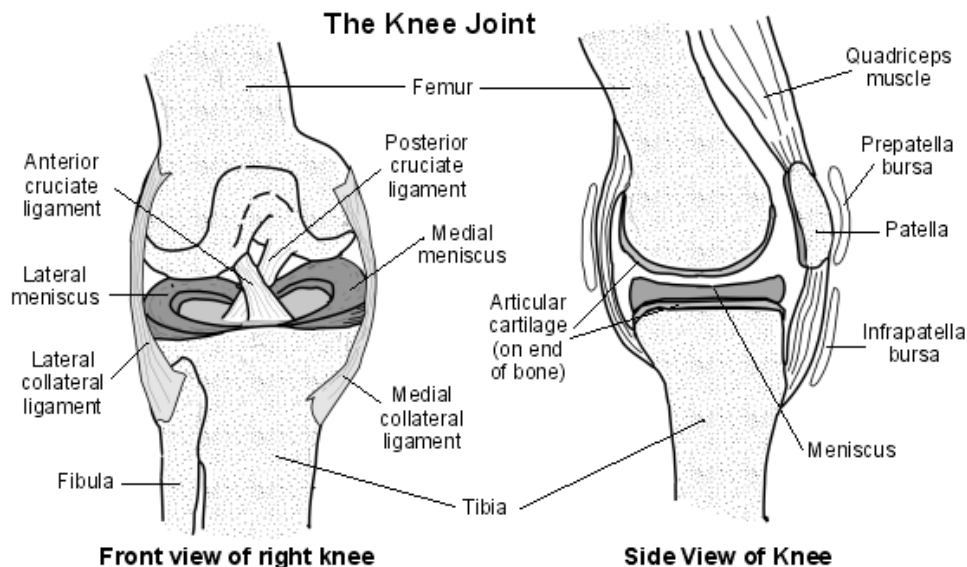


Anterior Cruciate Ligament Rehabilitation (Pre-Operative Phase)

ACL Overview:

The ACL (anterior cruciate ligament) is one of the four major ligaments of the knee that connect the shin bone (tibia) to the thigh bone (femur). Ligaments are “cords” that connect bones together to form a joint. The ligaments help guide, control, and limit motion of a joint. The ACL forms an “X” with a structure called the PCL (posterior cruciate ligament) that runs behind the ACL.

The role of the ACL is to prevent forward movement and rotation of the shin bone and thigh bone. Injury to the ACL causes the knee joint to buckle and give out. Most ACL injuries occur when a twisting force is applied to the knee after the foot is planted on the ground (sudden changes in direction).



The most common complication following ACL reconstruction is loss of motion, especially loss of extension. Loss of extension results in a limp, weak quadricep muscles, and anterior knee pain. It is important to understand what to do after an ACL injury and how to prepare your knee to get the best outcome from ACL Reconstruction Surgery.

Goals toward preparing for ACL Reconstruction Surgery:

1. **Control** pain and swelling
2. **Restore** normal range of motion
3. **Develop** muscle strength sufficient for normal gait
4. **Prepare** the patient mentally for surgery

Immobilize the Knee

Knee immobilizer and crutches should be used until muscular control of the leg has been acquired. To avoid quadricep atrophy, extended use of the knee immobilizer should be limited. Bear as much weight on the leg as comfortable.

Control Pain and Swelling

Icing is key to limiting and reducing swelling. Typically, ice 20 minutes at a time for 4-5 times a day. Do not put ice directly on the skin. Nonsteroidal, anti-inflammatory medications (Advil, Motrin, Ibuprofen, etc.) are used and continued for 7-10 days after injury.

Restore Normal Range of Motion

You should attempt to achieve full range of motion as quickly as possible. Quadricep exercises, straight leg raises, and range of motion exercises should be started immediately.

For Full Extension:

Passive Knee Extension

- Sit in a chair and place your heel on the edge of stool
- Relax the thigh muscles and let your knee sag under it's own weight until maximum extension has been achieved

Heel Props

- Place your heel on a rolled up towel, enough for the thigh to be raised off of table
- Allow the leg to relax into extension
- 3-4 times a day for 10-15 minutes



Ex: Heel Props

Anterior Cruciate Ligament Rehabilitation (Pre-Operative Phase)

Prone Hang Exercise

- Lie face down on the table and allow the legs to sag off the table into full extension. (Note the knee is off the edge of the table)
- 3-4 times a day for 10-15 minutes



Ex: Prone Hang Exercise

For Bending (Flexion):

Passive Knee Bend

- Sit on the edge of a table and let the knee bend under the influence of gravity.

Wall Slides

- Lie on the back with the involved foot on the wall and allow the foot to slide down the wall by bending the knee. Use the other leg to apply downward pressure.

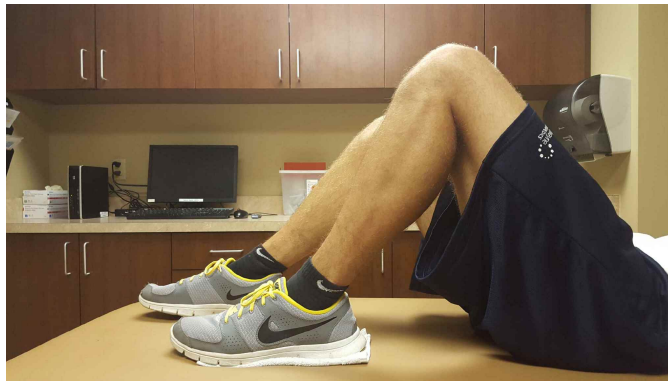
Anterior Cruciate Ligament Rehabilitation (Pre-Operative Phase)

Heel Slides

- Pull the heel toward the buttocks, hold for 5 seconds
- Straighten the leg by sliding the leg downwards, hold for 5 seconds



Ex: Heel Slides; start with straightened leg and heel on the towel, pull heel towards buttocks.



Ex: Heel Slides; end with heel as close to buttock as possible.

Develop Muscle Strength

Once the knee bends past a 90 degree angle, muscular strengthening exercises may begin. Exercises should continue until full range of motion and good muscular stability has been achieved (walk without a limp).

Weight-Free Exercises:

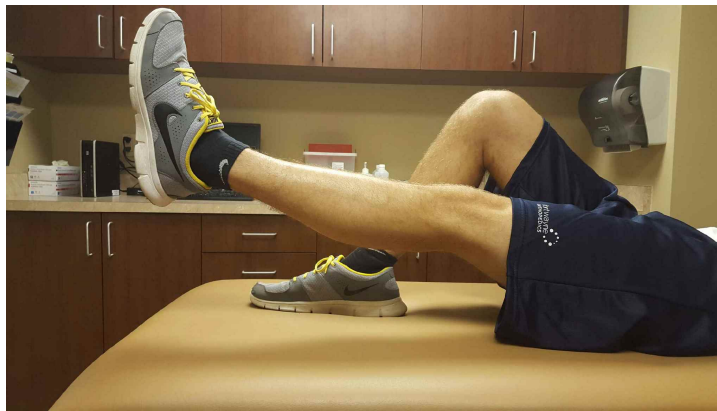
Quadricep Contraction

- Sit with the leg extended and straight
- Tighten the thigh muscle and hold the knee straight for 5 seconds, followed by a 5 second rest
- Perform 5-10 times
- Progress to 30 times holding each contraction for 10 seconds

Anterior Cruciate Ligament Rehabilitation (Pre-Operative Phase)

Straight Leg Raises

- In the position shown, while keeping the thigh tightened and knee straight, lift the leg off the table 3-5 cm.
- Perform 5-10 times, holding each contraction for 5 seconds
- Progress to 30 times, holding each contraction for 5-10 seconds



Ex: Straight Leg Raises

Calf Raises

- Start with both legs straighten, shoulder width apart, and toes pointed directly forward
- Raise up onto the toes
- Start with one set of 10, holding each raise for 5 seconds
- Progress to reps of 30, holding each raise for 5 seconds
- Use wall for support



Ex: Calf Raises; use wall as needed for support

Low Impact Machine Exercises:

Stationary Bicycle

- Use daily for 10-20 minutes

Elliptical

- Begin after stationary bike
- May take the place of stationary bike
- Daily for 10 minutes

Swimming

- Flutter kick with kick board
- No breast stroke kick

Leg Press Machine

- Both legs together with **low** weight
- 3 sets of 15

Leg Curl Machine

- Both legs together with **low** weight
- 3 sets of 15

Mentally Prepare

It is important to understand what to realistically expect from the surgery and what to expect during the rehabilitation phase after surgery. Make arrangements with physical therapists for rehabilitation after surgery, places of employment, and family/friends for help during the rehabilitation stage. Please do not hesitate to call the office for any questions and/or concerns.