



Kevin B. Freedman, M.D.

Sports Medicine
 825 Old Lancaster Rd, Suite 200
 Bryn Mawr, PA 19010-3470
 Phone: (800) 321-9999
 Fax: (267) 479-1321

MACI (FEMORAL CONDYLE ONLY) REHABILITATION PROTOCOL

	WEIGHT BEARING	BRACE	ROM	THERAPEUTIC EXERCISE
PHASE I 0 - 12 weeks	<p>0-2 weeks: non-weight bearing</p> <p>2-4 weeks: Touchdown weight bearing</p> <p>4-6 weeks: Progress to partial (50%) weight bearing</p> <p>7-12 weeks: progress to full weight bearing</p>	<p>0-2 weeks: locked in full extension (removed for CPM and exercise)</p> <p>2-4 weeks: Gradually open brace 20 ° at a time as quad control is gained - discontinue use of brace when quads can control SLR without an extension lag</p>	<p>0-4 weeks: CPM: use in 2 hour increments for 6 - 8 hours per day at 1 cycle/minute - begin at 0-30 ° increasing 5-10 ° daily per patient comfort - patient should gain at least 90 ° by week 4 and 120-130 ° by week 6</p>	<p>0-2 weeks: Quad sets, SLR, hamstring isometrics - complete exercises in brace if quad control is inadequate</p> <p>2-6 weeks: Begin progressive closed chain exercises*</p> <p>6-10 weeks: Progress bilateral closed chain strengthening, begin opened chain knee strengthening</p> <p>10-12 weeks: Progress closed chain exercises using resistance less than patient's body weight, progress to unilateral closed chain exercises, begin balance activities</p>
PHASE II 12 weeks - 6 months	Full with a normalized gait pattern	None	Full active range of motion	Advance bilateral and unilateral closed chain exercises with emphasis on concentric/eccentric control, continue with biking, stairmaster and treadmill, progress balance activities
PHASE III 6 - 9 months	Full with a normalized gait pattern	None	Full and pain-free	Advance strength training, initiate light plyometrics and jogging - start with 2 minute walk/2 minute jog, emphasize sport-specific training
PHASE IV 9 - 18 months	Full with a normalized gait pattern	None	Full and pain-free	Continue strength training - emphasize single leg loading, begin a progressive running and agility program - high impact activities (basketball, tennis, etc.) may begin at 16 months if pain-free

*Respect chondrocyte graft site with closed chain activities:

If anterior - avoid loading in full extension

If posterior - avoid loading in flexion >45 °

**If pain or swelling occurs with any activities, they must be modified to decrease symptoms