



Lateral, Posterolateral Ligament Reconstruction Rehabilitation Protocol

This rehabilitation protocol was developed for patients who have had lateral collateral ligament (LCL) major graft reconstructions. These patients frequently have a concomitant cruciate ligament reconstruction and significant articular cartilage lesions present. These multiple ligament procedures carry an increased risk of joint contracture postoperatively. In addition, the underlying joint arthrosis may be aggravated by the procedure, producing pain and swelling. Maximum protection is required to prevent graft stretching and failure. The protocol is divided into 7 phases according to postoperative weeks (for instance, Phase I = Postoperative Weeks 1-2). Each phase has several categories including:

- *General observation* of the patient's condition (weight bearing, pain, hemarthrosis, muscle control)
- *Evaluation* of specific variables with *goals* identified for each
- Treatment and exercise program, according to *frequency* and *duration*
- *Rehabilitation goals* which must be achieved to enter into the next phase

The **overall goals** of the reconstruction and rehabilitation are to:

- Control joint pain, swelling, hemarthrosis (minimal or none)
- Regain normal knee flexion and extension
- Regain a normal gait pattern and neuromuscular stability for ambulation
- Regain normal quadriceps, hamstring lower extremity muscle strength
- Regain normal proprioception, balance, and coordination for desired activities
- Achieve optimal functional outcome based on orthopaedic and patient goals

The supervised rehabilitation program is supplemented with a *home self-management program* which the patient performs on a daily basis. The therapist must evaluate the patient thoroughly to implement the enclosed protocol and should see the patient in the clinic for therapeutic procedures and modality treatments which are required for rehabilitation. The majority of this protocol can be accomplished at home provided patient cooperation and follow through are present. The approximate number of rehabilitation visits required for each phase are provided. Additional supervision may be required if a complication develops.

Important postoperative signs to monitor include:

- Swelling of the knee joint or soft tissues
- Abnormal pain response
- Abnormal gait pattern with or without assistive device
- Insufficient flexion or extension
- Weakness (strength/control) of the lower extremity, especially the quads/hamstrings
- Insufficient lower extremity flexibility
- Abnormal lateral joint opening early postoperatively



Week 1:

- Gait training, pain and edema control, and muscle stimulation as needed for quadriceps recruitment.
- Ankle pumps, quad sets, and leg raises into flexion and adduction only.
- Well-leg stationary bike and UBE for cardiovascular. Upper body weight machines and trunk exercises.

Weeks 2-4:

- Passive flexion and extension stretching.
- Prone hip extension exercises performed in full knee extension only after 2 weeks.
- Submaximal quad and gluteal isometrics.
- Standing calf and hip exercises.
- Balance and proprioception exercises.
- Swimming and pool workouts as soon as incisions are well-healed.

Weeks 4-6:

Introduce mild isometric resisted knee extension within range of motion restrictions.

Short range squats/knee bends within range of motion restrictions.

Fit with Bledsoe medial aligner brace at 6-7 weeks to start at 8 weeks postop (when knee immobilizer d/c'd).

Weeks 6-8:

- Gradually increase the depth of knee bends, step exercises, and proprioceptive exercises.
- Introduce hamstring curls against gravity without resistance after 7 weeks. Focus on eccentrics.
- Continue to increase the intensity and resistance of other exercises.
- Passive range of motion should be near normal.

Weeks 8-12:

- Wean off the use of the brace for activities of daily living (12 weeks).
- Begin hamstring flexion exercises against light resistance – increase as tolerated.
- Cautiously add lateral training exercises (i.e., lateral stepping, lateral step ups) (12 weeks).

Weeks 12-16:

- Goals are to increase strength, power, and cardiovascular conditioning.
- Sport-specific exercises and training program.
- Maximal eccentric focused strengthening program.
- Begin light running program as able to demonstrate good strength and mechanics.
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4-6 months:

- Goals are to develop maximal strength, power, and advance to sporting activities.
- Resisted closed-chain rehabilitation through multiple ranges.
- Running program, balance drills, and agility program.
- Initiate plyometrics training as able to demonstrate adequate strength and proper mechanics.

Note: Wear Bledsoe-type brace for ≥ 1 year for heavier activities, especially sports.