

**Roidis Nikolaos, MD, PhD, DSc**  
**Senior Consultant Orthopaedic Surgeon**  
**3<sup>rd</sup> Orthopaedic Department**  
**KAT Hospital**

## **ACL RECONSTRUCTION: HAMSTRING AUTO/ALLOGRAFT OR POSTERIOR TIBIALIS ALLOGRAFT POST-SURGICAL REHABILITATION PROTOCOL**

### **POST-OP DAYS 1 – 14**

- Dressing:
  - POD 1: Debulk dressing, TED Hose in place
  - POD 2: Change dressing, keep wound covered, continue TED Hose
  - POD 7-10: Sutures out, D/C TED Hose when effusion resolved
- Brace x 6 weeks – Locked in extension for ambulation
- Open to available range when pt has good quad control (no extensor lag)
- Crutches – Partial weight bearing (PWB) in brace
- Patellar mobilization (teach patient)
- Calf pumping
- AAROM 0-90 degrees (passive extension, heel slides with towel assist)
- Passive extension with heel on bolster or prone hangs
- **No active Hamstring exercises**
- Electrical stimulation in full extension with quad sets and SLR
- Quad sets
- Straight leg raise (SLR) x 4 directions on mat (in brace if poor quad control)
- Total Gym (level 3-5) – Mini squats 0-45 degrees
- Passive flexion to 90 degrees max (push up with opposite leg)
- Leg press 0-45 degrees with light resistance (up to ¼ body weight)
- Stationary bike for range of motion – Complete cycle as able
- Ice Pack with knee in full extension after exercise

### **GOALS**

- Full passive extension
- Flexion to 90 degrees
- Good quad control

### **Weeks 2 - 4**

- Brace x 6 weeks – Open to available range
- Crutches – PWB in brace
- Continue appropriate previous exercises and following ex without brace
- Scar massage when incision healed
- AAROM, AROM through full range as tolerated
- Co-contractions quads / HS
- SLR x 4 on mat – Add light ankle weights if quad control is maintained
- Total Gym – Progress levels and ROM of mini-squats as tolerated
- Leg press 0-90 degrees with light resistance (up to ¼ body weight)
- Hamstring curls – Carpet drags or rolling stool (closed chain)
- Double leg heel raises

- Stationary bike – Progressive resistance and time
- Stretches – Hamstring, Hip Flexors, ITB

### **GOALS**

- ROM 0-110 degrees
- No effusion
- No extensor lag

### **WEEKS 4 - 6**

- Brace x 6 weeks – Open to available range
- Crutches – weight bearing as tolerated (WBAT) in brace, D/C when gait is normal
- Continue appropriate previous exercises
- PROM, AAROM, AROM to regain full motion
- Standing SLR x 4 with light Theraband bilaterally
- Mini squats, Wall squats 0-45 degrees
- Leg press 0-90 degrees with resistance no more than ½ body weight
- Hamstring curls on weight machine with light resistance
- Forward, lateral and retro step downs in parallel bars
- No knee flexion past 45 degrees (small step)
- Single leg heel raises
- Proprioceptive training – Single leg standing in parallel bars
- Double leg BAPS for weight shift
- Treadmill – Forwards and backwards walking

### **GOALS**

- Full ROM
- Normal Gait

### **WEEKS 6 - 9**

- D/C Brace
- Continue appropriate previous exercises
- Wall squats 0-90 degrees
- Leg press 0-90 degrees with resistance as tolerated
- Hamstring curls with resistance as tolerated
- Forward, lateral and retro step downs (medium to large step)
- Hip weight machine x 4 bilaterally
- Proprioceptive training – Single leg BAPS, ball toss and body blade
- Stationary bike – 15-20 minutes at a time, at least 70 rpm
- Treadmill – Walking progression program
- Elliptical trainer
- Pool therapy – Walking / running (no kicking)

### **GOAL**

- Walk 2 miles at 15 min/mile pace

### **WEEKS 9 - 12**

- Continue appropriate previous exercises with progressive resistance
- Fitter
- Slide board
- Proprioceptive training – Grid exercises
- Functional activities – Figure 8s, gentle loops, large zigzags
- Stairmaster – Small steps
- Pool therapy – No swimming laps
- Quad stretches

**GOAL**

- Walk 3 miles at 15 min/mile pace

**MONTHS 3 - 4**

- Isokinetic testing at 180 and 300 degrees/sec
- Must have 80% of opposite leg to clear for straight line running
- Continue appropriate previous exercises
- Knee extension weight machine
- Short arc quads
- Agility drills / Plyometrics
- Treadmill – Running progression program if cleared
- Pool therapy – Swimming laps

**GOAL**

- Run 2 miles at easy pace

**MONTHS 4 - 6**

- Repeat Isokinetic testing as needed
- Continue appropriate previous exercises
- Sit-up progression
- Running progression to track
- Transition to home / gym program

**GOAL**

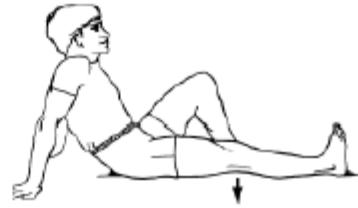
- Return to all activities

***\*NO CONTACT SPORTS UNTIL 6 MONTHS POST-OP\****

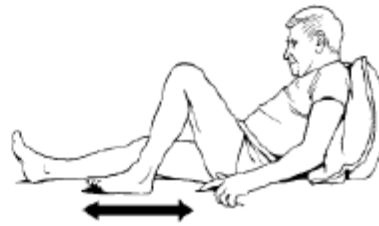
## **KNEE POST-OP PHASE I**

Perform exercises below frequently: 30 reps, 3 – 5x a day

**Quad Isometrics**



**Heel Slides**



**Active Assisted Motion**



**Ice Position 15 minutes 2-3 x per day**



**ADAPTED FROM:**

Mark Galland, MD Physical Therapy Section

Kenneth Kirby, PT, DPT William Beaumont Army Medical Center