your non-operated leg bent, so that your foot is flat on the bed. Place a small towel roll under your operated knee. **(This is for this exercise only.)**
- Push the back of your operated knee down into the towel roll by tightening your quadriceps muscle (top of thigh). Do not let the heel come up as you tighten your quadriceps (do not straighten your knee.)



Note: If you experience any pain or discomfort when pushing down, make the towel roll bigger to make it more comfortable.

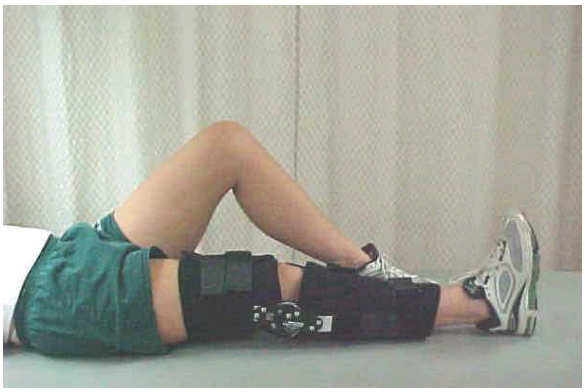
- Hold each contraction for 10 seconds; then rest 10 seconds in between repetitions.
- Repeat 15 times, 3-5 times each day. (This takes about 5 minutes each session.)

Your Home Exercise Program, continued



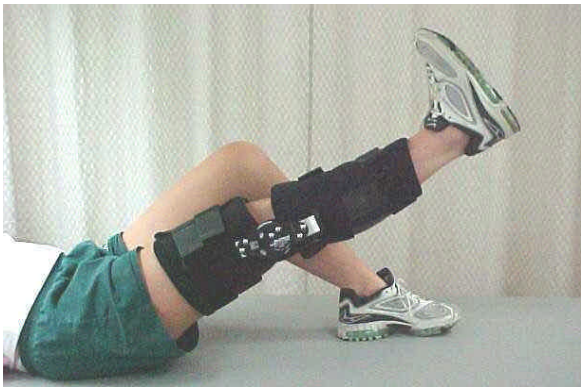
Passive Extension:
Lie on your back with your non-operated leg bent, so that your foot is flat on the bed. Place towel roll under the heel of your ACL leg and let your leg straighten as much as possible.

If your ACL knee is not straight, use your hand to push down gently on your thigh. Hold this stretch for 10 seconds. **Repeat 4** times a day, allowing your knee to remain straight for 15 minutes.



Leg Raising:

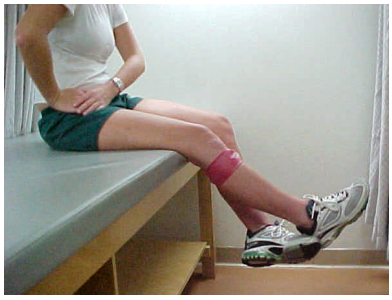
Your Brace should be on and locked at 0°.
Lie on your back with your non-operated leg bent to approximately 90 degrees, so that your foot is flat on the bed.



Slowly lift and lower your operated leg to the height of the opposite knee, making sure that you keep it straight the whole time.
Do 3 sets of 10 repetitions, 3 times each day.

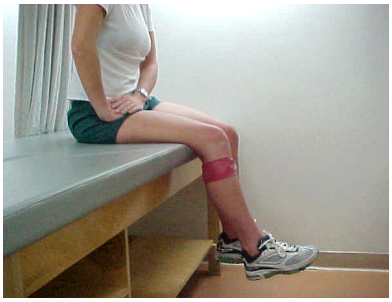
Your Home Exercise Program, continued

Active Bending: Sit on the edge of a table or chair. *Support your ACL leg (red band) from behind with the non-operated leg*.

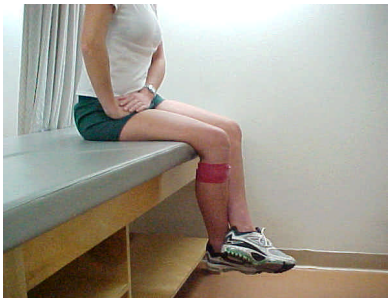


Then do these three procedures in order:

1. Keep your operated leg relaxed and slowly allow it to bend with the other leg assisting it by supporting the operated leg from behind.

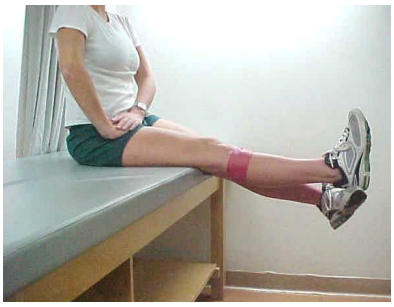


2. Now, let your operated leg dangle and gently bend it back by itself as far as you can tolerate.



3. Next, if possible, cross your other leg in front of your operated leg and use it to **gently** bend your operated leg further back. Hold for 10 seconds.

Passive Straightening:



4. Finally, support your operated leg from behind with your other leg and use that leg to straighten your operated leg.
   VERY IMPORTANT: DO NOT <u>actively</u> straighten your operated leg on its own. Let the other leg do the work!

Hold each procedure for 10 seconds. Repeat 20 times, three times a day.

Frequently Asked Questions

Q: When can I return to driving?

If your ACL knee is the right one, then usually in about 6 weeks. If your ACL knee is your left one and you drive an automatic, then you may begin driving as soon as you are comfortable, not taking pain medications, and you are sure you can manage both throttle and brake with your right leg. If you drive a standard shift (clutch), and your ACL knee is the left one, then it will be about six weeks. Confer with your physician and physical therapist.

Q: When should I start physical therapy?

Your home program is physical therapy and you must carry it out without delay or interruption. However, formal physical therapy may begin as soon as you are able to get to the facility. Even before your ACL reconstruction you should be exploring your physical therapy options with your physician and pre-op therapist. HSS utilizes a Rehabilitation Network to insure optimum patient care.

Q: When can I return to work/school?

As soon as you are comfortable, perhaps in 3-4 days, if your work does not involve physical activity beyond walking, stairs, etc. Your doctor may be able to give you a better indication, based upon your individual circumstances: i.e.; do you need to drive yourself to work? If your work involves activity that may stress your ACL knee, then explore this carefully with your doctor.

Q: When will I be able to run?

Return to running is dictated by your lower extremity strength, pain and swelling. You will usually begin running between 12 and 16 weeks after surgery. You may need an appropriate brace. In any case, you must consult with your doctor first.

Q. When can I return to sports?

It depends upon your pace of rehabilitation and intensity of involvement. Generally, you can return to racket sports in around 5 months; and to other cutting and jumping sports in around 6 months. You may need a special brace for a period of time. You must have your doctor's permission and guidance.

(Continued)

Frequently Asked Questions, continued

Q: When should I end cryotherapy?

You can stop using cold treatments to your knee when pain, inflammation and swelling are gone. However, another answer is "Never!". If you stress your ACL knee in any manner that causes swelling or continuing pain, you should immediately apply cryotherapy, even though you may take an analgesic, also.

Q: What if I think I have re-injured my ACL knee?

Do not wait to see if it will heal itself. Make an appointment with your doctor for an evaluation. **Most re-injuries are best dealt with right way**, before undesirable healing occurs. Your doctor will make a formal analysis of the "re-injury". Then your doctor will give you options or recommend a specific action or program to follow. If your doctor wants you to "wait and see", he/she will tell you so. **Note:** Fortunately, most re-injuries do not result in damage to the reconstructed ACL, but may irritate other structures in your knee.

Add Your Own Questions Here!

You very likely will have questions regarding your own special situation. Please make note of them here as you think of them. Then use this as a reminder to ask your physician or physical therapist.

Q: _____

_____

Q: _____

_____

Q: _____

_____

Q: _____

_____

Achieving Ultimate Goals with Your ACL

You know better than anyone how your ACL injury impacted your lifestyle, especially if you were involved in sports. But now that your ACL has been reconstructed and rehabilitation has begun, we suggest you focus on these thoughts:

Your ACL reconstruction will serve you well, if you work hard to restore and maintain your full range of motion and muscle strength. After your formal physical therapy is complete, your physical therapist and/or an athletic trainer can point out which exercises and exercise equipment can help most directly in achieving your personal goals.

However, to achieve your ultimate goals you will need time to develop confidence in your ACL knee. Therefore, a staged conditioning program, which offers progressive improvement in function of your ACL knee, is critical to reaching your goals.

In other words, a graduated program of increasingly challenging activities will help you achieve success. For example, progressing from running to racket sports to skiing.

Today is not too soon to consider which staged activities will contribute most to your goals and to begin planning your involvement. By beginning to outline your personal, graduated program now, you are assured of a faster return to using your ACL knee confidently as you regain the lifestyle you want.

Notes on Your Progress and Goals

Specialists
in Mobility

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