



### **ACL Allograft Reconstruction Protocol**

The intent of this protocol is to provide the clinician with a guideline for the post-operative rehabilitation course of a patient that has undergone an ACL allograft reconstruction. It is no means intended to be a substitute for one's clinical decision making regarding the progression of a patient's post-operative course based on their physical exam/findings, individual progress, and/or the presence of post-operative complications. If a clinician requires assistance in the progression of a post-operative patient they should consult with the referring Surgeon.

#### **GENERAL GUIDELINES**

- Allograft revascularization is slower than for autografts. Therefore, crutches and brace are continued for 6 weeks.
- CPM not commonly used
- ACL reconstruction performed with meniscal repair or transplant: follow the ACL protocol with avoidance of open kinetic hamstring strengthening for 6 weeks. Time frames for use of brace and crutches may be extended by the physician.
- Supervised physical therapy takes place for 3-9 months.

#### **GENERAL PROGRESSION OF ACTIVITIES OF DAILY LIVING**

Patients may begin the following activities at the dates indicated (unless otherwise specified by the physician):

- Bathing/Showering without brace: refer to your surgeon's post-operative instructions
- Sleep with brace locked in extension for 1 week
- Driving: 1 week for automatic cars, left leg surgery  
4-6 weeks for standard cars, or right leg surgery
- Brace locked in extension for 1 week for ambulation
- Use of crutches, brace for ambulation for 6 weeks

#### **PHYSICAL THERAPY ATTENDANCE**

The following is an approximate schedule for supervised physical therapy visits:

Phase I (0-6 weeks):	1-2 visit/week
Phase II (6-8 weeks):	2-3 visits/week
Phase III (2-6 months):	2-3 visits/week
Phase IV, V (6 months +):	Discharge after completion of appropriate functional progression

#### **REHABILITATION PROGRESSION**

##### **PHASE I: Immediately postoperatively through approximately week 6**

###### **Goals:**

- Protect graft fixation
- Minimize effects of immobilization
- Control inflammation
- Full extension range of motion
- Educate patient on rehabilitation progression
- Flexion to 90-degrees
- Normalize gait mechanics in pool (if available).

### **ACL Allograft Reconstruction Protocol**

**Brace:**

- Post op brace 0-6 weeks
- 1<sup>st</sup> week: Locked in full extension for ambulation and sleeping
- 1-6 weeks: Brace remove for rehab and sleeping
- 6-12 weeks: To be worn in situations where patient may be at risk for fall (crowds, walking on uneven surfaces)
- After 12 weeks brace is optional

**Weightbearing Status**

- 0-2 weeks: Touch down weight bearing with two crutches
- 2-4 weeks: Partial weight bearing
- 4-6 weeks: Weight bearing as tolerated

**Therapeutic Exercises:** {Reminder: ACL reconstruction performed with meniscal repair or transplant: follow the ACL protocol with avoidance of open kinetic hamstring strengthening for 6 weeks}

- Initiate active-assisted leg curls; progress to active range of motion when pain free
- Heel slides
- Quad sets
- Patellar mobilization
- Non-weight bearing gastroc/soleus stretching, begin hamstring stretches at 2 weeks
- SLR, all planes, with brace in full extension until quadriceps strength is sufficient to prevent extension lag. Quadriceps isometrics at 60-degrees and 90-degrees
- Pool after 2-3 weeks (once incisions have healed), to work on underwater treadmill
- At 4-weeks post-op add biking, deep well pool running with aqua vest (if pool available), leg press, quadriceps stretching.
- Partial weight bearing closed chain knee extension 0-45-degrees
  - Theraband
  - Leg press
  - Pool mini-squats
- Gentle hamstring stretching

**PHASE II: Postoperative weeks 6 to 8**

Criteria for advancement to Phase II:

- Good quad set, SLR without extension lag
- Approximately 90° of flexion
- Full active knee extension in sitting
- No signs of active inflammation

**Goals:**

- Initiate closed kinetic chain exercises
- Restore normal gait
- Protect graft fixation

**Brace/Weightbearing status:**

- Discontinue use of brace and crutches as allowed by physician when the patient has full extension and can SLR without extension lag.

**ACL Allograft Reconstruction Protocol**

Copyright © 2008 The Brigham and Women's Hospital, Inc., Department of Rehabilitation Services. All rights reserved

- Patient may exhibit antalgic gait pattern. Consider using single crutch or cane until gait is normalized.

**Therapeutic Exercises:**

- Wall slides 0-45-degrees, progressing to mini-squats
- 4-way hip
- Stationary bike (begin with high seat, low tension to promote ROM, progress to single leg)
- Closed chain terminal extension with resistive tubing or weight machine
- Toe raises
- Balance exercises (e.g. single-leg balance, KAT)
- Hamstring curls
- Aquatic therapy with emphasis on normalization of gait
- Continue hamstring stretches, progress to weight-bearing gastroc/soleus stretches

**PHASE III: Postoperative week 8 to 6 months**

**Goals:**

- Full range of motion
- Improve strength, endurance and proprioception of the lower extremity to prepare for functional activities
- Avoid overstressing the graft
- Protect the patellofemoral joint

**Therapeutic Exercises:**

- Continue and progress previous flexibility and strengthening activities
- Stairmaster (begin with short steps, avoid hyperextension)
- Nordic Trac, Elliptical
- Knee extensions 90°-45°, progress to eccentrics
- Advance closed kinetic chain activities (leg press, one-leg mini squats 0-45° of flexion, step-ups begin at 2” progress to 8”, etc.)
- Progress proprioception activities (slide board, use of ball, racquet with balance activities, etc.)
- Progress aquatic program to include pool running, swimming (no breaststroke)

**PHASE IV: Postoperative months 6 to 9**

Criteria for advancement to Phase IV:

- Full, pain-free ROM
- No evidence of patellofemoral joint irritation
- Strength and proprioception approximately 70% of uninvolved
- Physician clearance to initiate advanced closed kinetic chain exercises and functional progression

**Goal:**

- Progress strength, power, and proprioception to prepare for return to functional activities.

**ACL Allograft Reconstruction Protocol**

Copyright © 2008 The Brigham and Women's Hospital, Inc., Department of Rehabilitation Services. All rights reserved

**Therapeutic Exercises:**

- Continue and progress previous flexibility and strengthening activities
- Functional progression including:
  - Walk/Jog progression
  - Forward, backward running, ½, ¾, full speed

**PHASE V: Postoperative month 9 +**

Criteria for advancement to Phase V:

- No patellofemoral or soft tissue complaint
- Necessary joint ROM, strength, endurance, and proprioception to safely return to work or athletics
- Physician clearance to resume partial or full activity

**Goals:**

- Initiate cutting and jumping activities
- Completion of appropriate functional progression
- Maintenance of strength, endurance, proprioception
- Patient education with regards to any possible limitations

**Therapeutic Exercises:**

- Functional progression including, but not limited to:
  - Walk/jog progression
  - Forward/backward running, ½, ¾, full speed
  - Cutting, crossover, cariocha, etc.
  - Plyometric activities as appropriate to patient's goals
  - Sports-specific drills
- Safe, gradual return to sports after successful completion of functional progression
- Maintenance program for strength and endurance

**Bracing:**

Functional brace may be recommended by the physician for use during sports for the first 1-2 years after surgery.

**Authors:** Mike Cowell, PT  
Marie-Josée Paris, PT  
April, 2006

**Reviewers:** Joel Fallano, PT

Deleted: ¶

**Revised:** Marie-Josée Paris  
April, 2008

**Reviewers:** Joel Fallano, PT  
Mike Cowell, PT