

ACL RECONSTRUCTION WITH QUADRICEPS TENDON AUTOGRAFT REHABILITATION PROTOCOL

	Weightbearing	Brace	Motion	Therapeutic Exercises
PHASE I 0 to 4 weeks	As tolerated with crutches*	0 to 2 weeks: locked in full extension for ambulation and sleeping 2 to 4 weeks: unlocked for ambulation, remove for sleeping	As tolerated	Heel slides, quad/hamstring sets, patellar mobilizations, prone hangs, gastroc/soleus stretch [†] , SLR with brace in full extension until quad strength prevents extension lag. Proprioceptive/balance exercises: single leg stance, weight shifts (forward, retro, lateral).
PHASE II 4 to 6 weeks	Gradually discontinue crutch use	Discontinue use when patient has full extension and no extension lag	Maintain full extension and progressive flexion	Progress to weight bearing gastroc/soleus stretch, begin toe raises, closed chain extension, mini squats/wall squats, step ups, balance exercises (e.g. balance board/wobble board), resistance band hamstring curls, and stationary bike.
PHASE III 6 weeks to 4 months	Full, without use of crutches and with a normalized gait pattern	None	Attain full, pain-free motion	Advance closed chain strengthening (lunges, sport cord, wall squats, step up/down), begin Stairmaster/Nordic Trac and jogging straight ahead at 12 weeks. Progress neuromuscular proprioceptive/balance exercises: single leg balance progression, varying surfaces. Pool (if available): begin 4 way hip, lateral movement, deep water jogging in place (no freestyle or frog/breaststroke kick).
PHASE IV 4 to 6 months	Full	None	Maintain full, pain-free motion	Progress flexibility, strengthening (closed-chain exercises including leg press (0° to 60°), step ups, mini squats (0-60°), short arc quad (30° to 90°), hamstring curls with light weight/high repetition), progression of function (forward/backward running, cutting, grapevine, etc.), initiate plyometric program and sport-specific drills: shuffling, hopping, running patterns.
PHASE V 6 months and beyond	Full	None	Maintain full, pain-free motion	Agility drills (shuffling, hopping, running patterns), sport-specific (plyometric program, fast straight running, backward running, cutting, cross-overs, carioca, etc. <i>in controlled environment</i>), maintenance program for strength and endurance. Gradual return to sports participation (no sooner than 9 months). A functional ACL brace may be used from 6 months to 1 year postoperatively.

RETURN TO SPORT CRITERIA: Quadriceps and hamstring strength \geq 90% of opposite leg • Single leg hop test and vertical jump \geq 90% of opposite leg • Jog, full speed run, shuttle run, and figure of 8 running without limp • Full controlled acceleration and deceleration • Squat and rise from full squat • No effusion or quadriceps atrophy • Passed functional movement test • Approval of treating physician

*Modified with concomitantly performed meniscus repair/transplantation or articular cartilage procedure

[†]This exercise is to be completed in a non-weight bearing position