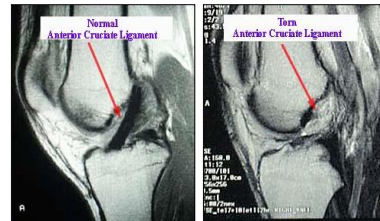


The anterior cruciate ligament or ACL is one of the major ligaments located in the knee joint. This ligament serves to stabilize the knee permitting us to run, jump and participate in sports. ACL injuries often occur during sports such as basketball or soccer which require cutting and pivoting movements. These actions could result in an ACL tear. Contact injuries such as a football player making contact with the knee of another football player during a tackle may also result in an ACL tear. The external force on the knee may be so overwhelming that other structures may be injured along with the ACL including the medial collateral ligament, or the medial or lateral meniscus.

Initial Injury:

During the initial injury, patients often report a sensation of leg buckling or giving way. You may even hear a “pop” from the knee joint. Patients are seldom able to continue with the activity or sport they were playing. Often the joint will swell within hours of the injury producing an enlarged and tender joint. Treatment at this time consists of rest, elevation, ice, compression and possibly crutches for ambulation.

Your orthopedic surgeon will conduct a physical examination and utilize x-rays and MRI to confirm an ACL tear. The MRI is also useful to diagnose any associated injuries to the knee.



Magnetic Resonance Imaging (MRI) demonstrating a normal and torn ACL

ACL Reconstruction Surgery:

Unfortunately, a completely torn ACL does not heal and must be either reconstructed or left deficient. The knee can function without an ACL. For the younger or active patient who seeks to return to an active lifestyle including playing sports, the ACL should be reconstructed to avoid further knee injury. Less active patients whose leg remains stable after injury may opt not to have their ACL reconstructed. These patients may however, be putting other stabilizers of the knee (meniscus) at risk due to the inherent instability of the ACL deficient knee.

Once surgical reconstruction is selected, your surgeon will discuss what type of graft will be utilized to replace the ACL. In the United States, the most common grafts are; patella tendon, hamstring tendon and allograft (donated tissue). Each graft has specific benefits and drawbacks, which will be discussed in detail in the office with Dr. Weitzel.

Pre-Surgery:

Before surgery, patients are instructed to continue to be as active as the knee permits, excluding participation in sports. It is essential to have full knee range of motion and good muscle strength prior to ACL surgery. Physical therapy may be required to achieve this goal.

- On the night before surgery, do not eat after midnight (no chewing gum or lozenges)
- On the morning of the surgery you may have your daily pills with a sip of water
- Your surgical time will be confirmed the day before the surgery by the surgery center or hospital. The original time may be adjusted based on patient needs and equipment availability
- Patients should bring their MRI and X-rays to the surgery



Incisions utilized for ACL reconstruction with allograft

- If the surgery is done at our Waltham facility, the person who is accompanying you is welcome to a free one-day gym pass

Surgery:

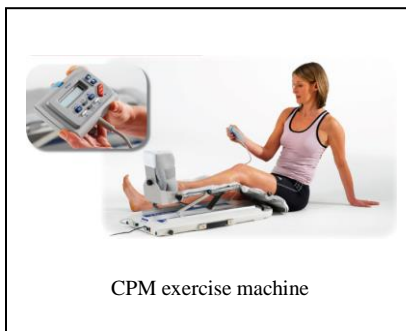
The length of the procedure is approximately 90 minutes. This may be longer depending on type of graft used and whether there are other associated injuries such as a meniscal tear. Your nurse will bring you into the pre-op area where you will have an IV placed and meet with your anesthesiologist. General anesthesia is utilized to assure a comfortable surgery. This means that you will be “asleep” and completely unaware of the surgery until you wake up in the recovery area. Most patients will have a small tube placed in there windpipe, formal intubation may not be required. Local blocks are also available to supplement pain control. Your anesthesiologist will discuss this with you prior to surgery. The surgery is conducted with arthroscopic equipment. This means that we will use a small camera and small equipment through little incisions to reconstruct the ACL. **The procedure is also available to view online at www.bostonssc.com**

Post-Surgery:

After the surgery is completed, you will awaken in the operating room and be moved to the recovery area. After surgery, most patients generally recover smoothly and have minimal pain due to local pain medication that is used at the completion of the surgery.

- **Bracing:** At the completion of surgery, you will have a brace placed on your leg. The brace should be locked in extension at all times except you can remove your brace while using your CPM machine, performing physical therapy, and for personal hygiene matters (showering and bathroom needs). You should sleep with the brace on until seen in your follow-up appointment.

- A pain medication prescription will be provided prior to discharge. You may take the prescribed medication as directed. You should expect to experience minimal to moderate knee discomfort for several days and even weeks following the surgery. Patients often only need prescription narcotics for a few days following surgery and then can switch to over-the-counter medications Tylenol or Ibuprofen.
- Ice bags and elevation should be utilized to decrease swelling and pain. Keep ice on for 15 minutes and off for 45 minutes during the initial postoperative period and following exercises.
- Special cooling devices (called Cryo/Cuffs) are also available for patients to purchase thru our office. This can be used in the place of the ice bags. See the included information sheets if you would like to purchase one of these cooling devices.
- You should be comfortable walking independently with crutches before leaving the hospital or surgery center. You will be able to put as much weight as tolerated on your knee.
- If the bandage is draining, reinforce it with additional dressings for the first 48 hours. After 48 hours remove the bandage and place band aids over the incision sites. Showering is acceptable at this time. Do not submerge or scrub the knee.
- Rehabilitation starts the day of surgery. Set aside 3-4 times a day for range of motion and exercise strengthening program. See exercises at end of packet. **Make an appointment to start physical therapy during the first post-operative week.**
- Take one 325 mg (full strength) aspirin daily for 28 days (unless otherwise instructed or allergic) to prevent blood clots.
- Follow up with Dr. Paul Weitzel or Thomas Pacheco PA-C within 2 weeks from the date of surgery
- Eat a regular diet as tolerated and please drink plenty of fluids.
- You may drive once you establish full control of your extremity (able to perform a straight leg raise, etc.). If your right knee was operated on, this may take several days to achieve.
- Call office for Temperature >102 degrees, excessive swelling, pain or redness around the incision sites.



- Plan at least 2-3 days away from work or school. Utilize this time to decrease swelling and participate in your home exercise program. You may be able to resume work once the pain and swelling resolves (this varies based on job activity).

Meniscal Repair:

If your meniscus was repaired during the surgery, your rehabilitation will be slightly altered.

- 1) Maintain only 15% of your normal weight through you leg and utilize crutches until first post operative visit
- 2) Brace instructions: Brace must be locked in extension for 4 weeks post-op. ROM exercises can be from 0- 90 degrees.



Post-op Rehabilitation Protocol – ACL reconstruction

Phase 1 (Weeks 0-2):

Goals: Minimize effusion, maintain full terminal knee extension, Flexion to 120°, Normalize gait pattern/balance and proprioception abilities.

Treatment plan:

- 3) Utilize camped or CPM and electrical stimulation as directed by company representative and physical therapist.
- 4) Swelling Control with ice and compression wrap
- 5) Maintain full knee extension
- 6) Initiate quadriceps and hamstring muscle activation and general leg control
 - Quad setting, SLR, heel slides, isometric hamstring/quadriceps contraction
 - Ankle pumps
- 7) WBAT with crutches

Phase 2 (Weeks 2-4):

Goals: Full knee ROM in extension and flexion, progress quadriceps/hamstring strengthening, good patella mobility, independent mobility

Treatment plan:

- 1) Continue with swelling control
- 2) Full knee ROM (half to full revolution on exercise bike)
- 3) CKC program
- 4) Balance and Proprioception
- 5) Independent ambulation

Phase 3 (Weeks 4-12):

Goals: Full lower extremity strengthening/conditioning program, Agility and Plyometric drills, Full activity in gym

Treatment plan:

- 1) Progress CKC strengthening – lunges/ reverse lunges/ single leg squats
- 2) Full ROM – Full revolution on bike
- 3) Progress dynamic balance training

Phase 4 (Month 3-6):

Goals: Agility and Plyometric drills, Sports specific training,

Treatment Plan:

- 1) Progress lower extremity strengthening and control
- 2) Plyometric drills including lateral movements, quadrant exercise
- 3) Sports specific strengthening and conditioning
- 4) Treadmill/bike light jogging
- 5) Transition to self directed exercise program

Phase 5 (Month 6 -)

Goals: Continue with home exercise program to maintain strength of lower extremity. Return to sports of choice and independent gym activity.

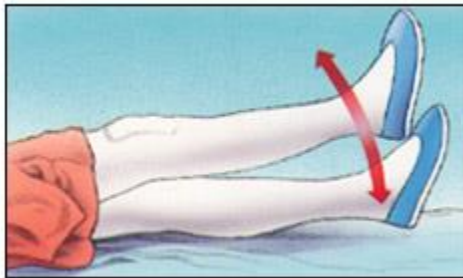
Treatment Plan:

- 1) Progress plyometric and agility training
- 2) Progress sport specific training
- 3) Fit for functional stability knee brace as needed

Early Post-operative Exercises

Start the following exercises as soon as you are able. You can begin these in the recovery room shortly after surgery. You may feel uncomfortable at first, but these exercises will speed your recovery and actually diminish your post-operative pain.

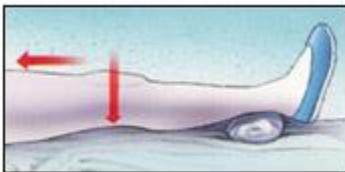
Quad Sets - Tighten your thigh muscle. Try to straighten your knee. Hold for 5 to 10 seconds. Repeat this exercise approximately 10 times during a two minute period, rest one minute and repeat.



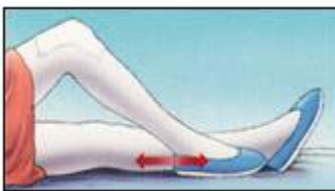
Straight Leg Raises - Tighten the thigh muscle with your knee fully straightened on the bed, as with the Quad set. Lift your leg several inches. Hold for five to 10 seconds. Slowly lower. Repeat until your thigh feels fatigued.



Ankle Pumps - Move your foot up and down rhythmically by contracting the calf and shin muscles. Perform this exercise periodically for two to three minutes, two or three times an hour in the recovery room. Continue this exercise until you are fully recovered and all ankle and lower-leg swelling has subsided.



Knee Straightening Exercises - Place a small rolled towel just above your heel so that it is not touching the bed. Tighten your thigh. Try to fully straighten your knee and to touch the back of your knee to the bed. Hold fully straightened for five to 10 seconds. Repeat until your thigh feels fatigued.



Bed-Supported Knee Bends - Bend your knee as much as possible while sliding your foot on the bed. Hold your knee in a maximally bent position for 5 to 10 seconds and then straighten. Repeat several times until your leg feels fatigued or until you can completely bend your knee.