

## Sports Rehabilitation & Performance Center Posterior Cruciate Ligament Reconstruction Guidelines© \*

The following PCL reconstruction guidelines were developed by the Sports Rehabilitation and Performance Center staff at Hospital for Special Surgery. Progression is both criteria-based and patient specific. Phases and time frames are designed to give the clinician a general sense of progression. Concomitant procedures such as additional ligament reconstruction, meniscal repair and articular cartilage procedures may alter the guideline.

### Follow physician's modifications as prescribed

#### POST – OPERATIVE PHASE I (WEEKS 0-6)

##### GOALS:

- Control post-operative pain / swelling
- ROM: 0° - 90°
- Improve patella mobility
- Prevent quadriceps inhibition
- Independence in home therapeutic exercise program

##### Emphasize

- Patella mobility
- Full knee extension
- Improving quadriceps contraction
- Controlling pain/effusion

##### PRECAUTIONS:

- Avoid active knee flexion
- Avoid ambulation without brace locked @ 0°
- Avoid heat application
- Avoid exceeding ROM and weightbearing limitations
- Avoid pain with therapeutic exercise and functional activities

##### TREATMENT RECOMMENDATIONS:

- Passive extension (pillow under calf); quadriceps re-education (NMES and /or EMG); Gait: TTWB with brace locked in extension with crutches. Progress to 75% weightbearing at week 2 to 6; patella mobilization; A/AAROM for knee extension, PROM knee flexion; SLR supine, prone (brace locked at 0°); SLR all planes; multi-angle isometrics (ROM 60 – 20°); bilateral leg press (60°- 0°); hip progressive resisted exercises; proprioception training (bilateral weightbearing); short crank bike; cryotherapy for pain and edema
- Emphasize patient compliance to HEP and weight bearing precautions/progression

##### MINIMUM CRITERIA FOR ADVANCEMENT TO NEXT PHASE:

- ROM 0° - 90°
- Ability to bear 75% weight on involved extremity
- Able to SLR without quadriceps lag
- Continued improvement in patella mobility and proximal strength

## Sports Rehabilitation & Performance Center Posterior Cruciate Ligament Reconstruction Guidelines© \*

### POST – OPERATIVE PHASE II (WEEKS 6-12)

#### GOALS:

- ROM 0° - 130°
- Restore normal gait (non-antalgic) without assistive device
- Ascend 8" stairs with good control, without pain
- Descend 6" step with good control, without pain
- Protect patellofemoral joint
- Independence in home therapeutic exercise program

#### Emphasize

- Normalizing knee ROM and patella mobility
- Minimizing knee effusion
- Normal gait pattern

#### PRECAUTIONS:

- Avoid exceeding ROM limitations in therapeutic exercises
- Avoid resistive open chain knee flexion exercises
- Avoid pain with therapeutic exercise & functional activities
- Monitor activity level (prolonged standing/ walking)

#### TREATMENT RECOMMENDATIONS:

- D/C crutches when gait is non-antalgic (week 6-8); Brace changed to MD preference; standard bike (if ROM 115°); leg press/ mini squats (60 – 0° arc); AAROM exercises; proprioceptive training: multiplanar joint surfaces, progress to unilateral support / contralateral exercise (elastic band), perturbation training; forward step up program; step machine; underwater treadmill (incision benign); retrograde treadmill ambulation; active knee extension – PRE (OKC) 60 to 0° (monitor patella symptoms); initiate step down program when appropriate; knee ligament arthrometer exam at 3 months
- Progress/advance patients home exercise program (evaluation based)

#### MINIMUM CRITERIA FOR ADVANCEMENT:

- ROM 0 → 130°
- Normal gait pattern
- Demonstrate ability to ascend 8" step
- Demonstrate ability to descend 6" step
- Functional progression pending knee ligament arthrometer exam and functional assessment

## Sports Rehabilitation & Performance Center Posterior Cruciate Ligament Reconstruction Guidelines© \*

### POST – OPERATIVE PHASE III (WEEKS 12--20)

#### GOALS:

- Restore Full ROM
- Able to ascend and descend 8”stairs with good leg control and no pain
- Improve ADL endurance
- Improve lower extremity flexibility
- Protect patello-femoral joint

#### Emphasize

- Improving quadriceps strength
- Eccentric quadriceps control

#### 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/ walking)

#### TREATMENT RECOMMENDATIONS:

- Progress squat/leg press program (ROM 80 to 0° arc); AAROM exercises; Proprioception training: unilateral balance on multiplanar surfaces, perturbations; lunges; agility exercises (sport cord); step machine; retrograde treadmill running; forward running; LE PRE and flexibility programs; Forward Step Down Test (Neurocom©); Active knee extension – PRE (OKC) to (ROM 80° - 0°); No resistive (OKC) hamstring exercises
- Emphasize patient compliance to both home and gym exercise program

#### MINIMUM CRITERIA FOR ADVANCEMENT:

- ROM to WNL
- Ability to descend 8” stairs with good leg control without pain
- Functional progression pending functional assessment
- Improved flexibility to meet demands of running and sport-specific activities

## Sports Rehabilitation & Performance Center Posterior Cruciate Ligament Reconstruction Guidelines© \*

### POST – OPERATIVE PHASE IV (WEEKS 20-?)

#### GOALS:

- Hop Test  $\geq$  85% limb symmetry
- Isokinetic testing  $\geq$  85% limb symmetry
- Lack of apprehension with sport specific movements
- Maximize strength and flexibility as to meet demands of ADLS and sport activity

#### PRECAUTIONS:

- Avoid pain with therapeutic exercise & functional activities
- Protect patellofemoral joint
- Avoid sport activity till adequate strength development and MD clearance

#### TREATMENT RECOMMENDATIONS:

- Continue lower extremity strengthening, leg press, squat, OKC knee extension 0° to 90° arc; lower extremity flexibility program; advance proprioceptive training; advance forward running program; advance plyometric program (sport-specific); sport specific agility activities; isokinetic training/ testing; functional testing; knee ligament arthrometer exam at 6 months
- Progress evaluation-based home therapeutic exercise program

#### CRITERIA FOR ADVANCEMENT:

- Hop Test  $\geq$  85% limb symmetry
- Isokinetic testing  $\geq$  85% limb symmetry
- Lack of apprehension with sport specific movements
- Independence with gym program for maintenance and progression of therapeutic exercise program at discharge