

Microfracture or BioCartilage Rehabilitation Protocol

	Weight-bearing	Brace	Range of Motion	Exercises
Phase 1 0-6 weeks	Heel touch only	0-2 weeks: Locked in full extension at all times Off for hygiene and home exercise only Discontinue after 2 weeks	CPM 6 hrs/day; begin 0-40° and advance 5-10° daily as tolerated Gentle passive 0-90°	Calf pumps, patellar mobilization, quadriceps tightening sets and SLR in brace 2-6 weeks: Add side-lying hip and core, advance quadriceps and hamstring sets
Phase 2 6-8 weeks	Advance 25% weekly and progress to full with normalized gait pattern	None	Full	Advance core work with hip, gluteal and core strengthening
Phase 3 8-12 weeks	Full	None	Full	Gait normalization with closed chain activities: wall sits, shuttle, mini-squats, toe raises. Advance core work with hip, gluteal and core strengthening Begin unilateral stance activities and balance training
Phase 4 3-6 months	Full	None	Full	Progress Phase III exercises and functional activities: walking lunges, planks, bridges, Swiss ball, half-Bosu exercises Advance core work with hip, gluteal and core strengthening May advance to bike, elliptical, pool as tolerated.
Phase 5 6-12 months	Full	None	Full	Advance non-impact activity. No running, jumping, pivoting, or sports participation unless cleared by MD (after 8 months)

CPM – continuous passive motion machine; SLR – Straight-leg raise;