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Nano Knees

Mizzou researchers are using nanotechnology to improve ACL surgery.

Story by Marcus Wilkins

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As any sports fan can tell you, few injuries dampen a team's fortunes like a star player enduring a torn anterior cruciate ligament (ACL). In 2011 alone, Mizzou lost two of its highest profile athletes — football's Henry Josey and basketball's Laurence Bowers — to the dreaded impairment. Now MU researchers hope nanotechnology will help get patients back in the action quicker.

Sheila Grant, associate professor of biological engineering, and Dr. Richard White, associate professor of clinical orthopaedic surgery, will use Coulter funds to explore how metal nanoparticles speed healing after ACL surgeries. The nano particles,



Mizzou sophomore running back Henry Josey tore his left anterior and medial collateral ligaments (ACL and MCL) and his patellar tendon during the 2011 football season. Photo by Nicholas Benner.

applied to tissue used to reconstruct the ACL, act as microscopic latticework to which growing cells can adhere. “Cells can use the ‘scaffold’ to grab ahold and move forward,” White explains.

Approximately 350,000 ACL surgeries a year in the U.S. involve autografts or allografts (using tissue from the patient’s body or a cadaver, respectively), which comes with a \$6 billion price tag in related care. The nanoparticles increase healing and remodeling, which would be expected to ultimately reduce those health care costs.

“Our hope is that this technology will ultimately improve healing rates, and outcomes,” White says.

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