

**MENISCAL ALLOGRAFT TRANSPLANTATION WITH  
AUTOLOGOUS CHONDROCYTE IMPLANTATION  
REHABILITATION PROTOCOL**

	<b>WEIGHT BEARING</b>	<b>BRACE</b>	<b>ROM</b>	<b>THERAPEUTIC EXERCISE</b>
<b>PHASE I 0 - 12 weeks</b>	<p><b>0-4 weeks:</b> non-weight bearing</p> <p><b>4-6 weeks:</b> partial weight bearing - (30 - 40 lbs)</p> <p><b>6-12 weeks:</b> progress to full weight bearing</p>	<p><b>0-2 weeks:</b> locked in full extension (removed for CPM and exercise)</p> <p><b>2-4 weeks:</b> Gradually open brace 20 ° at a time as quad control is gained - discontinue use of brace when quads can control SLR without extension lag.</p>	<p><b>10 days - 4 weeks:</b> CPM - use in 2 hour increments for 6 - 8 hours per day- begin at 0-40 ° and increase by 5-10 ° daily, as tolerated - patient should gain full ROM by 12 weeks</p>	<p><b>0-2 weeks:</b> Quad sets, SLR, hamstring isometrics - complete exercises in brace if quad control is inadequate</p> <p><b>2-6 weeks:</b> Begin progressive closed chain exercises*</p> <p><b>6-10 weeks:</b> Progress bilateral closed chain strengthening, begin opened chain knee strengthening</p> <p><b>10-12 weeks:</b> Progress closed chain exercises using resistance less than patient's body weight, progress to unilateral closed chain exercises, begin balance activities</p>
<b>PHASE II 12 weeks - 6 months</b>	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
<b>PHASE III 6 - 9 months</b>	Full with a normalized gait pattern	None	Full and pain-free	Advance strength training, initiate light plyometrics and jogging - start with a 2 minute walk/2 minute jog, emphasize sport-specific training
<b>PHASE IV 9 - 18 months</b>	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