

ANTERIOR CRUCIATE LIGAMENT AND POSTERIOR CRUCIATE LIGAMENT COMBINED RECONSTRUCTION SURGERY REHABILITATION PROGRAM

I. IMMEDIATE POSTOPERATIVE PHASE (Day 1 - 13)

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 1-4

Brace:

Drop lock brace locked at zero degrees extension with compression wrap
Sleep in brace

Weightbearing:

Two crutches as tolerated (less than 50%)

Range of Motion:

Range of motion 0 -45/50⁰

Exercises:

Ankle pumps

Quad sets

Straight leg raising - flexion, abduction, adduction in brace

Muscle stimulation to quadriceps (4 hours per day) during quad sets & straight leg raises

Patellar mobilizations 5-6x daily

Ice and elevation every 20 minutes of each hour with knee in extension

POSTOPERATIVE DAY 5-13

Brace:

Continue use of drop lock brace locked at zero degrees extension during ambulation & sleep

Weightbearing:

Two crutches: gradually increase WB to 50% by day 7; 75% by day 12

Range of motion

Day 5: 0-65⁰

Day 7: 0-70⁰

Day 10: 0-75⁰

Day 14: 0-90⁰

Exercises

Continue previous exercises
Continue use of muscle stimulation

Patellar mobilizations 5-6x daily
Continue use of ice, elevation, and compression

II. MAXIMUM PROTECTION PHASE (Week 2 to 6)

Criteria to Enter Phase II:

1. Good 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

Goals: Control deleterious forces to protect grafts

Nourish articular cartilage

Decrease swelling

Decreased fibrosis

Prevent quad atrophy

Initiate proprioceptive exercises

WEEK 2

Brace:

Continue use of brace locked at zero degrees of extension

Weightbearing:

As tolerated; approximately 75% body weight

Range of Motion:

Continue to perform passive ROM 5-6x daily Day 14: 0-90 degrees

Exercises:

Continue quad sets & straight leg raises
Multi-angle isometrics at 60⁰ and 40⁰
Patellar mobilizations 5-6x daily
Well leg bicycle
Mini-squats (0 – 45 degrees)
Continue use of muscle stimulation
Continue ice, elevation, and compression
Quadriceps isotonic 90-40 degrees

WEEK 3

Continue above mentioned exercises
ROM:0-90 degrees
Continue use of 2 crutches - 75-80% body weight

WEEK 4

Brace:

Continue use of brace locked at zero degrees extension
Discontinue sleeping in brace

Weightbearing:

Progress to weight bearing as tolerated with 1 crutch

Range of Motion:

AROM, AAROM, PROM: 0- 90/100⁰

Exercises:

Weight shifts
Mini-squats (0 - 45⁰)
Quadriceps isotonic 90 - 40⁰
Light pool exercises and walking
Initiate bicycle for ROM & endurance
Begin leg press 60 - 0⁰ (light weight)
Proprioception/balance drills

WEEK 5-6

Discontinue use of crutches week 5-6
Unlock brace for ambulation week 6
Fit for functional ACL/PCL brace
Range of Motion week 5: 0 - 105⁰; week 6: 0 - 115⁰

Continue pool exercises
Initiate lateral lunges

III. MODERATE PROTECTION PHASE (Week 7-12)

Criteria to Enter Phase III:

1. PROM 0-115 degrees
2. Full weightbearing
3. Quadriceps strength > 60% contralateral side (isometric test at 60 degrees)
4. Minimal to no full joint effusion
5. No joint line or patellofemoral pain

Goals: Control forces during ambulation

Progress knee range of motion

Improve lower extremity strength

Enhance proprioception, balance, and neuromuscular control

Improve muscular endurance

Restore limb confidence and function

Brace:

Continue use of unlocked brace for ambulation - discharge week 7 - 8

Range of Motion:

AAROM/PROM 0-125⁰

Exercises:

Continue previous exercises

Initiate swimming

Initiate lateral and front step-ups (2" step, gradually increase)

Progress closed kinetic chain exercises (squats 0 - 60⁰, leg press 90-0)

Progress proprioceptive training

IV. CONTROLLED ACTIVITY PHASE (Week 13-16)

Criteria to Enter Phase IV:

1. AROM 0-125⁰
2. Quadriceps strength > 60-70 contralateral side (isokinetic test)
3. No change in KT scores (+2 or less)
4. Minimal effusion
5. No patellofemoral complaints
6. Satisfactory clinical exam

Goals: Protect healing grafts
Protect patellofemoral joint articular cartilage
Normalize lower extremity strength
Enhance muscular power and endurance
Improve neuromuscular control

Exercises:

Continue previous exercises
Emphasis on eccentric quadriceps strengthening
Continue closed kinetic chain mini-squats, step-ups, step-downs, lateral lunges, leg press
Hip abduction & adduction
Initiate front lunges
Calf raises (gastroc and soleus strengthening)
Bicycle and stairmaster for endurance
Initiate pool running (side shuffle, backward, forward)
Initiate walking program
Initiate isokinetic exercise 100-40⁰ (120-240⁰ /s spectrum)

V. LIGHT ACTIVITY PHASE (Month 4-6)

Criteria to enter Phase V:

1. AROM > 125 degrees
2. Quadriceps strength 70% of contralateral side; flexion/extension ratio 70-79%
3. Minimal joint effusion
4. Satisfactory clinical exam

Goals: Enhancement of strength, power, and endurance
Initiate functional and/or sport-specific activity
Prepare for return to functional activities

Exercises:

Continue strengthening exercises - emphasize quadriceps & co contraction
Initiate plyometric program
Initiate running program
Initiate agility drills
Initiate sport-specific training and drills

Criteria to initiate running program:

Acute reconstruction may begin at 4 - 5 months

Chronic reconstruction may begin at 5 - 6 months

1. Satisfactory clinical exam
2. Unchanged KT test
 3. Satisfactory isokinetic test
 - Quadriceps bilateral comparison (80% or greater)
 - Hamstring bilateral comparison (110% or greater)
 - Quadriceps torque/body weight ratio (55% or greater)
- Hamstrings/Quadriceps ratio (70% or greater)
- Proprioception testing 100% of contralateral side
- Functional hop test > 75% of contralateral leg

VI. RETURN TO ACTIVITY PHASE (Month 6-9)

Criteria to return to activities:

1. Satisfactory clinical exam
2. **Unchanged KT test**
3. Satisfactory isokinetic test
4. Proprioception testing 100% of contralateral side
5. Functional hop test > 80% of contralateral leg

Goals: Gradual return to full-unrestricted sports

Achieve maximal strength and endurance

Normalize neuromuscular control

Progress skill training

Exercises:

Continue strengthening programs

Continue proprioception & neuromuscular control drills

Continue plyometric program

Continue running and agility program

Progress sport specific training and drills

CLINICAL FOLLOW-UPS AT 6, 12, & 24 MONTHS POSTOPERATIVE:

Functional testing

Clinical exam