

ACL Surgery Physical Therapy Protocol

Weeks 1-2:

- Control pain and swelling
 - Cryotherapy
 - Elevation
 - Ankle pumps
- Early knee range of motion
 - Patella mobilization
 - 0° - 130° PROM, early passive flexion beyond 130° places excessive forces on the ACL graft fixation, especially if the knee is swollen.
 - Initial goal is 0° - 100° by 2 weeks.
 - Wall slides
 - Stationary bicycle. Just “spin” without any resistance. Start with seat set high.
 - Remove the knee brace for exercises.
- Achieve and maintain full knee extension
 - Prone hangs
 - Post-op hinged knee brace to be worn locked in extension, especially at night while sleeping.
- Prevent quadriceps muscle shutdown
 - Quad e-stim
 - Quad isometrics
 - Straight leg raises. This exercise is performed by first performing a quadriceps contraction with leg in full extension. The quadriceps contraction “locks” the knee and prevents excessive stress from being applied to the ACL graft.
- Gait training
 - WBAT with crutches and knee brace locked in extension
- Knee brace
 - The brace helps to prevent a knee flexion contracture from occurring. It also helps to provide support to a knee with weak quadriceps. Excessive use of a brace can inhibit muscle recovery and impair circulation.
 - The brace should be removed for exercises. It should also be removed every 2 – 3 hours while awake, if in a safe protected environment and not walking.
 - The brace is to be worn locked in full extension while sleeping at night for the first 2 – 4 weeks, and at all times while walking for the first 6 weeks.
- Hamstring exercises
 - For patients who have had ACL reconstruction using hamstring tendons, it is important to avoid excessive stretching or strengthening of the hamstring muscles during the first 6 weeks after surgery.

Weeks 3 – 4:

- Control swelling
- Maintain full extension
- Achieve 120° of flexion
- Gait training
 - Develop enough muscle control to wean off crutches
 - Walk with a normal heel-toe gait and no limp
- Strengthening
 - Continue e-stim, isometrics, SLR's
 - Advance to closed chain strength as tolerated
 - Partial squats
 - Toe raises
 - Leg press machine, 90° - 0° range.
 - Upper body and core exercises
 - Continue cycling with no or low resistance. Slowly increase time spent on bike.
 - Elliptical cross-trainer
 - Pool walking

Weeks 4 – 6:

- Achieve 130° of flexion
- Maintain full extension
- Continue gait training
- Continue strengthening
 - Slowly increase cycling resistance
 - Begin tilt board or balance board exercises
 - Pool exercises
 - Walking
 - Flutter kick (from the hip)
 - Water jogging
 - No diving or whip kicks

Weeks 6 – 12:

- Achieve 135° of flexion
- Continue strengthening
 - Begin treadmill (flat only)
 - Begin outdoor bike riding on flat roads. No mountain biking or hill climbing.
 - Hamstring reconstruction patients can start leg curls in a sitting position. Slowly increase resistance as tolerated. Avoid leg curl machines that requires you to lie on your stomach. This machine puts too much strain on the healing hamstring muscles and can result in a muscle strain injury.

Weeks 12 – 18:

- Continue strengthening
 - Emphasis on closed chain strength, core, hip stabilization, balance, and proprioception training
- Introduce straight forward jogging and light running

Weeks 18 – 28:

- Continue strengthening
- Start functional running program after jogging program completed
- Optional fitting for ACL functional brace
- Start agility drills, zig-zags, and cross over drills
- Start a neuromuscular jump training program

7 months:

- This is the earliest time for return to sports
- Return to sport parameters
 - Quadriceps strength at least 85% of the normal leg
 - Hamstring strength at least 85% of the normal leg
 - Full motion
 - No swelling
 - Good stability
 - Complete a running and jump training program

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