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ARTHROSCOPIC DEBRIDEMENT OF PATELLAR TENDINOSIS REHABILITATION PROTOCOL

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 2 days after surgery
  - Remove bandages, do not scrub incisions
  - After shower, pat knee dry, place dry band aids over stitches, apply Ace wrap
- Sleep with brace off
- Driving at 1 week post-op
- Weightbearing as tolerated with brace locked in extension immediately post-op and for 1-2 weeks for ambulation
- Use of crutches continued for 2-3 weeks post-op

REHABILITATION PROGRESSION:

The following is a general guideline for progression of the rehabilitation program following arthroscopic debridement of the patellar tendon. 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 uncertainty regarding the advancement of a patient to the next phase of rehabilitation.

PHASE I:

Begins immediately post-op through approximately 4 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 – 4 weeks: As tolerated.

Brace:
0 – 4 weeks: Locked in full extension for ambulation only

Weightbearing Status:
- 0 – 4 weeks: As tolerated with two crutches

Therapeutic Exercises:
- Quad sets and isometric adduction with biofeedback for VMO
- Heel slides from 0-90°
- Gastrocnemius/soleus, hamstring stretches
- SLR in four planes with brace locked in full extension (can be performed standing)
- Resisted ankle ROM with Theraband
- Patellar mobilization (begin when tolerated by patient)

PHASE II:
Begins approximately 4 weeks post-op and extends to approximately 10 weeks. Criteria for advancement to Phase II:

- Full active extension/hyperextension
- Good quad set, SLR without extension lag
- Minimum of 90° of flexion
- Minimal swelling/inflammation
- Normal gait on level surfaces

Goals:
- Restore normal gait with stair climbing
- Maintain full extension, progress toward full flexion range of motion
- **Increase hamstring, quad, IT band, gastroc/soleus flexibility**
- Increase hip, quadriceps, hamstring and calf strength
- Increase proprioception

Exercises:
- Continue with knee range of motion/flexibility exercises as appropriate for the patient
    - **Continue quad, hamstring, IT band gastroc/soleus stretches**
- Continue to progress hip, quad, hamstring and calf strengthening
    - Continue **closed kinetic chain** strengthening as above, progressing as tolerated – can include BAPS, half-squats, one-leg squats, leg press, step ups at increased height (begin at 2" and progress towards 8"), partial lunges, deeper wall sits, leg press (0-45° of flexion)
- Core strengthening
- Continue to progress proprioceptive/balance activities – ball toss, balance beam, mini-trampoline balance; emphasize hip and knee flexion, avoid valgus moment at the knee in single-leg stance
- Conditioning
    - Nordic Track, stationary bike, elliptical machine
        - Stationary biking- progress time and resistance as tolerated; progress to single leg biking
        - Begin running in the pool (waist deep) or on an un-weighted treadmill at 6-8 weeks
- Treadmill walking with emphasis on normalization of gait

PHASE III:
Begins at approximately 10 weeks and extends through approximately 16 weeks.
Criteria to advance to Phase III include:

- No patellofemoral or tendon pain
- Minimum of 120 degrees of flexion
- Sufficient strength and proprioception to initiate running.
- Minimal swelling/inflammation

Goals:

- Full range of motion
- **Increase hamstring, quad, IT band, gastroc/soleus flexibility**
- Improve strength, endurance and proprioception of the lower extremity to prepare for sport activities
- **Strength approximately 70% of the uninvolved lower extremity per isokinetic evaluation**
- Protect the patellofemoral joint
- Normal running mechanics

Exercises:

- Continue quad, hamstring, IT band, gastroc/soleus **flexibility** and knee ROM exercises
- Progressive hip, quadriceps, hamstring, calf strengthening
- Toe raises
  - Hamstring curls
  - **Knee extensions 90°-30°, progress to eccentrics.** Leg press 0-70° of flexion.
  - 4 way hip flexion, adduction, abduction, extension
  - **Isokinetic quad and hamstring strengthening (with anti-shear device) – begin with mid range speeds (120^{o}/sec- 240^{o}/sec)**
    - **Recommend isokinetic test with anti-shear device at 12 weeks to guide continued strengthening.**
- Cardiovascular/endurance training via swimming, water running, elliptical, bike
  - Stationary bike, add moderate resistance
  - Progress toward full weightbearing running at 12 weeks.
- Advance proprioceptive activities

PHASE IV:
Begins at approximately 4 months and extends through approximately 6 months post-op. Criteria for advancement to Phase IV:

- No significant swelling/inflammation.
- Full, pain-free ROM
- No evidence of patellofemoral joint irritation
- **Strength approximately 70% of uninvolved lower extremity per isokinetic evaluation**
- Sufficient strength and proprioception to initiate agility activities
- Normal running gait

Goals:

- Symmetric performance of basic and sport specific agility drills
- Single hop and 3-hop tests 85% of uninvolved lower extremity

- Quadriceps and hamstring strength at least **85%** of uninvolved lower extremity per isokinetic strength test [or **85%** strength (torque) compared with athletes of same age]

Exercises:
- Continue and progress flexibility and strengthening program based on individual needs and deficits.
- Agility progression including, but not limited to:
  - Side steps
  - Crossovers
  - Figure 8 running
  - Shuttle running
  - One leg and two leg jumping
  - Cutting
  - Acceleration/deceleration/sprints
  - Agility ladder drills
- Continue progression of running distance based on patient needs.
- Initiate sport-specific drills as appropriate for patient
- Initiate plyometric program as appropriate for patient's athletic goals

PHASE V:
Begins at approximately 6 months post-op. Criteria for advancement to Phase V:

- No patellofemoral or soft tissue complaint
- Necessary joint ROM, strength, endurance, and proprioception to safely return to work or athletics
- Physician clearance to resume partial or full activity

Goals:
- Safe return to athletics/work
- Maintenance of strength, endurance, proprioception
- Patient education with regards to any possible limitations

Exercises:
- Gradual return to sports participation
- Maintenance program for strength, endurance