

## **MULTILIGAMENT KNEE (OR ISOLATED PCL) RECONSTRUCTION**

PT Protocol: Dr. Salvatore Frangiamore

**\*\*YOU NEED TO HAVE YOUR PHYSICAL THERAPY SCHEDULED TO START WITHIN ONE WEEK. THIS IS EXTREMELY IMPORTANT.\*\***

**After initial post op period- please follow MOON ACL rehabilitation protocol.** If you are unfamiliar with MOON ACL rehabilitation program, you may utilize the program below. Not every patient will get a brace. If the patient does not have a brace, disregard all references to a brace. **IF ISOLATED PCL INJURY, you may be prescribed a specific PCL brace** The entire MOON ACL rehabilitation protocol is available online for free at <https://acltear.info>

Rehabilitation exercises are essential to full recovery from your knee injury and subsequent surgical procedure. Following the guidelines and principles described below will minimize your recovery time and maximize return to full activity.

### Immediate Post-Operative Goals (within 2 weeks)

- Full knee extension ROM (equal to uninjured knee)
- Active control of quadriceps muscle
- Swelling controlled
- Knee flexion ROM of at least 0-90°

### Expected Recovery

1. Anticipate approximately 24-36 post-operative PT appointments (3x/week for the first month, 2x/week for second month, 1x-2x/week thereafter)
2. Walking without crutches by approximately 2 weeks after surgery
3. Back to desk type work/school within 1 week following surgery
4. Manage stairs normally by approximately 6 weeks after surgery
5. Begin running approximately 12 weeks after surgery
6. Progress back to sports 5-6 months after surgery if you have met the goals below

### Progression Criteria

1. Outside of rehabilitation sessions, try to limit activity as much as possible for first 2-3 days. Progress slowly initially using pain and swelling as a guide (indication) to progress in rehabilitation sessions
2. Add only 1-2 new exercises/activities to your routine each day
3. Ice the involved knee for 20 minutes following each rehabilitation session and after strenuous activities
4. If activities or exercises added to your routine cause pain, swelling or recurrence of other symptoms, discontinue exercise and consult physician and/or physical therapist immediately

### Return to Sport Progression

1. Progress from physical therapy exercises to cardiovascular conditioning/strength training and then sport-specific activities
2. Progress from straight-ahead running to cutting and changes of direction
3. Progress to jumping/plyometric exercises as needed
4. Progress from controlled to uncontrolled situations
5. Progress from participating in limited practice (“safe” drills, limited repetitions), to full practice, and finally competition

### Return to Sport Criteria→ your physician or physical therapist will “clear” you to return-to-sport when you have accomplished the following goals:

1. No complaints of pain
2. No swelling
3. Full ROM
4. Appropriate knee stability upon clinical examination
5. Adequate strength and performance on functional performance tests
6. Running/cutting without a “limp”

**In addition to accomplishing the above goals, you should not return-to-sport until you feel that you are “ready” to safely return at or near your pre-injury level.**

## Phase 1 (0 to 1 Month)

- **TTWB (Only for balance x4 weeks) 2 weeks of progressing to WBAT with crutches (6 total)**
- 2 visits/week, everyday HEP with goals
- Knee is kept in ROM brace locked in extension at all times except for shower (including sleep and exercises→ no exceptions)
- Quad sets→ may use e-stim and biofeedback to assist with quad control; increase # visits/week if quad is inhibited
- Calf pumps
- Patellar mobilizations, especially superiorly. Cross-friction massage/effleurage
- Straight leg raises, 3 sets, 20-30 reps, 5x a day
- All passive prone knee flexion to be performed 2x/week with a therapist (**flexion limited to 90°**)
- Cryotherapy protocol continuously, at least 5x/day and 30 minutes each after exercises
- Compression stockings or ACE wrap from foot to mid-thigh at all times except when showering
  - **Patient is to get full hyperextension symmetrical to the contralateral knee within 4 weeks of surgery.**

## Phase 2 (1 to 2 Months)

- 2-3 visits/week, everyday home program with goals
- Continue all exercises in previous phase (as described above)
- Flexion can be advanced to full
- Straight leg raises, full arc quads without weights
- 4-way hip and 4-way ankle exercises
- Initiate proprioceptive exercises to include single leg stance
- Weight shifts→ forward, retro, and lateral
- Stationary bike with no resistance, seat elevated to within flexion range, quadriceps only (NO TOE STRAPS)
- Crutches may start being weaned at 4 weeks as long as the patient has full extension, can perform a straight leg raise without an extension lag, and ambulates without a limp. Patients may be weaned to one crutch (opposite arm, after 4 weeks) in order to normalize gait (no limp) and as long as full extension and no extension lag with straight leg raises are obtained

### Phase 3 (2 to 4 Months)

- 2 visits/week, 5x/week home program with goals
- Continue all exercises in previous phases (as described above)
- Brace can be unlocked at all times (MUST REMAIN IN PLACE AT ALL TIMES INCLUDING SLEEP, EXERCISES)
- Begin quad exercises including mini-squats (0-45°), wall slide mini-squats (0-45°), and partial arc quads (45-90°), no weights
- Continue passive and begin active-assisted knee flexion (include hamstring isometric sets and heel slides) to regain full flexion
- Stationary bike with resistance, within flexion range, quadriceps only (NO TOE STRAPS)
- Toe raises with weights, step-ups and step-downs (begin with 2" and progress to full step)
- Progress proprioception/balance exercises including single-leg balance progression/wobble board
  - ROM should be full by 3 months. If any extension lag is present (compared with contralateral knee) or less than 125° of flexion is present contact us

### Phase 4 (4 to 6 Months)

- 1-2 visits/week, home program 5x/week
- Continue exercises in previous phases (as described above)
- Focus rehabilitation toward more closed-chain exercises including leg presses (0-60°), step-ups, mini-squats (0-60°), short arc quads (30-90°) and hamstring curls with light weights, high repetitions
- Endurance closed-chain quadriceps exercises should begin such as Stairmaster, stationary bike, elliptical trainer, Nordic trac, etc. Focus on increasing endurance and should be performed 3-4x/week
- Continue gait training, including progression to fast walking on a treadmill or even ground
- If a pool is available, swimming may start but the frog-kick and breaststroke should be avoided

### Phase 5 (6 to 9 Months)

- 4-5x/week home program. May also have 2 visits per month to review home program
- Continue exercises in previous phases (as described above)
- Begin slow jogging and progress to slow running on even ground or treadmill, no cutting, jumping, or pivoting
- Advance strengthening with weights including leg presses, step-ups, mini-squats, leg extensions, and leg curls (full motion). Repetitions should be smooth and slow and NOT explosive. May begin jump rope exercises. May advance swimming (no frog-kick or breaststroke)

## Phase 6 (9-12 Months)

- 3-5x/week home program, may need PT supervision for functional training
- Begin advanced strengthening with weights including leg presses, squats, leg curls, and lunges
- Initiate plyometric program as appropriate for patient's functional goals
- May begin functional training exercises including fast straight running, backward running, cutting, cross-overs, cariocas, etc
- Begin gradual return to previous sports/activities/work duties under controlled conditions
- Full return to sports/activities/full work duties based upon the following criteria:

### **Criteria for Return to Sports/Full Activities:**

- Quadriceps and hamstring strength at least 90% of opposite leg
- One-leg hop test and vertical jump at least 90% of opposite leg
- Jog, full speed run, shuttle run, and figure 8 without a limp
- Squat and rise from a full squat
- No effusion or quadriceps atrophy
- Satisfactory clinical examination

**Do not hesitate to call if you have any questions or concerns**