

Phase 1: Weeks 0-6

Goals:

- 1. Maximum protection of grafts
- 2. Maintain patellar mobility
- 3. Maintain quadriceps tone
- 4. Maintain full passive extension
- 5. Control pain and swelling
- 6. Introduce early range of motion

Weight bearing:

1. Non-weight bearing ambulation with crutches

Brace:

Locked in extension 24 hours per day for 3 weeks
3 weeks post-op, begin gentle passive range of motion out of brace.

These should be performed out of the brace for approximately 5-10 minutes, 3-4 times per day. The patient is cautioned against forcing excessive motion. Obtaining 90 degrees of knee flexion by the end of post-op week 6 is encouraged.

Ice:

1. Ice 4-6 times per day for 15 - 30 minutes per session

Exercise Program:

- 1. Strengthening
- 2. Quad sets enhance with low intensity electrical stimulation of biofeedback
- 3 Hip abduction
- 4. Range of motion:
 - a. Patellar mobilizations
 - b. Ankle pumps

Stretching exercises:

- a. Gastrocsoleus stretching
- b. Gentle hamstring stretching

Other:

1. Gentle scar massage should be performed once all sites are fully healed

Phase 2: Post-Operative Weeks 7-12

Goals:

- 1. Initiate weight bearing for articular cartilage nourishment
- 2. Increase knee flexion. Try to achieve 90 degrees of flexion by the end of post-operative week 9
- 3. Maintain quadriceps tone



- 4. Improve proprioception
- 5. Avoid isolated quadriceps and hamstring contraction

Weight Bearing:

- 1. Begin partial weight bearing with 25% body weight at week 6
- 2. Increase by 25% body weight per week over the next 4 weeks to full weight bearing by week 10

Brace:

- 1. Unlock brace to full flexion
- 2. Continue to wear brace at night when sleeping
- 3. Discontinue brace at end of post-op week 12

Exercise Program:

- 1. Passive flexion exercises:
 - a. Try to achieve 90 degrees of flexion by the end of post-op week 9
 - b. Allow range of motion beyond 90 degrees by post-op week 10
 - c. Try to achieve flexion to 120 degrees by the end of post-op week 12
- 2. Prone hangs
- 3. Patellar mobilization
- 4. High intensity E-stim at 60 degrees of knee flexion
- Initiate closed chain strengthening once full weight bearing has been achieved and quadriceps strength is 3+ out of 5 or greater. Closed chain exercises should be performed from 0-60 degrees of flexion. Exercise including leg press, squats, and lunges.
- 6. Stationary bike for range of motion
- 7. Proprioception and weight shift (KAT or BAPS board)
- 8. Hip strengthening No adduction of PCL is involved
- 9. To maintain cardiovascular fitness, rowing machines, stair climbers, and rapid walking on a treadmill may be initiated

Phase 3: Post-Op Months 4-6

Goals:

- 1. Increase knee flexion. ROM should be from 0-120 degrees by the beginning of post-op month 4
- 2. Maintain full passive extension
- 3. Improve quadriceps and hamstring strength
- 4. Improve proprioception
- 5. Improve functional skills
- 6. Increase cardiovascular endurance



Exercise Program:

At 4 Months:

- 1. Closed chain progressive resistance exercises. Avoid flexion beyond 70 degrees
- 2. Isolated quadriceps and hamstring exercises NO resistance
- 3. Single-leg proprioception exercises (KAT, BAPS, mini-trampoline)
- 4. Closed chain conditioning exercises: stair climber, skiing machine, rower, etc.
- 5. Aggressive flexion range of motion: Consider manipulation if range of motion is less than 90 degrees by end of month 4
- 6. Hip progressive resistance exercises
- 7. Straight-line jogging is initiated at the end of post-op month 4

At 5 Months:

- 1. Initiate resisted quadriceps and hamstring exercises
- 2. Progress closed chain strengthening and conditioning exercises
- 3. Initiate low intensity plyometrics
- 4. Progress jogging and begin sprints
- 5. Advance proprioception training
- 6. Fit for ACL/PCL functional brace

At 6 Months:

- 1. Progression of all strengthening exercises and plyometrics
- 2. Begin agility drills in brace: carioca, figure 8s, zig-zag, slalom running, etc.
- 3. Sport-specific drills when the quadriceps and hamstring deficits are less than 20% of the contralateral side
- 4. Isokinetic testing at end of post-op month 6

Phase 4: Post-Operative Months 7-12

Exercise Program:

- 1. Assess functional strength: Single-leg hop for distance, timed hop test, shuttle run, etc.
- 2. Return to sports if the following criteria are met:
 - a. Minimal or no pain or swelling
 - b. Isokinetic and functional tests within 10-15% of the uninvolved side
 - c. Proprioception equal to the contralateral side
 - d. Successful completion of sport-specific drills
 - e. ACL/PCL functional brace