Table 5 Posterior Cruciate Ligament Reconstruction With Posterior Lateral Corner Surgery Postoperative Rehabilitation Guideline

Postoperative phase I (postoperative week 0-6)

Goals

- Control postoperative pain and swelling
- Range of motion 0° → 90°
- Prevent quadriceps inhibition
- Improve patella mobility
- Independence in home therapeutic exercise program

Precautions

- Avoid knee hyperextension, varus forces, and tibial external rotation
- Avoid active knee flexion
- Avoid heat application
- Avoid ambulation without brace locked at 0°
- Avoid exceeding ROM and weight-bearing limitations
- Avoid pain with therapeutic exercise and functional activities

Treatment strategies

- Passive extension (pillow under calf)
- Quadriceps reeducation (quad sets with NMES)
- Gait: restricted weight-bearing first 6 weeks with brace locked at 0° with crutches
- NWB week 0 → 4 and TTWB week 4 → 6
- Patella mobilization
- Active-assisted knee extension or passive flexion exercise (ROM 0° → 70°)
- Progress to 90° as tolerated, week 4-6
- SLRs (all planes except S/L Abduction) or progressive resistance, brace locked at 0°
- Multiple-angle quadriceps isometrics (ROM 60° → 20°)
- Proximal (hip) strengthening PREs
- Hamstring or calf flexibility exercises
- Short-crank ergometry
- Cardiovascular exercises (UBE, Airdyne, etc) as tolerated
- Cryotherapy
- Emphasize patient compliance to home therapeutic exercise program and weight-bearing precautions

Criteria for advancement

- ROM 0° → 90°
- Ability to SLR without quadriceps lag
- Continued improvement in patella mobility and proximal strength

Postoperative phase II (week 7-12)

Goals

- ROM 0° → 130°
- Progress weight-bearing to full weight-bearing by end of phase II
- Restore normal gait
- Demonstrate ability to ascend 8″ stairs with good leg control without pain
- Demonstrate ability to descend 4″ stairs with good leg control without pain
- Improve ADL endurance
- Improve lower extremity flexibility
- Protect patellofemoral joint

Precautions

- Continued use of bracing to protect against knee hyperextension, varus forces, and tibial external rotation
- Avoid exceeding ROM limitations in therapeutic exercises
- Avoid resistive knee flexion exercises
- Avoid pain with therapeutic exercise and functional activities
- Monitor activity level (prolonged standing or walking)

Treatment strategies

- D/C crutches when gait is nonantalgic (week 8-10)

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Table 5 (continued)

Brace changed to MD preference (OTS brace, patella sleeve, unloader brace, etc)
Standard ergometry (if knee ROM > 115°)
Leg press or mini squats (ROM 60° → 0° arc)
AAROM exercises
Proprioception training: multiplanar support surfaces
Progress to unilateral support or contralateral exercises (elastic band)
Perturbation training
Forward step-up program
Underwater treadmill system or pool (gait training)
Retrograde treadmill ambulation
Active knee extension—PRE (OKC) 60° → 0° *(monitor patella symptoms)*
NO active (OKC) hamstring exercises
Initiate step-down program when able to ascend an 8″ step up without pain and good control

Criteria for advancement

ROM 0° → 130°
Normal gait pattern
Demonstrate ability to ascend an 8'″ step
Demonstrate ability to descend a 4″ step

Postoperative phase III (week 13-24)

Goals

Restore full range of motion
Demonstrate ability to descend 8″ stairs with good eccentric control without pain
Improve ADL endurance
Improve lower extremity flexibility
Protect patellofemoral joint

Precautions

Avoid descending stairs reciprocally until adequate quadriceps control and lower extremity alignment
Avoid resistive knee flexion exercises
Avoid pain with therapeutic exercise and functional activities
Monitor activity level (prolonged standing or walking)

Treatment strategies

Leg press or squats (ROM 80° → 0° arc)
AAROM exercises
Proprioception training: unilateral balance on multiplanar surfaces
Perturbations
Lunges
Progress forward step down (with eccentric control emphasis)
Single-leg squat progression
Agility exercises (sport cord)
Step machine
Retrograde treadmill running
Forward running progression
Initiation of plyometric exercise progression
Lower extremity PRE and flexibility programs
Active knee extension—PRE (OKC) to (ROM 80° → 0°)
NO resistive (OKC) hamstring exercises

Criteria for advancement

ROM to WNL
Demonstrate ability to descend an 8″ step with good leg control without pain
Functional progression pending functional assessment
Improved flexibility to meet demands of running and sport-specific activities

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Table 5 (continued)

Postoperative phase IV (week 24+)
Goals
Hop test ≥85% limb symmetry
Isokinetic testing ≥85% limb symmetry
Lack of apprehension with sport-specific movements
Quality movement assessment
Maximize strength and flexibility as to meet demands of individual's sport activity
Precautions
Avoid pain with therapeutic exercise and functional activities
Protect patellofemoral joint
Avoid sport activity till adequate strength development and MD clearance
Treatment strategies
Continue lower extremity strengthening, leg press, squat, and OKC extension (full ROM arc)
Lower extremity flexibility program
Advance proprioception training
Advance forward running program
Advance plyometric program (sport specific)
Sport-specific agility activities
Isokinetic training or testing
Functional testing
Quality movement assessment
Knee ligament arthrometer examination at 6 months
Home therapeutic exercise program: evaluation based
Criteria for discharge
Hop test ≥85% limb symmetry
Isokinetic test ≥85% limb symmetry
Lack of apprehension with sport-specific movements
Quality movement assessment
Flexibility to accepted levels for sport performance
Independence with gym program for maintenance and progression of therapeutic exercise program at discharge

AAROM, active assistive range of motion; NMES, neuromuscular electrical stimulation; TTWB, toe-touch weight-bearing; WNL, within normal limits.
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to reduce stress on the lateral reconstruction. At 6 weeks postoperatively, a progressive weight-bearing program is initiated. The postoperative brace is transitioned to a 4-point functional brace, allowing ROM during gait. Bracing is discontinued for ADL at 12 weeks postoperatively. Similar to PCL postoperative guidelines, isolated hamstring exercises are deferred until 6 months postoperatively because of their potential deleterious forces generated on the PCL and the PLC reconstructions. PCL stress radiographs may be used to objectively gauge postoperative progression and to determine any modifications for a patient.[52]

Summary

Rehabilitation following PCL or combined PCL-PLC surgery is a long process. Communication with the surgeon is essential in promoting a successful outcome. Encouraging patients to become active participants in their rehabilitation, that is, being compliant to therapeutic exercises prescribed as well as the activity modifications as they present throughout the rehabilitation course, leads to a rehabilitation experience with fewer complications. Criteria in conjunction with time frames should be considered when progressing a patient throughout the phases of the individual's rehabilitation program. As patients return to their normal ADL and sport activity, volume of activities should be monitored within the first postoperative year.

References

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