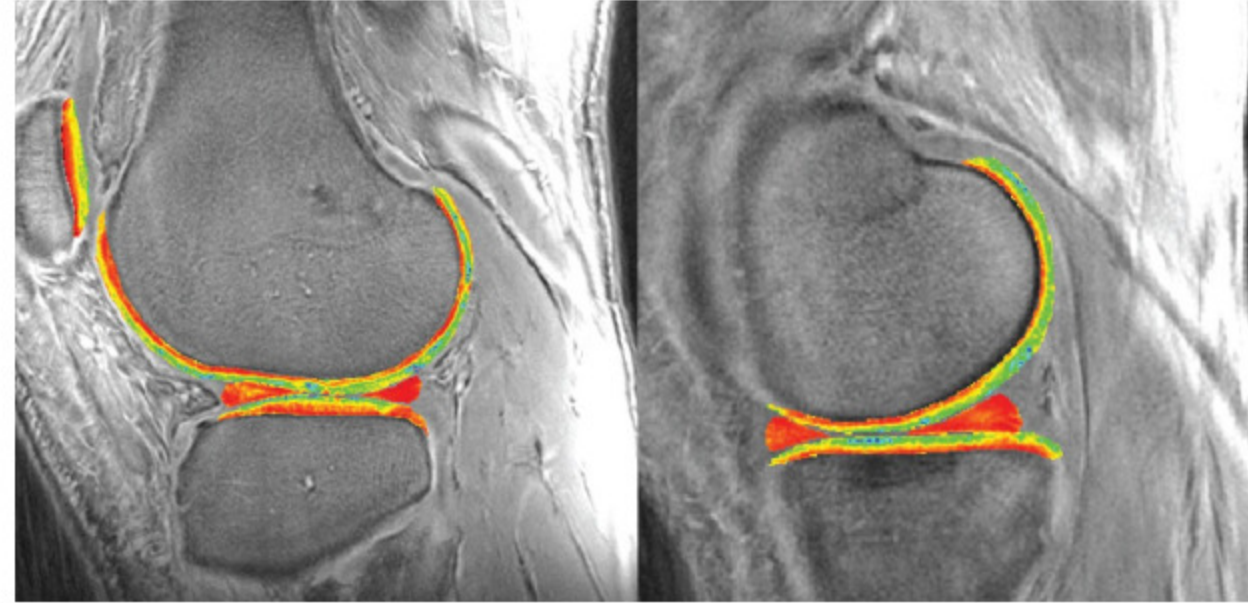


Stanford Health Care Now

Preventing Osteoarthritis With Immediate Treatment of ACL Injuries

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Through award-winning research, Stanford Medicine faculty discovered a way to use a new MRI technique to identify pre-osteoarthritis (OA). Now we are focusing on preventing or delaying the development of OA in patients with joint injuries such as an anterior cruciate ligament (ACL) tear through a substantial Department of Defense medical research grant.

ACUTE ACL trial explores effectiveness of an antifibrinolytic drug

Constance Chu, MD, Stanford Medicine orthopaedic sports medicine surgeon, is leading the ACUTE ACL clinical trial, which studies the effects of FDA-approved tranexamic acid (TXA) on patients with ACL injuries. Dr. Chu postulates that the use of TXA within four days of ACL injury will reduce the bleeding and inflammation that can lead to knee joint damage associated with ACL tears. TXA breaks down blood clots, which helps prevent prolonged bleeding.

If the clinical trial proves TXA is useful in this setting, it will be the first available treatment in the United States to stop OA from progressing into a debilitating chronic condition.

Importance of early diagnosis and treatment to prevent PTOA

Historically, more than half of all young adults who suffer from an ACL injury develop PTOA within 10 years of the injury. Diagnosis of OA often comes only after the onset of symptoms or X-ray changes. But, when OA is diagnosed so late, there is no opportunity to reverse its course. Frequently, a patient's only treatment option is knee replacement which may result in risks and complications

In award-winning work, Dr. Chu developed an innovative MRI color mapping technique that makes it possible to diagnose pre-osteoarthritis invisible to X-rays and standard MRIs. Using this technique, she found that nearly half of patients showed OA signs within just one or two years following ACL injury. The ACUTE ACL trial, funded through a \$10 million Department of Defense research grant, examines whether proactive treatment immediately following an injury can prevent PTOA for patients with ACL damage.

Trial protocol to prevent post-traumatic osteoarthritis

To measure whether TXA prevents PTOA, Dr. Chu is conducting a double-blind, randomized control trial.

Patients will participate in the ACUTE ACL trial through a series of visits, including:

- **Pre-treatment:** Blood will be drawn and knee joint fluids aspirated at the initial visit and again at the five-day follow-up.
- **Treatment:** Study volunteers will receive randomly assigned treatment (TXA or placebo) orally for five days and then intravenously during clinically indicated ACL reconstruction surgery.
- **Post-treatment:** Participants complete questionnaires and then undergo research knee MRIs and X-rays at six weeks, one year and two years following ACL reconstruction surgery.

Patients with ACL injuries—criteria for study inclusion

Dr. Chu's ACUTE ACL clinical trial is currently enrolling patients age 18 – 30 who are within four days of an ACL injury. Patients must have presence of effusion or hemarthrosis.

Patients will be excluded from study consideration for criteria including:

- Inflammatory arthritis, radiographic osteoarthritis (K – L grade or higher), gout/pseudogout
- Systemic or acute illness requiring medications
- Concomitant knee injury aside from meniscus tear and MCL tear not requiring surgery
- Prior surgery to either knee
- Prior injury to either knee requiring crutches or cortisone injection to either knee within the prior three months
- Current use of combination hormonal contraception
- Not indicated for or unable to undergo ACL reconstruction within three months of injury

Referring patients with ACL injuries to Stanford Health Care

To refer a patient, discuss eligibility or learn more about Stanford Medicine orthopaedic research, call the ACL Research Hotline at 650-721-7612. For more information about this clinical trial, "The Effects of Tranexamic Acid on Joint Inflammation and Cartilage Health in Anterior Cruciate Ligament Injured Patients," visit our website stanfordhealthcare.org/acute.

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