

PATELLAR DISLOCATION

Nonoperative and Presurgical Physical Therapy Protocol

PATIENT

PHYSICIAN

Andrew L. Merritt, MD

DATE OF REFERRAL

PT START DATE

For the patient

Your kneecap (patella) slipped out of its groove and was put back in place. This program rebuilds the inner thigh muscle (VMO) and hip muscles that hold your kneecap in place. If you are **preparing for surgery**, the same program makes you stronger first, which leads to a faster, better recovery. **Full weight is allowed** as soon as it is comfortable. Wear your kneecap brace or tape whenever you are on your feet for the first 4 to 6 weeks. **If your kneecap slips out again, or you have not reached the goals by weeks 10 to 12**, talk with Dr. Merritt about surgery.

PROTOCOL AT A GLANCE

DIAGNOSIS · GOAL	Kneecap dislocation. Wake up the quad, strengthen the VMO and hips; decide on surgery by weeks 10–12
WEIGHT BEARING	Full weight as tolerated from day 1. Crutches only if you limp; most are off them by weeks 1–2
BRACE	Kneecap stabilizing brace or tape for all walking and exercise for 4–6 weeks; weaned by weeks 4–8
PHYSICAL THERAPY	2 times a week at first, then 1× a week or as needed from week 8
KEY PRECAUTIONS	Nothing that pushes the kneecap outward. No deep squats, pivoting, or cutting early. Don't let the knee cave inward
RETURN TO ACTIVITY	When the strength and stability goals are met, usually by weeks 10–12. Repeat dislocation = see Dr. Merritt

Recovery Timeline

Phase	When	PT visits	Focus
1	Weeks 0–4	2× a week	Full weight with brace or tape; swelling down, motion back, quad and VMO activation, hip strength
2	Weeks 4–12	2× a week; 1× a week or as needed from week 8	Strength and single-leg control, brace wean, jogging and agility; surgery decision by weeks 10–12

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

For the Therapist

Check the surgeon notes first. They override anything else in this protocol. Questions or setbacks: call (425) 656-5060.

Surgeon notes and special instructions

General principles

- **Two groups, one program.** (1) Nonoperative management of patellar dislocation and (2) likely surgical candidates optimizing strength, motion, and function before MPFL reconstruction or tibial tubercle osteotomy. The program is identical. For nonoperative patients, completing it defines return to activity; for presurgical patients, the Phase 1 milestones (typically 4–8 weeks) define readiness for surgery, matching the pre-operative instructions, and improve postoperative outcomes.
- **Full weight bearing throughout.** No restrictions without an osteochondral fracture or surgical repair. Suspected or confirmed osteochondral fracture on imaging: contact Dr. Merritt before weight bearing.
- **Patellar bracing or taping** for all weight-bearing activity for the first 4–6 weeks. A patellar stabilization brace (medial buttress) reduces lateral translation and gives proprioceptive feedback. Wean as VMO control and confidence improve.
- **Quad and VMO activation are the primary early targets.** Arthrogenic muscle inhibition after dislocation is significant and delays all later strengthening. Palpate VMO activation during every exercise from day 1.
- **Adjuncts.** NMES at PT visits only (no home unit), when volitional activation is absent or an extension lag is present. BFR approved for quad and hip strengthening throughout when available, especially early. Cold compression 20 min on, 20 min off.
- **Avoid lateral patellar stress early.** No resisted lateral movements, lateral-force exercises, or lateral glide mobilizations until VMO control is established.
- **Hip abductor and external rotator strengthening is mandatory throughout.** Dynamic knee valgus is the primary mechanism of lateral dislocation; gluteus medius strength is the most modifiable upstream risk factor.
- **Pain and apprehension rules.** Exercise within pain limits. Persistent anterior knee pain with loading: reduce squat depth and step-down range. Apprehension during low-demand activity disqualifies higher-demand movement.
- **Surgical consideration.** Milestones not met by weeks 10–12, or a recurrent dislocation during the program: surgical consultation with Dr. Merritt (criteria at the end).

PHASE

1

Acute Protection and Quad Activation

Weeks 0–4

For the patient: what to expect

In the first four weeks the priority is getting the swelling down, getting your knee's full movement back, and waking up your thigh muscle (quad). **Wear your brace or kneecap tape whenever you are on your feet.** You can put full weight on your leg as soon as it is comfortable. Avoid anything that pushes your kneecap toward the outside: the tissue on the inner side of the kneecap is healing.

WEIGHT BEARING	Full weight bearing as tolerated from day 1. Crutches for comfort only if gait is antalgic; wean as pain and effusion resolve, typically by weeks 1–2. Exception: suspected or confirmed osteochondral fracture on imaging, contact Dr. Merritt before weight bearing
BRACE	Patellar stabilization brace (medial buttress) or lateral J-brace for all walking and exercise, weeks 0–4. Gives medial support and proprioceptive feedback; it does not lock motion. McConnell taping (medial glide technique) is an acceptable alternative or adjunct
MOTION	0–90° by week 2, 0–120° by week 4; full extension

Goals

- Control pain and effusion
- Full extension; motion 0–90° by week 2, 0–120° by week 4
- Volitional quad activation: 20 straight-leg raises in a row without an extension lag
- VMO activation with palpation or biofeedback
- Protect the patella from lateral stress while keeping it mobile

Move on when

- ☐ Effusion trace or absent at rest
- ☐ Full extension equal to the other side; active motion 0–120°
- ☐ 20 straight-leg raises in a row without an extension lag
- ☐ Volitional VMO activation on palpation
- ☐ Pain-free walking without crutches

Exercises

Exercise	How
Quad sets (isometric)	3 × 15, 5-sec hold, 3–4× a day from day 1. NMES at PT if volitional activation is absent or an extension lag is present
BFR quad activation	When available: low-load quad sets with the cuff, 30-15-15-15 rep scheme
Straight-leg raises (supine)	3 × 15, once a quad set is present
VMO isometric adduction	Supine pillow squeezes, 3 × 15; palpate the VMO to confirm activation
Heel slides	Supine, pain-limited, 3 × 15
Short-arc quads	0–30° over a towel roll, 3 × 15; start week 2
Hip abduction (supine) · glute sets	Hip abduction 3 × 15; isometric glute sets 3 × 15
Patellar mobilization	Medial, superior, and inferior glides only, 1–2 min per direction per session. No lateral glides in Phase 1
Cold compression	After each session and as needed for swelling, 20 min on, 20 min off

Precautions

- No lateral patellar glides or lateral-stress exercises. The medial retinaculum and MPFL are acutely injured and early in healing; lateral force on the patella re-tensions these healing structures
- No deep squatting, pivoting, or cutting. The dislocation mechanism is knee valgus plus external tibial rotation, usually under load; these patterns wait until VMO and hip abductor strength is established
- Extension lag beyond week 2: add NMES to the quad at PT visits and increase the frequency of the home quad-set program. An extension lag at week 4 signals significant arthrogenic muscle inhibition and may warrant surgical consultation

Why: A first-time patellar dislocation tears the MPFL in over 90% of cases, with variable medial retinacular injury. The acute soft-tissue injury heals over 6–8 weeks with scar tissue, but the healed structure is biomechanically inferior to the native ligament. Phase 1 protects this healing while aggressively restoring the dynamic stabilizers (quad and VMO) to reduce recurrence risk and restore function.

PHASE

2

Strength, Control, and Return to Activity

Weeks 4–12

For the patient: what to expect

This phase rebuilds strength and teaches your leg to control your kneecap while you move. You will progress to single-leg exercises and then back to sport. Keep your knee lined up over your toes; don't let it cave inward. If your knee keeps giving way, or you feel nervous that it will slip during activities even after doing this program, **that is the signal to talk with Dr. Merritt about surgery.** The goal is the strongest knee possible, whether as a permanent solution or as preparation for surgery.

WEIGHT BEARING	Full, no restrictions
BRACE	Wean the patellar stabilization brace as VMO control and confidence improve, typically weeks 4–8. Keep it for high-demand or sport activity until the strength and proprioception criteria are met. Taping is an acceptable alternative during the wean
RUNNING	Jogging from weeks 8–10 on a flat surface, once single-leg squat mechanics are controlled

Goals

- Full symmetric motion
- VMO and quad strength $\geq 80\%$ LSI
- Hip abductor strength: gluteus medius grade 4+/5 on both sides
- Single-leg squat without valgus or trunk compensation
- Daily activities and sport without apprehension or instability
- Decide nonoperative success or surgical candidacy by weeks 10–12

Move on when

- ☐ Full symmetric motion
- ☐ Single-leg squat to $45^\circ \times 10$ without valgus or trunk deviation
- ☐ Step-down test: smooth eccentric control, no dynamic valgus
- ☐ Quad strength $\geq 80\%$ LSI (dynamometer or clinical estimate)
- ☐ Jogging without apprehension or instability (if relevant to the patient's goals)
- ☐ No instability or apprehension with daily activities

Exercises

Exercise	How
Mini squats	0–30°, 3 × 15 with mirror feedback; progress to 45–60° by weeks 6–8 as tolerated
Step-ups	4-inch step, progress to 6-inch by week 8; 3 × 12–15 with a 10-sec hold at the top
Step-downs	Eccentric, controlled, 6-inch step, 3 × 12–15 per leg; start weeks 6–7 (excellent VMO eccentric load)
Wall sits	0–45°, 3 × 30–45-sec holds
Single-leg squats	0–30°, 3 × 8–10 per leg; start weeks 6–8 with mirror or video; progress depth as mechanics allow
Straight-leg raises	Progressive ankle weight, 3 × 15
Side-lying hip abduction	Progressive resistance, 3 × 15–20
Lateral band walks	3 × 15–20 steps each way; continue throughout
Clamshells	Resistance band, 3 × 15–20
Copenhagen adduction	3 × 15 (VMO and adductor synergy)
Single-leg glute bridges	3 × 12 per leg; start week 5

Single-leg balance	Firm surface, 3 × 30–45 sec per leg; progress to foam by week 8
Jogging	Start weeks 8–10 on a flat surface once single-leg squat mechanics are controlled; progress distance and speed weekly
Lateral hops	Two legs, controlled, 3 × 8 each way; start weeks 9–10
Sport-specific agility	Lateral movement and agility drills from week 8, once single-leg squat mechanics are controlled and there is no apprehension

Precautions

- Recurrent dislocation or subluxation during the program: stop high-demand activity and notify Dr. Merritt promptly. Recurrence during structured rehabilitation is a strong indicator for surgery
- No sport-specific cutting or pivoting until single-leg squat mechanics are controlled and the patient reports no apprehension. Apprehension during low-demand activity disqualifies higher-demand movement
- Persistent anterior knee pain with loading may mean patellofemoral cartilage injury from the dislocation: reduce squat depth and step-down range, and report to Dr. Merritt if it does not improve with load modification
- Valgus collapse on single-leg squat or step-down after week 8, despite consistent hip strengthening, warrants reassessment of surgical candidacy; it may reflect trochlear dysplasia or an elevated TT-TG distance that will not respond fully to conservative care

Why: Nonoperative management of patellar dislocation succeeds in about 50–75% of first-time dislocators with structured rehabilitation. The main predictor of success is restoring dynamic patellar stabilization through VMO and hip abductor strength. Patients with an elevated TT-TG distance (>15–20 mm), high-grade trochlear dysplasia, or recurrent instability are unlikely to achieve durable stability without surgical correction and should be identified by weeks 10–12 for surgical planning.

Return to Activity and Surgical Consideration

Decide by weeks 10–12: back to full activity, or back to Dr. Merritt to discuss surgery.

Return to full activity

Return to full activity when all of the Phase 2 criteria are met, with clearance by Dr. Merritt or the treating therapist for full return to sport.

- Full symmetric motion
- Single-leg squat to 45° × 10 without valgus or trunk deviation
- Step-down test: smooth eccentric control, no dynamic valgus
- Quad strength ≥80% LSI
- Jogging, agility, and lateral movement without apprehension or instability
- No instability or apprehension with daily activities

Refer back to Dr. Merritt for surgical consideration

Refer back if any of the following are present at or after week 10:

- Recurrent dislocation or subluxation during the program
- Failure to reach the single-leg squat milestone despite consistent participation
- Persistent apprehension with sport-level activity
- Known elevated TT-TG distance (>15–20 mm) or high-grade trochlear dysplasia on imaging
- An extension lag still present at week 4 (significant arthrogenic muscle inhibition) may also warrant earlier consultation

Patients already scheduled for surgery (prehab)

Dr. Merritt's pre-operative instructions for MPFL reconstruction, MPFL + TTO, and TTO describe prehab as typically 4–8 weeks after the most recent dislocation, focused on VMO strength, motion, swelling, and normal walking. Use this protocol for that period. For patients already scheduled for surgery, readiness for surgery is defined by the Phase 1 milestones (typically 4–8 weeks); Phase 2 does not need to be completed first.

These findings indicate a structural anatomical risk that conservative management cannot fully address. For patients who go on to surgery, the postoperative protocol (MPFL reconstruction, MPFL + TTO, or TTO) takes over from the day of surgery.