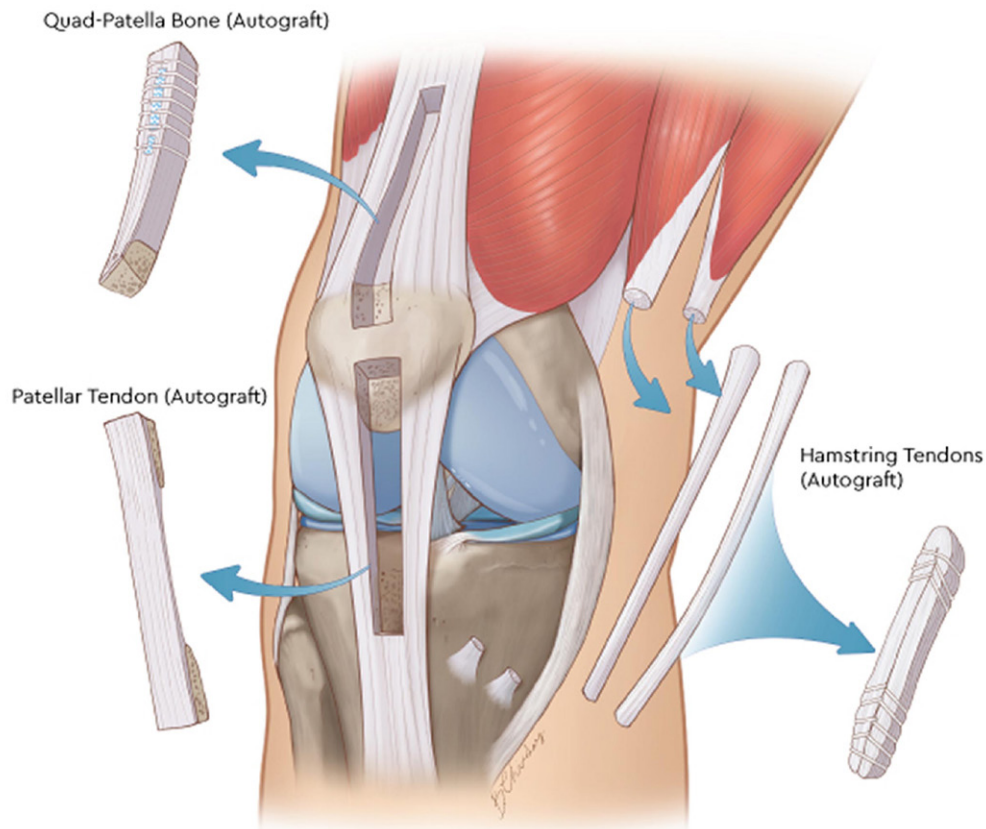


## ACL RECONSTRUCTION WITH QUADRICEPS AUTOGRAFT POST OP RECOVERY INSTRUCTIONS



### POSTOPERATIVE DAYS 1-7:

- Follow the guidelines within this section for the first seven days after your surgery
- IT IS EXTREMELY IMPORTANT THAT YOU WORK ON EXTENSION IMMEDIATELY.

#### Goals:

- \* Care for the knee and dressing
- \* Control pain and swelling
- \* Early range of motion exercises
- \* Achieve and maintain full passive extension
- \* Prevent shutdown of the quadriceps muscles

### **Caring for your Knee and Dressings:**

1. The first night and day after the surgery you can expect the bandages to get a little bloody. This is normal!
2. Following discharge from the surgical center you should go home, elevate your leg and keep the knee iced. You may get up to use the bathroom and eat, but otherwise you should rest with your leg elevated. Liberal use of knee cryo cuff/ice during this phase is recommended. It will be more effective once the most superficial dressing is removed.
3. The ace bandages are to stay on for the first initial 48 hours. You may remove them down to the steri-strips (little white strips) and shower and pat dry with a clean towel. No soaking.
4. Leave steri-strips on and they will naturally peel off on their own between post op day ~10-14.

### **Control Pain and Swelling:**

1. You will be sent home with a prescription for a strong narcotic medication such as Oxycodone or Vicodin. You should take this for severe pain, as directed on the prescription bottle label.
2. You may also be given a prescription strength anti-inflammatory such as Naproxen. Take this as directed for the first month. Remember to take with food and do not combine with other NSAIDs.
3. The cryo knee cuff/ice should be applied 4-5 times per day for 20 minutes.
4. DO NOT SIT FOR LONG PERIODS OF TIME WITH YOUR FOOT IN A DEPENDENT POSITION, AS THIS WILL CAUSE INCREASED SWELLING IN YOUR KNEE AND LEG. WHEN SITTING FOR ANY SIGNIFICANT PERIOD OF TIME, ELEVATE YOUR LEG AND FOOT.
5. Pain and swelling will decrease as you start to move around more and spend more time up on your crutches.
6. After ~1.5 months you may also apply vitamin E oil or another emollient to the incisions, as this will improve their appearance.
7. The appearance of your incision can be improved further if you keep direct sunlight off it for one year. When exposed to the sun the incisions can be covered with a bandage, sunscreen with SPF of 30 to 50, or zinc oxide paste.

### **Weight bearing status:**

Day 1-7 = 50-75% body weight (2 crutches)

Day 8-14 = 75-100% body weight (1 crutch)

End of week 2 = full weight bearing

## Early Range of Motion:

**Full extension** is obtained by doing the following exercises:

- Passive knee extension. • Sit in a chair and place your heel on the edge of a stool or chair. • Relax the thigh muscles. • Let the knee sag under its own weight until maximum extension is achieved.
- Heel Props • Place the heel on a rolled towel making sure the heel is propped high enough to lift the thigh off the table. • Allow the leg to relax into extension. • Do this 3-4 times a day for 10 - 15 minutes at a time. Note the towel must be high enough to raise the calf and thigh off the table. Relax your muscles, and gravity will cause the knee to sag into full extension. *See Figure 1.*
- Active-assisted extension is performed by using the opposite leg and your quadriceps muscles to straighten the knee from the 90 degree position to 0 degrees. Hyperextension should be avoided during this exercise. *See Figure 2.*
- Prone hang exercise. • Lie face down on a table with the legs hanging off the edge of the table. • Allow the legs to sag into full extension. *See Figure 3.*



*Figure 1: Heel prop using a rolled towel.*



*Figure 2: Use the non-injured leg to straighten the knee.*



*Figure 3: Prone Hang. Note the knee is off the edge of the table.*

**Flexion** is obtained by doing the following exercises:

- Passive flexion (bending) of the knee to 90 degrees. • Sit on the edge of a bed or table and letting gravity gently bend the knee. • The opposite leg is used to support and control the amount of bending. • This exercise should be performed 4 to 6 times a day for 10 minutes.
- Wall slides are used to further increase bending. • 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 other leg to apply pressure downward. *See Figure 4.*



*Figure 4: Wall slides to work on flexion. Use other leg to apply downward pressure on the affected leg.*

- c. Heel slides are used to gain final degrees of flexion. • Pull the heel toward the buttocks, flexing the knee. Hold for 5 seconds. • Straighten the leg by sliding the heel downward and hold for 5 seconds. See Figure 5.



*Figure 5: Heel slide. Leg is bent and bring heel towards buttocks*

- d. In later stages of rehabilitation, do heel slides by grasping the leg with both hands and pulling the heel toward the buttocks. See Figure 6.



*Figure 6: Use hands to pull knee in during later stage of rehabilitation.*

### **Quadriceps Strengthening:**

- a. You should start quadriceps isometric contractions with the knee in the fully extended position as soon as possible. • Do 3 sets of 10 repetitions 3 times a day. • Each contraction should be held for a count of 6 sec. This exercise helps to prevent shut down of the quadriceps muscle and decreases swelling by squeezing fluid out of the knee joint.
- b. Begin straight leg raises (SLR) with the knee immobilizer on 3 sets of 10 repetitions 3 times a day. Start by doing these exercises while lying down. • This exercise is performed by first performing a quadriceps contraction with the leg in full extension. The quadriceps contraction “locks” the knee and prevents excessive stress from being applied to the healing ACL graft. • The leg is then kept straight and lifted to about 45-60 degrees and held for a count of six. • The leg is then slowly lowered back on the bed. Relax the muscles. See Figure 7.



*Figure 7: Straight leg raises - lying (left) and seated (right).*

- c. REMEMBER TO RELAX THE MUSCLES EACH TIME THE LEG TOUCHES DOWN. Once you have gained strength, straight leg exercises can be performed while seated.



## POSTOPERATIVE WEEK 2:

- Use the guidelines in this section during the second week after your surgery
- MAINTAINING FULL EXTENSION AND DEVELOPING MUSCULAR CONTROL ARE IMPORTANT

### Goals:

- \* Maintain full extension
- \* Achieve 100 - 120 degrees of flexion
- \* Wean off crutches

### Weight bearing status at this point:

Day 1-7 = 50-75% body weight (2 crutches)

Day 8-14 = 75-100% body weight (1 crutch)

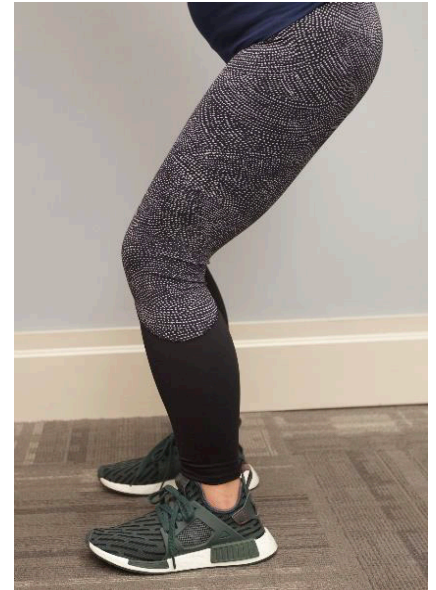
End of week 2 = full weight bearing

### Maintain Full Extension:

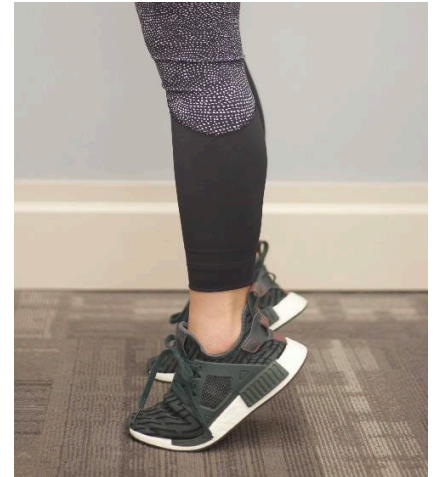
1. Continue with full passive extension (straightening), gravity assisted and active flexion, active-assisted extension, quadriceps isometrics, and straight leg raise.
2. Do not sleep with any pillows under your knee, instead try to put an ankle towel roll.

### Achieve Further Flexion:

1. Start Partial Squats. • Place feet at shoulder width in a slightly externally rotated position. • Use a table for stability, and gently lower the buttocks backward and downward. • Hold for 6 seconds and repeat. • Do 3 sets of 10 repetitions each day. See *Figure 8*.
1. Start Toe Raises. • Using a table for stabilization, gently raise the heel off the floor and balance on the ball of the feet. • Hold for 6 seconds and ease slowly back down. • Do 3 sets of 10 repetitions each day. See *Figure 9*.
2. Gradually increase the weight bearing status and start to wean off the crutches if you have good muscle control of the leg (straight leg raise without the leg sagging).



*Figure 8: Partial squat using table for stabilization.*



*Figure 9: Toe raises.*

### Control Pain and Swelling

1. At this point you should begin reducing the amount of narcotic pain medication you take. You will be instructed on how to do this during your follow-up appointment.
2. Once you have finished the anti-inflammatory that was given to you, you can take an over-the-counter anti-inflammatory medication, provided you have no history of stomach ulcer. The cheapest and simplest medication to take is Advil, Motrin, or Aleve, 2 tablets twice a day. This medication will help to prevent scar tissue from forming in the knee and keep swelling down.
3. Continue to ice regularly.

### **When can you drive a car?**

1. REMEMBER, IT IS ILLEGAL TO TAKE PRESCRIPTION PAIN MEDICATIONS AND OPERATE A MOTOR VEHICLE!
2. First, you must not be taking any prescription pain medications.
3. Patients who have had surgery on the left knee, and who have an automatic transmission may drive when they can comfortably get the leg in and out of the car. They should not drive until they have good muscular control of the leg. This usually takes 2-3 weeks.
4. Patients who had surgery on the right knee should not drive until they have good muscular control of the leg. This usually takes 2 - 3 weeks.

### **Returning to Work**

1. As far as returning to work, if you have a desk type job you can return to work when your pain medication requirements decrease, and you can safely walk with your crutches. Typically, this is between 10 - 12 days after surgery.
2. Patients who have jobs where light duty is not permitted; policemen, firemen, construction workers, laborers, will be out of work for a minimum of 6 - 12 weeks.

## POSTOPERATIVE WEEK 2:

### Goals:

- \* Full range of motion
- \* Physical Therapy

### Weight bearing status:

Day 1-7 = 50-75% body weight (2 crutches)

Day 8-14 = 75-100% body weight (1 crutch)

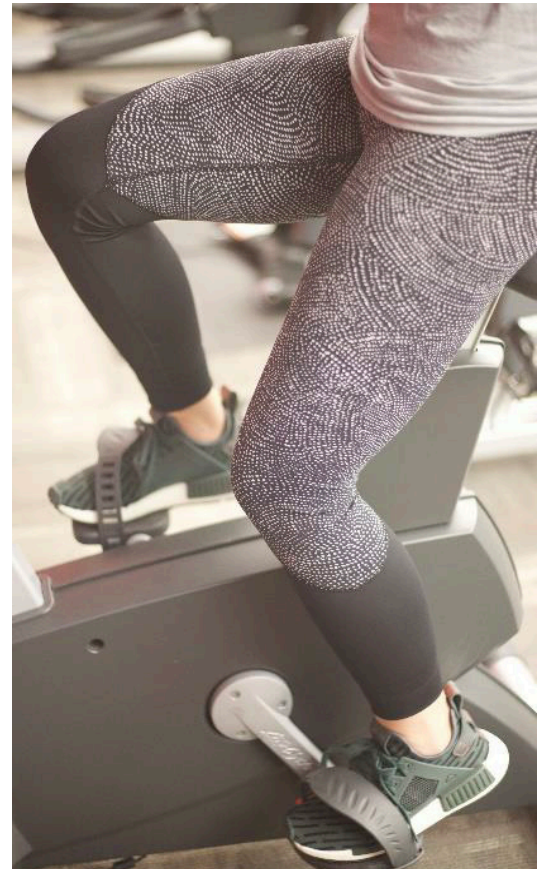
End of week 3-4 = full weight bearing

### Full Range of Motion:

1. Expected range of motion full extension to 100 - 120 degrees. Add wall slides and hand assisted heel drags to increase your range of motion.
2. Continue quadriceps isometrics and straight leg raises (*see Figure 7*)
3. Continue partial squats and toe raises (*see Figure 8 and Figure 9*)

### Physical Therapy:

1. Outpatient physical therapy will be arranged during the first postoperative office visit and scheduled to start approximately 4 weeks status post ACL reconstruction.
2. Continue doing the quadriceps isometrics, SLR, active flexion, and active-assisted extension exercises while at home.
3. Once you have established near full extension (0 degrees) and full flexion (125 degrees) you may discuss with your physical therapists in regards to incorporate the following:
  - a. Stationary bike. Set the seat position to regular height to avoid too much bending or straightening of the knee. Increase resistance as tolerated. Try to work up to 15- 20 minutes a day.
  - b. Elliptical cross-trainer 15 - 20 minutes a day.
  - c. Inclined leg-press machine for the quadriceps muscles. 70 - 0 degree range.
  - d. Seated leg curls machine for the hamstring muscles. Note this exercise should be delayed until the postoperative week 6 if your ACL was reconstructed with a hamstring tendon graft.
  - e. Upper body exercise machines.
  - f. Swimming: pool walking, flutter kick (from the hip), water bicycle, water jogging. No diving, or whip kicks.



## **Postoperative Week 4-6**

### **Goals:**

- \*Start physical therapy
- \*Maintain full ROM
- \*Advance strengthening
- \*Consider early neuromuscular retraining

### **Precautions at this time:**

- \*AVOID open chain resistive exercises with weights (resistance bands OK for hamstring/quad)

## **Postoperative 6 weeks- 3 months**

### **Goals:**

- \*Continue physical therapy
- \*Core integration
- \*Practice stability and endurance

### **Precautions at this time:**

- \*AVOID downhill walking/running, downhill skiing, downhill biking until 4.5 months

## **Postoperative Month 3-5**

### **Goals:**

- \*Continue physical therapy
- \*Incorporate running: light running/hopping, progress to running patterns at 75% speed
- \*Good jumping mechanics- NO DYNAMIC VALGUS
- \*Hop drills without difficulty

## **Postoperative Month 6+**

### **Goals:**

- \*Complete running program
- \*Begin plyometric program/jump rope exercises
- \*Hamstrings and quadriceps strength should be 90+% recovered
- \*Return to sports testing at 9 months post op prior to MD visit

### **Precautions at this time:**

- \*AVOID sports until after 9 months