

# **Multiligament Knee Reconstruction:** **ACL Reconstruction and MCL Repair with Internal Brace** **Physical Therapy Protocol**

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**Patient Name:** \_\_\_\_\_

**Date of Surgery:** \_\_\_\_\_

**Procedure:** Right / Left ACL and MCL Repair with Internal Brace

**Associated Procedure (checked if performed):**

- Partial Meniscectomy
- Meniscus Repair
  - Please amend the below protocol with the following restrictions:
    - ROM: 0-90° for 4 weeks, full flexion by 6 weeks

**Frequency:** 2x per week for \_\_\_\_\_ weeks

**Key Features of protocol:**

- Please prioritize range of motion with daily stretching, CPM use and physical therapy.
- Weight Bearing: TTWB x 4 weeks. Increase weight bearing 25% per week afterwards.
- Brace use: Wean after 8 weeks. Locked in extension for walking and sleeping.
- CPM to initiate POD2. Start at 0-40°. Progress 5-10° as tolerated. 6 hours per day in 2 hour increments.
- Return to Sport: 9-10 months.

**Phase I (0-4 weeks): *Period of protection***

- **Weightbearing:** TTWB x 4 weeks.
- **Brace:** Locked in extension during ambulation and sleeping. Unlocked for PT, ROM exercises, and hygiene.
- **ROM:**
  - Progress PROM/AAROM/AROM. Goal: full extension and 90° of flexion by 2 weeks; >120° by 4 weeks.
  - Extension board and prone leg hangs out of brace with ankle weights (up to 10 lbs) recommended if difficulty obtaining full extension after 2 weeks.
  - Passive leg hangs out of brace to 90°
- **Therapeutic exercises:**
  - 0-2 weeks

- Extension exercises: prone hangs, passive terminal knee extension with overpressure to tolerance
- Patellar mobilization 5-10 minutes daily
- Quad sets
- Straight leg raises with knee brace locked in extension until quadriceps strength prevents extension lag
- No restrictions to ankle/hip strengthening
- *2-4 weeks*
  - As above plus:
  - Heel Slides
  - Wall slides
  - Sit and reach for hamstrings
  - Lying Rectus
  - Runners stretch for calf and Achilles

### **Phase II (4-8 weeks):**

- **Weightbearing:** Increase 25% per week to 100% between weeks 7-8.
- **Brace:** Locked during ambulation and sleeping. Unlocked or removed at all other times.
- **ROM:** Full. Continue extension board and prone hang with ankle weights (up to 10lbs) if any flexion contracture.
- **Therapeutic exercises as above plus:**
  - Quadriceps strengthening: straight leg raises (10 sets of 30 repetitions each), quad setting (10 sets of 30 repetitions each), and short arc quadriceps extension.
  - Abduction and Adduction strengthening
  - Stationary biking (no resistance)
  - At 6 weeks:
    - Aqua jogging
    - Rowing (minimal resistance)
- **Restrictions:** No elliptical, no running, no jumping.

### **Phase III (8-12 weeks):**

- **Weightbearing:** Full weightbearing with normal gait.
- **ROM:** Full and painless.
- **Brace:** Discontinue at week 8.
- **ROM:** Continue with daily ROM exercises (goal: full ROM)
- **Therapeutic exercises:**
  - Elliptical
  - Stair Master
  - Hip Muscle Groups: may progress by adding weights above the knee. Hip abductors, flexors, abductors, adductors, and extensors (10 repetitions, 4 sets daily).
  - Hamstring Curls: may add weights around the ankle (10 repetitions, 4 times daily).
  - Leg press with minimal resistance (flexion up to 90°).
  - Swimming (10wks): Gentle flutter kick only. No whip kick.

- May begin outdoor biking program: avoid hills. A good rule of thumb for those interested in returning to athletics is that you need three minutes of biking to substitute for one minute of running.
- Walking (level ground and treadmill): Build up pace gradually. Feel big toe of affected foot push off as you walk to ensure normal gait pattern. Start off at one mile at brisk pace, increase to three miles. No limping allowed.

#### **Phase IV (3-4 months):**

- **Weightbearing:** Full weightbearing with normal gait.
- **ROM:** Full and painless.
- **Precautions:** Post-activity soreness should resolve within 24h. Initiation of impact may occur if the involved leg has at least 80% of the strength of the uninvolved leg when measured using a single leg squat test.
- **Therapeutic Exercises:**
  - Continue with exercise program from week 8–12.
  - Side to side agilities
  - Leg Press: press body weight as many times as possible on nonsurgical side (to fatigue). Follow same sequence on surgical side.
  - Squat Rack: half squats (not past 70°) at one-half body weight, 10 repetitions; progress to full body weight as tolerated.
- **Continue biking and/or swimming on a daily basis.** No whip kicks.

#### **Phase V (4-6 months)**

- **Goals:** Improve quadriceps strength/function, improve endurance, improve coordination/proprioception.
- **Weightbearing:** Full weightbearing with normal gait.
- **ROM:** Full and painless.
- **Precautions:** Post-activity soreness should resolve within 24h.
- **Jogging (level surfaces only):** 15 minutes at  $\geq 10$  minutes per mile pace. Add 5 minutes per week.
- **Biking:** By now the amount of set resistance should be increasing. Perform daily at 20 minutes per day. Legs should feel drained once off the bike.
- **Step-ups:** Face the step. Put foot of operative knee on step and step up on the step. Repeat with gradual build up in repetitions until doing 100 step-ups per day. Try to lower from the step twice as long as it takes to raise up on the step.

#### **Phase VI (6-9 months): *Sport-specific conditioning.***

- **Rehabilitation Goals:** Good dynamic neuromuscular control and no pain with multiplanar activities; functional sports specific progression.
- **Weightbearing:** Full weightbearing with normal gait.
- **ROM:** Full and painless.
- **Precautions:** Post-activity soreness should resolve within 24h. Initiation of impact may occur if the involved leg has at least 80% of the strength of the uninvolved leg when measured using a single leg squat test.
- **Therapeutic Exercises:**

- Advance strengthening as tolerated
- Sports specific balance and proprioceptive drills
- Initiate and progress impact control exercises to reactive strengthening and plyometrics
- Initiate a running program
- Movement control exercise beginning with low velocity, single plane activities and progressing to higher velocity, multi-plane activities from one foot to the other and then one foot to same the foot
- Hip and core strengthening.
- **Progression Criteria to Functional Sports Assessment:** Dynamic neuromuscular control with multi-plane activities without instability, pain or swelling; ability to land from a sagittal, frontal and transverse plan; leap and jump with good control and balance.
- **Goal:** Return to sport by 9-10mo.