

## “REHABILITATION FOLLOWING ACL RECONSTRUCTION”

### Post-Operative Physical Therapy Protocol

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#### I. Immediate Post-Operative Phase

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

##### A. Postoperative Day 1

Brace/immobilizer - applied to knee, locked in full extension during ambulation for 1<sup>st</sup> 3 weeks. **Remove Brace for CPM use and supervised exercises.**

Weight bearing - Two crutches, weight bearing as tolerated in brace

##### Exercises:

- Ankle Pumps
- Overpressure into full, passive knee extension
- Active and Passive knee flexion
- Straight leg raises (Flexion, Abduction, Adduction)
- Quadriceps isometric setting
- Hamstring stretches
- Mini squats, weight shifts

Ice and elevation - 10 minutes out of every hour, when awake, and elevate with knee in full extension (in brace)

ROM - 0-60 degrees

## B. Postoperative Day 2-3

Range of Motion: Remove knee from brace to perform range of motion exercises 4-6 times a day with supervision and/or assistance

Exercises:

- Multi-angle isometrics at 90 and 60 degrees
- Patellar mobilization
- Ankle Pumps/Quad Activation/Straight Leg Raises

## C. Postoperative Day 4-7

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

Exercises:

- Add standing hamstring curls
- Quadriceps isometric setting
- Proprioception and balance activities
- Mini squats (only once good quad set) /weight shifts

## II. Early Rehabilitation Phase (Week 2-4)

Goals: Maintaining full passive knee extension  
Gradually increase knee flexion  
Muscle control and activation  
Normalize patellar mobility  
Restore proprioception/neuromuscular control

### A. Week Two

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

Exercises:

- Isometric Quad sets
- SLR (4planes)
- Leg press (0-60 degrees)
- Knee extension (90-40 degrees)
- Half squats (0-40degrees)

- Weight Shifts
- Front and side Lunges
- Hamstring Curls standing (AROM)
- Overpressure in extension
- PROM 0-100 degrees
- Patellar mobilization
- Well leg exercises

#### B. Week Three

Range of Motion: Continue range of motion stretching and overpressure into extension (ROM should be 0-100/120 degrees)

Exercises:

- Continue all exercises as in week two
- PROM 0-120 degrees
- Bicycle for ROM stimulus and endurance
- Pool walking program – if available
- Lateral lunges (straight plane)
- Front Step Downs
- Lateral Step-Overs
- Stair Stepper machine
- Progress Proprioception drills, neuromuscular control drills

Brace: At end of 3<sup>rd</sup> week brace is unlocked to allow full ROM if no quad lag. Brace is worn until end of 6<sup>th</sup> post op week.

### III. Progressive Strengthening/Neuromuscular Control Phase (Week 4-10)

Goals: Restore full knee range of motion (0-130+ degrees)  
Improve lower extremity strength  
Enhance proprioception, balance, and neuromuscular control  
Improve muscular endurance  
Restore limb confidence and function

#### A. Week 4-5

Exercises:

- Leg Press (0-100 degrees)
- Knee extension 90-40 degrees
- Hamstring Curls (isotonic)

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- Hip Abduction/Adduction
- Hip Flexion and Extension
- Lateral Step Overs/ Step Downs
- Front Step Downs
- Wall Squats
- Vertical Squats
- Standing Toe/ Calf Raises
- Proprioception Drills
- Bicycle
- Stair Stepper
- Pool Program (backward running, hip and leg exercises)
- Balance board squats
- Lunges

C. Week 6-7

Exercises:

- Continue all exercises
- Pool running forward, agility drills
- Balance on tilt boards
- Progress to balance and ball throws
- Wall slides/squats

D. Week 8-9

Exercises:

- Continue all exercises
- Plyometric Leg Press
- Stability Training
- Isokinetic exercises
- Stair Stepper
- Bicycle

E. Week 10

Exercises:

- Continue all exercises listed in Weeks 6-10
- Plyometric Training Drills
- Continue Stretching
- Progress strengthening exercises and neuromuscular training

#### **IV. Advanced Activity Phase (Week 10-16)**

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

##### A. Week 10-12

Exercises:

- May initiate running program, 1<sup>st</sup> on treadmill
- May initiate light “straight ahead” sport program
- Continue all strengthening drills
- Continue all Neuromuscular training

##### B. Week 14-16

Exercises:

- Progress program
- Continue all drills above
- May initiate lateral agility drills
- Plyometrics
- Backward running

#### **V. Return To Activity Phase (Month 16-24)**

Goals: Gradual return to full-unrestricted sports depending on extent of injury, surgery & sport  
Achieve maximal strength and endurance  
Normalize neuromuscular control  
Progress skill training

Exercises:

- Continue strengthening exercises
- Continue neuromuscular control drills
- Continue Plyometric drills
- Progress running and agility training
- Progress sport specific training
- Running/cutting/agility drills
- Gradual return to sport