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GUIDELINES FOR REHABILITATION FOLLOWING DISTAL AND/OR PROXIMAL PATELLAR REALIGNMENT

GENERAL GUIDELINES

-No closed kinetic chain exercises for 6 weeks.

-The same rehabilitation protocol is followed for proximal and distal realignments with the exception of range of motion limitations as noted.

Proximal Realignment - 0°-60° for first 6 weeks

Distal Realignment - 0°-90° for first 6 weeks

-A combined proximal/distal realignment will follow the proximal protocol

-Supervised physical therapy takes place for 3-6 months post-operatively.

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 suture removal

-Sleep with brace locked in extension for 4 weeks

-Driving at 6 weeks post-op

-Brace locked in extension for 6 weeks for ambulation.

-Use of crutches continued for 6-8 weeks post-op prn.

-Weightbearing as tolerated with brace locked in extension immediately post-op.

PHYSICAL THERAPY ATTENDANCE

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

Phase I (0-6 weeks):	1 visit/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 PROGRESSION

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: 0 to 6 Weeks

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

0- 6 weeks: 0° - 60° of flexion for proximal realignment
 0° - 90° of flexion for distal realignment

Brace:

0 - 4 weeks: Locked in full extension for all activities except therapeutic exercises and CPM use
 Locked in full extension for sleeping

4 - 6 weeks: Unlock brace for sleeping, continue with brace locked in full extension for ambulation

Weightbearing status:

0 - 6 weeks: As tolerated with two crutches

Therapeutic Exercises:

- Quad sets and isometric adduction with biofeedback for VMO. No NMES with proximal realignment for 6 weeks
 - Heel slides from 0-60° of flexion for proximal, 0-90° for distal realignment
 - CPM for 2 hours, twice daily, from 0-60° of flexion for proximal, 0-90° of flexion for distal realignment
 - Nonweightbearing gastrocnemius/soleus, 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: 6 to 8 Weeks

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 as allowed by physician

Weightbearing Status:

6 - 8 weeks: As tolerated with two crutches

Therapeutic Exercises:

- Continue exercises as noted above, progress towards full flexion with heel slides
- Progress to weight-bearing gastrocnemius/soleus stretching
- Discontinue CPM if knee flexion is at least 90°
- 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: 2 to 4 Months

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
- Nonantalgic gait pattern
- Good dynamic patellar control with no evidence of lateral tracking or instability

Weightbearing status:

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

- No extension lag with SLR
- Full extension
- Nonantalgic 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/soleus and hamstrings, add iliotibial band and quadriceps as indicated

PHASE IV: 4 to 6 Months

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 or work hardening as appropriate