

## Anterior Cruciate Ligament Reconstruction Protocol

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**Guidelines:** Assume 8 weeks for graft revascularization; Solely ACL reconstructions are WBAT starting with brace and crutches, utilizing heel-strike gait; Cartilage repairs and multiple ligament repairs may have weight bearing and ROM restrictions along with extended time frames for use of brace and crutches; Anti-inflammatories are not prescribed immediately post-op. Patients will usually be cleared for use 4-6 weeks post-op; Hamstring autografts should avoid leg curl and hamstring strengthening until 6 weeks post-op; Time frames are listed below, however treatment progression through each phase should take into account patient status and physician advisement.

**Weeks 0-1:** Goals include full extension, WBAT with crutches, and knee flexion as tolerated; Patients will perform HEP as instructed; CPM per Dr. Chiu's protocol: Start 0-40, advance 10 degrees/day as tolerated; Patient will utilize cold therapy unit, elevation, and compression.

**Weeks 2-4:** Goals include WBAT, restore normal gait, ROM 100 degrees of flexion, protect graft fixation, good quad set, SLR without extension lag, and independent HEP; Continue with previous program; Add stationary bike for ROM; Edema control, NMES; Gentle patellar and tibiofemoral joint mobilization; Scar education and mobilization; Add soft tissue release if full extension is not achieved; Wall slides and step-ups as tolerated; Gait training (Brace may be unlocked when patient demonstrates good quad control / Discontinue use of brace and crutches when patient has full extension and can SLR without extension lag); Treadmill for forward and backward walking; Progress CKC exercises: BAPS, wobble board, reformer/leg press (2 legs), terminal knee extension, ¼ squats; Stool scoots, hip strengthening, and ankle theraband; Progress LE flexibility program

**Weeks 4-8:** Goals include normal gait pattern and ROM 120 degrees of flexion; Continue with previous program; Gait training; Progress CKC exercises, step ups/downs, Stairmaster, elliptical trainer, single leg press, hamstring curls, toe raises, wall slides, mini-squats, lunges; Begin unilateral proprioceptive and balance activities; Aggressive patellar, tibiofemoral, and soft tissue mobs if ROM problem persists.

**Weeks 8-12:** Goals include full active and passive ROM and normal gait pattern; Progress previous exercises as tolerated; Full isotonic PRE program (no SAQ or resisted knee extension)

Functional agility activities can begin once the following criteria have been met: Pain free full knee ROM; Average hamstring to quad ratio is 60 to 70%; Good dynamic control is demonstrated with full WB during balance board activities; Strength of operated knee is at least equal to 70% of non-surgical knee (test at 10 week).

Functional agility progression: Single 1/3 knee bends on operated leg; Mini-tramp jogging; Walking forward and backward against cord resistance; Begin slow treadmill jogging at speed tolerable for 5 minutes, progress 3 minutes per week if tolerated; Stair climbing and elliptical machines or resisted

pool walking/jogging may be substituted for jogging and running if significant intra-articular knee pathology is present; Progress to slow jogging forward with cord resistance; Backward jogging with tubing; Lateral shuffles; Slide board (NOT for MCL or meniscal repairs); Side-to-side lateral hops against sport cord (NOT for MCL or meniscal repairs); Jumping rope, progress from 2 feet to 1 foot.

**Weeks 12-16:** Goals include functional progression, single-leg press within 80% of non-surgical leg; Continue strengthening exercises

Begin low intensity plyometric program when following criteria are met (pending Dr. Chiu's approval): Minimum of 12 weeks post-op; Full AROM, no knee pain or swelling; Can perform single-leg press of body weight with 10 repetitions.

Continue agility progression: Carioca/karaoke steps alternation front and back; Figure 8 patterns: Large to small; Progressive cutting and zigzag running; Jumping drills; Sport specific drills and activities.

**Weeks 16-24:** Goals include functional progression and advancement of sport specific drills and activities; Functional brace should be worn for specific sport activities, with return to activity (pending Dr. Chiu's approval); Quad girth measurements within 1-cm of non-operative leg; Continue sport specific training CKC, and agility exercises.