

Quadriceps Patellar Tendon Repair Protocol

This protocol is intended to be a general guideline. The physician staff may advance, delay, or alter this protocol based on individual patient status. If so, this should be done by direct communication with the therapist, or in writing on the therapy referral form provided to the patient or therapist.

The therapist should check with physician staff re: co-morbidities that may affect protocol progression, such as meniscal tears, chondral defects, or bone bruise.

Guidelines for Pre-Op Physical Therapy

- Patient will receive instruction from Dr. Chams or one of his physician extenders on post-operative expectations, post-op Day One exercises, and use of crutches or another assistive device for NWB ambulation. If deemed necessary at that time, the patient may be referred for one pre-op PT visit to receive gait training, review post-op exercises, and discuss post-op expectations.

Guidelines for Post-Op Physical Therapy Visits

- Therapy begins on **Day One** post-op in the outpatient clinic.
- Patient is typically seen in clinic 1x/week for the first 6 weeks. May be increased if flexion ROM is poor, or decreased if patient is doing well with independent HEP.
- Then increase to 2x/week until about 12 weeks post-op, at which time patient may be seen 1x/week or every other week as appropriate based on patient status and HEP compliance until functional goals are achieved.

Guidelines for Wound Care

- Original steri-strips should be left in place until stitch removal. They can be reinforced with more steri-strips if needed.
- On Day One post-op, remove bulky post-op cotton and gauze dressings. Place 22 gauze pads and occlusive dressing over wound sites. Change dressings as needed and do not allow wounds to become wet.
- Instruct patient to wrap knee in press and seal plastic wrap for showering until 3-5 days after stitches are removed (make sure wounds are fully healed before being exposed to water).

Guidelines for Ambulation and Hinged Knee Brace

- Unless otherwise specified, patient will be NWB for 6-8 weeks post-op.
- Hinged (TROM) knee brace will be issued at surgical center. Brace should be adjusted for correct fit by therapist at first PT visit post-op.
- Brace to be worn and locked at 0 degrees extension with all ADLs for TTWB first 6 weeks. Brace may be removed for bathing and exercises.
- At Week 6, allow FWB with TROM brace locked in extension **IF** patient has good quad control in WBing and with MD clearance. Delay until Week 8 if needed.
- At Week 10, or when patient has good quad control and can perform SLR without lag, unlock brace for ambulation
- After that, wean from brace but continue use when on unstable surfaces or in large crowds, or when on feet for extended period of time.

Day One Post-Op

Precautions: No active SLRs until Week 8 post-op. No knee flexion ROM until Week 2.

- See above for dressing and wound care instructions and brace guidelines.
- Review post-op exercises and edema control (ice/elevation): quad sets, glute sets, full knee ext (heel prop if necessary).
- Review NWB gait with crutches or other AD
- Apply NMES to quad for muscle recruitment
- Issue home NMES unit for quad sets at least 20 minutes, twice daily
- Cryotherapy using GameReady machine or other device, or cold packs

Week 1 5

Precautions: No active SLRs until Week 8 post-op.

Weightbearing status: NWB locked in extension

ROM Guidelines:

Weeks 0-2: Locked at 0 degrees ext.

Weeks 2-4: 0-30 degrees flex.

Weeks 4-6: 0-60 degrees flex.

- At Week 2, teach self-ROM for knee flexion to be progressed according to above parameters.
- Continue use of home NMES unit with quad setting
- Elastic-resisted ankle strengthening (avoid torque to knee joint)
- Passive hamstring, adductor, and calf stretches in supine
- Note: if patient having difficulty achieving knee ROM outlined, should be seen in clinic 1-3x/week during this phase.

Weeks 6 7: Patient seen 2x/week as needed.

Precautions: No active SLRs, no prone knee ROM, no ROM 90 degrees flexion

Weightbearing status: WBAT locked in extension with MD clearance

- Continue above exercises, with focus on increasing PROM knee flexion and manual therapy as indicated
- Optional: Add in-clinic personalized blood flow restriction if appropriate. Begin BFR with NWBing and progress to use with WBing exercises throughout rehab protocol.
- Add sidelying adduction and abduction
- Progress to advanced hip strengthening (no SLRs)
- Standing weight shifts and balance activities
- Heel raises with brace locked in extension

Weeks 8 9: Patient seen 2x/week

Precautions: No closed-chain flexion past 30 degrees

Weightbearing status: FWB locked in extension

Goals by end of Week 9: 120 degrees knee flexion, SLR without quad lag

- Continue above exercises
- Stationary bike without resistance for AAROM
- Initiate SLRs and standing TKEs
- Initiate prone knee flexion ROM
- Initiate closed-chain flexion activity (within 30-degree flexion limit)

Week 10 15: Patient seen 12x/week

Precaution: No plyometrics or running. All squat and lunge instruction should emphasize no forward translation of the knee to avoid excessive stress to anterior knee.

Weightbearing status: FWB with brace unlocked once able to do SLR without lag. Wean from brace as able.

Goals by end of Week 15: Full PROM knee flexion prone, normal walking gait pattern

- Begin progressive walking program
- Progressive bilateral closed-chain flexion activities: step-ups, tipping bird, squats, lunges, leg press, resisted hamstring curls, etc.
- Gait drills: tandem walk, backward walk, crossovers, proprioceptive ladder drills (no plyometrics yet)
- Increase core/hip strength: prone planks, side planks, unilateral bridges, Pilates-style strength/flexibility (Reformer if available)

Week 16 8 Months Post-op: Patient seen as needed

- Cardio conditioning: elliptical machine, bike with resistance, swimming (flutter kick)
- Focus also on non-operative LE strength/coordination to avoid asymmetry
- With MD clearance and no comorbidities, may begin progressive jogging on flat, even surfaces if patient can perform good single-leg eccentric squat pain-free. Begin jogging every other day and with progressive distance and frequency as tolerated.
- Initiate light plyometric activity: lateral shuffles, crossover shuffles, double leg jumping.
- If available, use hydraulic machine like shuttle leg press or Pilates Reformer for partial-weight plyometric jumping/hopping
- Perform Phase IV and sport-specific drills: progressive running, cutting, plyometrics, pivoting, and perturbation training. Focus on increasing speed, power, and proprioceptive control as indicated.
- At 6 months post-op or when patient is ready, asses for **return to sport** with sport-specific training using a standardized return-to-play testing protocol (FMS, Y Balance Test, facility-specific protocol, etc.). Testing should include Single Leg Hop (goal = 90% of non-operative LE), Drop Jump Test, Single Leg Squat, and Triple Hop Test.
- Quad girth should be no more than one inch less than non-operative side.
- Discharge when patient has achieved full ROM and adequate neuromuscular control to continue independently with ongoing HEP for strength/ROM/coordination/flexibility. Patient should not be discharged until achieving adequate function for all ADL, sport, and work activities.

Long-Term Contraindication: No seated knee extension machine (resisted long arc quads).