DR. KAISEN YAO, MD

ORTHOPEDIC SPORTS MEDICINE SURGEON

Post-Operative Physical Therapy Protocol

PCL Reconstruction

Northwell Health • Department of Orthopedic Surgery & Sports Medicine • Dr. Kaisen Yao, MD

Patient Name	Date of Surgery	Prescribing Surgeon
		Dr. Kaisen Yao, MD

General Guidelines & Precautions

- Protecting the graft means preventing posterior tibial sag. Maintain anterior pressure on the proximal tibia whenever the knee is flexed and support the tibia during all passive motion.
- No active hamstring contraction and no active knee extension from 90° to 70° until 4 weeks after surgery, and no pivoting, twisting, or impact until cleared by Dr. Yao.
- Early passive flexion is performed prone; keep hip resistance proximal to the knee.
- Contact the office for fever, calf pain, excessive drainage, uncontrolled pain, or rapidly increasing swelling.

PHASE I
Maximum Protection

TIMEFRAME
WEEKS 0–4

Goals:
Protect the reconstruction and prevent posterior tibial sag, control pain and effusion, maintain full knee extension, and restore quadriceps activation.

Brace & Weight Bearing:
Partial weight bearing with crutches. The hinged brace is locked in full extension at all times during weeks 0–1; from weeks 1–4 it stays locked for ambulation and is removed for therapy, exercise, and sleep.

Range of Motion:
Weeks 0–2: prone passive flexion as tolerated. Weeks 2–4: prone passive range of motion 0–90°, maintaining anterior pressure on the proximal tibia throughout.

Interventions:
Quadriceps and hamstring sets, ankle pumps, straight-leg raises in the brace until the quadriceps prevents an extension lag, hip abduction and adduction, and calf stretching progressing to standing toe raises.

Criteria to Progress:
Prone passive flexion to 90°, full extension, and a straight-leg raise without lag.

PHASE II

Progressive Motion & Strengthening

TIMEFRAME

WEEKS 4–12

Goals:
Advance flexion to 110° by week 6 and toward full by week 12, wean from crutches and brace, and build quadriceps and closed-chain strength while continuing to protect against posterior sag.

Brace & Weight Bearing:
Weight bearing as tolerated with crutches, discontinuing crutch use between 6 and 8 weeks. The hinged brace is unlocked for gait training and exercise during weeks 4–6 and may be converted to a PCL brace thereafter.

Range of Motion:
Maintain full knee extension and work on progressive flexion, with a goal of 110° by week 6.

Interventions (Weeks 4–8):
Gait training, wall slides 0–30°, mini-squats 0–30°, and leg press 0–60°.

Interventions (Weeks 8–12):
Stationary bicycle with the seat higher than normal, stair climber, closed-chain terminal knee extension, leg press 0–90°, and balance and proprioception activities.

Precautions:
Continue to avoid isolated open-chain hamstring strengthening and resisted open-chain knee extension, and keep all lower-extremity resistance proximal to the knee.

Criteria to Progress:
Full painless extension, flexion at or near 110°–120°, a normalized gait pattern without an assistive device, and no effusion with closed-chain loading.

PHASE III

Advanced Strengthening & Running

TIMEFRAME

3–9 MONTHS

Goals:
Full painless range of motion, symmetrical lower-extremity strength, a normalized gait at all speeds, and a graded return to jogging.

Weight Bearing:
Full weight bearing with a normalized gait pattern.

Interventions:
Advance closed-chain strengthening, progress proprioception and balance activities, maintain flexibility, and begin treadmill walking progressing to jogging as strength and mechanics allow.

Precautions:
Open-chain hamstring strengthening is introduced gradually and only once cleared by Dr. Yao. Avoid cutting, pivoting, and plyometric activity during this phase.

Criteria to Progress:
Pain-free jogging with sound mechanics, no effusion after activity, and quadriceps and hamstring strength approaching the uninvolved side.

PHASE IV

Agility, Cutting & Return to Sport

TIMEFRAME

9+ MONTHS

Goals:
Restore power, endurance, and sport-specific function, and return to sport safely.

Interventions:
Initiate a plyometric program, begin cutting exercises and sport-specific drills, and maintain lower-extremity strength, endurance, and conditioning.

Return to Sport/Work:
Return to sport as tolerated, following clearance by Dr. Yao and the treating therapist and ideally based on functional testing, strength symmetry, and quality of movement rather than time from surgery alone.

Discharge Criteria:
Full painless range of motion, no effusion, symmetrical strength and hop testing, and safe mechanics during cutting, pivoting, and landing.

This protocol is a general guideline. Progression should be individualized by the treating physical therapist in coordination with Dr. Yao's office based on the patient's clinical presentation, graft type, and any concomitant ligament or meniscal procedures.