



PHASE I: 0 to 12 Weeks

- Ice and soft-tissue modalities to reduce pain and inflammation
- Gait training – Instruct on appropriate crutch use
- Emphasize elevation to level of heart, daily ice or cryocuff
- Patella mobilization, ankle pumps and quad sets

A) WEIGHT-BEARING

- Patella/trochlear lesions: WBAT in brace (locked from 0°-30° x 6 weeks)
- Femoral condyle or tibia lesions:
 - Weeks 0-2: Non weight-bearing
 - Weeks 2-4: Partial weight-bearing (30-40 lbs)
 - Weeks 4-6: Continue PWB and progress to one crutch
 - Weeks 6-12: Progress to full weight-bearing and d/c crutch

B) BRACE

- Patella/trochlear lesions: Brace locked at 0°-30° with WB, unlocked when NWB
- Femoral condyle or tibia lesions:
 - Weeks 0-2: Locked in extension, remove for CPM and rehab with PT
 - Weeks 2-4: Open brace gradually at 20° intervals as quad control improves
 - Discontinue brace once patient can perform SLR with no extension lag

C) RANGE OF MOTION – CPM 6-8 hours/day for 6 weeks

- CPM set to 1 cycle per minute. Initial setting: 0°-30
- Increase flexion 5°-10° per day until full flexion is achieved
- Goal: 90° by Week 4 and 120° by Week 6
- PROM/AAROM and stretching under PT guidance

EXERCISES FOR ROM

Extension:

Passive Extension: Sit in chair, place heel on edge of stool or chair. Relax thigh muscles and let knee sag under its own weight until max extension achieved.

Heel Props: Place rolled up towel under heel and allow leg to relax.

Prone Hangs: Lie face down on table/bed with legs hanging off edge of table, allow legs to sag into full extension.

Flexion:

Passive Flexion: Sit on chair or edge of bed and let knee bend under gravity. Use other leg to support and control flexion.

Heel Slides: Use good leg to pull involved heel towards buttocks, flexing the knee. Hold for 5 seconds, straighten leg by sliding heel downward, hold for 5 seconds.



4) EXERCISES

- Weeks 0-2: Straight leg raises, quad sets and hamstring Isometrics (exercises in brace if quad control inadequate)
- Weeks 2-6: Start progressive, isometric closed-chain exercise
- Week 6: Start weight-shifting activities with operative leg in extension
- Week 6-10: Progress bilateral closed-chain strengthening and begin open-chain knee strengthening.
- **Closed-chain exercises** for hamstring. For **quadriceps**, begin squats to chair and wall slides (back against wall) at week 8. Limit knee flexion from 0°-45°. If patella/trochlea lesion, avoid until week 12
- Advance core and abductor strengthening
- Week 10-12: Begin closed chain exercise WITH resistance (less than patient's body weight). Progress to unilateral closed chain exercises.
- Week 10: Begin balance and proprioceptive training. Ok to begin stationary bike with light resistance

PHASE II: Weeks 12-24 (3-6 months)

A) WEIGHT-BEARING: FWB with normal gait pattern

B) RANGE OF MOTION: Advance to full, painless ROM

C) EXERCISES – Global lower extremity stretching and core strengthening

- Advance bilateral and unilateral closed chain exercises
 - Emphasize concentric/eccentric control
- Stationary bike, treadmill, stairmaster and elliptical
 - Stationary bicycle – Begin with no resistance, goal of 45 minutes for endurance training. Gradually increase resistance.
 - Treadmill walking or elliptical trainer: Slow speed, no incline. Begin with 5-10 minute duration and advance 5 minutes per week
- Progress with balance/proprioceptive exercises
- At Week 18: Pool running. Progression to treadmill planned for Week 24

PHASE III: Months 6-9

A) EXERCISES

- Advance strength training
- Begin light plyometric training
- Start jogging and sport-specific training at 6 months
- Running program: Start on treadmill or soft track. Start with 1 minute running, 4 minute walking intervals. Increase by 1 minute/week (with decrease in walking interval). Goal: 20 mins continuous running



A) EXERCISES (cont)

- Advanced running program: Linear running drills with progression to lateral and rotational as tolerated

PHASE IV: Months 9-18

A) EXERCISES

- Continue closed-chain strengthening exercises and proprioceptive activities
- Emphasize single leg loading
- Sports-specific rehab: Running/agility training at 9 months

RETURN TO SPORT – MONTH 14-16 (CLEARANCE BY ORTHO)