

Patellar Tendon Repair

Physical Therapy Protocol · Extensor Mechanism Repair, 6-8+ Month Timeline

Modeled on the Ohio State University Wexner Medical Center Quadriceps Tendon/Patellar Tendon Repair Clinical Practice Guideline and the Mass General Brigham patella/quad tendon repair rehabilitation protocol.



AT A GLANCE

TIMELINE	6-8+ months; flexion is staged weekly and quadriceps loading is delayed to protect the tendon repair
WEIGHT BEARING	Hinged knee brace locked in extension for ambulation x 6 weeks; WBAT vs NWB per surgeon - always confirm against the operative note
KEY MILESTONES	Flexion ~60° by week 2-3, 90° by weeks 5-6 · full flexion by ~12 weeks · brace unlocked/discharged weeks 6-8 with SLR and no extensor lag
RETURN TO ACTIVITY	Jogging ~4-6 months with quad LSI ≥80%; sport 6-8+ months with quad index ≥90% and hop testing ≥85-90%

KEY PRECAUTIONS

- Brace locked in extension for all standing, walking, and sleeping until surgeon clears unlocking; protect the extensor mechanism from loaded flexion early.
- No active knee extension early and no isolated OKC isotonic quadriceps strengthening x 8 weeks.
- Respect the staged flexion schedule (do not exceed weekly limits; light overpressure only; ≤10° gain per week before 12 weeks).
- No weight bearing with knee flexion >90° until after 8 weeks; no maximal voluntary quad contraction until ~week 16.

PHASED REHABILITATION

PHASE 1 — MAXIMUM PROTECTION		Weeks 0-2
GOALS	- Protect the repair; control pain and edema - Full passive extension to 0°; establish sub-maximal quadriceps activation	
INTERVENTIONS	- Hinged brace locked in extension worn at all times; weight bearing status per surgeon (WBAT in locked brace vs NWB x 6 weeks) - Passive extension: heel props, prone hangs to neutral - PROM knee flexion within surgeon-set limit (no passive flexion beyond 60° in this phase; many surgeons restrict to 30-45° initially) - Sub-maximal quad sets, gluteal sets, hamstring sets, ankle pumps - Gentle patellar and patellofemoral mobilization; modalities and elevation for pain/edema control	
CRITERIA TO ADVANCE	- Knee extension to 0° by 2 weeks post-op - Pain and edema controlled - Compliant with brace and weight bearing precautions	

PHASE 2 — STAGED FLEXION RECOVERY		Weeks 2-6
GOALS	- Staged flexion gains: ~60° max end of week 2, 70° week 3, 80° week 4, 90° week 5 - SLR without extensor lag; full weight bearing in locked brace by week 6	
INTERVENTIONS	- PROM/AAROM heel slides within the weekly flexion limit; light overpressure only - Brace locked in extension for standing/walking/sleeping; night brace until week 6 unless directed otherwise 4-way SLR with brace locked; progressive quad sets (sub-maximal) - Seated hamstring curls without resistance within ROM limits - Superior/inferior patellar mobilizations progressing all directions as tolerated; scar mobility - Side-lying hip work, glute bridges, calf raises, core stabilization	
CRITERIA TO ADVANCE	- Passive flexion to 90° by weeks 5-6 with full passive extension - Active knee extension to 0° with quad set; SLR without lag - Full weight bearing in brace without pain	

PHASE 3 — BRACE WEANING AND AROM RESTORATION		Weeks 6-12
GOALS	• Unlock brace 0-60° for gait once quad control is shown; discharge brace ~week 8 with normalized gait • Restore flexion to $\geq 120^\circ$ by week 12; initiate bilateral CKC strengthening	
INTERVENTIONS	• Brace weaning per physician; gait training out of brace as control allows • Progress A/PROM no faster than $\sim 10^\circ$ per week toward full flexion • Stationary bike with minimal resistance • Bilateral closed-chain strengthening: squat to chair, leg press, lateral lunges shallow-range • Weeks 8-12: isolated isotonic quadriceps work (leg extensions) in protected range • Romanian deadlifts, bridge variations, lateral band walks, single-leg stance on varied surfaces	
CRITERIA TO ADVANCE	• Flexion $\geq 120^\circ$ progressing to full; normalized gait without brace • Single-leg stance 30 seconds with good quad control; symmetrical stair negotiation • 10 single-leg squats to 60° with good mechanics without reactive effusion	

PHASE 4 — STRENGTHENING AND RUNNING PROGRESSION		Months 3-6
GOALS	• Rebuild quadriceps strength toward symmetry (LSI $\geq 80\%$ to run) • Introduce partial-weight-bearing plyometrics and jogging	
INTERVENTIONS	• Quadriceps progressive resistance through full arc with eccentric emphasis; step-downs from 2-inch block progressing height • Partial body-weight shuttle plyometrics bilateral to unilateral; slideboard • Jogging progression once criteria met (full ROM, no swelling, quad LSI $\geq 80\%$, symmetric single-leg hops with good control) • Low-intensity agility at 25-50% (figure-8, zigzag, side shuffle, grapevine) • Y-balance and single-leg landing-control training	
CRITERIA TO ADVANCE	• Quad index $\geq 80\%$ on dynamometry to enter running progression • Full ROM, no effusion, pain-free walking • Y-balance within 90% of contralateral side	

PHASE 5 — RETURN TO SPORT		Months 6-8+
GOALS	• Sport-specific power, agility, and deceleration control • Meet objective return-to-sport criteria	
INTERVENTIONS	• Multidirectional agility and acceleration/deceleration drills to full effort • Plyometric progression: hop downs bilateral to unilateral with increasing height • Sport-specific drills and graded practice re-entry • Maintenance quadriceps and posterior-chain strengthening	
CRITERIA TO ADVANCE	• Quad index $\geq 90\%$ (isokinetic preferred); full ROM and 5/5 LE strength • Functional hop testing $\geq 85-90\%$ vs uninvolved limb • Pass institutional lower extremity return-to-sport battery; physician clearance	

GUIDING PRINCIPLES

This protocol follows criterion-based progression over rigid time-based advancement; phased rehabilitation balancing tissue healing with controlled stress application; objective milestones (ROM, strength LSI, functional testing) to guide phase transitions; individualization based on surgical findings, tissue quality, and patient factors; and ongoing surgeon–therapist communication throughout recovery.

REFERENCES

1. Ohio State University Wexner Medical Center Sports Medicine. Quadriceps Tendon/Patellar Tendon Repair Clinical Practice Guideline. <https://hrs.osu.edu/-/media/files/wexnermedical/patient-care/healthcare-services/sports-medicine/education/medical-professionals/knee-ankle-and-foot/quadric-epstendonpatellartendon.pdf>
2. Massachusetts General Hospital / Mass General Brigham Sports Physical Therapy. Rehabilitation Protocol for Patella/Quad Tendon Repairs. <https://www.massgeneral.org/assets/mgh/pdf/orthopaedics/sports-medicine/physical-therapy/rehabilitation-protocol-for-patella-quad-tendon.pdf>
3. Matava MJ. Patellar Tendon Ruptures. J Am Acad Orthop Surg. 1996;4(6):287-296.

For clinical use by licensed physical therapists treating patients of Robert Pettit, MD. This document is a rehabilitation guideline, not a substitute for clinical judgment. Progression must be individualized based on intraoperative findings, tissue quality, and patient response. Scan the QR code for the current version of this protocol.