ANDREW L. MERRITT, MD — PROLIANCE ORTHOPEDIC ASSOCIATES

YOUR LATERAL RETINACULAR LENGTHENING RECOVERY
A GUIDE TO PHYSICAL THERAPY

THE ROLE OF PHYSICAL THERAPY IN YOUR RECOVERY

Your surgery released the tight tissue on the outside of your kneecap that was causing it to track incorrectly and produce pain. The most important job in the first few weeks is to keep moving your kneecap — especially pushing it gently toward the inside of your knee. If you do not do this consistently, the released tissue can tighten back up as it heals and the surgery loses its effect. Your therapist will teach you these kneecap mobilization techniques and help you get your quad firing again.

Important: Kneecap mobilization (patellar glides) is your most important exercise in the first three weeks. Do not skip it.

YOUR RECOVERY TIMELINE

PHASE	TIMEFRAME	PT VISITS	WHAT YOU'RE WORKING ON
1	Weeks 1–3	2–3× per week	• Kneecap mobilization — push gently toward the inside of your knee daily • Weight-bearing as tolerated with crutches; wean as quad returns • Quad and VMO (inner quad) activation with electrical stimulation • Range of motion goal: 0–90° by end of Week 3
2	Weeks 3–8	2× per week	• Progressive strengthening — mini squats, step-ups, stationary bike • VMO focus — inner quad is the main dynamic stabilizer of the kneecap • Hip abductor strengthening to reduce lateral kneecap load • Range of motion continues to improve
3	Months 2–4	1× per week + home program	• Functional strengthening — lunges, leg press, balance work • Running and sport-specific activities when strength is symmetric • Most patients reach full activity by 3–4 months • Clearance by Dr. Merritt for return to high-impact sport

Questions about your PT progress? Call our office or bring them to your next appointment. We are always glad to coordinate with your therapist.

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LATERAL RETINACULAR LENGTHENING — PHYSICAL THERAPY PROTOCOL

Patient Name: _____ **Surgeon:** Andrew L. Merritt, MD
Date of Surgery: _____ **PT Start Date:** _____

Overview & General Principles

Lateral retinacular lengthening (LRL) surgically addresses abnormal lateral tightness of the retinaculum that causes lateral patellar overload, excessive lateral tilt and/or shift, and anterior knee pain. The primary rehabilitation goals are to restore patellar mobility — especially the medial glide — before scar formation can recreate lateral tightness, activate the vastus medialis oblique (VMO) and quadriceps to restore medial patellar dynamic stabilization, and progress functional strength in a protected arc. Patellar mobilization beginning in the first post-operative week is a critical priority to prevent lateral retinacular re-tightening as healing tissue matures.

CONCOMITANT PROCEDURE MODIFICATIONS

Concomitant Chondroplasty

- Concomitant chondroplasty does not change the rehabilitation protocol. Standard progression applies.

PHASE 1 — EARLY PROTECTION & PATELLAR MOBILIZATION (Weeks 0–3)

INFORMATION FOR THE PATIENT — What to Expect This Phase

In the first three weeks, your most important job is to begin moving your kneecap — especially pushing it gently toward the inside of your knee. This prevents the tissue that was surgically loosened from tightening back up as it heals. You will also work on activating your quad and thigh muscles with the help of electrical stimulation. Crutches are used early but you should bear weight as tolerated.

Goals:

- Achieve 0–90° ROM by end of Phase 1
- Restore full medial patellar glide excursion (≥2 quadrants) to prevent lateral retinacular re-tightening
- Initiate VMO and quadriceps activation — NMES and BFR as primary tools
- Control post-operative swelling and pain
- Independent ambulation with crutches; begin weaning as quad control returns

Weight-Bearing Status:

Weight bearing as tolerated with crutches. Progress to single crutch or no crutches as quad control improves and swelling decreases — typically 1–2 weeks post-op.

Range of Motion:

Goal: 0–90° by end of Week 3. Prioritize full extension. Flexion limited by pain and swelling initially. Begin gentle passive and active-assisted ROM exercises Day 1 post-op.

Bracing:
No Brace Needed

Exercises:
- PATELLAR MOBILIZATION — PRIORITY EXERCISE: Medial patellar glide (push kneecap toward inside) 2–3 sets of 10 glides, 3× daily. Also perform superior/inferior glides and lateral tilt correction. Begin Day 1–2 post-op. This is the most critical exercise in Phase 1.
- Quad sets (isometric quad contraction) — 3×15, hourly
- NMES (neuromuscular electrical stimulation) to VMO/quad: 20–30 minute sessions, 2× daily per surgeon/PT discretion
- Blood Flow Restriction (BFR) training: low-load quad sets and SLR with BFR cuff to drive VMO hypertrophy while minimizing patellar joint stress
- Straight-leg raises (hip flexion, abduction, extension) in brace
- Ankle pumps and calf stretching
- Active-assisted knee flexion (heel slides) — progress to 90°
- Supine hamstring stretching
- Ice and elevation after exercises — 20 minutes

Progression Milestones:
- 0–90° ROM by end of Week 3
- Medial patellar glide ≥2 quadrants (patellar width)
- SLR without extensor lag
- Ambulating without crutches with acceptable gait pattern
- Swelling controlled — minimal effusion at rest

PHASE 1 PRECAUTIONS
- Do NOT apply lateral patellar retinacular tape or brace — this recreates the lateral tightness that was surgically corrected
- Medial patellar mobilization must begin within the first 2 post-operative days to prevent scar-mediated re-tightening
- Avoid forced knee flexion past 90° in Phase 1 — risk of undue stress on healing tissue
- No resisted knee extension on extension machine during Phase 1
- If patient reports sudden loss of patellar medial mobility, contact surgeon

Rationale: The lateral retinaculum heals with scar tissue capable of recreating the preoperative tightness if not mobilized early and regularly. Early medial glide mobilization is the primary strategy to prevent surgical failure from retinacular re-tightening.

PHASE 2 — PROGRESSIVE MOBILITY & QUAD STRENGTHENING (Weeks 3–8)

INFORMATION FOR THE PATIENT — What to Expect This Phase
You are now working toward full knee range of motion and building real quad strength. Patellar mobilization continues as a daily home exercise — this remains important throughout your entire recovery. You will begin more functional exercises including squats, step training, and cycling. Electrical stimulation and BFR continue to drive quad activation.

Goals:

- Achieve 0–120° ROM by Week 6, progressing toward full ROM by Week 8
- Maintain full medial patellar glide achieved in Phase 1
- Quad strength 60% of contralateral on testing
- Full weight bearing without assistive device
- Normalize gait pattern on level surfaces and stairs

Weight-Bearing Status:

Full weight bearing without assistive device. Wean brace as tolerated.

Range of Motion:

Goal: 0–120° by Week 6; full ROM (0–130°+) by Week 8. Active ROM exercises progressed. Passive overpressure at end-range flexion as tolerated.

Bracing:

Wean hinged brace by Week 4–6 as ROM and quad control permit.

Exercises:

- PATELLAR MOBILIZATION — CONTINUE DAILY: Medial glide 2–3 sets × 10, 2× daily as home program
- Continue BFR training: low-load squats, leg press, SLR with BFR cuff
- Continue NMES as needed for VMO facilitation — wean as voluntary activation improves
- Stationary bike (when 100–110° ROM achieved) — begin at low resistance, 15–20 minutes
- Mini-squats (0–60°) progressing to 0–90° as tolerated
- Step-ups (4 inch, progressing to 8 inch)
- Terminal knee extension with resistance band
- Side-lying hip abduction and clamshells — continue hip strengthening program
- Pool walking or aquatherapy if available
- Hamstring curls, calf raises

Progression Milestones:

- ROM 0–120° by Week 6
- Medial patellar glide maintained ≥2 quadrants
- Step-up (4 inch) without pain
- Stationary bike 20 minutes continuously without pain
- Quad strength ≥60% contralateral

PHASE 2 PRECAUTIONS

- Patellar mobilization must continue as daily home exercise through Phase 2 and beyond
- Avoid resisted terminal knee extension on leg extension machine until cleared by surgeon
- Monitor for patellofemoral pain with new loading activities — regress if >3/10
- No running, jumping, or cutting activities in Phase 2

Rationale: Scar tissue maturation continues through 6–8 weeks. Ongoing medial patellar mobilization is required throughout this period to prevent progressive lateral retinacular tightening. Once scar tissue fully matures (~3 months), mobilization frequency can be reduced.

PHASE 3 — FUNCTIONAL STRENGTHENING (Weeks 8–14)

INFORMATION FOR THE PATIENT — What to Expect This Phase

You are now building strength with more demanding exercises. Squats, lunges, and step-downs will be progressed. The goal is to develop the quad and hip strength needed to support the patella dynamically during real activities. By the end of this phase, most patients are ready to begin low-impact activity and controlled return to sport training.

Goals:

- Achieve full ROM (0–130°+)
- Quad strength ≥80% contralateral
- Single-leg functional movements pain-free (step-down, single-leg squat)
- Independent in home strengthening program without BFR/NMES assistance

Weight-Bearing Status:

Full weight bearing, unrestricted.

Range of Motion:

Full, unrestricted (target 0–130°+).

Exercises:

- Squats 0–90° — progressing load
- Leg press (single-leg progression) — progress resistance
- Step-downs (8 inch) with eccentric quad control
- Reverse lunges and forward lunges — progress range and load
- Hip thrust / single-leg bridge with weight
- Lateral band walks with increased resistance
- Leg extension machine (full arc, light load) — if cleared by surgeon
- Low-impact cardiovascular: elliptical, cycling, swimming
- Patellar self-mobilization maintenance: medial glide 1× daily as home program
- VMO-targeted exercises: TKE with VMO biofeedback, single-leg squat with lateral tap cue

Progression Milestones:

- Full ROM 0–130°+
- Single-leg squat × 15 without pain or dynamic valgus
- Step-down (8 inch) pain-free with symmetric mechanics
- Quad strength ≥80% contralateral on isokinetic or functional testing

PHASE 3 PRECAUTIONS

- Monitor patellofemoral pain with increased loading — it should not exceed 2/10
- Continue patellar self-mobilization medial glide daily through at least 12 weeks post-op
- No running program until quad strength ≥80% and step-down mechanics normalized

Rationale: Progressive loading is important to develop dynamic patellar stabilization. However, excessive patellofemoral joint stress before adequate VMO and hip strength can trigger pain and undermine outcomes.

PHASE 4 — RETURN TO ACTIVITY (Weeks 14–20+)

INFORMATION FOR THE PATIENT — What to Expect This Phase

This is the final phase of your recovery. You will build toward your full activity or sport goals, including running, impact training, and sport-specific movements as appropriate. Clearance for full return is based on meeting strength and functional criteria, not just time.

Goals:

- Return to full sport or recreational activity without pain
- Quad and hip strength symmetric to contralateral side
- Demonstrate proper neuromuscular control during sport-specific movements

Weight-Bearing Status:

Full, unrestricted.

Range of Motion:

Full, unrestricted.

Exercises:

- Sport-specific strengthening and agility progression
- Running program: walk-run intervals on flat surface, progressing distance and speed over 4–6 weeks
- Plyometric progression: bilateral jumping → single-leg landing (if sport-relevant)
- Cutting and deceleration drills (if sport-relevant)
- Continue hip strengthening and VMO maintenance program long-term

Progression Milestones:

- Running 20 minutes continuous without pain
- Hop test ≥90% limb symmetry index
- Sport-specific testing passed per PT assessment
- Surgeon clearance obtained

PHASE 4 PRECAUTIONS

- Long-term hip and quad maintenance program is recommended to prevent recurrence
- Monitor for signs of lateral retinacular re-tightening (return of lateral patellar tilt, pain with medial glide) and address with targeted mobilization

Rationale: Lateral retinacular re-tightening can occur months after surgery if mobilization is discontinued prematurely. A maintenance program protects the surgical result long-term.

RETURN TO ACTIVITY CRITERIA

Criteria for Return:

- Full pain-free ROM (0–130°+)
- Quad strength ≥80% contralateral (isokinetic or functional testing)
- Hip abductor/ER strength symmetric bilaterally
- Single-leg squat × 15 without pain or dynamic valgus

- Hop test ≥90% limb symmetry index (sport-specific patients)
- Running 20 minutes continuous without pain
- Surgeon clearance

Surgeon Notes / Special Instructions: