



## Advanced Orthopedic Specialists, P.C.

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### ACL Reconstruction Rehabilitation Protocol

Please note, that for ACL reconstructions accompanied by meniscal repairs, follow restrictions for ROM and weight-bearing on flexed knee as indicated on Meniscal Repair Rehabilitation Protocol.

Therapy is generally the same for all types of ACL grafts used, except for return to high-demand sports.

**WEIGHTBEARING AND AMBULATION:** 50% WB with crutches until 7 days post-op. May wean from crutches and progress to FWB at 7-10 days post-op.

Brace is locked in extension from 0-2 weeks post-op for all ambulation and WB. At 14 days post-op, may begin to open brace for ambulation and WB as quad strength allows; progress to fully open brace by 6 weeks post-op

#### 1 to 3 DAYS

<b>Pain Control</b>	Cryotherapy, electrical stimulation, narcotics.
<b>ROM</b>	Passive knee extension (full, foot propped on pillows, extension lock brace). Passive knee flexion (0°-90°), Patellar mobilization.
<b>Strengthening</b>	Quadriceps and hamstring sets, straight leg raises, sidelying hip abduction, and prone extension exercises, ankle pumps, weight shifts.

#### 4 To 14 DAYS

<b>Pain Control</b>	Continue cryotherapy, electrical stimulation (suggest dual channel e-stim activating hamstring group first then quadriceps), oral narcotic medication and NSAIDS as needed
<b>ROM</b>	CPM only if needed, passive knee extension (foot propped, prone hangs), Active-assisted knee extension (with assistance of contralateral leg), active knee extension (no resistance), passive and active knee flexion (0° -90°); patellar mobilization.

**Strengthening**      Quadriceps and hamstring sets including co-contractions, straight leg raises (side-lying, prone, supine),  
Standing hip abduction, adduction, and extension exercises, toe raises, ankle flexion/extension exercises.

## 2 TO 3 WEEKS

**Pain Control**      Cryotherapy and/or electrical stimulation as needed; NSAIDs as needed

**ROM**      Discontinue CPM, full passive extension (foot propped, prone hangs), passive flexion (0° - 115°), patellar mobilization

**Strengthening**      Wall slides, calf raises, step-ups, leg presses, bilateral and unilateral knee bends, hamstring curls, stationary bicycle, PNF techniques

**Ambulation**      Begin progression to normal gait pattern in brace (open hinges)

**Comments**      Initiate proprioceptive training with BAPS, balance training.

## 3 TO 6 WEEKS

**Pain Control**      Cryotherapy and/or electrical stimulation as needed; NSAIDs as needed

**ROM**      Full passive extension, Passive (0°-120°), Patellar mobilization

**Strengthening**      Wall slides, calf raises, step-ups, leg press, closed chain exercises (avoid flexion beyond 45° to protect patellofemoral joint), flexion to extension exercise (90° - 45°) - use anti-shear apparatus and/or proximal tibial contact, bilateral knee bends, hamstring curls, stationary bicycle, PNF technique.  
***Isokinetic parameters:*** initial concentric/eccentric hamstrings through available range; controlled isokinetic extension and flexion; hamstrings at 10° to 90° using slower speeds (more torque), quadriceps at 45° to 90° degrees at intermediate speeds (less torque) using anti-shear apparatus.

**Ambulation**      Normal gait, brace (open)

**Comments**      Continue proprioceptive training.

## 6 TO 12 WEEKS

<b>Pain Control</b>	Discontinue
<b>ROM</b>	Full active and passive (0° -130°)
<b>Strengthening</b>	Continue closed kinetic chain exercise program. Progressive resistance exercise program, mini squats, leg presses, stationary bicycle for endurance, stair climbing. Can begin swimming (avoid kicking at knee - train to kick from hip) and Nordic track at 10-12 weeks.
<b>Ambulation</b>	Discontinue brace for daily activity (per physician) at 8-12 weeks post-op. Patient <i>may</i> be given a sports brace for "high demand" activities - determination made on a case-by-case basis.
<b>Comments</b>	Continue proprioceptive training. The graft is weakest during this period! Avoid cutting, jumping, and pivoting.

## LATE-STAGE POSTOPERATIVE ANTERIOR CRUCIATE LIGAMENT REHABILITATION

## 12 TO 16 WEEKS

<b>Strengthening</b>	Continue closed kinetic chain exercise program, knee extension exercises (90°-40°), jumping rope, swimming program, begin plyometric training.
<b>Ambulation</b>	Begin jogging program, elliptical trainer.
<b>Skill Acquisition</b>	Begin agility training (pattern running, figure eight's, lateral shuffles, backward running). Continue proprioceptive training
<b>Comments</b>	Isokinetic testing (12th week), If functional brace was provided it must be worn for agility and plyometric drills

## 16 TO 20 WEEKS

<b>Strengthening</b>	Continue closed kinetic chain exercise program, if no patellofemoral pain, can begin knee extension exercise (90° -0°) with limited weight, progress with plyometric program, begin isokinetic training for endurance
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<b>Ambulation</b>	Progress with jogging program to running program, begin sprints as running program improves.
<b>Skill Acquisition</b>	Progress with agility training (cariocas), sport- specific training and drills
<b>Comments</b>	Knee arthrometer testing (at approximately 20 weeks)

## >20 WEEKS

<b>Strengthening</b>	Continue strengthening program, continue plyometric program
<b>Ambulation</b>	Continue running program
<b>Skill Acquisition</b>	Continue agility program. Cutting program (figure 8 patterns over large displacement progressing to smaller displacement, lateral shuffle, 45 degree cuts to 60 degree cuts to 90 degree cuts, cariocas). Jumping program (mini-trampoline, hop on involved leg, sport cord side to side hop, bilateral side to side hop).

## Return to Sport (unlimited activity)

**Criteria for return** Isokinetic testing at 85% or better, functional testing.

### General timelines:

<b>Bone-Tendon-Bone</b>	5-6 months
<b>Quadriceps Tendon</b>	5-6 months
<b>Hamstrings</b>	6 months
<b>Allograft</b>	7-8 months