Proximal Hamstring Repair

Physical Therapy Protocol · Criterion-Based, 5-6 Month Timeline

Modeled on the Mass General Brigham proximal hamstring tendon repair protocol, with bracing rationale supported by biomechanical data showing least repair-site gap formation at 0 degrees of hip flexion (Harvey et al., OJSM 2015).

AT A GLANCE

TIMELINE	20-24+ weeks; time frames are approximate and progression is criterion-based
WEIGHT BEARING	Touch-down weight bearing (TTWB) with crutches weeks 0-2; ~50% PWB weeks 2-6; full weight bearing by weeks 6-8
KEY MILESTONES	Gluteal activation mastered before hamstring work; hamstring MMT 5/5 prone at 90 deg knee flexion before Phase 4; LSI thresholds gate plyometrics and running
RETURN TO ACTIVITY	Jogging ~16-20 weeks when hamstring LSI >80-90%; unrestricted sport 20+ weeks with hamstring/glute/quad LSI >95% and hop cluster >95%

KEY PRECAUTIONS

- Avoid combined hip flexion with knee extension (tensioned hamstring position) throughout the early phases; limit hip flexion to ~45-60 deg for the first 2 weeks except during supervised PT.
- Hinged knee brace or hip orthosis per surgeon preference; biomechanical data favor limiting hip flexion to protect the repair.
- No active hamstring contraction (knee flexion or hip extension against resistance) until Phase 3 (~6 weeks); no aggressive hamstring stretching for the first 6-8 weeks.
- Monitor for sciatic nerve irritation; use gentle sciatic nerve glides only if neural tension is present.

PHASED REHABILITATION

PHASE 1 — MAXIMAL PROTECTION — Weeks 0-2

GOALS	• Protect the tendon repair • Pain and edema control • Maintain proximal and distal mobility
INTERVENTIONS	• TTWB with bilateral axillary crutches; brace per surgeon • Hip flexion ROM limited to 45-60 deg; passive/active-assisted hip and knee flexion within limits • Avoid any combined hip flexion + knee extension positioning • Ankle pumps, quad sets, upper body and uninvolved-limb conditioning • Sciatic neural flossing only if neural tension symptoms present
CRITERIA TO ADVANCE	• 2+ weeks postoperative • Pain controlled • Incision healing without complication

PHASE 2 — PROTECTED MOTION — Weeks 2-6

GOALS	• Gradual ROM restoration within protected ranges • Initiate gluteal and core activation • Progress weight bearing to ~50%
INTERVENTIONS	• ~50% partial weight bearing with crutches • No active hamstring exercises; no resisted hip extension • Gluteal setting in prone and supine (master before any hamstring strengthening) • Low double-leg bridge, side-lying hip abduction, standing calf raises • Scar and soft tissue mobilization once incision is healed
CRITERIA TO ADVANCE	• 6 weeks postoperative • Mastery of gluteal activation without hamstring dominance • No repair-site pain with Phase 2 exercises

PHASE 3 — PROGRESSIVE LOADING & GAIT NORMALIZATION — Weeks 6-12

GOALS	• Full weight bearing with normalized gait • Initiate active hamstring work • Restore functional hip and knee ROM
INTERVENTIONS	• Progress to full weight bearing over ~2 weeks; wean crutches as gait normalizes • Double-leg bridge variations (band, ball squeeze); planks with alternating leg lift • Straight leg raises, light hamstring curls, antigravity hip extension • Stationary bike for conditioning • At 10+ weeks: single-leg bridge progressions, wall slides, clamshells, partial squats, step-ups/step-downs; walking program (no running)
CRITERIA TO ADVANCE	• Normalized gait on all surfaces • Hamstring strength 5/5 prone with knee at 90 deg flexion • Good functional control without antalgic patterns

Guideline only — individualize per intraoperative findings and patient response. Questions: contact Dr. Pettit's office.

PHASE 4 — STRENGTHENING & ECCENTRIC PROGRESSION	Weeks 12-16
GOALS	• Progressive eccentric hamstring loading • Single-leg strength and control • Meet strength criteria for plyometrics and running
INTERVENTIONS	• Gentle hamstring stretching (no aggressive end-range stretch) • Double-leg hamstring ball roll-outs, eccentric-only, progressing to eccentric-concentric • Double- then single-leg Romanian deadlifts, short range progressing to full • Single-leg closed-chain progression; bridge-on-ball progressions • Formal strength testing to gate progression
CRITERIA TO ADVANCE	• For plyometrics: hamstring LSI >70-80%, glute med/quad LSI >80% • For running: hamstring LSI >80-90%, glute med and quad LSI >90% • Single-leg hop cluster >85% • No pain during strength training

PHASE 5 — RETURN TO RUNNING & SPORT	Weeks 16-24+
GOALS	• Walk-to-jog progression, then running, speed, and agility • Unrestricted return to sport
INTERVENTIONS	• Progressive resisted stepping with forward trunk lean; kettlebell swings, reverse lunge sliders • Short-range Nordic hamstring work to physioball height, progressing range toward ground • Walk-to-jog progression; no sprinting or speed work until late phase • 20+ weeks: progressive running, ladder drills, mini-hurdles, sprint progressions 10-40 yards; jump training after ~22 weeks
CRITERIA TO ADVANCE	• Full ROM, no pain or tenderness • Hamstring, gluteal, and quad LSI >95% • Single-leg hop cluster >95% • Controlled acceleration, deceleration, and change of direction • Surgeon 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. Mass General Brigham Sports Medicine. Rehabilitation Protocol for Proximal Hamstring Tendon Repair. https://www.massgeneral.org/assets/MGH/pdf/orthopaedics/sports-medicine/physical-therapy/rehabilitation-protocol-for-proximal-hamstring-tendon.pdf

2. Smith B. Rehabilitation Protocol for Proximal Hamstring Repair (adapted from Mass General Brigham Sports Medicine). https://www.bradleysmithmd.com/pdf/rehab-proximal-hamstring-repair.pdf

3. Harvey MA, Singh H, Obopilwe E, Charette R, Miller S. Proximal Hamstring Repair Strength: A Biomechanical Analysis at 3 Hip Flexion Angles. Orthop J Sports Med. 2015;3(4).

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.