Stem Cell Treatment Speeds Recovery after ACL Tear


Study: A Prospective Randomized Trial of Biologic Augmentation with Mesenchymal Stem Cells in Patients Undergoing Anterior Cruciate Ligament Reconstruction

Key findings: Patients who received augmentation in anterior cruciate ligament (ACL) reconstruction with bone marrow aspirate concentrate (BMAC) containing concentrated stem cells showed accelerated healing and better range of motion at 9 months.

Why it matters: ACL tears are common and devastating injuries among young athletes, and re-injury poses a significant threat to both successful return to play and long-term outcomes. Graft healing during ACL reconstruction is a slow process.

This is the first study to examine BMAC augmentation in ACL reconstruction.

Background: This was a randomized controlled trial examining injection of BMAC into an ACL allograft versus a sham incision with ACL reconstruction. A total of 43 patients were enrolled with no significant differences in gender, age, or time to injury. Bone marrow aspirate was harvested from the anterior-superior iliac crest, concentrated via centrifuge, and injected into the allograft. MRI was performed at 3 and 9 months post-operatively.

MRI findings at 3 months in the BMAC group showed significantly higher signal intensity in the inferior third of the allograft and the BMAC group demonstrated significantly higher patient-reported outcome measures and knee range of motion on physical exam.

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