



ADVANCED ORTHOPAEDIC SPECIALISTS

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AUTOLOGOUS CHONDROCYTE IMPLANTATION WITH HIGH TIBIAL OSTEOTOMY 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: toe-touch weight bearing</p> <p>4-8 Weeks: progress 1/4 body weight per week to use of one crutch</p> <p>8-12 Weeks: progress to full weight bearing</p>	<p>0-2 Weeks: Locked in full extension (remove for CPM/exercise). Sleep in brace.</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. Begin at 0-30° 1 cycle/minute. Progress 0-90° of flexion week 1. Week 2: 0-105° Week 3: 0-115° Week 4: 0-125°+</p>	<p>1-4 Weeks: Quad sets, hamstring isometrics - complete exercises in brace if quad control is inadequate. Avoid prone straight leg raises.</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	Discontinue post-op brace May use unloaded brace	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 months - 9 months	Full with a normalized gait pattern	May use unloaded brace or 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 months - 18 months	Full with a normalized gait pattern	May use unloaded brace or none	Full and pain-free	Continue strength training, emphasize single leg loading, begin a progressive running/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.