

MCL RECONSTRUCTION OR REPAIR

Physical Therapy Protocol

PATIENT

SURGEON

Andrew L. Merritt, MD

DATE OF SURGERY

PT START DATE

For the patient

The MCL on the inner side of your knee was **reconstructed with a hamstring graft**, and your own ligament was repaired when the tissue allowed. For 6 weeks you use crutches with only a toe-touch, and the brace stays on. **Stiffness is the most common problem after this surgery**, so your therapist works hard on your motion within the brace limits. After 6 weeks you add weight and start real strengthening. **No force that makes the knee buckle inward for 12 weeks.**

PROTOCOL AT A GLANCE

WEIGHT BEARING	Toe-touch for 6 weeks , about 10 to 15 pounds, for balance. Off crutches by 8 to 10 weeks
BRACE	On at all times. Hinge 0–90° to week 4, 110° at week 5, open at week 6. Weaned by 8 to 10 weeks
MOTION GOALS	Full straightening first. Bending 60° by week 2, 90° by week 4, 110° by week 5, 130° by about week 8
PHYSICAL THERAPY	Starts 5 to 7 days after surgery, 2 times a week at first
KEY PRECAUTIONS	No inward (valgus) force for 12 weeks. No hamstring stretching for 6 weeks. Bike: rocking only at first
RUNNING · SPORT	Jogging at 4 to 5 months . Cutting and contact sports no sooner than 6 to 9 months

Recovery Timeline

Phase	When	PT visits	Focus
1	Weeks 0–2	2× a week	Protect the repair, full straightening, quad
2	Weeks 2–6	2× a week	Bending progresses with the brace hinge
3	Weeks 6–12	2× a week	Add weight, off crutches, brace weaned, strength
4	Months 3–9	1× a week + home program	Running, sport training, testing, return to sport

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

- **Graft always, repair when possible.** The MCL is reconstructed with a semitendinosus autograft, combined with primary repair of the native MCL when tissue quality permits. The protocol is more conservative than non-operative MCL care because both the repair and the graft fixation need protection early.
- **Valgus stress avoidance through 12 weeks.** The MCL resists valgus force (the knee buckling inward). Any activity that opens the medial joint space, including valgus-directed loading, lateral leg pressure, or pivoting, stresses the repair and graft.
- **Toe-touch for 6 weeks**, about 10–15 lb, for balance. Weight bearing advances from week 6 regardless of flexion; 130° is a motion goal, not a weight-bearing gate.
- **Motion within the hinge schedule.** Stiffness is the most common complication of MCL reconstruction. Hinge 0–90° through week 4, 0–110° at week 5, unrestricted at week 6. Targets: about 60° at week 2, 90° at week 4, 110° at week 5, 110–120° by week 6, and 130° by about week 8. Extension is always the priority.
- **Stationary bike under a cap:** rocking or partial revolutions within the hinge limit only. Full revolutions from weeks 5–6, once the hinge and motion allow.
- **Patellar mobilization** daily from day 1 prevents infrapatellar contracture during the long bracing period.
- **Semitendinosus harvest site:** no aggressive hamstring stretching for 6 weeks. Harvest-side hamstring weakness is expected and is addressed from Phase 3.
- **NMES** is provided at PT visits if volitional quad activation is poor. No home unit is needed.
- **Cold therapy:** 20 minutes on, 20 minutes off, after exercise and as needed.

Activity timeline

LOW-IMPACT	Cycling and swimming from months 2–3. No breaststroke or whip kick until 12 weeks
JOGGING	Months 4–5, with surgeon clearance
NON-CONTACT SPORT	Months 5–6
CONTACT · CUTTING	Minimum 6–9 months, with criteria met. A functional hinged brace is recommended for contact sport for the first season

PHASE

1

Protection

Weeks 0–2

For the patient: what to expect

Use your crutches with **only a toe-touch**, about 10 to 15 pounds, for balance. Your brace stays on all the time, set to bend from 0° to 90°, and comes off only to shower. Control swelling, keep your kneecap moving, get your knee fully straight, and wake up your quad. This prevents stiffness that is hard to fix later.

WEIGHT BEARING	Toe-touch, about 10–15 lb for balance. 2 crutches at all times
BRACE	Hinged brace unlocked 0–90° at all times, including walking and sleep. Remove only to shower
MOTION	Gentle passive motion, supine with therapist support, no valgus stress. Target 0–60° by the end of week 2. Full extension is maintained and prioritized

Goals

- Strict toe-touch to protect the repair and graft
- Control swelling
- Patellar mobility
- Quad activation: quad sets and SLR
- Full extension maintained

Move on when

- ☐ Swelling decreasing by the end of week 1
- ☐ Passive flexion to 60°
- ☐ Full extension (0°) maintained
- ☐ Quad set with VMO activation
- ☐ Full patellar mobility in all directions

Exercises

Exercise	How
Patellar mobilization	All 4 directions; 2 × 2 min daily from day 1
Quad sets · SLR	Quad sets 3 × 15, every 1–2 hours. SLR with brace locked, 4 planes, 3 × 10
Motion	Passive, supine, therapist-assisted, 0–60°, 3 × 10. Active-assisted heel slides 3 × 15
Hip strengthening	Clamshells, supine abduction; 3 × 15
Ankle pumps	Hourly
NMES	At PT visits, if the quad is inhibited
Ice and elevation	20 min on, 20 min off, after exercise and as needed

Precautions

- Strict toe-touch: axial load with any flexion creates valgus shear at the medial compartment that stresses the MCL repair
- No valgus stress in any direction: no lateral-to-medial pressure on the knee, no cross-leg sitting, no unsupported standing
- No aggressive hamstring stretching: the semitendinosus harvest site needs 6 weeks of protected healing

Why: The primary repair relies on suture fixation for the first 2–4 weeks, and the graft is not yet incorporated into its tunnels. Both are vulnerable to valgus force.

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2

Motion Progression

Weeks 2–6

For the patient: what to expect

You stay on crutches with only a toe-touch until 6 weeks, but your bending should make steady progress. The brace hinge opens step by step: 90° through week 4, 110° at week 5, fully open at week 6. **Work on your motion every day.** On the bike, rock the pedals back and forth until the brace allows a full turn, around weeks 5 to 6.

WEIGHT BEARING	Toe-touch, about 10–15 lb, through week 6. Crutches for all mobility
BRACE	On at all times. Hinge 0–90° through week 4, 0–110° at week 5, open at week 6. Therapist or PA may lock it straight for sleep if extension lags
MOTION	Within the hinge, in a neutral plane, with no valgus stress

Goals

- Flexion 90° by week 4, 110° by week 5, about 110–120° by week 6
- Toe-touch and brace protection continued
- Quad strength and patellar mobility maintained

Move on when

- ☐ Flexion about 110–120° by week 6
- ☐ Full extension (0°) maintained
- ☐ Pain-free bike once full revolutions are allowed
- ☐ SLR without an extension lag
- ☐ Surgeon clearance at the 6-week visit

Exercises

Exercise	How
Motion	Passive, supine, therapist-assisted, 3 × 10; active-assisted heel slides and pulley, 3 × 15
Stationary bike	Rocking within the hinge limit; full revolutions from weeks 5–6. Low resistance, 15–20 min
Quad work	Quad sets and short-arc quads (0–45°), 3 × 15. SLR 4 planes, 3 × 10, light ankle weight by week 4
Patellar · hip	Patellar mobilization 2 × 2 min daily. Hip strengthening with band, 3 × 15
Hamstring stretch	Gentle, passive, from week 6; 3 × 30 sec

Precautions

- Toe-touch strictly through week 6: any weight bearing before then sharply raises valgus load
- No valgus-directed motion work: no lateral-to-medial pressure during passive stretching
- If flexion falls behind, increase passive motion and consider prolonged low-load stretching. Do not accept falling behind at week 6. Extension stays the priority
- No hamstring loading before week 6 (harvest site)

Why: The medial capsular repair, prolonged toe-touch, and bracing create a strongly fibrotic environment. Falling well behind the motion schedule predicts a difficult recovery of motion.

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3

Weight Bearing and Strengthening

Weeks 6–12

For the patient: what to expect

At 6 weeks you start adding weight and work off the crutches over 2 to 4 weeks. The brace is fully open, and most people stop it around 8 to 10 weeks. Bending should reach about 130° around week 8. Your graft-side hamstring will be weaker, so strengthening it matters. **Still no inward force on the knee until 12 weeks.**

WEIGHT BEARING	Advances from week 6: 2 crutches → 1 crutch → none by weeks 8–10. Not tied to reaching 130°
BRACE	Unlocked from week 6; for walking until weeks 8–10, then weaned
MOTION	Flexion 130° by about week 8, then full. Continue the flexibility program

Goals

- Full weight bearing without a device by weeks 8–10
- Normal gait, with no valgus thrust
- Full motion
- Quad and hamstring 70–80% of the other leg by month 3

Move on when

- ☐ Full weight bearing without a crutch
- ☐ Full motion and normal gait
- ☐ Quad and hamstring 70–80% of the other leg

Exercises

Exercise	How
Gait · balance	Heel-to-toe gait, no valgus thrust. Single-leg balance, firm then foam, 3 × 30–45 sec
Squats · leg press	Mini squats 0–60° toward full squats, 3 × 15. Leg press both legs, then single leg, 3 × 12
Step-ups	4–6-inch step, progressing to 8 inches; 3 × 10
Hamstring work	Light curls from weeks 6–8, 3 × 15; Romanian deadlift 3 × 12
Hip abduction · adduction	Side-lying with band, 3 × 15. Adduction: resistance above the knee only until week 12
Stationary bike	Full revolutions, progress resistance; up to 30 min

Precautions

- No valgus-loaded activities through 12 weeks: no lateral lunges, side-step cutting, or contact sport
- Hip adduction resistance above the knee only until 12 weeks (a band at the ankle loads the MCL in valgus)
- No breaststroke or whip kick until 12 weeks
- Valgus thrust in gait means quad and hip weakness; address it before advancing

Why: Graft ligamentization continues through months 4–6. Early valgus loading risks graft elongation and recurrent medial instability.

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4

Advanced Strengthening and Return to Sport

Months 3–9

For the patient: what to expect

You build full strength, start jogging around 4 to 5 months, and then work on sport-type movements. Before you go back to cutting or contact sports, you'll pass strength and hop tests, and Dr. Merritt will clear you. That is usually **6 to 9 months** after surgery. A sports brace is recommended for your first season back in contact sport.

ACTIVITY	Full weight bearing and motion. Low-impact sport from months 4–6
RUNNING	Running program at months 4–5, with surgeon clearance
BRACE	A functional hinged brace is recommended for contact sport for the first season

Goals

- Quad and hamstring strength $\geq 80\%$, then $\geq 90\%$ of the other leg
- Return to low-impact sport by months 4–6
- Running program, then plyometrics and agility
- Limb symmetry testing before return to sport
- Cutting and pivoting at 6–9 months, with clearance

Move on when

- ☐ Quad and hamstring strength $\geq 80\%$ of the other leg
- ☐ Single-leg squat $\times 10$ without valgus collapse
- ☐ Return-to-sport criteria met (next page)
- ☐ Surgeon clearance for return to sport

Exercises

Exercise	How
Phase 3 program	Continue with progressive load
Elliptical	20–30 min, from month 3
Running program	From months 4–5, with surgeon clearance
Plyometrics · agility	Progression from months 5–6
Sport-specific work	Sport-specific strength and agility training

Precautions

- Contact and pivoting sports: minimum 6–9 months, with strength criteria met
- Valgus thrust or medial instability with activity: address before advancing to sport

Why: Graft maturation continues through months 4–6 and beyond. Harvest-side hamstring weakness is a known deficit; confirm its recovery before clearance.

Return to Sport

All criteria must be met before clearance.

Measure	Target
Time from surgery	At least 6 months for cutting and contact sport (typically 6–9 months)
Quadriceps strength	≥90% of the other leg
Hamstring strength	≥90% of the other leg, including recovery of the harvest-side deficit
Hop testing	≥90% limb symmetry index
Clinical exam	No valgus instability
Motion	Full, pain-free
Clearance	Formal clearance from Dr. Merritt

Functional testing

- Quad and hamstring strength compared with the other leg
- Hop testing (limb symmetry index)
- Clinical exam for valgus stability