

## Bone Substitute Injection (Calcium Phosphate Bone Void Filler) Rehab Protocol

**Description of Procedure:** An injectable bone slurry is inserted into the region of bone marrow edema using fluoroscopy.

**Safety Warning:** Avoid rapid progression of activity to decrease likelihood of creating subsequent bone edema.

**Restrictions:** No running, jumping, squatting, lunges, stairs or inclines for at least two months post-operatively.

	<b>Weight Bearing</b>	<b>Brace</b>	<b>ROM</b>	<b>Therapeutic Exercise</b>
<b>Phase I: 0 to 6 Weeks</b>	Foot flat for balance; 2 crutches until first post-op visit; progress gradually to full-weight bearing as tolerated after first visit	Brace is worn until independent straight leg raise can be performed without extension lag	Full active range of motion	Prone hangs, heel props, quad sets, SLR, hamstring isometrics - complete exercises in brace if quad control is inadequate; core proximal program; normalize gait; FES biofeedback as needed  <i>** Incorporate use of stationary bike (high seat, low resistance) and patellar mobilization exercises after surgical dressing is removed</i>
<b>Phase II: 6 to 12 Weeks</b>	Full weight bearing with normalized gait pattern; no limping	None	Full active range of motion	Progress bilateral closed chain strengthening using resistance less than patient's body weight, progress to unilateral closed chain exercises; continue opened chain knee strengthening
<b>Phase III: 12 Weeks to 9 Months</b>	Full, with a normalized gait pattern	None	Full and pain-free	<b>12 Weeks to 6 Months:</b> Advance bilateral and unilateral closed chain exercises with emphasis on concentric/eccentric control, continue with biking, elliptical, and treadmill, progress balance activities; form exercises for desired sport if no pain or effusion; advance strength training, initiate light jogging - start with 2 minute walk/2 minute jog, emphasize sport-specific training

*Progression back to sport is dependent on case per case basis and determined by Dr. Farr. If pain and swelling occurs patient is expected to stop causative activity and follow-up with our office.*

*Leg extension exercises with resistance are not allowed indefinitely.*