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Quadriceps Tendon Repair

General principles

- Protect the repair: no resisted/active knee extension and no passive flexion beyond the surgeon's prescribed safe zone until ~6 weeks.
 - Early protected motion and weight-bearing are supported by the evidence and do not increase re-rupture rates versus restrictive immobilization (Langenhan et al., Knee Surg Sports Traumatol Arthrosc, 2012; Danaher et al., Arthroscopy, 2023).
 - Individualize for tissue quality, chronic/augmented repairs, and surgeon preference. Surgeon's written restrictions override this template.
 - DVT prophylaxis per surgeon until full weight-bearing is achieved.
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Phase 1 — Protection and early motion (Weeks 0–6)

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

Weight-bearing: Full weight-bearing as tolerated with brace locked in extension and crutches as needed for balance (an early-functional option). If surgeon prefers a restrictive course: partial/floor-contact weight-bearing (~50% body weight) for 6 weeks.

Range of motion (passive / active-assisted only; performed with brace unlocked, out of the brace):

- Weeks 0–2: 0–30° (some protocols begin limited active motion 0–55° once swelling controlled, ~5–7 days post-op)
- Weeks 3–4: 0–60°
- Weeks 5–6: 0–90°
- Work early and aggressively on achieving/maintaining full passive extension.

Exercises:

- Quadriceps isometrics / quad sets
- Straight-leg raises in the locked brace
- Patellar mobilizations, ankle pumps
- Edema control (elevation, cryotherapy, lymphatic drainage)
- Hip and core strengthening that does not stress the repair

Precautions: NO active or resisted knee extension. NO passive flexion past the phase limit. NO prolonged standing/ambulation without the brace locked.

Phase 2 — Progressive motion and early strengthening (Weeks 6–12)

Brace: Discontinue/wean per surgeon once quadriceps control adequate and gait is non-antalgic; may unlock for ambulation first, then discharge.

Weight-bearing: Full, brace-free, wean crutches.

ROM: Progress to full active and passive ROM (flexion restriction lifted at ~6 weeks). Restore symmetric flexion.

Exercises:

- Begin concentric strengthening and closed-chain exercises (mini-squats, leg press in protected range, step-ups, wall sits)
 - Progressive active knee extension within pain-free range
 - Stationary cycling, gait retraining, proprioception/balance work
 - Hamstring and calf flexibility
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Phase 3 — Strength and functional progression (Weeks 12—20)

- Progress closed-chain and introduce open-chain strengthening as tolerated
 - Progressive resistance training, eccentric loading
 - Advanced balance/proprioception and endurance work
 - Goal: symmetric ROM, quadriceps strength ≥ 80 –90% of contralateral limb before advancing
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Phase 4 — Return to activity / sport (≥ 3 –4 months)

- Begin running/plyometric and sport-specific progression when strength and quality-of-motion criteria met
 - Return to sport individualized, typically no earlier than 3–4 months, after limb-symmetry and functional testing
 - Criteria-based (not purely time-based) clearance by surgeon
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Red flags — notify surgeon

- Palpable gap, extensor lag, or loss of active extension (possible re-rupture)
- Sudden pain/pop
- Signs of wound infection or DVT
- Persistent stiffness failing to progress (risk of arthrofibrosis)