

Kai Mithoefer, MD
**New England Center for Regenerative Orthopedics and Sports
Medicine**

Boston Sports and Shoulder Center
840 Winter Street, Waltham, MA 02451, (781) 890-2133
125 Parker Hill Avenue, Boston, MA 02120, (617) 264-1100

Postoperative Rehabilitation Guidelines
Anterior Cruciate Ligament Primary Repair

The following protocol is intended as a general guideline for physical therapist, athletic trainer, and patient after arthroscopic anterior cruciate ligament (ACL) primary repair. These guidelines are designed to facilitate the expedited and safe return to athletic or professional activity and is based on a review of the current scientific principles of knee rehabilitation. For the treating health care provider this protocol should not serve as a substitute for individualized clinical decision making during the patient's post-operative course following ACL primary repair. It should rather take into consideration the individual's physical findings, progression, and possible post-operative limitations. If the therapist or patient requires assistance or encounters any postoperative complication they should consult with **your surgeon**.

Phase I (Postoperative Phase)

Postop Days 1-2

- WBAT with crutches as needed with brace locked in full extension
 - Meniscus repair- WBAT
- CPM: start at 0-45 and advance as tolerated to 110 (use 6-8 hours/day, may use in intervals)
- ROM as tolerated (Limit for meniscal repair patients: 0-110 degrees)
- Focus on Extension (avoid pillow under knee)
- Patellar mobilization (superior-inferior and medial-lateral)
- Ankle pumps, SLR, Quad sets
- Aggressive Cryotherapy (20 min/hour, reconstitute/change codevice frequently)

Start physical therapy within 5-10 days after surgery

Postop Days 3-14

- WBAT with brace locked in extension, unlock brace when sitting
 - Meniscus repair-WBAT
- **Unlock brace for ambulation if good quad control (usually around 2 weeks)**
- Gait training, D/C crutches if gait non-antalgic
- ROM Goal 0-120

Postoperative Rehabilitation Protocol: ACL Reconstruction

- Continue emphasis on full extension (support heel at night, prone hangs, extension sitting)
- CPM 6h/day (may use at night), discontinue when ROM 0-120 degrees
- Restore quadriceps control
 - Quadriceps sets, SLR, ankle pumps
 - **Early electrical Stimulation/NMES**
- Closed kinetic chain exercises start after day 10 post-op
 - Mini-squats on Total Gym
- Hamstring curls, hip abductor/gastrocnemius strengthening
- Aggressive patellar mobilization
- Start Stationary bike when ROM allows
- Cryotherapy after treatment and several times a day at home
- **ROM limit for patients with simultaneous meniscal repair: 0-110 degrees for 4 weeks**

Phase II (Initial Rehabilitation Phase)

Postop Weeks 2-4

- FULL ROM by week 3
- Active knee extension with progressive resistance (start at 5 lbs and progress 2-3 lbs/week)
- Open kinetic chain exercises (0-80 degrees)
- Stationary bike
- Elliptical after 4wks
- Initiate proprioceptive/neuromuscular exercises
 - Single limb stance
 - Lunge exercises on uninvolved side
 - Step ups lateral/anterior/posterior
- Hamstring, hip abductor, gastroc/soleus strengthening
- Pool walking program after removal of sutures/appropriate wound healing if pool access available
- Cryotherapy/Estim after treatment and at home daily

Phase III (Progressive Strengthening Phase)

Postop Weeks 5-8

- Maintain full ROM
 - flexion and extension equal to contralateral side
- Continue all exercises from Phase II
- Progressive hip abduction/adduction/flexion/extension strengthening
- Progressive Hamstring strengthening
- Progressive squatting/leg press program
 - Limit squatting <110 degrees with maximal body weight for 3 months after meniscal repair
 - Avoid squatting/leg press if with patellofemoral pain → resume isometric exercises

Postoperative Rehabilitation Protocol: ACL Reconstruction

▪ Initiate Blood Flow Restriction Training (BFT) if available

Cardiovascular endurance training including elliptical, bike, swimming, stepper if no pain or swelling

- Retrograde treadmill ambulation
- Continue with Pool program/Aguajogger if available
- Balance board squats
- Progressive Step-down Program
- Initiate agility drills at week 6-8 if good ROM/Quad+Hip abductor control/Stability
 - NO CUTTING DRILLS
 - Lateral shuffles
 - Jump rope
 - Fitter
 - Bounding
 - Fast steps
- Initiate Sport Specific Activities
 - Shooting a basketball/hitting a tennis ball of wall/hand eye coordination

Phase IV (Return to Activity Phase)

Postop weeks 8-12

- Enhance strength, flexibility, endurance, and neuromuscular control
- Start plyometric drills
- Initiate running program
- Advance sport-specific agility exercises
- Start sport-specific skill training Start supervised physical therapy within 3 days after surgery
- Continue with NO CUTTING or PIVOTING DRILLS

Postop weeks 13-16

- Normalize strength, flexibility, endurance, and neuromuscular control
- Advance plyometric program
 - Controlled Jumping
 - Controlled bounding for distances
- Progress running and agility program
- Initiate cutting, jumping drills
- Continue sport-specific skill program and functional progression
- Gradual return to sport (MD directed)
- Single leg hop test (goal >90%)
- Complete functional knee scores (subjective scoring, IKDC, Tegner, Lysholm, KOOS)

Please do not hesitate to contact the surgeons office to discuss the individual patient's findings and progress at any time.