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Quad or Patellar Tendon Repair PT Protocol

General Principles

- Progression is criteria-based; timelines are approximate guidelines
- Avoid active knee extension for the first 6 weeks to protect the repair
- Patellar mobilization should begin early to prevent adhesions
- DVT prophylaxis
- Cryotherapy and elevation for edema control
- Pain management as needed

Phase I — Maximum Protection (Weeks 0–2)

Brace: Hinged knee brace locked in full extension for ambulation and sleep

Weight Bearing: Weight bearing as tolerated (WBAT) with crutches, knee locked in extension

Range of Motion:

- Passive flexion 0–45 degrees (many patients tolerate up to 90 degrees but no need to push)
- Gravity-assisted passive extension (maintain full extension)
- NO active knee extension
- Patellar mobilization (superior/inferior and medial/lateral glides)

Exercises:

- Quad sets (gentle isometric quadriceps activation)
- Ankle pumps
- Straight leg raises (SLR) — hip flexion, abduction, adduction (brace locked in extension)
- Gluteal sets

Goals:

- Wound healing, edema control
- Maintain full passive extension
- Independent transfers and ambulation with assistive device

Phase II — Early Motion (Weeks 2–6)

Brace: Hinged knee brace; unlock for ROM exercises, lock in extension for ambulation

Weight Bearing: WBAT with crutches → progress to single crutch/cane as tolerated

Range of Motion:

- Progressive passive flexion: increase ~10–15° per week

- Week 2–3: 0–60°
- Week 3–4: 0–90°

- Continue patellar mobilization
- NO active knee extension against gravity

Exercises:

- Continue Phase I exercises
- Prone/gravity-assisted knee flexion (passive)
- Seated heel slides (passive/active-assisted)
- Stationary bike (when ~90° flexion achieved; no resistance)
- Hip strengthening (multi-plane)
- Core stabilization

Goals:

- Achieve 90° passive flexion by week 4
- Maintain full passive extension
- Normalize gait pattern in brace

Phase III — Progressive Strengthening (Weeks 6–12)

Brace: Discontinue brace (typically at 6 weeks per surgeon discretion)

Weight Bearing: Full weight bearing without assistive device

Range of Motion:

- Progress to full passive and active ROM
- Begin gentle active knee extension (short-arc quads, 90–40° initially)
- Goal: full ROM by week 10–12

Exercises:

- Closed kinetic chain (CKC) exercises: mini-squats, leg press (limited arc), step-ups (low step)
- Stationary bike with progressive resistance
- Balance and proprioception training
- Aquatic therapy if available
- Progress SLR without brace
- Begin concentric quadriceps strengthening program

Goals:

- Full active and passive ROM
- Independent ambulation without gait deviation
- Quad strength $\geq 60\%$ of contralateral limb

Phase IV — Advanced Strengthening (Weeks 12–20)

Range of Motion: Full, unrestricted

Exercises:

- Progressive CKC exercises: deeper squats, lunges, single-leg press
- Open kinetic chain (OKC) knee extension (begin with light resistance, limited arc → progress to full arc)
- Eccentric quadriceps strengthening
- Stair training (reciprocal pattern)
- Elliptical, swimming, walking program
- Advanced balance/proprioception (single-leg stance, perturbation training)

Goals:

- Quad strength $\geq 80\%$ of contralateral limb
- Normal stair ascent/descent
- Ability to perform functional activities without pain

Phase V — Return to Activity (Weeks 20–24+)

Exercises:

- Sport-specific or occupation-specific training
- Plyometrics (if returning to sport)
- Agility and cutting drills (if applicable)
- Running progression (begin with walk/jog intervals)
- Continue maintenance strengthening program

Return-to-Sport/Activity Criteria:

- Full, pain-free ROM
- Quad strength $\geq 90\%$ of contralateral limb
- Hop testing $\geq 90\%$ limb symmetry index
- No effusion or pain with sport-specific activities
- Surgeon clearance

Red Flags — Contact Surgeon

- Sudden loss of active extension (concern for re-rupture)
- Significant increase in swelling or pain
- Wound complications (drainage, erythema, dehiscence)
- Fever or signs of infection
- Palpable gap at repair site

Follow-Up Schedule

- 1–2 weeks: Wound check, suture/staple removal
- 6 weeks: ROM assessment, brace discontinuation evaluation
- 12 weeks: Strength assessment, advance to Phase IV
- 6 months: Functional assessment, return-to-activity evaluation