



College Park Family Care Center, P.A.
Orthopedic Services

**ACCELERATED REHABILITATION FOLLOWING
ACL-QTG RECONSTRUCTION**

I. PREOPERATIVE PHASE

Goals:

- Diminish inflammation, swelling, and pain
- Restore normal range of motion (especially knee extension)
- Restore voluntary muscle activation
- Provide patient education to prepare patient for surgery

Brace:

Elastic wrap or knee sleeve to reduce swelling

Weight Bearing:

As tolerated with or without crutches

Exercises:

- Ankle Pumps
- Passive knee extension to zero
- Straight Leg Raises (3 Way, Flexion, Abduction, Adduction)
- Quadriceps Setting
- Closed kinetic chain exercises: mini squats, lunges, step-ups

Cryotherapy/Elevation:

Apply ice 20 minutes of every hour; elevate leg with knee in full extension (knee must be above heart)

Patient Education:

- Review postoperative rehabilitation program
- Review instructional video (optional)
- Select appropriate surgical date

II. IMMEDIATE POST-OPERATIVE PHASE (Day 1 to Day 7)

Goals:

- Restore full passive knee extension
- Diminish joint swelling and pain
- Restore patellar mobility
- Gradually improve knee flexion
- Re-establish quadriceps control
- Restore independent ambulation

POSTOPERATIVE DAY 1

Wound Care:

Change dressing and apply new dry and sterile dressing

Brace:

Post Op knee brace applied, locked in full extension during ambulation as directed by physician

Weight Bearing:

Two crutches, weight bearing as tolerated, may D/C crutches when comfortable

Exercises:

- Ankle Pumps
- Overpressure into full, passive knee extension
- Active and Passive knee flexion (90 degree by day 5)
- Straight leg raises: Flexion, Abduction, and Adduction
- Quadriceps isometric setting
- Hamstring Stretches
- Closed kinetic chain exercises: mini squats, weight shifts

Muscle Stimulation:

Use muscle stimulation while awake. Alternate HV and NMES q hr while awake

CPM:

Home use

Ice and Elevation:

Ice 20 minutes every hour and elevate with knee in full extension

POSTOPERATIVE DAY 2 TO 3

Brace:

Knee brace locked at zero degrees extension for ambulation and unlocked for sitting etc., or Protonics Rehab System (PRS) as directed by physician

Weight Bearing:

Two crutches, weight bearing as tolerated

Range of Motion:

Remove brace; perform range of motion exercises 4 to 6 times per day

Exercises:

- Multi-angle isometrics at 90 and 60 degrees (knee extension)
- Knee Extension 90 to 40 degrees
- Overpressure
- Patellar mobilization
- Ankle pumps
- Straight leg raises (3 directions)
- Mini squats and weight shifts
- Standing Hamstring curls
- Quadriceps isometric setting

Muscle Stimulation:

Electrical muscle stimulation to quads (6 hours per day)

Ice and Elevation:

Ice 20 minutes out of every hour and elevate leg with knee in full extension

POSTOPERATIVE DAY 4 - 7**Knee Brace:**

Locked at zero degrees extension for ambulation and unlocked for sitting

Weight Bearing:

One crutch, weight bearing as tolerated

Range of Motion:

Remove brace to perform range of motion exercises 4 to 6 times per day, knee flexion 90 degrees by day 5, approximately 100 degrees by day 7

CPM:**Exercises:**

- Multi-angle isometrics at 90 to 60 degrees (knee extension)
- Knee extension 90 to 40 degrees
- Overpressure into extension
- Patellar mobilization
- Ankle pumps
- Straight leg raises (3 directions)
- Mini squats and weight shifts
- Standing hamstring curls
- Quadriceps isometric setting
- Proprioception and balance activities

Muscle Stimulation:

Electrical muscle stimulation (continue 6 hours daily)

Swelling Control:

Ice 20 minutes of every hour and elevate leg with knee at full extension

FOLLOWING FIRST POST-OP VISIT

Brace:

Unlock brace to full flexion, 0 degree extension, continue to brace, but may remove to sleep and shower until 6-week follow-up

Weight Bearing:

As tolerated (goal is to discontinue crutches 10 days post-op)

Range of Motion:

Self-ROM stretching (4 - 5 times daily), emphasis on maintaining full, passive range of motion

Exercises:

- Muscle stimulation to quadriceps exercises
- Isometric quadriceps sets
- Straight leg raises (4 planes)
- Leg Press
- Knee extension 90 - 40 degrees
- Half squats 0 - 40
- Weight shifts
- Front and side lunges
- Hamstring curls
- Bicycle
- Proprioception training
- Overpressure into extension
- Passive range of motion from 0- 50 degrees
- Patellar mobilization
- Well leg exercises
- Progressive resistance extension program - start with 1 lb., progress 1 lb. per week

Swelling Control:

Ice, compression, elevation

III. EARLY REHABILITATION PHASE/HOME EXERCISE PROG. (Wk 2- 4)

Criteria to Enter Into Phase IV

- 1) Quad Control (ability to perform good quad set and SLR)
- 2) Full passive knee extension
- 3) PROM 0- 90 degrees
- 4) Good patellar mobility
- 5) Minimal joint effusion
- 6) Independent ambulation

Goals:

- Maintain full passive knee extension
- Gradually increase knee flexion
- Diminish swelling and pain
- Muscle training
- Restore proprioception
- Patellar mobility

WEEK THREE

Range of Motion:

Continue range of motion stretching and overpressure into extension

Exercises:

- Continue all exercises as in week two
- Passive range of motion 0- 115 degrees
- Bicycle for range of motion stimulus and endurance
- Pool walking program (if incision is closed)
- Eccentric quadriceps program 40 - 100 (isotonic only)
- Lateral lunges
- Lateral step-ups
- Front step-ups
- Lateral step-overs (cones)
- Stair-stepper machine
- Progress proprioception drills, neuromuscular control drills

IV. CONTROLLED AMULATION PHASE (WEEK 4-10)

Criteria to Enter Phase V:

- 1) Active range of motion 0-115 degrees
- 2) Quadriceps strength 60% > contralateral side (isometric test at 60 degree knee flexion)
- 3) Minimal to no full joint effusion
- 4) No joint line or patellofemoral pain

Goals:

- Restore full knee range of motion (0 to 125 degrees) Improve lower extremity strength
- Enhance proprioception, balance, and neuromuscular control Improve muscular endurance
- Restore limb confidence and function
- Range of Motion - Self-ROM (4 - 5 times daily using the other leg to provide ROM), emphasis on maintaining zero degrees passive extension

WEEK 4

Exercises:

- Progress isometric strengthening program
- Leg press
- Knee extension 90 to 40 degrees
- Hamstring curls
- Hip abduction and adduction
- Hip flexion and extension
- Lateral step-overs
- Lateral lunges
- Lateral step-ups
- Front step-downs
- Wall squats
- Vertical squats
- Biodex stability system (balance, squats, etc)
- Proprioception drills
- Bicycle
- Stair stepper machine
- Poor Program (Backward running, hip and leg exercises)

WEEK 6

Exercises:

- Continue all exercises
- Poor running (forward) and agility drills
- Balance on tilt boards
- Progress to balance and board throws

WEEK 8

Exercises:

- Continue all exercises listed in Weeks 4-6
- Plyometric leg press
- Isokinetic exercises (90 to 40 degrees) (120 to 240 degrees/second)
- Walking Program
- Bicycle for endurance
- Stair stepper machine for endurance (Forward/Retro)

WEEK 10

Isokinetic Test:

Concentric knee extension/flexion at 180 and 300 degrees/second

Exercises:

- Continue all exercises listed in weeks 6, 8 and 10
- Plyometric training drills
- Continue stretching drills

V. ADVANCED ACTIVITY PHASE (WEEK 10 - 16)

Criteria to Enter Phase VI

- 1) AROM 0 - 125 degrees or greater
- 2) Quad strength 79% of contralateral side, knee extension flexor extensor ratio 79 to 75%
- 3) No pain or effusion
- 4) Satisfactory clinical exam
- 5) Satisfactory isokinetic test (values at 180 degrees)
 - a. Quadriceps bilateral comparison 75%
 - b. Hamstrings equal bilateral
 - c. Quadriceps peak torque/body weight
 - d. Hamstrings/quadriceps ratio 66% to 75%
- 6) Hop Test (80% of contralateral leg)
- 7) Subjective knee scoring (modified Noyes System) 80 points or better

Goals:

- Normalize lower extremity strength
- Enhance muscular power and endurance
- Improve neuromuscular control
- Perform selected sport-specific drills

Exercises:

- Continue all exercises

VI. RETURN TO ACTIVITY PHASE (WEEK 16 - 22)

Criteria to Graduate Phase VI and Return to Full Activity

- 1) Full range of motion
- 2) Isokinetic test that fulfills criteria
- 3) Quadriceps bilateral comparison (80% or greater)
- 4) Hamstring bilateral comparison (110% or greater)
- 5) Quadriceps torque/body weight ratio (55% or greater)
- 6) Hamstrings/Quadriceps ratio (70% or greater)
- 7) Proprioceptive Test (100% of contralateral leg)
- 8) Functional Test (85% or greater of contralateral side)
- 9) Satisfactory clinical exam
- 10) Subjective knee scoring (modified Noyes System) (90 points or better)

Goals:

- Gradual return to full-unrestricted sports
- Achieve maximal strength and endurance
- Normalize neuromuscular control
- Progress skill training

Exercises:

- Continue strengthening exercises
- Continue neuromuscular control drills
- Continue plyometrics drills
- Progress running and agility program
- Progress sport specific training