

PCL Non-Operative Protocol
Acute Grade I or Grade II (stress xray confirmed PCL injury)
Dr. Jeffrey Witty, M.D.

General Rules Regarding Brace Use:

Brace should be left on at all times with the following exceptions:

- While in the shower
 - o During shower, the knee should be kept fully extended by the quadriceps muscle
 - o Can be removed in prone position during exercise

General Precautions:

- No isolated hamstring exercise for 4 months.
- Avoid athletics, running/walking on downhill grades, running down stairs, and other high knee flexion activities, deceleration motions for 6 months.
 - o MD my clear patient for stairs using brace earlier on case by case basis
- Note any other restrictions to knee motion in MD orders
 - o Other restrictions may include avoiding varus/valgus stress on the knee depending on injury pattern.

Modalities:

Ice, compression and other swelling reduction ok to start immediately.

	Weightbearing	Brace	ROM	Exercise
Phase I Week 0 - 6	WBAT with brace using crutches.	On at all times as described above.	Outside brace: 0 - 90 In Ossur Rebound Brace: Full flexion In Hinged Knee Brace: 0 - 90	ROM: Gravity assisted flexion with active extension against gravity. Provide anterior tibial support. Prone passive flexion, gravity extension. Strengthening: Quad isometrics. E stim Straight leg raises. Active Knee Extension
Phase II Week 6 - 8	WBAT with brace using crutches until normal gait pattern, then wean off of crutches.	Brace on as described.	Full flexion in all braces.	Continue Phase I Start wall sits (0 - 45), mini squats (0 - 30) Leg press: (Week 6 - 8: 10 - 45 deg)

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				<p>Balance Training: Weight shifts (forward – backward) Two legged balance board</p> <p>Stationary bike: (Week 6 – 8: 10 – 45)</p>
Phase III Week 8 -12	WBAT	Brace on as described	Full flexion in all braces.	<p>Continue Phase II</p> <p>Continue wall sits (0 – 90), Mini squats (0 – 90)</p> <p>Leg press: 10 - 70</p> <p>Stationary bike: 10 – 70 deg</p>
Phase IV Week 12 - 24	WBAT	Brace discontinued.	Full ROM	<p>Continue Phase III</p> <p>Stationary bike: 0 – full ROM</p> <p>Full motion leg press</p> <p>Multihip machine</p> <p>Balance: Start single leg balance.</p> <p>Stairclimbing machine with progressive resistance</p> <p>Elliptical with progressive resistance</p>
Phase V Week 24 on	WBAT	Brace discontinued	Full ROM	<p>Continue Phase IV. For athletes, isokinetic test at</p>

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				6 months. Start walk to running program (< 20% isokinetic diff) Figure 8 running (< 20% isokinetic diff) Plyometrics (< 20% isokinetic diff) Sport specific drills (< 10 – 15% isokinetic diff) Return to sports dependent on passing functional testing.
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Notes on Grade I Injuries:

- Lower grade isolated injuries may have a truncated rehab duration (sport return approx. 12 weeks, Wilk protocol). See specific MD instructions.
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Varus Precautions:

- No figure 4 positions
- No single leg stance activity/balance exercise x 3 months
- No side to side weight shifts for 3 months
- No hip abduction x 12 weeks
 - o After 12 weeks, provide resistance applied ABOVE knee

Valgus Precautions:

- No single leg stance activity/balance x 3 months
- No side to side weight shifts for 3 months
- No hip adduction exercise for 3 months
 - o After 12 weeks, provide resistance applied ABOVE knee
- Active extension / Passive flexion ROM can be done in the figure 4 position with towel or rope

Adapted from:

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Shelbourne et al Arthroscopy 2005

Patel et al HSSJ 2007

Jacobi et al JBJS Br 2010

VICKS lecture; Vail, Colorado 2015

Noyes Knee Disorders Text 2016