

ACL REHABILITATION

Immediate Post-Operative Recovery Phase (Day 0-14)

(Adapted from Wilk & Andrew Rehabilitation Protocol, Pictures from kneeguru.com)

Treatment

Ice 20min/hour while awake and elevation (pillows under knee, calf, foot)
Pain medications as needed with supplemental NSAIDs for breakthrough
Brace locked at 0° for ambulation. Unlock (0-45°) when sitting.

Activity

1. CPM Machine-You should use this machine 3-4 hours at home twice daily for a total of 6-8 hours per day. The machine should be started at 0-45°. You may advance by 3-5° at each session as tolerated. You will experience some discomfort while trying to increase your flexion. If it is too uncomfortable, simply stay at the same degree from the previous session until you are able to advance. Once 90-95° is obtained, you may call the company to pick up the machine.

2. Ankle Pumps-Flex your foot front and back as tolerated (repetitions #20, sets #3, times daily #3)

3. Patellar mobilization- Sit on your bed or floor with your leg straight and quad relaxed. Hold your knee cap with one hand on each side. Gently, move your kneecap side to side.

4. Heel Slides-Lie on your back with your knee brace removed. Slowly bend your knee, sliding your foot along the surface of the floor. Once you have bent your knee as much as possible, slide your foot back down until your knee is straight. You may use your other leg to help in either direction.

5. Quad setting-Sit down on ground surface and place both legs straight. Contract and hold quad muscles making the knee flat and straight. Kneecap will slide upward toward the thigh muscles. The tightening should make your knee straighten and be pushed flat against the floor. Hold contraction for 5 seconds. (Repetitions #20, times daily #3-4)

6. Straight Leg Raise (SLR)-Lie on your back with your knee brace locked. Bend your other knee so that it is flat on the bed. Contract your quad tightly. Slowly raise your braced knee until the ankle is 12 inches off the ground. Slowly lower the leg back to the ground level. (Repetitions #20, daily) If this is too painful, hold off on SLR and return to quad setting exercises for day.



Goals-

1. Passive ROM from 0-90 degrees
2. Increase weight bearing to minimize limping
3. Perform all above exercises

Maximum Protection Phase (Weeks 2-6)

(Not every patient will progress within the time frame identified for this protocol; goals need to be reached before progressing to next stage)

Treatment

Begin formal physical therapy (2-3x's/week), Daily sessions at home

Ice after exercises and as needed

Pain should be resolving, use NSAIDs as needed to reduce pain and inflammation

Brace locked at 0° for ambulation, unlocked for all ROM exercises

Activity

1. Mini-Squats-Stand with both feet shoulders width apart. Slowly flex both legs and hold at 30-40° for 5sec. You may use a device to assist with balance. (Rep #10, sets #3)



2. Straight Leg Raise- As above, but may be done without brace. (Rep #20, set #3)

3. Hip Abduction- Lie on uninjured side with either both legs straight or the uninjured leg slightly bent. Raise the involved leg up to 30-45°. Hold this position for 1-2 seconds. Slowly lower back to uninjured leg. (Rep #20, set #3)



4. Hip Adduction- Lie on surgical side, keeping leg straight. Slowly raise lower leg toward the ceiling. Hold for 1-2 seconds and then lower to original position. (Rep #20, set #3)

5. Hamstring curls-Stand facing a table, using the table for support as needed. While standing on your uninjured leg, bend the knee of your involved leg upwards to your buttocks. After reaching the maximum bend, try and hold for 1-2seconds. Slowly lower foot back to ground and repeat. (Rep #20)

6. Stationary bicycle- To be done without resistance. If you cannot pedal all the way around, then pedal back and forth until a full cycle can be done. Sometimes a backward revolution can be done prior to a forward revolution. Keep the bicycle seat at a level to allow full extension of the involved knee with the foot resting comfortably on the pedal. (10-20 minutes per day)

7. Stairmaster- This should be done with smaller step-ups initially. If this activity causes pain at the kneecap, avoid doing until pain free. (10-20 minutes per day, can be an alternative to the stationary bike)

8. Pool rehab- Walking slowly in the pool attempting a normal gait. Flutter kick can be done during second half of this rehab with both hands supporting at edge of pool.

Goals-

1. Passive ROM 0-120°
2. Active ROM 0-115°
3. Minimal swelling
4. Quadriceps strength at 60% of normal leg

Moderate Protection Phase (Week 6-12)

Treatment

Continue physical therapy 2x's/week. Home sessions 2-3x's/week.

Continue to ice after exercise sessions as needed.

If brace still required, unlocked for all exercises

Activity

1. Hamstring stretches- Place surgical leg on small stool with the other leg straight. Bend forward slowly at the hips until you feel the stretch in the hamstring (back of thigh). Hold for 15-20 seconds and then release. (Reps #5)

2. Quadriceps stretches- Standing upright, grab the surgical side's ankle and gently raise up heel toward buttock. When a stretch is felt, hold position for 15-20 seconds and then release. (Reps #5)



3. Step-ups- Use small stool to perform this exercise. Start with a 6 inch step for the first 3 weeks. You may graduate to a larger stool for the second 3 weeks of this phase as tolerated. Slowly step up onto stool with involved leg and let knee straighten. Allow the uninvolved leg to meet with full extension of both. (Rep #15, sets #3)

4. Calf Raises- Use a table or wall for support and balance. With the knee fully extended, slowly rise unto toes of involved leg. Hold this position for 1-2 seconds. Slowly lower to starting position. As this becomes easier, you may advance to performing this with just the operated side. Continue to use the table or wall for support. (Rep #15, sets #3)



5. Hip abduction/adduction- Same as exercise before but now can be done with weight. You may add up to 1 pound per week.

6. Resistive hamstring curls- If access to machine is possible, you may begin using it. You can increase by 1-2 pounds every week as tolerated. You may use ankle weights as an alternative if a machine is not available.

7. Pool Rehab-Running (forward and backward)

8. Stationary bicycle-Same as previous description. (20-30 minutes, 3-4 times per week)

9. Stairmaster- As above with low resistance.

Goals-

1. Full passive ROM
2. Active ROM 0-130°
3. Increase quadriceps strength to 70% of normal leg
4. Satisfactory Biodex testing at week 12-14

Light Activity Phase (3-4 months)

Treatment

Physical therapy 1-2x's/week.

Home sessions 2x's/week.

Activity

1. Running program- This needs to be done on flat terrain. Begin with 1-2 minutes of a self-paced jog. You may progress as tolerated. No cutting or pivoting should be done at this point. This can be done 2-3 times per week. (Only started if goals from previous section were met)

2. Forward lunges- With one leg in front of the other; allow the front knee to bend slowly. The knee should not flex past the foot but remain aligned with the foot. Do not bend past 90°. Slowly return to the standing position. Switch the front leg to perform this exercise with both lower extremities. (Rep 15, sets #3)

3. Wall squats- Stand upright with back and buttocks touching a wall. Place feet shoulders width apart. Lower hips slowly by bending both knees. Continue down to 90°, pause for 5 seconds, and then slowly return upward to original position. Do not pass 90°. (Rep 10, sets #3)



Goals-

1. Biodex testing with less than 20% quadriceps deficit compared to opposite side
2. Satisfactory Clinical Exam

Return to Activity Phase (4-6 months)

Treatment

Continue Physical therapy as needed.

Continuing home sessions 3-4 times per week.

Repeat Biodex testing if necessary

Activities

1. Running program- Continue to advance as tolerated. Some lateral exercises and cutting can be performed for sport specific activities.

2. Cycling- Can be done against resistance as tolerated.

3. Pool Rehab- Continue pool running as well as initiation of swim strokes as tolerated.
(Continue strengthening exercises as needed to return to your normal routine.)

Goals-

1. Satisfactory Biodex testing
2. Return to all activities prior to injury
3. Pain free exercise
4. Stability