

Daniel Elkin, MD
Orthopedic Sports Medicine

**GUIDELINES FOR REHABILITATION FOLLOWING
PATELLO-FEMORAL SURGERY**

- Tibial Tubercle Osteotomy (TTO)
- Medial Patellofemoral Ligament Reconstruction (MPFL)
- Osteochondral autograft/allograft Patella/Trochlea

GENERAL GUIDELINES

- No closed kinetic chain exercises for 6 weeks
- Supervised physical therapy takes place for 3-6 months postoperatively.

GENERAL PROGRESSION OF ACTIVITIES OF DAILY LIVING

Patients may begin the following activities at the dates indicated (unless otherwise specified by the physician):

- Bathing/showering after post-op day 3
- Sleep with brace locked in extension for 4 weeks
- Driving at 6 weeks post-op for distal realignment, 1-2 weeks post-op for proximal realignment
- Brace locked in extension for 6 weeks for ambulation for distal realignment, 4 weeks for proximal realignment
- Use of crutches continued for 6-8 weeks post-op
- 50% partial flat-foot weight bearing with brace locked in extension for 6 weeks post-op (distal realignment) or 2 weeks post-op (proximal realignment)
- May weight bear as tolerated when the brace is unlocked

PHYSICAL THERAPY ATTENDANCE

The following is an approximate schedule for supervised physical therapy visits:

Phase I (0-6 weeks):	2 visits/week
Phase II (6-8 weeks):	2-3 visits/week
Phase III (2-4 months):	2-3 visits/week
Phase IV (4-6 months):	1 visit/1-2 weeks

REHABILITATION PROGRESION

The following is a general guideline for progression of the rehabilitation program following patellar realignment. Progression through each phase should take into consideration patient status (e.g. healing, function) and physician advisement. Please consult the attending physician if there is any uncertainty regarding advancement of a patient to the next phase of rehabilitation.

PHASE I

Begins immediately post-op through approximately 6 weeks

Goals:

- Protect fixation and surrounding soft tissue
- Control inflammatory process
- Regain active quadriceps and VMO control
- Minimize the adverse effects of immobilization through CPM and heel slides in the allowed range of motion
- Full knee extension
- Patient education regarding rehabilitation process

ROM:

Achieve 90 degrees by 4 weeks.

Brace:

- Brace locked in full extension for all activities for 4 weeks following proximal realignment (MPFL)
- Brace locked in full extension for all activities for 6 weeks following distal realignment (TTO)
- Locked in full extension for sleeping for 4 weeks
- 4 – 6 weeks: Unlock brace for sleeping.

Weight-Bearing Status:

Proximal realignment: 50% PWB with crutches for 2 weeks post-op, progress to WBAT thereafter

Distal realignment: 50% PWB with crutches for 6 weeks post-op, progress to WBAT thereafter

Therapeutic Exercises:

- Quad sets and isometric adduction with biofeedback for VMO
- ROM exercises daily using stationary bike, heel slides, etc.
- Non-weight bearing gastrocnemius/soles, hamstring stretches
- SLR in four planes with brace locked in full extension (can be performed in standing)
- Resisted ankle ROM with Theraband
- Patellar mobilization (begin when tolerated by patient)
- Begin aquatic therapy at 3-4 weeks with emphasis on gait

PHASE II

Begins approximately 6 weeks post-op and extends to approximately 8 weeks post-op

Criteria for advancement to Phase II:

- Good quad set
- Approximately 90° of flexion
- No signs of active inflammation

Goals:

- Increase range of flexion
- Avoid overstressing fixation
- Increase quadriceps and VMO control for restoration of proper patellar tracking

Brace:

6 – 8 weeks: Discontinue use for sleeping. Unlock for ambulation. Wean off brace by 8 weeks post-op.

Weight-Bearing Status:

6 – 8 weeks: As tolerated with two crutches progressing to no crutches.

Therapeutic Exercises:

- Continue exercises as noted above. Progress towards full flexion with heel slides
- Progress to weight-bearing gastrocnemius/soles stretching

- Begin aquatic therapy, emphasis on normalization of gait
- Balance exercises (e.g. single-leg standing, KAT)
- Remove brace for SLR exercises
- Stationary bike, low resistance, high seat
- Short arc quadriceps exercises in pain-free ranges (0-20°, 60-90° of flexion) Emphasize movement quality
- Wall slides progressing to mini-squats, 0-45° of flexion)

PHASE III

Begins approximately 8 weeks post-op and extends through approximately 4 months

Criteria for advancement to Phase III:

- Good quadriceps tone and no extension lag with SLR
- Non-antalgic gait pattern
- Good dynamic patellar control with no evidence of lateral tracking or instability

Weight-Bearing Status:

May discontinue use of crutches when the following criteria are met:

- No extension lag with SLR
- Full extension
- Non-antalgic gait pattern (may use one crutch or cane until gait is normalized)

Therapeutic Exercises:

- Step-ups, begin at 2" and progress towards 8:
- Stationary bike, add moderate resistance
- 4-way hip for flexion, adduction, abduction, extension
- Leg press 0-45° of flexion
- Closed kinetic chain terminal knee extension with resistive tubing or weight machine
- Swimming, Stairmaster for endurance
- Toe raises
- Hamstring curls
- Treadmill walking with emphasis on normalization of gait
- Continue proprioception exercises
- Continue flexibility exercises for gastroc/soles and hamstrings, add iliotibial band and quadriceps as indicated

PHASE IV

Begins approximately 4 months post-op and extends through approximately 6 months

Criteria for advancement to Phase IV:

- Good to normal quadriceps strength
- No evidence of patellar instability
- No soft tissue complaints
- Normal gait pattern
- Clearance from physician to begin more concentrated closed kinetic chain exercises and resume full or partial activity

Goals:

- Continue improvements in quadriceps strength
- Improve functional strength and proprioception
- Return to appropriate activity level

Therapeutic Exercises:

- Progression of closed kinetic chain activities
- Jogging in pool with wet vest or belt
- Functional progression, sport-specific activities of work hardening as appropriate