

Postoperative Rehabilitation Protocol for ACL Reconstruction

**Physical Therapy should be started within a week after surgery*

Phase 1: Postoperative weeks 0-4

- Goals
 - Protect graft
 - Minimize pain / swelling
- Brace / Crutch Use
 - Weight bearing as tolerated using crutches as needed
 - Wean from crutches as tolerated
 - TROM knee brace without restriction on ROM.
 - Criteria to wean from brace: Off crutches, able to perform a straight leg raise, non-antalgic gait
- Range of Motion
 - 0-120 degrees as tolerated; ensure achievement of full extension
 - Work on restoring normal gait
- Strengthening
 - Ankle pumps
 - Work on quadriceps control (quad sets, heels slides, SLR)
 - For patellar or quadriceps tendon autograft – hamstring curls adding weight as tolerated, closed kinetic chain quadriceps strengthening as tolerated (wall sit, step ups, mini squats, leg press 90-30 degrees)
- Modalities PRN

Phase 2: Postoperative weeks 4-10

- Goals
 - Restore normal gait
 - Maintain full extension, progress to full flexion
 - Protect graft
 - Increase hip, quadriceps, hamstring, and calf strength
 - Increase proprioception
- Range of Motion
 - Continue progressing in range of motion / flexibility to full knee flexion.
 - Maintain full extension
 - Work on restoring normal gait
 - Continue hamstring, gastroc/soleus stretches
- Strengthening
 - Closed kinetic chains strengthening: One-leg squats, leg press, step ups at increased height, partial lunges, deeper wall sits, lunge walks
 - Stairmaster – begin with short steps, avoid hyperextension
 - Nordic Trac or Elliptical machine for conditioning

- Stationary bike – progress time and resistance as tolerated
- Continue to progress proprioceptive activities: ball toss, balance beam, mini-trampoline balance
- Continue to progress hip, hamstring, and calf strengthening as tolerated
- If available, begin running in pool (waist deep) or an unweighted treadmill at 8 weeks

Phase 3: Postoperative weeks 10-16

- Goals
 - Full ROM
 - Improve strength, endurance, and proprioception of lower extremity
 - Protect patellofemoral joint
 - Normal running mechanics / gait
 - Strength approximately 70% of the uninvolved lower extremity (using isokinetic evaluation if available)
- Range of Motion
 - Continue ROM exercises to maintain full active ROM
- Strengthening
 - Initiate open chain kinetic extensions 90-30 degrees, progress to eccentrics
 - Begin swimming if desired
 - If available, isokinetics (with anti-shear device) – begin with mid-range speeds (120 degrees / sec to 240 degrees / sec)
 - Progress toward FWB running at 12 weeks
 - Progressive hip, quadriceps, hamstring, and calf strengthening
 - Advance proprioceptive activities to initiate agility activities
 - Recommend isokinetic test with anti-shear device at 12 weeks (used to guide continued strengthening)

Phase 4: Postoperative months 4-6

- Goals
 - Symmetric performance of basic and sport specific agility drills
 - Single hop and 3 hop tests 85% of uninvolved lower extremity
 - Quadriceps and hamstring strength at least 85% of uninvolved lower extremity per isokinetic strength test
- Maintain full ROM
- Strengthening
 - Continue and progress flexibility and strengthening program based on individual needs and deficits
 - Initiate plyometric program as appropriate for patient's goals
 - Agility progressing including, but not limited to:
 - Side steps, crossovers, figure 8 running, shuttle running, one-leg & two-leg jumping, cutting, acceleration / deceleration sprints, agility ladders drills, sport-specific drills as appropriate for patient
 - Assessment of running on treadmill for proper running mechanics
 - Continue progression of running distance based on patient needs

Phase 5: Postoperative 6 months and beyond

- Goals
 - Single hop and 3 hop tests at least 85% of uninvolved lower extremity

- Quadriceps and hamstring strength at least 85% of uninvolved lower extremity per isokinetic strength test
 - Safe return to athletics / work
 - Maintenance of strength, endurance, proprioception
 - Educate patient with regards to any possible limitations
- Maintain full ROM
- Strengthening
 - Maintenance program for strength and endurance with gradual return to sports participation / work
 - **All patients should consult with their operative surgeon on specific return to work / return to play release.**